

# DC/DC Converters

Isolated

Point-of-Load

Bus Converters

Processor Support

Memory Support

If you need a DC/DC converter  
look no further than...

# The World's No. 1

## About Murata Power Solutions

Murata Power Solutions was established by Murata Manufacturing Corporation in September 2007 with its acquisition of the Power Electronics Division of C&D Technologies, Inc. In addition to C&D's extensive offering of DC/DC and AC/DC products, the acquisition also brought with it a comprehensive offering of products and capabilities from market leading companies previously acquired by C&D, including:

### DATEL, Inc.

- Medium to high power DC/DCs
- Hybrid technologies
- Digital panel meters

### Newport Components Ltd.

- Miniature low power DC/DCs
- Magnetic products

### Power Systems Division of Celestica, Inc.

- AC/DC front end power supplies
- Processor power (VRMs)
- PoL DC/DCs

### Celab Ltd.

- Power conversion products for hi-rel applications

Murata Power Solutions is currently the World's No.1 supplier of DC/DC converters, and one of the top 5 largest suppliers of power electronics overall, with global sales, manufacturing and design teams operating from facilities in the United States, Canada, China, Japan, Singapore, UK, France and Germany.

Strengthened by a global network of the leading electronics distributors, Murata Power Solutions can effectively support your local and global requirements.

- ✓ The largest range of DC/DCs from a single manufacturer
- ✓ A wide variety of industry-standard configurations
- ✓ Modified-standard and custom design service available
- ✓ Global sales and technical support

## DC/DC Converters

- Widest range available
- PoL converters
- Isolated single, dual & triple
- Processor & memory support



## AC/DC Power Supplies

- Ultra compact
- Up to 2.8kW in 1U height
- High efficiency
- 19" power shelves



## Magnetics

- Filtering inductors
- Common-mode chokes
- Current sense transformers
- Databus isolators



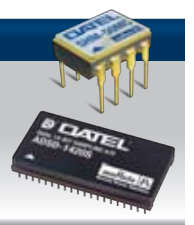
## Digital Panel Meters

- Ammeters
- Voltmeters
- Process Monitors
- LED & LCD displays



## Hybrid Technologies

- Data acquisition systems
- A/D & D/A converters
- Sample-hold amplifiers
- Custom design service



# Supplier

## How to use this databook

This product databook is designed for the quick identification of suitable DC/DC converters for any given application. It's a simple, four-stage process:

**Select** the product category from the contents list on this page or use the edge tabs throughout the book. **1**

**Find** your output voltage from the product data tables. **2**

**Choose** a suitable product series for your application using the information shown. **3**

**Download** full data sheets at [www.murata-ps.com](http://www.murata-ps.com) using the drop-down list at the top of the screen. **4**

If you do not know the output voltage requirement of the end application, you can find products by using the overview pages or by the following methods:

### Select by power/current

At the beginning of some sections, you will find a quick selection guide. These guides list products in ascending order of output power (isolated DC/DCs) or output current (PoLs).

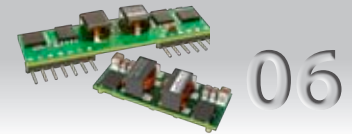
#### Quick selection guides:

- PoLs Page 6
- Isolated single Page 12
- Isolated dual (bipolar) Page 25

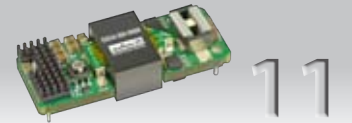
### Find a specific series

An alphabetical series listing is included on page 5. From this listing you will be able to find which product sections and output voltage tables include a particular series.

## PoL Converters



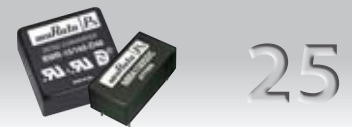
## Bus Converters



## Isolated Single



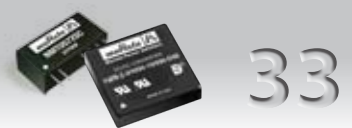
## Isolated Dual/Bipolar



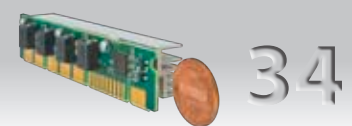
## Isolated Dual/Asymmetric



## Isolated Triple



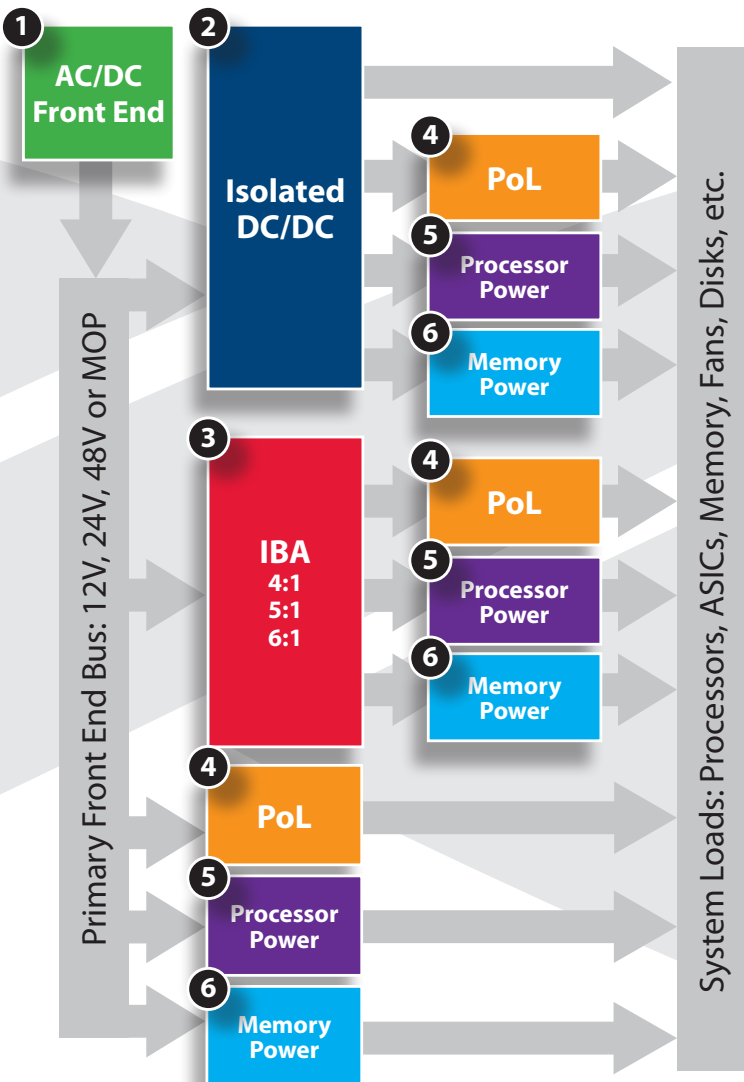
## Processor Power



## Memory Support



# A full range of power solutions . .



No matter which architecture, package style, or performance characteristic is required by your design, you can be sure that Murata Power Solutions has the technology and experience to deliver the power you need ... reliably and efficiently.

**The tables on this page show a small sample of our range. For more standard product options, consult the catalog. Have a unique requirement? Give us a call to discuss a modification or custom design.**

## 1 AC/DC Front End Power Supplies

- Ultra-compact 1U height
- Industry-leading efficiency
- 1200W-2800W output power
- 12V<sub>dc</sub> or 48V<sub>dc</sub> output with 3.3/5/12V<sub>dc</sub> standby
- 19" power shelves available
- Fully featured - I<sub>CP</sub>, PFC, active current share, hot-plug...



## 2 Isolated DC/DC Converters



Description	Type	Series	Output Voltages					
			3.3	5.0	9	12	15	24
Miniature Low Power (<2W) DIP and SIP packages	Single Output	LME	•	•	•	•	•	•
		NKE	•	•	•	•	•	•
		NME	•	•	•	•	•	•
		NMF	•	•	•	•	•	•
		NMJ	•	•	•	•	•	•
	Dual Output	NMR	•	•	•	•	•	•
		NMV	•	•	•	•	•	•
		NTE	•	•	•	•	•	•
		NKA	•	•	•	•	•	•
		NMA	•	•	•	•	•	•
Options include isolation up to 6kVdc	2W SIP	Single	•	•	•	•	•	•
		Dual	•	•	•	•	•	•
	2W DIP/SIP	Single	•	•	•	•	•	•
		Dual	•	•	•	•	•	•
	2W DIP	Dual	NMS	•	•	•	•	•

Package	Series	Input Ranges		Output Voltages			Power Watts
		2:1	4:1	Single	Dual	Triple	
Industrial Package	DIP	• UST, UWR	•	•	•	•	3
		• NDY, NDT5, NDTD	•	•	•	•	3
	SIP	• NDH	•	•	•	•	3
		• UWR, BWR, TWR	•	•	•	•	6-22
	1"x2"	• UEP, DWR, DSM	•	•	•	•	15-30
	1"x2"	• NPH15	•	•	•	•	15
	1.4"x2"	• NPH25	•	•	•	•	25
	1.6"x2"	• UHE	•	•	•	•	30
	2"x2"	• UWR, BWR, TWR	•	•	•	•	14-40
	2"x2"	• BMP, UMP, TMP	•	•	•	•	25-40
Brick-Style	1/8	• UCE, ULE	•	•	•	1.2-48V	30-66
	1/4	• UCQ, ULQ, UVQ, UQQ	•	•	•	1.2-48V, 1.2V, 3.3V, 5V, 8V, 12V, 15V, 24V	100-120
	1/2	• HPH, UCH, UHP, BCP	•	•	•	Single: 1.8V, 3.3V, 5V, 12V, 15V, 28V, 24V Dual: 3.3/5V, 3.3/2.5V	50-360 50-75

## 3 Bus Converters

Series	Vout	Iout	Power	Package
EUS15	12V	15A	180W	Eighth Brick
EUS20	12V	20A	240W	
QBC	12V	22A	240W	Quarter Brick
QUS20	12V	20A	240W	SIP

- 4:1, 5:1 or 6:1 step-down
- 2250V<sub>dc</sub> guaranteed isolation
- 40.5-57V input range
- 94-96% Efficiencies



## 4 Point-of-Load Converters

Iout	Series	User-Selectable Output Voltages												
6-16A	LSM2, LSN2	0.75-3.3V @ 6A, 10A, 16A												
6-20A	LSM2, LSN2, NEA, NFA	0.75-5.0V @ 6A, 10A, 16A, 20A												
		Fixed Output Voltages												
Iout	Series	0.75V	0.8V	1.0V	1.2V	1.25V	1.3V	1.5V	1.8V	2.0V	2.5V	3.3V	3.8V	5.0V
2A	NGA, UNR													
2.5A	UNR													
3A	UNR, UNS													
5A	UNR, NCA													
8A	UNR													
10A	LSM, LSN, NEF, NCF, UNR	•	•	•	•	•	•	•	•	•	•	•	•	•
12A	UNR													
15A	UNR, NCA													
16A	LSM, LSN	•												
20A	UNR													
25A	HEN		•	•	•	•	•	•	•	•	•	•	•	•
28A	LEN		•	•	•	•	•	•	•	•	•	•	•	•
45A	LQN		•	•	•	•	•	•	•	•	•	•	•	•
50A	LQN		•	•	•	•	•	•	•	•	•	•	•	•

## 5 Processor Power

Murata Power Solutions offers a range of processor power modules that support both Intel and AMD devices.

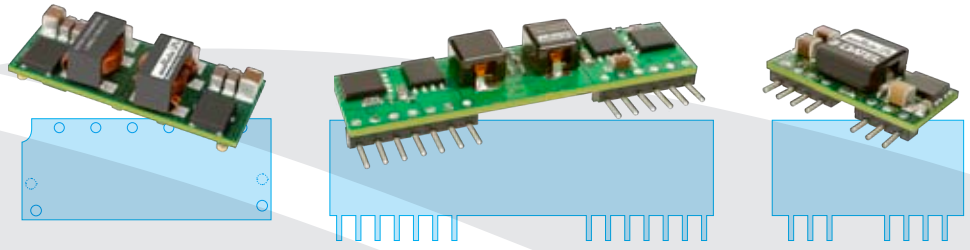
## 6 Memory Power

DDR1, DDR2, DDR3, and DDR termination PoLs are available with current ratings from 9A to 70A.

# .. in a variety of package styles

## DOSA Standard PoLs

Fully compatible with the Distributed-power Open Standards Alliance, our POL DC/DC converters are ideal regulation and supply elements for distributed power and intermediate bus architectures.

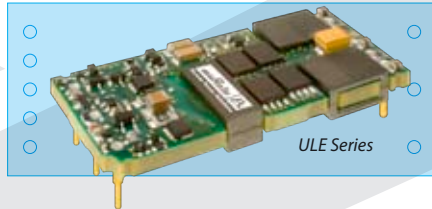


## Standard Bricks

Brick-style DC/DC converters form the basis of most distributed power architectures. Our products offer surface-mount or through-hole package styles with 12V, 24V and 48V inputs and with output voltages from 0.8 to 48V.

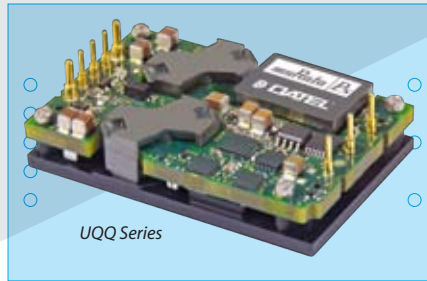
### 1/8 Brick

Series	Power	Vin Nom.	Vout
EUS	180-240W	48V	1.2/2.5/8/9.6/12V
LEN	22.4-125W	12V	0.8/1/1.2/1.5/1.8/2/2.5/3.3/5V
UCE	30-100W	48V	1.2/1.5/1.8/2.5/3.3/5/12V
ULE	30-66.8W	12/24/48V	1.5/1.8/2.5/3.3/5/12/24/48V



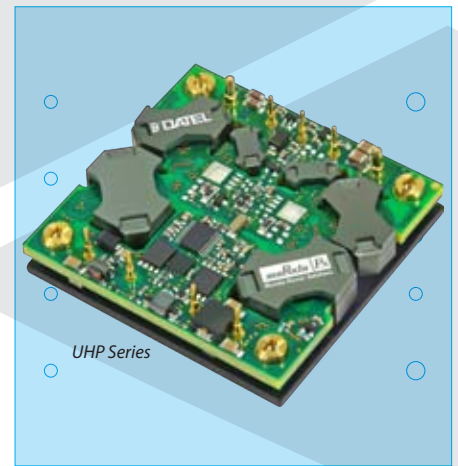
### 1/4 Brick

Series	Power	Vin Nom.	Vout 1
LQN	50-148.5W	12V	1/1.2/1.5/1.8/2/2.5/3.3/5V
QBC	240W	48V	12V
QHS	54-144W	48V	1.2/1.5/1.8/2.5/3.3/12V
QUS	240W	48V	8/9.6/12V
UCQ	36-115W	24/48V	1.2/1.5/1.8/2.5/3.3/5/12V
ULQ	22.5-120W	24/48V	1.2/1.5/1.8/2/2.5/3.3/5/12V
UQQ	82.5-105W	12/24/48V	3.3/5/12/15/24V
UVQ	88-120W	24/48V	1.5/2.5/3.3/5/12/15/18/24/48V



### 1/2 Brick

Series	Power	Vin Nom.	Vout 1	Vout 2	Vout 3
HPH	200-360W	48V	3.3/5/12V		
UCH	33-150W	24/48V	2.5/3.3/5/12/15V		
UHP	340W	48V	12/28V		
VKA	30-150W	24/48V	2/2.5/3.3/5/12/15/24V		
VKP	60-100W	24/48V	3.3/5/5.1V	12/15V	12/15V



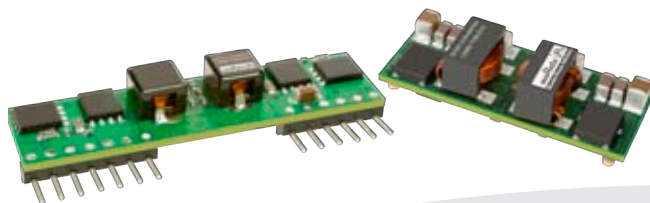
## Industrial Footprint

In addition to our brick converters we also offer a wide range of isolated DC/DC converters in industry-standard footprints and pinouts including DIP, SIP and surface-mount options.



# Point-of-Load

## Non-Isolated DC/DC Converters



Murata Power Solutions is committed to supporting the Intermediate Bus Architecture (IBA) and its many derivative approaches. Consequently, we offer more non-isolated, point-of-load (PoL) DC/DCs, in standard packages and pinouts, than any other company.

Our PoL output voltages range from 0.75

to 5V at current levels from 0.5 to 50A. Input voltages are centered around traditional 3.3, 5 and 12V levels, with some devices operating from 7.5 to 36V. Standard packages include SMT models (6-16A), SIPs (6-16 A), and new 1/8-bricks (28A) and 1/4-bricks (50A).

The newest SMT and SIP models offer user-selectable outputs (0.75-5V) while operating

from wide-range inputs (2.4-5.5V or 8.3-14V). For many applications, they can be genuine "one-size-fits-all" solutions.

And PoLs are not just for IBAs. Many designers find them a quick, cost-effective solution when isolation is not required and in-house designs are too expensive and time consuming.

### Quick Selection Guide Listed by output current

Output Current	Series	Input Voltage			Output Voltage										Package Type				
		3	5	12	0.8	1.0	1.2	1.5	1.8	2	2.5	3.3	5	User Selectable	SIP	DIP	SMD	BRK	
2A	NGA	4.75-28V																	
2-3A	UNR 3.6-10W	4.75-5.5																	
2.5-3A	UNR 8-40W	4.75-5.5																	
5A	UNR 25-50W	10.8-13.6																	
	NCA	3.0-5.5																	
6A	NEA	8.3-14.0																	
	LSN2	2.4-5.5																	
7A	LSM2	2.4-5.5																	
	S101		4.5-5.5																
8A	UNR 8-40W	4.75-5.5																	
	UNR 15-25W	3.0-3.6																	
8 & 10A	UNR 18-33W	4.75-5.5																	
	LSM	3.0-3.6	4.5-5.5	10.8-13.2															
10A	LSM2	2.4-5.5																	
	LSN	3.0-3.6	4.5-5.5	10.8-13.2															
	LSN2	2.4-5.5																	
	LSS	6-14																	
	NCF	3.0-5.0																	
	NEA			8.3-14.0															
	NEF			8.3-14.0															
	NFA			6.0-14.0															
	S111	3.0-3.6	4.5-5.5																
12A	UNR 30-40W	4.75-5.5																	
15A	S151	3.0-3.6	4.5-5.5	10.8-13.2															
	NCA	3.0-5.5																	
15-20A	UNR 30-66W	4.75-5.5																	
16A	LSM	3.0-5.5		10.0-14.0															
	LSM2	2.4-5.5																	
	LSN	3.0-5.5		10-14															
	LSN2	2.4-5.5																	
	NEA			8.3-14.0															
	NFA			6.0-14.0															
20A	S016			10.8-12.6															
	NFA			6.0-14.0															
	S020			10.8-12.6															
22A	LSN2	8.3-14.0																	
25A	HEN	10.2-13.8																	1/8
28A	LEN	10.2-13.8																	1/8
30A	LSM2	6-14																	
	LSN2	6-14																	
50A	LQN	10.2-13.8																	1/4

Output Characteristics			Input Voltage			Efficiency	Package Style						Package Dimensions						Further Information	
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.		Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>
							1/8	1/4					1/2	H	W	D	H	W		

### User-selectable output voltages

0.75-3.3V	5A	16.5W	5V	3V	5.5V	92%							0.24	0.8	0.45	6.1	20.3	11.3	NCA005133xS0C	NCA005
														0.4	0.9	0.22	10.1	22.9	5.6	
	6A	19.8W	5V	2.4V	5.5V	96%							0.3	1.1	0.45	7.6	27.9	11.4	LSM2-T/6-W3-C	LSM2-SERIES
													0.5	1.0	0.28	12.7	25.4	7.0	LSN2-T/6-W3-C	LSN2A
	10A	33W	5V	2.4V	5.5V	96%							0.34	1.3	0.53	8.6	33.0	13.5	LSM2-T/10-W3-C	LSM2-SERIES
						95%							0.5	2.0	0.32	12.7	50.8	8.1	LSN2-T/10-W3-C	LSN2A
	15A	49.5W	5V	3V	5.5V	94%							0.34	1.3	0.53	8.6	33	13.5	NCA015133xS0C	NCA015
													0.5	2.0	0.33	12.7	50.8	8.3	NCA015133xB0C	
	16A	52.8W	5V	3.0V	5.5V	95%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-T/16-W3-C	LSM16A-W3
				2.4V	5.5V	95%									0.34	1.3	0.53	8.64	33.0	13.5
													0.5	2.0	0.32	12.7	50.8	8.1	LSN2-T/16-W3-C	LSN2A

0.75-5V	5A	25W	12V	8.3V	14V	92%							0.24	0.8	0.45	6.1	20.3	11.3	NEA005150xS0C	NEA005		
														0.4	0.9	0.22	10.1	22.9	5.6		NEA005150xB0C	
	6A	30W	12V	8.3V	13.2V	93%							0.3	1.1	0.45	7.6	27.9	11.4	LSM2-T/6-D12-C	LSM2-SERIES		
					14V	93%							0.5	1.0	0.28	12.7	25.4	7.0	LSN2-T/6-D12-C	LSN2A		
	10A	50W	12V	6V	14V	95%							0.35	1.3	0.53	8.8	33	13.5	NFA01015xS0C	NFA010		
																0.51	2.0	0.33	13.0		50.8	8.3
							8.3V	13.2V	96%						0.34	1.3	0.53	8.6	33.0	13.5	LSM2-T/10-D12-C	LSM2-SERIES
									95%							0.5	2.0	0.32	12.7	50.8	8.1	LSN2-T/10-D12-C
								14V	95%						0.34	1.3	0.53	8.6	33	13.5	NEA010150xS0C	NEA010
															0.5	2.0	0.33	12.7	50.8	8.3	NEA010150xB0C	
				10V	14V	93%						0.34	1.3	0.53	8.6	33.0	13.5	LSM-T/10-D12-C	LSM10A-D12			
	16A	80W	12V	6V	14V	94%							0.35	1.3	0.53	8.8	33	13.5	NFA016150xS0C	NFA016		
																0.51	2.0	0.33	13.0		50.8	8.3
							8.3V	13.2V	94%						0.34	1.3	0.53	8.6	33.0	13.5	LSM2-T/16-D12-C	LSM2-SERIES
									94%							0.5	2.0	0.32	12.7	50.8	8.1	LSN2-T/16-D12-C
								14V	94%						0.37	1.3	0.53	9.3	33	13.5	NEA016150xS0C	NEA016
															0.5	2.0	0.33	12.7	50.8	8.3	NEA016150xB0C	
				10V	14V	96%						0.5	2.0	0.36	12.7	50.8	9.1	LSM-T/16-D12-C	LSN16A-D12			
						95%						0.34	1.3	0.53	8.6	33.0	13.5	LSM-T/16-D12-C	LSM16A-D12			
	20A	100W	12V	6V	14V	94%						0.37	1.7	0.53	9.3	43.2	13.5	NFA020150xS0C	NFA020			
												0.51	2.4	0.33	13.0	61	8.3	NFA020150xB0C				

0.75-5.5V	10A	50W	12V	10V	14V	97%							0.55	2.0	0.36	13.97	50.8	9.14	LSN-T/10-D12-C	LSN-T10-D12J
0.8-5V	22A	112W	12V	8.3V	14V	95%							0.5	2.0	0.38	12.7	50.8	9.65	LSN-T/22-D12-C	LSN2-T22-D12
1-3.3V	16A	52W	5V	3.0V	5.5V	95%							0.5	2.0	0.36	12.7	50.8	9.14	LSN-T/16-W3-C	LSN16A-W3

### Fixed output voltages

Output Characteristics			Input Voltage			Efficiency	Package Style						Package Dimensions						Further Information			
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.		Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>		
							1/8	1/4					1/2	H	W	D	H	W			D	
0.75V	16A	12W	5V	3V	5.5V	82%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-0.75/16-W3-C	LSM16A-W3		
					86%											0.5	2.0	0.36	12.7	50.8	9.1	LSN-0.75/16-W3-C
			12V	10V	14V	85%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-0.75/16-D12-C	LSM16A-D12
						82.5%											0.5	2.0	0.36	12.7	50.8	9.1

0.8V	10A	8W	3.3V	3V	3.6V	84%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-0.8/10-D3-C	LSM10A-D3
			5V	4.5V	5.5V	84%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-0.8/10-D5-C	LSM10A-D5
	25A	20W	12V	10.2V	13.8V	85%							0.39	2.30	0.9	9.9	58.4	22.9	HEN-0.8/25-D12-C	HEN-D12
	28A	22.4W	12V	10.2V	13.8V	80%							0.46	2.30	0.9	11.7	58.4	22.9	LEN-0.8/28-D12-C	LEN-D12
	50A	40W	12V	10.2V	13.8V	85%							0.44	2.30	1.35	11.2	58.4	34.3	LQN-0.8/50-D12	LQN-D12

Output Characteristics			Input Voltage			Efficiency	Package Style						Package Dimensions						Further Information					
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.		Bricks						Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>				
							1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W			D			
<b>1V</b>	<b>10A</b>	<b>10W</b>	3.3V	3V	3.6V	86%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-1/10-D3-C	LSM10A-D3		
						86.5%									0.5	2.0	0.36	12.7	50.8	9.1	LSN-1/10-D3-C	LSN10A-D3		
			5V	4.5V	5.5V	85.5%										0.34	1.3	0.53	8.6	33.0	13.5	LSM-1/10-D5-C	LSM10A-D5	
						86%									0.5	2.0	0.36	12.7	50.8	9.1	LSN-1/10-D5-C	LSN10A-D5		
			12V	10.8V	13.2V	85%											0.34	1.3	0.53	8.6	33.0	13.5	LSM-1/10-D12-C	LSM10A-D12
				10V	14V	86%											0.55	2.0	0.36	14.0	50.8	9.1	LSN-1/10-D12-C	LSN10A-D12
	16A	16W	5V	3V	5.5V	86%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-1/16-W3-C	LSM16A-W3		
						85%									0.5	2.0	0.36	12.7	50.8	9.1	LSN-1/16-W3-C	LSN16A-W3		
	25A	25W	12V	10.2V	13.8V	85%									0.39	2.30	0.9	9.9	58.4	22.9	HEN-1/25-D12-C	HEN-D12		
						86%									0.5	2.0	0.36	12.7	50.8	9.1	LSN-1/16-D12-C	LSN16A-D12		
<b>28A</b>	<b>28W</b>	12V	10.2V	13.8V	82.5%									0.46	2.30	0.9	11.7	58.4	22.9	LEN-1/28-D12-C	LEN-D12			
<b>50A</b>	<b>50W</b>	12V	10.2V	13.8V	86%									0.44	2.30	1.35	11.2	58.4	34.3	LQN-1/50-D12-C	LQN-D12			

<b>1.1V</b>	<b>10A</b>	<b>11W</b>	12V	10.8V	13.2V	88%									0.55	2.0	0.36	14.0	50.8	9.1	LSN-1.1/10-D12-C	LSN10A-D12
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<b>1.2V</b>	<b>10A</b>	<b>12W</b>	3.3V	3V	3.6V	88%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.2/10-D3-C	LSM10A-D3		
						87.5%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.2/10-D3-C	LSN10A-D3	
			5V	4.5V	5.5V	88%											0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.2/10-D5-C	LSM10A-D5
						88%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.2/10-D5-C	LSN10A-D5	
			12V	10.8V	13.2V	87%											0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.2/10-D12-C	LSM10A-D12
						88%										0.55	2.0	0.36	14.0	50.8	9.1	LSN-1.2/10-D12-C	LSN10A-D12	
	16A	19.2W	5V	3V	5.5V	88%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.2/16-W3-C	LSM16A-W3		
						87%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.2/16-W3-C	LSN16A-W3	
	25A	30W	12V	10.2V	13.8V	85%									0.39	2.30	0.9	9.9	58.4	22.9	HEN-1.2/25-D12-C	HEN-D12		
						89.5%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.2/16-D12-C	LSN16A-D12	
<b>28A</b>	<b>33.6W</b>	12V	10.2V	13.8V	86.5%									0.46	2.30	0.9	11.7	58.4	22.9	LEN-1.2/28-D12-C	LEN-D12			
<b>50A</b>	<b>60W</b>	12V	10.2V	13.8V	89.5%									0.44	2.30	1.35	11.2	58.4	34.3	LQN-1.2/50-D12-C	LQN-D12			

<b>1.25</b>	<b>10A</b>	<b>12.5W</b>	3.3V	3V	3.6V	88%									0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.25/10-D3-C	LSN10A-D3
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<b>1.30</b>	<b>10A</b>	<b>13W</b>	12V	10.8V	13.2V	88%									0.55	2.0	0.36	14.0	50.8	9.1	LSN-1.3/10-D12-C	LSN10A-D12
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<b>1.5V</b>	<b>10A</b>	<b>15W</b>	3.3V	3V	3.6V	90%									0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.5/10-D3-C	LSM10A-D3		
						90%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.5/10-D3-C	LSN10A-D3	
			5V	4.5V	5.5V	89.5%											0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.5/10-D5-C	LSM10A-D5
						90%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.5/10-D5-C	LSN10A-D5	
			12V	10.8V	13.2V	88.5%											0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.5/10-D12-C	LSM10A-D12
						89%										0.55	2.0	0.36	14.0	50.8	9.1	LSN-1.5/10-D12-C	LSN10A-D12	
	16A	24W	5V	3V	5.5V	89%										0.34	1.3	0.53	8.6	33.0	13.5	NEF010015080C	NCF010	
						89%										0.5	2.0	0.33	12.7	50.8	8.3	LSM-1.5/16-W3-C	LSM16A-W3	
	16A	24W	12V	10V	14V	88.5%										0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.5/10-D12-C	LSM10A-D12	
						89%										0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.5/16-D12-C	LSN16A-D12	
<b>25A</b>	<b>37.5W</b>	12V	10.2V	13.8V	87%									0.39	2.30	0.9	9.9	58.4	22.9	NEF010015150C	NEA-NEF010-SIP			
<b>28A</b>	<b>42W</b>	12V	10.2V	13.8V	88%									0.46	2.30	0.9	11.7	58.4	22.9	NEF0100151B0C	NEA-NEF010-SIP			
<b>50A</b>	<b>75W</b>	12V	10.2V	13.8V	91%									0.44	2.30	1.35	11.2	58.4	34.3	LSM-1.5/16-D12-C	LSM16A-D12			



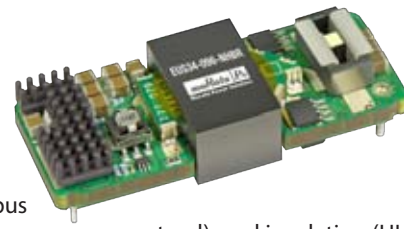
Output Characteristics			Input Voltage			Efficiency	Package Style						Package Dimensions			Further Information				
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.		Bricks						Inches			Part Number <small>Note: Root part numbers may be shown. Please refer to datasheets for available options.</small>	Datasheet <small>Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a></small>			
							1/8	1/4	1/2	SM	TH	DIP	SIP	H	W			D	H	W
1.8V	2A	3.6W	5V	4.8V	5.5V	79%				•	•		0.45	1.00	1.00	11.4	25.4	25.4	UNR-1.8/2-D5-C	UNR3.6-10W
			15V	4.8V	28V	89%				•	•		0.267	0.825	0.846	6.8	21.0	21.5	NGA10S15018DC	NGA
	10A	18W	3.3V	3V	3.6V	91.5				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.8/10-D3-C	
						85.5				•	•		0.39	2.00	1.00	12.5	50.8	25.4	UNR-1.8/10-D3-C	UNR15-25W
			5V	4.5V	5.5V	91%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.8/10-D5-C	LSM10A-D5
						91.5				•	•		0.5	2.0	0.36	12.7	50.8	9.1	LSN-1.8/10-D5-C	LSN10A-D5
	10A	18W	5V	3V	5.5V	91%							0.5	2.0	0.33	12.7	50.8	8.3	NCF010018080C	NCF010
				4.8V	5.5V	86%				•	•		0.48	2.00	1.00	12.2	50.8	25.4	UNR-1.8/10-D5-C	UNR18-33W
	10A	18W	12V	10.8V	13.2V	90%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.8/10-D12-C	LSM10A-D12
				10.8V	13.2V	90.5%				•	•		0.55	2.0	0.36	14.0	50.8	9.1	LSN-1.8/10-D12-C	LSN10A-D12
	10A	18W	12V	8.3V	14V	90%	•						0.34	1.3	0.53	8.6	33.0	13.5	NEF010018150C	NEA-NEF010-SIP
						90%				•	•		.5	2.0	0.33	12.7	50.8	8.3	NEF010018180C	NEA-NEF010-SIP
	16A	28.8W	5V	3V	5.5V	91.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-1.8/16-W3-C	LSM16A-W3
						90%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSN-1.8/16-W3-C	LSN16A-W3
			12V	10V	14V	90.5%				•			0.5	2.0	0.36	12.7	50.8	9.1	LSM-1.8/16-D12-C	LSM16A-D12
						85%				•	•		0.49	2.00	1.00	12.5	50.8	50.8	UNR-1.8/20-D5	UNR30-66W
	20A	36W	5V	4.8V	5.5V	85%	•			•	•		0.39	2.30	0.9	9.9	58.4	22.9	HEN-1.8/25-D12-C	HEN-D12
	25A	45W	12V	10.2V	13.8V	85%	•			•	•		0.46	2.30	0.9	11.7	58.4	22.9	LEN-1.8/28-D12-C	LEN-D12
28A	50.4W	12V	10.2V	13.8V	90%	•			•	•		0.46	2.30	0.9	11.7	58.4	22.9	LEN-1.8/28-D12-C	LEN-D12	
45A	81W	12V	10.2V	13.8V	91%	•			•	•		0.44	2.30	1.35	11.2	58.4	34.3	LQN-1.8/50-D12-C	LQN-D12	

2V	10A	20W	3.3V	3V	3.6V	92.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2/10-D3-C	LSM10A-D3
						92%				•			0.5	2.0	0.36	12.7	50.8	9.1	LSN-2/10-D3-C	LSN10A-D3
			5V	4.5V	5.5V	92%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2/10-D5-C	LSM10A-D5
						92.5%				•	•		0.5	2.0	0.36	12.7	50.8	9.1	LSN-2/10-D5-C	LSN10A-D5
			12V	10.8V	13.2V	91%				•			0.34	1.3	0.53	8.6	33.0	13.5	NCF010020080C	NCF010
						91%				•	•		0.55	2.0	0.36	14.0	50.8	9.1	LSM-2/10-D12-C	LSM10A-D12
	12V	8.3V	14V	91%	•						0.34	1.3	0.53	8.6	33.0	13.5	NEF010020150C	NEA-NEF010-SIP		
				91%				•	•		0.5	2.0	0.33	12.7	50.8	8.3	NEF010020180C	NEA-NEF010-SIP		
	16A	32W	5V	3V	5.5V	92.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2/16-W3-C	LSM16A-W3
						91%				•			0.5	2.0	0.36	12.7	50.8	9.1	LSN-2/16-W3-C	LSN16A-W3
			12V	10V	14V	91%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2/16-D12-C	LSM16A-D12
						85%				•	•		0.5	2.0	0.36	12.7	50.8	9.1	LSN-2/16-D12-C	LSN16A-D12
25A	50W	12V	10.2V	13.8V	85%	•			•	•		0.39	2.30	0.9	9.9	58.4	22.9	HEN-2/25-D12-C	HEN-D12	
28A	56W	12V	10.2V	13.8V	90%	•			•	•		0.46	2.30	0.9	11.7	58.4	22.9	LEN-2/28-D12-C	LEN-D12	
45A	90W	12V	10.2V	13.8V	91%	•			•	•		0.44	2.30	1.35	11.2	58.4	34.3	LQN-2/50-D12-C	LQN-D12	

2.5V	2A	5W	5V	4.8V	5.5V	85%				•	•		0.45	1.00	1.00	11.4	25.4	25.4	UNR-2.5/2-D5-C	UNR 3.6-10W
			15V	4.8V	28V	92%				•	•		0.267	0.825	0.846	6.8	21.0	21.5	NGA10S15025DC	NGA
	10A	25W	3.3V	3V	3.6V	93.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2.5/10-D3-C	
						94%				•	•		0.5	2.0	0.36	12.7	50.8	9.1	LSN-2.5/10-D3-C	LSN10A-D3
			5V	4.5V	5.5V	89%				•	•		0.39	2.00	1.00	12.5	50.8	25.4	UNR-2.5/10-D3-C	UNR15-25W
						93.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2.5/10-D5-C	LSM10A-D5
	10A	25W	5V	3V	5.5V	93%				•	•		0.5	2.0	0.36	12.7	50.8	9.1	LSN-2.5/10-D5-C	LSN10A-D5
				10.8V	13.2V	92.5%				•			0.34	1.3	0.53	8.6	33.0	13.5	LSM-2.5/10-D12-C	LSM10A-D12
	10A	25W	12V	10.8V	13.2V	92.5%				•	•		0.55	2.0	0.36	14.0	50.8	9.1	LSN-2.5/10-D12-C	LSN10A-D12
						92%	•						0.34	1.3	0.53	8.6	33.0	13.5	NEF010025150C	NEA-NEF010-SIP
	15A	38W	5V	4.8V	5.5V	89%				•			0.49	2.00	2.00	12.5	50.8	50.8	NEF010025180C	NEA-NEF010-SIP
						89%				•			0.34	1.3	0.53	8.6	33.0	13.5	UNR-2.5/15-D5	UNR30-66W
16A	40W	5V	3V	5.5V	93.5%				•			0.5	2.0	0.36	12.7	50.8	9.1	LSM-2.5/16-W3-C	LSM16A-W3	
									•			0.5	2.0	0.36	12.7	50.8	9.1	LSN-2.5/16-W3-C	LSN16A-W3	

Output Characteristics			Input Voltage			Efficiency	Package Style						Package Dimensions						Further Information	
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.		Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>
							1/8	1/4					1/2	H	W	D	H	W		
<b>2.5V</b>	<b>16A</b>	<b>40W</b>	12V	10V	14V	92.5%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-2.5/16-D12-C	LSM16A-D12
	<b>20A</b>	<b>50W</b>	5V	4.8V	5.5V	86%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-2.5/16-D12-C	LSN16A-D12
	<b>25A</b>	<b>62.5W</b>	12V	10.2V	13.8V	85%							0.49	2.00	2.00	12.5	50.8	50.8	UNR-2.5/20-D5-C	UNR30-66W
	<b>28A</b>	<b>70W</b>	12V	10.2V	13.8V	91%							0.39	2.30	0.9	9.9	58.4	22.9	HEN-2.5/25-D12-C	HEN-D12
	<b>45A</b>	<b>112.5W</b>	12V	10.2V	13.8V	92.5%							0.46	2.30	0.9	11.7	58.4	22.9	LEN-2.5/28-D12-C	LEN-D12
<b>3.3V</b>	<b>2A</b>	<b>6.6W</b>	15V	4.8V	28V	94%							0.267	0.825	0.846	6.8	21.0	21.5	NGA10S15033DC	NGA
													0.846	0.220	0.825	21.5	5.6	21.0	NGA10S15033SC	
	<b>2.5A</b>	<b>8W</b>	12V	10.8V	13.2V	82%							0.45	2.00	1.00	11.4	50.8	25.4	UNR-3.3/2500-D12	UNR8-40W
	<b>3A</b>	<b>10W</b>	5V	4.8V	5.5V	88%							0.45	1.00	1.00	11.4	25.4	25.4	UNR-3.3/3-D5-C	UNR3-6TO10W
	<b>3A</b>	<b>10W</b>	5V	4.8V	5.5V	85%							0.45	2.00	1.00	11.4	50.8	25.4	UNR-3.3/3000-D5	UNR8-40W
			13.6V	90%									0.31	1.97	0.81	7.8	50.0	20.5	UNS-3.3/3-D5	UNS10-15W
	<b>8A</b>	<b>26W</b>	12V	10.8V	13.6V	89%							0.45	1.00	1.00	11.4	25.4	25.4	UNR-3.3/3-D12-C	UNR3-6TO10W
			5V	4.8V	5.5V	92%							0.48	2.00	1.00	12.2	50.8	25.4	UNR-3.3/8-D5-C	UNR18-33W
	<b>8A</b>	<b>26W</b>	12V	10.8V	13.6V	91%							0.48	2.00	1.00	12.2	50.8	25.4	UNR-3.3/8-D12	UNR18-33W
			5V	4.5V	5.5V	95%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-3.3/10-D5-C	LSM10A-D5
	<b>10A</b>	<b>33W</b>	5V	4.8V	5.5V	91%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-3.3/10-D5-C	LSN10A-D5
				4.8V	5.5V	91%							0.5	2.0	0.33	12.7	50.8	8.3	NCF0100330B0C	NCF010
			12V	10.8V	13.2V	94%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-3.3/10-D12-C	LSM10A-D12
				8.3V	14V	93%							0.55	2.0	0.36	14.0	50.8	9.1	LSN-3.3/10-D12-C	LSN10A-D12
	<b>12A</b>	<b>40W</b>	5V	4.8V	5.5V	90%							0.34	1.3	0.53	8.6	33.0	13.5	NEF010033150C	NEA-NEF010-SIP
				4.8V	5.5V	91%							0.5	2.0	0.33	12.7	50.8	8.3	NEF0100331B0C	NEA-NEF010-SIP
	<b>15A</b>	<b>50W</b>	5V	10.8V	13.6V	89%							0.48	2.00	1.00	12.2	50.8	25.4	UNR-3.3/10-D12-C	UNR18-33W
				8.3V	14V	93%							0.44	2.00	1.00	11.2	50.8	25.4	UNR-3.3/12-D5-C	UNR30-40W
	<b>16A</b>	<b>52.8W</b>	5V	4.8V	5.5V	91%							0.49	2.00	2.00	12.5	50.8	50.8	UNR-3.3/15-D5-C	UNR30-66W
				3V	5.5V	95%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-3.3/16-W3-C	LSM16A-W3
4.5V				5.5V	95%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-3.3/16-W3-C	LSN16A-W3	
12V				10V	14V	94.5%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-3.3/16-D12-C	LSN16A-D12
<b>25A</b>	<b>82.5W</b>	12V	10V	14V	94%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-3.3/16-D12-C	LSM16A-D12	
			10.2V	13.8V	85%							0.39	2.30	0.9	9.9	58.4	22.9	HEN-3.3/25-D12-C	HEN-D12	
<b>28A</b>	<b>92.4W</b>	12V	10.2V	13.8V	93%							0.46	2.30	0.9	11.7	58.4	22.9	LEN-3.3/28-D12-C	LEN-D12	
<b>45A</b>	<b>148.5W</b>	12V	10.2V	13.8V	92.5%							0.44	2.30	1.35	11.2	58.4	34.3	LQN-3.3/45-D12-C	LQN-D12	
<b>3.8V</b>	<b>10A</b>	<b>38W</b>	5V	4.5V	5.5V	95%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-3.8/10-D5-C	LSN10A-D5
			12V	10.8V	13.2V	95%							0.55	2.0	0.36	14.0	50.8	9.1	LSN-3.8/10-D12-C	LSN10A-D12
<b>5V</b>	<b>2A</b>	<b>10W</b>	15V	7V	28V	95%							0.267	0.825	0.846	6.8	21.0	21.5	NGA10S15050DC	NGA
													0.846	0.220	0.825	21.5	5.6	21.0	NGA10S15050SC	
	<b>3A</b>	<b>15W</b>	12V	6V	16.5V	92%							0.31	1.97	0.81	7.8	50.0	20.5	UNS-5/3-D12	UNS10-15W
	<b>5A</b>	<b>25W</b>	12V	10.8V	13.6V	91%							0.48	2.00	1.00	12.2	50.8	25.4	UNR-5/5-D12-C	UNR25-50W
	<b>10A</b>	<b>50W</b>	12V	10.8V	13.2V	96%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-5/10-D12-C	LSM10A-D12
				8.3V	14V	95%							0.55	2.0	0.36	14.0	50.8	9.1	LSN-5/10-D12-C	LSN10A-D12
	<b>10A</b>	<b>50W</b>	12V	8.3V	14V	95%							0.34	1.3	0.53	8.6	33.0	13.5	NEF010050150C	NEA-NEF010-SIP
													0.5	2.0	0.33	12.7	50.8	8.3	NEF0100501B0C	NEA-NEF010-SIP
	<b>16A</b>	<b>80W</b>	12V	10V	14V	96%							0.34	1.3	0.53	8.6	33.0	13.5	LSM-5/16-D12-C	LSM16A-D12
	<b>25A</b>	<b>125W</b>	12V	10.2V	13.8V	85%							0.5	2.0	0.36	12.7	50.8	9.1	LSN-5/16-D12-C	LSN16A-D12
95%												0.39	2.30	0.9	9.9	58.4	22.9	HEN-5/25-D12-C	HEN-D12	
<b>45A</b>	<b>225W</b>	12V	10.2V	13.8V	95%							0.46	2.30	0.9	11.7	58.4	22.9	LEN-5/25-D12-C	LEN-D12	
					95%							0.44	2.30	1.35	11.2	58.4	34.3	LQN-5/45-D12-C	LQN-D12	

# Bus Converters



Realizing the full, high-efficiency, cost-saving potential of an Intermediate Bus Architecture (see below) starts with selecting the best bus converter.

Also known as “DC transformers,” bus converters are unregulated DC/DCs that convert an available backplane voltage (typically 48VDC for telecom/datacom

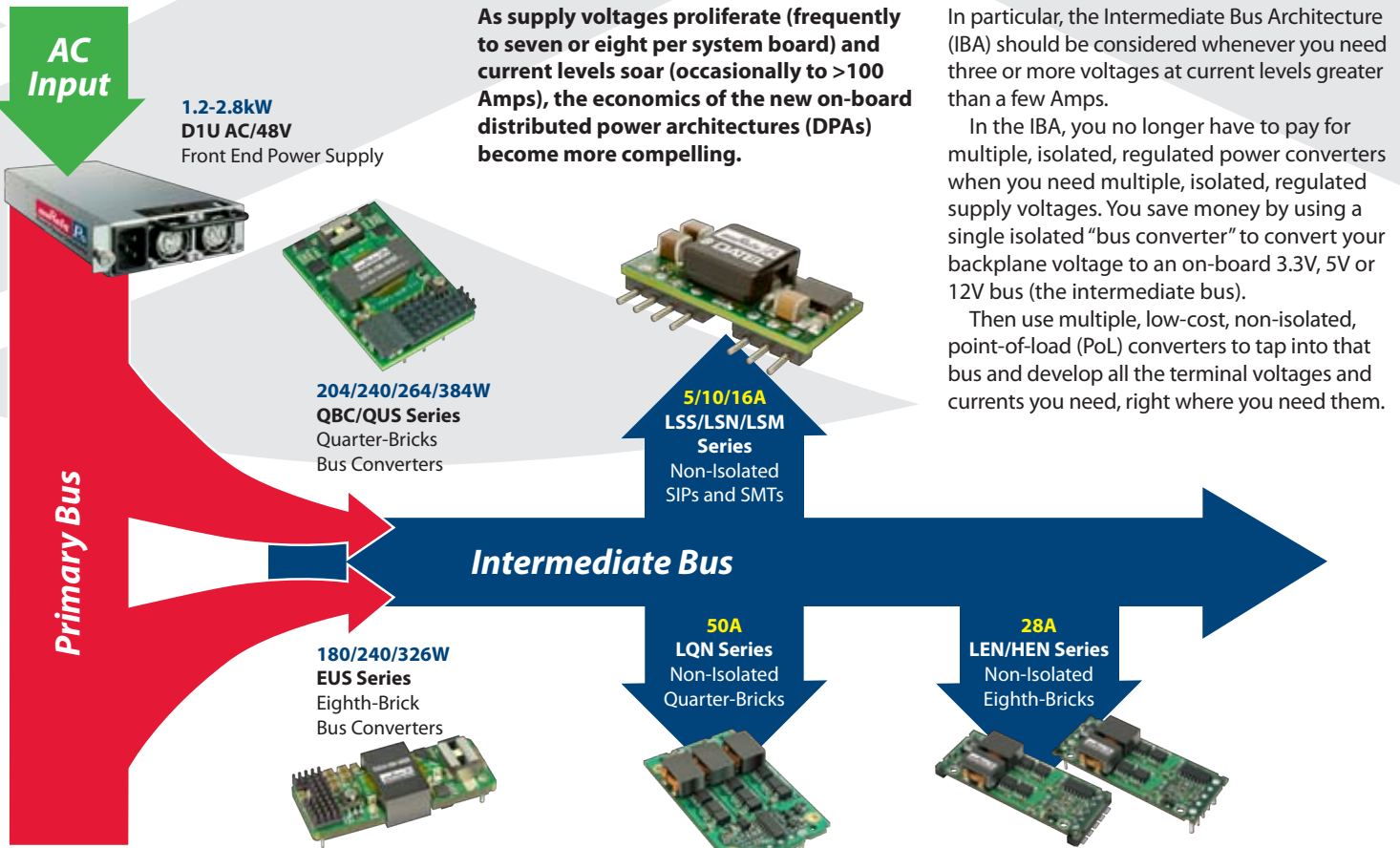
applications) into an effective on-board bus voltage (typically 8-12 Volts). By sacrificing wide input voltage ranges and full line/load regulation, bus converters can lower overall system costs and boost efficiency.

Bus converters available from Murata Power Solutions deliver the critical step-down (4:1, 5:1 or 6:1), isolation (2,250VDC

guaranteed), and insulation (UL/EN60950 BASIC) functions in standard 1/8- and 1/4-brick packages. They operate over the full ETS 300 132-2 input range of 40.5 to 57 Volts (typical usage may be over more narrow 48V ±10% ranges) and boast full-load efficiencies of 94-96%.

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information			
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks							Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>		
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W	D				
8V	30A	240W	48V	36V	55V	2.25kV	94.8%	•									0.48	0.90	2.28	12.2	22.9	57.9	EUS30-080	EUS30-080
	25A	240W	48V	36V	55V	2.25kV	94.2%	•									0.48	0.90	2.28	12.2	22.9	57.9	EUS25-096	EUS25-096
	34A	326W	48V	38V	55V	2.25kV	96%	•									0.48	0.90	2.28	12.2	22.9	57.9	EUS34-096	EUS36-096
9.6V	40A	384W	48V	38V	55V	2.25kV	96.6%	•									0.48	1.45	2.28	12.2	36.8	57.9	QUS40-096	QUS40-096
	15A	180W	48V	36V	55V	2.25kV	96%	•									0.48	0.90	2.28	12.2	22.9	57.9	EUS15-120	EUS15-120
	20A	240W	48V	36V	55V	2.25kV	95.6%	•									1.25	2.50	0.40	31.2	63.5	10.2	QUS20-120	QUS20-120
12V						2.25kV	95.5%	•									0.48	0.90	2.28	12.2	22.9	57.9	EUS20-120	EUS20-120
	22A	264W	48V	40.5	57V	2.25kV	96%	•									0.42	1.45	2.30	12.2	36.8	57.9	QBC-12/22-L48-C	QBC-SERIES

## Intermediate Bus Architecture



[www.murata-ps.com](http://www.murata-ps.com)

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Overview

PoL Converters

Bus Converters

Isolated Single

Isolated Dual/Bipolar

Isolated Dual/Asymmetric

Isolated Triple

Processor Power

Memory Support

# Single Output

## Isolated DC/DC Converters

Power from 0.25 to 340 Watts; currents from 0.02 to 80 Amps; voltages from 1.2 to 48 Volts; inputs from 3 to 75 Volts . . . Murata Power Solutions offers the broadest line of single-output, isolated DC/DC converters in the entire power industry ...without a doubt.

Our low-power encapsulated products (mini SIPs, DIPs and SMDs) are among the smallest available. Many use contemporary ceramic-substrates and copper-lead-frame technologies to achieve their small size.

At the other extreme, our high-power 1/8, 1/4 and 1/2 bricks are open-frame assemblies using multi-layer, heavy-copper pc boards and planar magnetics. Their high efficiencies enable full-power operation to high ambient temperatures, and optional baseplates deliver the best thermal performance in the industry.

If you can't find the DC/DC power solution you need in the tables below, contact us, and we'll develop one for you.



### Quick Selection Guide Listed by output power

	Output Voltages						Series
	3.3V	5V	6V	9V	12V	15V	
<b>&lt;1W</b>							HPR1XXC
							HPR4XXC
							LME
							NMF
<b>1-2W</b>							HB01UYC
							HB01UZXC
							HL01RYC
							HL01RZC
							HPR10XXC
							NKE
							NME
							NMJ
							NMR
							NMV
							NTE
							PWR11XXC
							PWR13XXC
	<b>2-3W</b>						
							LP02U
							NDL
							NML
							UST 3W
<b>3-4W</b>							NDTS
							NDY
							PWR12XXC
							UWR 3W
							WPC03R
<b>5-6W</b>							HB04UC
							NMXSO
							NMXU
							UWR 5W

	Output Voltages											Series		
	1.2V	1.5V	1.8V	2V	2.5V	3.3V	5V	5.2V	9.6V	12V	15V		24V	96V
<b>6-10W</b>														UWR 15W
														UWR 6-10W
														UWR 9.6W
<b>10-15W</b>														NPH10
														UHE 12-30W
														UWR 14-20W
														UWR 15W
<b>15-18W</b>														WPC10R
														NPH15
														NPX20
														UEP 15-30W
<b>18-25W</b>														UWR 14-20W
														UWR 14-20W
														WPN20R
														NPH25
<b>25-35W</b>														UEP 15-30W
														ULE
														ULQ
														UMP 25-40W
<b>35-50W</b>														UWR 26-40W
														UCQ
														ULE
														ULQ
														UMP 25-40W

	Output Voltages											Series			
	1.2V	1.5V	1.8V	2V	2.5V	3.3V	5V	8V	9.6V	12V	15V		18V	24V	48V
<b>50-75W</b>															QHS55-012
															UCQ
															ULE
															ULQ
<b>75-100W</b>															UVQ
															QHS50-015
															QHS50-018
															UCQ
															ULQ
<b>100-120W</b>															UQQ
															UVQ
															UWQ
															VKA100
<b>120-240W</b>															QHS35-033
															QHS40-025
															UVQ
<b>240-300W</b>															EUS15-120
															EUS20-120
															QHS12-120
<b>&gt;300W</b>															ULQ
															EUS25-096
															EUS30-080
															QBC
															UHP
															EUS34-096
															QUS40-096

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information		
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks							Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W	D			
1.2V	6A	7.2W	12V	10V	18V	1.5kV	78%									0.49	2	1	12.5	50.8	25.4	UWR-1.2/6000-D12A-C	UWR15WA-SERIES
			24V	18V	36V	1.5kV	79%									0.49	2	1	12.5	50.8	25.4	UWR-1.2/6000-D24A-C	
	10A	12W	12V	9V	18V	1.5kV	82%									0.4	2	1.6	10.2	50.8	40.6	UHE-1.2/10000-D12-C	UHE12-30W
			24V	18V	36V	1.5kV	83%									0.4	2	1.6	10.2	50.8	40.6	UHE-1.2/10000-D24-C	
	25A	30W	24V	18V	36V	2kV	88%									0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.2/25-D24P-C	ULQ-15A
			48V	36V	75V	2.25kV	87.5%									0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.2/25-D48N-C	
30A	36W	48V	36V	75V	2.25kV	83%									0.4	2.3	1.45	10.2	58.4	36.8	UCQ-1.2/30-D48N-C	UCQ-SERIES	
55A	66W	48V	36V	75V	1.5kV	86.5%									0.47	1.45	2.28	11.8	36.8	57.9	QHS55-012-NHCRC	QHS55-012	
1.5V	6A	9W	12V	10V	18V	1.5kV	79.5%								0.49	2	1	12.5	50.8	25.4	UWR-1.5/6000-D12A-C	UWR15WA-SERIES	
			24V	18V	36V	1.5kV	80%									0.49	2	1	12.5	50.8	25.4		UWR-1.5/6000-D24A-C
	10A	15W	12V	9V	18V	1.5kV	83%								0.4	2	1.6	10.2	50.8	40.6	UHE-1.5/10000-D12-C	UHE12-30W	
			24V	18V	36V	1.5kV	86%									0.4	2	1.6	10.2	50.8	40.6		UHE-1.5/10000-D24-C
	20A	30W	48V	36V	75V	2.25kV	87%								0.37	2.3	0.9	9.4	58.4	22.9	UCE-1.5/20-D48N-C	UCE-SERIES	
			24V	18V	36V	2kV	88%									0.41	2.3	0.9	10.4	58.4	22.9	ULE-1.5/20-D24P-C	ULE20A
	25A	37.5W	48V	36V	75V	2.25kV	84.5%								0.41	2.3	0.9	10.4	58.4	22.9	ULE-1.5/20-D48N-C	ULE20A	
			24V	18V	36V	2kV	87.5%									0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.5/25-D24P-C	ULQ-15A
	25A	37.5W	48V	36V	75V	2.25kV	83%								0.4	2.3	1.45	10.2	58.4	36.8	UCQ-1.5/25-D48N-C	UCQ-SERIES	
			48V	36V	75V	2.25kV	87%									0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.5/25-D48N-C	ULQ-15A
	40A	60W	48V	36V	75V	2.25kV	86%								0.4	2.3	1.45	10.2	58.4	36.8	UCQ-1.5/40-D48N-C	UCQ-SERIES	
			24V	18V	36V	2kV	88%									0.42	2.3	1.45	10.7	58.4	36.8	UVQ-1.5/40-D24P-C	UVQ-SERIES
50A	75W	48V	36V	75V	1.5kV	86%								0.47	1.45	2.28	11.8	36.8	57.9	QHS50-015-NHCRC	QHS50-015		
1.8V	6A	10.8W	12V	10V	18V	1.5kV	83%								0.49	2	1	12.5	50.8	25.4	UWR-1.8/6000-D12A-C	UWR15WA-SERIES	
							76%								0.36	1	2	9.3	25.7	51.2	NPX20S24018DC	NPX20	
							76%								0.33	1	2	8.5	25.7	51.2	NPX20S24018MC		
			84.5%								0.33	1.17	1.92	8.5	29.6	48.6	NPX20S24018PMC	NPX20					
			78%								0.49	2	1	12.5	50.8	25.4	UWR-1.8/6000-D24A-C		UWR15WA-SERIES				
			78%								0.36	1	2	9.25	25.7	51.2	NPX20S48018DC	NPX20					
	85%								0.33	1	2	8.5	25.7	51.2	NPX20S48018MC								
	10A	18W	12V	9V	18V	1.5kV	85.5%								0.4	2	1.6	10.2	50.8	40.6	UHE-1.8/10000-D12-C	UHE12-30W	
			24V	18V	36V	1.5kV	87%									0.4	2	1.6	10.2	50.8	40.6		UHE-1.8/10000-D24-C
			48V	36V	75V	1.5kV	85%									0.4	2	1.6	10.2	50.8	40.6		UHE-1.8/10000-D48-C
	20A	36W	24V	18V	36V	2kV	86%								0.41	2.3	0.9	10.4	58.4	22.9	ULE-1.8/20-D24P-C	ULE20A	
			48V	36V	75V	2.25kV	86.5%									0.41	2.3	0.9	10.4	58.4	22.9	ULE-1.8/20-D48N-C	ULE20A
	25A	45W	24V	18V	36V	2kV	87.5%								0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.8/25-D24P-C	ULQ-15A	
			48V	36V	75V	2.25kV	87.5%									0.38	2.3	1.45	9.5	58.4	36.8	ULQ-1.8/25-D48N-C	ULQ-15A
30A	54W	48V	36V	75V	2.25kV	88%								0.37	2.3	0.9	9.4	58.4	22.9	UCE-1.8/30-D48N-C	UCE-SERIES		
		48V	36V	75V	2.25kV	86%									0.4	2.3	1.45	10.2	58.4	36.8	UCQ-1.8/30-D48N-C	UCQ-SERIES	
50A	90W	48V	36V	75V	1.5kV	88%								0.47	1.45	2.28	11.8	36.8	57.9	QHS50-018-NHCRC	QHS50-018		
2V	25A	50W	24V	18V	36V	2kV	88%								0.38	2.3	1.45	9.5	58.4	36.8	ULQ-2/25-D24P-C	ULQ-15A	
			48V	36V	75V	2.25kV	88%									0.38	2.3	1.45	9.5	58.4	36.8		ULQ-2/25-D48N-C
2.5V	6A	15W	12V	10V	18V	1.5kV	86%								0.49	2	1	12.5	50.8	25.4	UWR-2.5/6000-D12A-C	UWR15WA-SERIES	
							80%								0.36	1	2	9.3	25.7	51.2	NPX20S24025DC	NPX20	
							80%								0.33	1	2	8.5	25.7	51.2	NPX20S24025MC		
			85%								0.33	1.165	1.915	8.5	29.6	48.6	NPX20S24025PMC	NPX20					
			85%								0.49	2	1	12.5	50.8	25.4	UWR-2.5/6000-D24A-C		UWR15WA-SERIES				
			81%								0.36	1	2	9.3	25.7	51.2	NPX20S48025DC	NPX20					
	81%								0.33	1	2	8.5	25.7	51.2	NPX20S48025MC								
	86%								0.33	1.165	1.915	8.5	29.6	48.6	NPX20S48025PMC	NPX20							
86%								0.49	2	1	12.5	50.8	25.4	UWR-2.5/6000-D48A-C	UWR15WA-SERIES								
10A	25W	12V	9V	18V	1.5kV	87%								0.4	2	1.6	10.2	50.8	40.6	UHE-2.5/10000-D12-C	UHE12-30W		
		24V	18V	36V	1.5kV	88%									0.4	2	1.6	10.2	50.8	40.6	UHE-2.5/10000-D24-C	UHE12-30W	

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information	
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
								1/8	1/4					1/2	H	W	D	H	W			D
<b>2.5V</b>	<b>10A</b>	<b>25W</b>	48V	36V	75V	1.5kV	88%						0.4	2	1.6	10.2	50.8	40.6	UHE-2.5/10000-D48-C	UHE12-30W		
	<b>15A</b>	<b>37.5W</b>	48V	36V	75V	2.25kV	89.5%						0.38	2.3	1.45	9.5	58.4	36.8	ULQ-2.5/15-D48N-C	ULQ-15A		
	<b>20A</b>	<b>50W</b>	24V	18V	36V	2kV	88.5%							0.41	2.3	0.9	10.4	58.4	22.9	ULE-2.5/20-D24P-C	ULE20A	
			48V	36V	75V	2.25kV	88%							0.41	2.3	0.9	10.4	58.4	22.9	ULE-2.5/20-D48N-C	ULE20A	
							88.5%								0.38	2.3	1.45	9.5	58.4	36.8	ULQ-2.5/20-D24P-C	ULQ-15A
							88.5%								0.38	2.3	1.45	9.5	58.4	36.8	ULQ-2.5/20-D48N-C	ULQ-15A
	<b>30A</b>	<b>75W</b>	48V	36V	75V	2.25kV	87%							0.4	2.3	1.45	10.2	58.4	36.8	UCQ-2.5/30-D48N-C	UCQ-SERIES	
	<b>35A</b>	<b>87.5W</b>	24V	18V	36V	2kV	88%							0.42	2.3	1.45	10.7	58.4	36.8	UVQ-2.5/35-D24P-C	UVQ-SERIES	
			24V	18V	36V	2.25kV	84%							0.4	2.3	1.45	10.2	58.4	36.8	UCQ-2.5/40-D24P-C	UCQ-SERIES	
			48V	36V	75V	1.5kV	88.5%							0.47	1.45	2.28	11.8	36.8	57.9	QHS40-025-NHCRC	QHS40-025	
	<b>40A</b>	<b>100W</b>				2.25kV	91%							0.42	2.3	1.45	10.7	58.4	36.8	UVQ-2.5/40-D48N-C	UVQ-SERIES	

<b>3.3V</b>	<b>0.3A</b>	<b>1W</b>	3.3V	2.97V	3.63V	3kV	75%							0.21	0.39	0.45	5.4	9.8	11.5	NKE0303DC	NKE					
						1kV	73%						0.29	0.24	0.45	7.5	6	11.5	NKE0303SC							
						5.2kV	66%						0.26	0.30	0.5	6.6	7.7	12.7	NTE0303MC	NTE						
			3kV	75%						0.49	0.39	0.77	12.5	9.8	19.5	NMJ0303SAC	NMJ									
			5V	4.5V	5.5V	3kV	75%								0.21	0.39	0.45	5.4	9.8	11.5		NKE0503DC	NKE			
			5.2kV			64%						0.29	0.24	0.45	7.5	6	11.5	NKE0503SC								
	1kV	74%								0.49	0.39	0.77	12.5	9.8	19.5	NMJ0503SAC	NMJ									
	<b>0.9A</b>	<b>3W</b>	5V	4.5V	9V	1kV	63%							0.28	0.58	1.27	7	14.7	32.3	NDTS0503C	NDTS					
						12V	9V	18V	1kV	71%								0.28	0.58	1.27		7	14.7	32.3	NDTS1203C	
						24V	18V	36V	1kV	71%								0.28	0.58	1.27		7	14.7	32.3	NDTS2403C	
										70%								0.28	0.58	1.27		7	14.7	32.3	NDY2403C	NDY
						48V	36V	72V	1kV	71%								0.28	0.58	1.27		7	14.7	32.3	NDTS4803C	NDTS
	<b>2.94A</b>	<b>10W</b>	24V	18V	36V	1.5kV	79%							0.39	0.98	1.26	10	25	32	NPH10S2403EIC	NPH10S					
						48V	36V	75V	1.5kV	80%								0.39	0.98	1.26		10	25	32	NPH10S2403IC	
																		0.39	0.98	1.26		10	25	32	NPH10S4803EIC	
																		0.39	0.98	1.26		10	25	32	NPH10S4803IC	
	<b>4.25A</b>	<b>14W</b>	5V	4.7V	7.5V	1.5kV	77%							0.45	2	2	11.4	50.8	50.8	UWR-3.3/4250-D5-C	UWR14-20WA-SERIES					
			12V	10V	18V	1.5kV	86%								0.49	2	1	12.5	50.8	25.4	UWR-3.3/4250-D12A-C	UWR15WA-SERIES				
			24V	18V	36V	1.5kV	87%								0.49	2	1	12.5	50.8	25.4	UWR-3.3/4250-D24A-C					
			48V	36V	75V	1.5kV	87%								0.49	2	1	12.5	50.8	25.4	UWR-3.3/4250-D48A-C					
	<b>4.4A</b>	<b>15W</b>	24V	18V	36V	1.5kV	81%							0.39	1	2	10	25	50	NPH15S2403EIC	NPH15S					
						48V	36V	75V	1.5kV	83%								0.39	1	2		10	25	50	NPH15S2403IC	
																		0.39	1	2		10	25	50	NPH15S4803EIC	
	<b>4.5A</b>	<b>14.85W</b>	12V	10V	18V	1.5kV	84.5%							0.49	2	1	12.5	50.8	25.4	UEP-3.3/4500-D12-C	UEP15-30W					
			24V	18V	36V	1.5kV	87.5%								0.49	2	1	12.5	50.8	25.4		UEP-3.3/4500-D24-C				
			48V	36V	75V	1.5kV	87.5%								0.49	2	1	12.5	50.8	25.4		UEP-3.3/4500-D48-C				
	<b>4.85A</b>	<b>16W</b>	24V	9V	36V	1.5kV	87.5%							0.36	1.1	0.96	9.1	27.9	24.4	UEI15-033-Q12P-C	UEI 15W					
			48V	18V	75V	1.5kV	80%								0.45	2	2	11.4	50.8	50.8	UWR-3.3/4850-D12-C	UWR14-20WA-SERIES				
	<b>5A</b>	<b>16.5W</b>	24V	9V	36V	1.5kV	79%							0.45	2	2	11.4	50.8	50.8	UWR-3.3/4850-D48-C						
			48V	18V	75V	1.5kV	80%								0.45	2	2	11.4	50.8	50.8	UWR-3.3/4850-D48-C					
<b>6A</b>	<b>19.8W</b>	24V	18V	36V	1.5kV	83%							0.36	1	2	9.3	25.7	51.2	NPX20S24033DC	NPX20						
						84%							0.33	1	2	8.5	25.7	51.2	NPX20S24033MC							
						83%							0.33	1.17	1.92	8.5	29.6	48.6	NPX20S24033PMC							
		48V	36V	75V	1.5kV	84%								0.44	2	1.59	11.2	50.6	40.4	WPN20R24S03C	WPN20R					
						84%							0.36	1	2	9.3	25.7	51.2	NPX20S48033DC	NPX20						
						89%							0.33	1	2	8.5	25.7	51.2	NPX20S48033MC							
<b>7.3A</b>	<b>25W</b>	24V	18V	36V	1.5kV	81%							0.39	1.38	1.97	10	35	50	NPH25S2403EIC	NPH25S						
						83%							0.39	1.38	1.97	10	35	50	NPH25S2403IC							
						48V	36V	75V	1.5kV	83%								0.39	1.38		1.97	10	35	50	NPH25S4803EIC	













Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions						Further Information												
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks						Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>											
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W			D										
0.083A		1W	5V	4.5V	5.5V	1kV	69%															HPR1001C	HPR10XXC									
			78%																					NME0512DC	NME							
0.083A		1W	5V	4.5V	5.5V	1kV	78%																NME0512SC	NME								
						3kV	77%																				NKE0512DC	NKE				
																													NKE0512SC			
						5.2kV	71%																					NMV0512DAC	NMV			
																												NMV0512SAC				
						1kV	77%																					NMJ0512SAC	NMJ			
			4.75V	5.25V	1kV	62%																				NMR101C	NMR					
																											NTE0512MC	NTE				
			0.083A		1W	10.8V	13.2V	1kV	76%																	NMF0512DC	NMF					
									62%																					NMF0512SC		
						12V	10.8V	13.2V	1kV	79%																			NME1212DC	NME		
										77%																					NME1212SC	
																												NMF1212DC	NMF			
3kV		79%																										NMF1212SC				
		77%																												NKE1212DC	NKE	
																													NKE1212SC			
15V	13.5V	16.5V				3kV	75%																				NMV1212DAC	NMV				
							76%																						NMV1212SAC			
																														NMJ1212SAC	NMJ	
						1kV	76%																						NMR107C	NMR		
			74%																								NTE1212MC	NTE				
																											NME2412DC	NME2				
24V	21.6V	26.4V	1kV	80%																			NME2412SC									
				78%																					NMR119C	NMR						
48V	43.2V	52.8V	1kV	80%																				NMF2412DC	NMF							
				62%																						NMF2412SC						
0.125A	1.5W	5V	4.5V	5.5V	8kV	75%																		NMV2412DAC	NMV2							
						75%																						NMV2412SAC				
					12V	10.8V	13.2V	8kV	75%																				NME4812DC	NME2		
									75%																							NME4812SC
					0.167A	2W	5V	4.5V	5.5V	1kV	80%																			NMF4812DC	NMF	
											70%																					
48V	43.2V	52.8V	3kV	70%																										NMV4812SAC	NMV2	
0.25A	3W	5V	4.5V	9V						1kV	76%																				NME4812DC	NME2
											71%																					
					12V	9V	18V	1kV	80%																					NMF4812DC	NMF	
									85%																							
					24V	18V	36V	1kV	83%																						NMV4812SAC	NMV2
									85%																							
48V	36V	72V	1kV	81%																						NME4812DC	NME2					
				76%																									NME4812SC			
0.25A		3W		5V		4.5V		9V		1kV		71%															NMF4812DC	NMF				
												75%																				
0.25A		3W		5V		4.5V		9V		1kV		75%															NMV4812SAC	NMV2				
												75%																				



Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information	
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
								1/8	1/4					1/2	H	W	D	H	W			D
<b>12V</b>	<b>4.2A</b>	<b>50.4W</b>	48V	36V	75V	2.25kV	92%	•				0.37	2.3	0.9	9.4	58.4	22.9	UCE-12/4.2-D48N-C	UCE-SERIES			
								•	•			0.4	2.3	1.45	10.2	58.4	36.8	UCQ-12/4.2-D48N-C	UCQ-SERIES			
								•		•	•	0.41	2.3	0.9	10.4	58.4	22.9	ULE-12/4.2-D48N-C	ULE 20A			
	<b>8A</b>	<b>96W</b>	12V	9V	36V	2kV	89%	•				0.43	2.22	1.45	10.9	56.4	36.8	UQQ-12/8-Q12P-C	UQQ7-15A			
								•	•	•	•	0.38	2.3	1.45	9.5	58.4	36.8	ULQ-12/8-D24P-C	ULQ-15A			
								•	•			0.42	2.3	1.45	10.7	58.4	36.8	UVQ-12/8-D24P-C	UVQ-SERIES			
	<b>8.3A</b>	<b>99.6W</b>	48V	18V	75V	2.25kV	88.5%	•				0.43	2.22	1.45	10.9	56.4	36.8	UQQ-12/8-Q48N-C	UQQ7-15A			
								•	•			0.53	2.4	2.28	13.5	61	57.9	VKA100LS12C	VKA100			
								•		•	•	0.37	2.3	0.9	9.4	58.4	22.9	UCE-12/8.3-D48N-C	UCE-SERIES			
								•	•			0.4	2.3	1.45	10.2	58.4	36.8	UCQ-12/8.3-D48N-C	UCQ-SERIES			
								•		•	•	0.53	2.4	2.28	13.5	61	57.9	VKA100MS12C	VKA100			
								•	•	•	•	0.38	2.3	1.45	9.5	58.4	36.8	ULQ-12/10-D48N-C	ULQ-15A			
								•	•			0.42	2.3	1.45	10.7	58.4	36.8	UVQ-12/10-D48N-C	UVQ-SERIES			
	<b>12A</b>	<b>144W</b>	48V	36V	75V	1.5kV	93%	•				0.47	1.45	2.28	11.8	36.8	57.9	QHS12-120-NHCRC	QHS12-120			
	<b>12.5A</b>	<b>150W</b>	48V	36V	75V	2.25kV	92.5%		•			0.4	2.4	2.3	10.2	61	58.4	UCH-12/12.5-D48N-C	UCH-SERIES			
	<b>15A</b>	<b>180W</b>	48V	36V	55V	2.25kV	96%		•			0.48	0.9	2.28	12.2	22.9	57.9	EUS15-120-NHBRC	EUS15-120			
	<b>20A</b>	<b>240W</b>	48V	36V	55V	2.25kV	95.5%		•			0.48	0.9	2.28	12.2	22.9	57.9	EUS20-120-NHBRC	EUS20-120			
<b>21A</b>	<b>252W</b>	48V	36V	75V	2.25kV	91%			•		0.49	2.4	2.3	12.5	60.0	58.4	UHP-12/21-D48N-C	UHP12-21				
<b>22A</b>	<b>264W</b>	48V	40.5V	57V	2.25kV	96%		•			0.42	2.3	1.45	10.7	58.4	36.8	QBC-12/22-L48-C	QBC-SERIES				
<b>30A</b>	<b>360W</b>	48V	36V	75V	2.25kV	93%			•		0.4	2.4	2.3	10.2	61	58.4	HPH-12/30-D48N-C	HPH-SERIES				

<b>15V</b>	<b>0.10</b>	<b>0.15</b>	5V	4.5	5.5	0.5kV	75%					0.4	0.81	1.27	10.2	20.5	32.3	PWR1102C	PWR11XXC							
								<b>0.016A</b>	<b>0.25W</b>	5V	4.5V	5.5V	1kV	75%					0.27	0.39	0.45	6.8	9.8	11.5	LME0515DC	LME
																			0.39	0.24	0.45	10	6	11.48	LME0515SC	
	12V	10.8V	13.2V	1kV	75%					0.27	0.39	0.45	6.8	9.8	11.5	LME1215DC										
										0.39	0.24	0.45	10	6	11.48	LME1215SC										
	<b>0.05</b>	<b>0.75W</b>	5V	4.5V	5.5V	0.75kV	71%					0.4	0.77	0.24	10.1	19.6	6.09	HPR102C	HPR1XXC							
												0.4	0.77	0.24	10.1	19.6	6.09	HPR402C	HPR4XX							
								15V	13.5V	16.5V	1kV	69%					0.4	0.77		0.24	10.1	19.6	6.09	HPR414C		
								24V	21.6V	26.4V	0.75kV	76%					0.4	0.77	0.24	10.1	19.6	6.09	HPR120C	HPR1XXC		
	<b>0.067A</b>	<b>1W</b>	5V	4.5V	5.5V	3kV	78%					0.26	0.30	0.5	6.6	7.7	12.7	NTE0315MC	NTE							
												0.21	0.39	0.45	5.4	9.8	11.5	NKE0515DC	NKE							
												0.29	0.236	0.45	7.5	6	11.48	NKE0515SC								
												0.28	0.39	0.45	6.8	9.8	11.5	NME0515DC	NME							
												0.39	0.24	0.45	10	6	11.48	NME0515SC								
												0.49	0.39	0.77	12.5	9.8	19.5	NMJ0515SAC	NMJ							
												0.39	0.24	0.77	10	6	19.5	NMR102C	NMR							
												0.26	0.39	0.77	6.8	9.8	19.5	NMV0515DAC	NMV							
												0.39	0.24	0.77	10	6	19.5	NMV0515SAC								
												0.26	0.30	0.5	6.6	7.7	12.7	NTE0515MC	NTE							
												0.27	0.39	0.77	6.8	9.8	19.5	NMF0515DC	NMF							
												0.39	0.24	0.77	10	6	19.5	NMF0515SC								
	<b>0.067A</b>	<b>1W</b>	12V	10.8V	13.2V	1kV	75%					0.27	0.39	0.45	6.8	9.8	11.5	NME1215DC	NME							
												0.39	0.24	0.45	10	6	11.5	NME1215SC								
												0.39	0.24	0.77	10	6	19.5	NMR108C		NMR						
												0.26	0.30	0.5	6.6	7.7	12.7	NTE1215MC	NTE							
												0.21	0.39	0.45	5.4	9.8	11.5	NKE1215DC	NKE							
												0.29	0.24	0.45	7.46	6	11.48	NKE1215SC								
												0.27	0.39	0.77	6.8	9.8	19.5	NMV1215DAC		NMV						
												0.39	0.24	0.77	10	6	19.5	NMV1215SAC								
												0.49	0.39	0.77	12.5	9.8	19.5	NMJ1215SAC	NMJ							
					0.27	0.39	0.77	6.8	9.8	19.5	NMF1215DC	NMF														
				0.39	0.24	0.77	10	6	19.5	NMF1215SC																
<b>0.067A</b>	<b>1W</b>	15V	13.5V	16.5V	1kV	75%					0.39	0.24	0.45	10	6	11.48	NME1515SC	NME								
											0.39	0.24	0.77	10	6	19.5	NMR114C	NMR								
											0.39	0.24	0.77	10	6	19.5	NMV1515SAC	NMV								

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions			Further Information												
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks						Inches		mm	Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>											
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W			D	H	W	D							
15V	0.067A	1W	24V	21.6V	26.4V	1kV	80%													NME2415DC	NME2								
																									NME2415SC				
																										NMR120C			
			24V	21.6V	26.4V	3kV	80%																	NMV2415DAC	NMV2				
																										NMV2415SAC			
																												NMF2415DC	
																				NMF2415SC	NMF								
	48V	43.2V	52.8V	1kV	80%																	NME4815DC	NME2						
																									NME4815SC				
																									NMV4815DAC				
																				NMV4815SAC	NMV2								
																				NMF4815DC		NMF							
																				NMF4815SC									
	0.10A	1.5W	12V	10.8V	13.2V	8kV	75%														PWR1308AC		PWR13XXC						
	0.134A	2W	5V	4.5V	5.5V	1kV	73%															NDL0515SC	NDL						
							85%																			NMG0515SC			
							85%																				NMK0515SAC		
							83%																				NML0515SC		
							81%																				NDL1215SC		
							85%																				NMG1215SC		
			12V	10.8V	13.2V	1kV	84%																		NMK1215SAC				
							85%																			NML1215SC			
83%																										NDL2415SC			
48V			36V	72V	1kV	82%																NDL4815SC							
0.2A			3W	5V	4.5V	9V	1kV	77%																	NDS0515C	NDTS			
								73%																					NDY0515C
	75%																										UST-15/200-D5-C	UST-3W	
	76%																										NDS1215C		
	79%																										NDY1215C		
	75%																											UST-15/200-D12-C	
	15V	13.5V		16.5V	0.5kV	75%																		PWR1214C	PWR12XXC				
							84%																					NDS2415C	
							82%																						NDY2415C
							80%																						NDS4815C
							81%																						NDY4815C
							77%																						
0.267A	4W	5V	4.5V	5.5V	8kV	80%															HB04U05S15QC	HB04UC							
		12V	10.8V	13.2V	8kV	87%																	HB04U12S15QC						
		15V	13.5V	16.5V	8kV	87%																		HB04U15S15QC					
0.33A	5W	5V	4.5V	5.5V	1kV	75%																NMXS0515UC	NMXU						
		12V	10.8V	13.2V	1kV	75%																		NMXS1215UC					
		24V	18V	36V	1kV	83%																		UWR-15/335-D24-C	UWR 5W				
		48V	36V	72V	1kV	83%																		UWR-15/335-D48-C					
0.4A	6W	5V	4.5V	5.5V	1kV	65%																NMXS0515SOC	NMXSO						
		12V	10.8V	13.2V	1kV	65%																		NMXS1215SOC					
0.53A	8W	5V	4.7V	7.25V	1.5kV	77%																UWR-15/530-D5A-C	UWR 6-10W A-SERIES						
0.6A	9W	48V	18V	75V	1.5kV	84%																UWR-15/600-D48A-C							
0.67A	10W	12V	9V	18V	1.5kV	85%																		UWR-15/665-D12A-C					
		24V	18V	36V	1.5kV	86%																		NPH10S2415EIC	NPH10S				
		48V	36V	75V	1.5kV	87%																		NPH10S2415IC					
		48V	36V	75V	1.5kV	87%																				NPH10S4815EIC			
1A	15W	5V	4.7V	7.5V	1.5kV	82%																		NPH10S4815IC		NPH10S			
		12V	10V	18V	1.5kV	85%																		UWR-15/1000-D5A-C	UWR 14-20W A-SERIES				
		24V	18V	36V	1.5kV	87%																					UWR-15/1000-D12A-C		
																								NPH15S2415IC	NPH15S				

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information				
Rated Output Voltage	Rated Output Current	Total Output Power	Nom.	Min.	Max.			Bricks							Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>			
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W	D					
<b>15V</b>	<b>1A</b>	<b>15W</b>	24V	18V	36V	1.5kV	87%										0.49	2	1	12.5	50.8	25.4	UWR-15/1000-D24A-C	UWR 15W A-SERIES	
			48V	36V	75V	1.5kV	89%											0.39	0.98	1.97	10	25	50	NPH15S4815EIC	NPH15S
							87%													0.49	2	1	12.5	50.8	
	<b>1.2A</b>	<b>18W</b>	12V	10V	18V	1.5kV	85%										0.49	2	1	12.5	50.8	25.4	UEP-15/1200-D12-C	UEP 15-30W	
			24V	18V	36V	1.5kV	87%											0.49	2	1	12.5	50.8	25.4		UEP-15/1200-D24-C
			48V	36V	75V	1.5kV	87%											0.49	2	1	12.5	50.8	25.4		UEP-15/1200-D48-C
	<b>1.3A</b>	<b>20W</b>	24V	9V	36V	1.5kV	85%										0.45	2	2	11.4	50.8	50.8	UWR-15/1300-D12A-C	UWR 14-20W A-SERIES	
			48V	18V	75V	1.5kV	86%										0.45	2	2	11.4	50.8	50.8	UWR-15/1300-D48A-C		
	<b>1.7A</b>	<b>25W</b>	24V	18V	36V	1.5kV	87%										0.39	1.38	1.97	10	35	50	NPH25S2415EIC	NPH25S	
				10V	36V	1.5kV	82%										0.55	3.04	2.04	14	77.2	51.8	UMP-15/1.7-Q12-C		UMP 25-40W
			48V	36V	75V	1.5kV	89%											0.39	1.38	1.97	10	35	50	NPH25S4815EIC	NPH25S
							87%												0.39	1.38	1.97	10	35	50	
	<b>2A</b>	<b>30W</b>	12V	9V	18V	1.5kV	89%										0.4	2	1.6	10.2	50.8	40.6	UHE-15/2000-D12-C	UHE 12-30W	
				36V	1.5kV	92%											0.4	2	1.6	10.2	50.8	40.6	UHE-15/2000-Q12-C		
			24V	18V	75V	1.5kV	90%											0.4	2	1.6	10.2	50.8	40.6		UHE-15/2000-D24-C
							90.5%												0.4	2	1.6	10.2	50.8		40.6
			48V	36V	75V	1.5kV	92%											0.4	2	1.6	10.2	50.8	40.6		UHE-15/2000-D48-C
							83%												0.55	3.04	2.04	14	77.2		51.8
	<b>2.50A</b>	<b>37.5W</b>	24V	18V	36V	1.5kV	84%									0.55	3.04	2.04	14	77.2	51.8	UMP-15/2.5-D24-C	UMP 25-40W		
	<b>2.65A</b>	<b>40W</b>	48V	36V	75V	1.5kV	85%									0.55	3.04	2.04	14	77.2	51.8	UMP-15/2.65-D48-C			
<b>6.7A</b>	<b>100.5W</b>	24V	18V	36V	1.5kV	89%										0.53	2.4	2.28	13.5	61	57.9	VKA100LS15C	VKA100		
		48V	36V	75V	2.25kV	92%										0.4	2.4	2.3	10.2	61	58.4	UCH-15/6.7-D48N-C	UCH-SERIES		
<b>7A</b>	<b>105W</b>	12V	9V	36V	2kV	90.5%										0.43	2.22	1.45	10.9	56.4	36.8	UQQ-15/7-Q12P-C	UQQ7-15A		
		24V	18V	36V	2kV	93%										0.42	2.3	1.45	10.7	58.4	36.8	UVQ-15/7-D24P-C	UVQ-SERIES		
		48V	36V	75V	2.25kV	94%										0.42	2.3	1.45	10.7	58.4	36.8	UVQ-15/7-D48N-C			
<b>18V</b>	<b>5.6A</b>	<b>100.8W</b>	24V	18V	36V	2kV	90%									0.42	2.3	1.45	10.7	58.4	36.8	UVQ-18/5.6-D24P-C	UVQ-SERIES		
	<b>6A</b>	<b>108W</b>	48V	36V	75V	2.25kV	93%									0.42	2.3	1.45	10.7	58.4	36.8	UVQ-18/6-D48N-C			
<b>24V</b>	<b>0.042A</b>	<b>1W</b>	5V	4.5V	5.5V	1kV	80%									0.27	0.39	0.45	6.8	9.8	11.5	NME0524DC	NME		
																0.39	0.24	0.45	10	6	11.5	NME0524SC			
	<b>3A</b>	<b>72W</b>	48V	36V	75V	2.25kV	94%									0.41	2.3	0.9	10.4	58.4	22.9	ULE-24/3-D48N-C	ULE20A		
	<b>3.1A</b>	<b>74.4W</b>	24V	18V	36V	1.5kV	90%									0.53	2.4	2.28	13.5	61	57.9	VKA75LS24-1C	VKA75		
	<b>4A</b>	<b>96W</b>	12V	9V	36V	2kV	89%									0.43	2.22	1.45	10.9	56.4	36.8	UQQ-24/4-Q12P-C	UQQ 7-15A		
	<b>4.2A</b>	<b>100.8W</b>	24V	18V	36V	1.5kV	90%										0.53	2.4	2.28	13.5	61	57.9	VKA100LS24C	VKA100	
48V			36V	75V	2.25kV	94%										0.42	2.3	1.45	10.7	58.4	36.8	UVQ-24/4.5-D24P-C	UVQ-SERIES		
			48V	36V	75V	2.25kV	94%								0.42	2.3	1.45	10.7	58.42	36.8	UVQ-24/4.5-D48N-C				
<b>28.2V</b>	<b>12A</b>	<b>338.4W</b>	48V	36V	75V	2.25kV	92%									0.49	2.4	2.3	12.5	61.0	58.4	UHP-28.2/12-D48N	UHP28-2-12A		
<b>48V</b>	<b>1.25A</b>	<b>60W</b>	48V	36V	75V	2.25kV	92.5%									0.41	2/3	0.9	10.4	58.4	22.9	ULE-48/1.25-D48N-C	ULE20A		
	<b>2.50A</b>	<b>120W</b>	48V	36V	75V	2.25kV	91.5%									0.42	2.3	1.45	10.7	58.4	36.8	UVQ-48/2.5-D48N-C	UVQ-SERIES		
<b>96V</b>	<b>0.10</b>	<b>9.600</b>	48V	36V	75V	1.5kV	88%									0.4	2	1	10.2	50.8	25.4	UWR-96/100-D48A-C	UWR-96-100		



# Dual Output

## (Bipolar) Isolated DC/DC Converters



For analog/linear and other applications requiring bipolar/symmetric rail voltages, Murata Power Solutions' isolated duals generate  $\pm 3.3V$ ,  $\pm 5V$ ,  $\pm 12V$  or  $\pm 15V$  outputs from a single input voltage. Not surprisingly, our offering is the industry's broadest.

We offer bipolar duals with output power ranges from 0.75 to 20 Watts, input voltage ranges from 3 to 75 Volts, and package styles from sub-miniature SIPs, DIPs and SMDs to traditional 2" x 2" (51 x 51mm) through-hole devices. Isolation voltages run as high as 8,000Vdc. When relevant, all products offer

UL/EN safety certifications, CE marks, and EMI/EMC testing.

If your available voltage is anywhere between 3.3 and 75 Volts and your need is  $\pm 3.3V$ ,  $\pm 5V$ ,  $\pm 12V$  or  $\pm 15V$  at moderate power levels... in a small area... at an affordable cost, we've got your solution.

### Quick Selection Guide Listed by output power

Output Power	Vout						Series
	$\pm 3.3V$	$\pm 5V$	$\pm 9V$	$\pm 12V$	$\pm 15V$	$\pm 24V$	
0.75W	•			•	•		HPR1XXC
					•		HPR1XXVC
				•	•		HPR4XXC
1W				•	•		HL01RYC
		•			•		HL01RZC
				•	•		HPR10XXC
	•	•	•	•	•		NKA
	•	•	•	•	•		NMA
	•	•	•	•	•		NMJ
	•	•	•	•	•		NMV
	•	•	•	•	•		NTA
	•	•	•	•	•		NTV
1.5W	•			•	•		PWR13XXC
					•		PWR1726A

Output Power	Vout						Series
	$\pm 3.3V$	$\pm 5V$	$\pm 9V$	$\pm 12V$	$\pm 15V$	$\pm 24V$	
2W				•	•		HL02R
	•	•	•	•	•		NMH
	•	•	•	•	•		NMS
	•	•	•	•	•		NTH
3W				•	•		BST 3W
		•		•	•		BWR 3W
	•	•	•	•	•		NDH
	•	•		•	•		NDTD
				•	•		PWR12XXC
				•	•		PWR70
				•	•		WPC03R
				•	•		
4W	•		•			HB04UC	
5W	•		•	•			BWR 5W
	•		•	•			NMX50
	•		•	•			NMXU
				•	•		PWR1546A

Output Power	Vout						Series
	$\pm 3.3V$	$\pm 5V$	$\pm 9V$	$\pm 12V$	$\pm 15V$	$\pm 24V$	
7W	•						BWR 7-10W
7.5W	•			•	•		NDX
8W	•			•	•		BWR 7-10W
10W					•		WPC10R
15W	•						BWR 15-17W
	•						BWR 15-20W
17W				•	•		BWR 15-17W
				•	•		BWR 15-20W
20W				•	•		WPN20RC
39W	•			•	•		BMP 25-40W

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions						Further Information			
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			1/8	1/4	1/2	SM	TH	DIP	SIP	Inches			mm			Part Number	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
															H	W	D	H	W	D			
<b><math>\pm 3.3V</math></b>	$\pm 0.152A$	1W	3.3V	2.97V	3.63V	3kV	74%				•	•	0.21	0.39	0.77	5.4	9.8	19.5	NKA0303DC	NKA			
						1kV	75%					•	•	0.26	0.3	0.6	6.6	7.7	15.2		NTA0303MC	NTA	
			5V	4.5V	5.5V	3kV	77%					•	•	•	0.21	0.39	0.77	5.4	9.8	19.5	NKA0503DC	NKA	
						1kV	77%					•	•	0.26	0.3	0.6	6.6	7.7	15.2	NTA0503MC	NTA		
			$\pm 0.454A$	3W	5V	4.5V	9V	1kV	67%				•	•	•	0.27	0.58	1.27	7.0	14.7	32.3	NDTD0503C	NDTD
					12V	9V	18V	1kV	73%					•	•	•	0.27	0.58	1.27	7.0	14.7	32.3	
	24V	18V			36V	1kV	73%					•	•	•	0.27	0.58	1.27	7.0	14.7	32.3	NDTD2403C		
	48V	36V			75V	1kV	72%					•	•	•	0.27	0.58	1.27	7.0	14.7	32.3	NDTD4803C		
	<b><math>\pm 5V</math></b>	$\pm 0.075A$	0.75W	5V	4.5V	5.5V	0.75kV	68%				•	•	0.4	0.77	0.24	10.1	19.6	6.1	HPR103C	HPR1XXC		
							1kV	68%					•	•	0.4	0.77	0.24	10.1	19.6	6.1		HPR403C	HPR4XX
12V				10.8V	13.2V	0.75kV	71%					•	•	•	0.4	0.77	0.24	10.2	19.6	6.1	HPR109C	HPR1XXC	
						3kV	79%					•	•	0.21	0.39	0.77	5.4	9.8	19.5	NKA0305DC	NKA		
$\pm 0.1A$		1W	3.3V	2.97V	3.63V						•	•	0.30	0.23	0.65	7.6	6.0	16.6	NKA0305SC	NTA			
						1kV	78%					•	•	0.26	0.30	0.60	6.6	7.7	15.2		NTA0305MC		

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions						Further Information		
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
								1/8	1/4					1/2	H	W	D	H	W			D
<b>±0.1A</b>	<b>1W</b>	5V	4.5V	5.5V	3kV	70%							0.21	0.39	0.77	5.4	9.8	19.5	NKA0505DC	NKA		
						80%								0.21	0.39	0.77	5.4	9.8	19.5		NKA0505DEC	
						70%								0.30	0.23	0.65	7.6	6.0	16.6		NKA0505SC	
						80%								0.30	0.23	0.65	7.6	6.0	16.6		NKA0505SEC	
					1kV	69%									0.27	0.39	0.77	6.8	9.8	19.5	NMA0505DC	NMA
															0.39	0.24	0.77	10.0	6.0	19.5	NMA0505SC	
					5.2kV	60%									0.49	0.39	0.77	12.5	9.8	19.5	NMJ0505SC	NMJ
					3kV	71.5%									0.27	0.39	0.77	6.8	9.8	19.5	NMV0505DC	NMV
															0.39	0.24	0.77	10.0	6.0	19.5	NMV0505SC	
					1kV	69%									0.26	0.30	0.60	6.6	7.7	15.2	NTA0505MC	NTA
					1kV	80%									0.26	0.30	0.60	6.6	7.7	15.2	NTA0505MEC	
					3kV	71%									0.26	0.30	0.60	6.6	7.7	15.2	NTV0505MC	NTV
	12V	10.8V	13.2V	3kV	74%								0.21	0.39	0.77	5.4	9.8	19.5	NKA1205DC	NKA		
													0.30	0.23	0.65	7.6	6.0	16.6	NKA1205SC			
					1kV	69%								0.27	0.39	0.77	6.8	9.8	19.5		NMA1205DC	NMA
														0.39	0.24	0.77	10.0	6.0	19.5		NMA1205SC	
				5.2kV	60%									0.49	0.39	0.77	12.5	9.8	19.5	NMJ1205SC	NMJ	
				3kV	71%									0.27	0.39	0.77	6.8	9.8	19.5	NMV1205DC	NMV	
														0.39	0.24	0.77	10.0	6.0	19.5	NMV1205SC		
				1kV	69%									0.26	0.30	0.60	6.6	7.7	15.2	NTA1205MC	NTA	
				3kV	73%									0.26	0.30	0.60	6.6	7.7	15.2	NTV1205MC		NTV
				15V	13.5V	16.5V	1kV	71%							0.27	0.39	0.77	6.8	9.8	19.5	NMA1505DC	NMA
																0.39	0.24	0.77	10.0	6.0	19.5	
				3kV	69									0.39	0.24	0.77	10.0	6.0	19.5	NMV1505SC	NMV	
24V	21.6V	26.4V	1kV	70%							0.27	0.39	0.77	6.8	9.8	19.5	NMA2405DC	NMA2				
												0.39	0.24	0.77	10.0	6.0	19.5		NMA2405SC			
	3kV	70%									0.27	0.39	0.77	6.8	9.8	19.5	NMV2405DC	NMV2				
											0.39	0.24	0.77	10.0	6.0	19.5	NMV2405SC					
22.8V	25.2V	0.5kV	45%							0.38	1.29	0.53	9.5	32.6	13.3	HL01R24D05Z	HL01RC					
										0.38	1.29	0.53	9.5	32.6	13.3	HL01R24D05ZC	HL01RZC					
48V	43.2V	52.8V	1kV	70%							0.30	0.39	0.77	7.7	9.8	19.5	NMA4805DC	NMA2				
													0.39	0.30	0.77	10.0	7.5		19.5	NMA4805SC		
3kV	70%									0.39	0.30	0.77	7.7	9.8	19.5	NMV4805DC	NMV2					
										0.39	0.30	0.77	10.0	7.5	19.5	NMV4805SC						
±0.15A	1.5W	5V	4.5V	5.5V	8kV	75%					0.4	1.27	0.81	10.2	32.3	20.5	PWR1303AC	PWR13XXC				
		12V	10V	13.2V	8kV	75%					0.4	1.27	0.81	10.2	32.3	20.5	PWR1309AC					
			10.8	13.2	0.5kV	75%						0.4	1.27	0.81	10.2	32.3	20.5		PWR1109C	PWR11XXC		
±0.2A	2W	5V	4.5V	5.5V	1kV	80%						0.30	0.39	0.77	7.7	9.8	19.5	NMH0505DC	NMH			
														0.40	0.30	0.77	10.0	7.5		19.5	NMH0505SC	
						6kV	74%								0.37	0.58	1.28	9.4		14.7	32.6	NMS0505C
		1kV	80%								0.21	0.50	0.70	6.0	12.7	17.8	NTH0505MC	NTH				
		12V	10.8V	13.2V	1kV	80%							0.30	0.39	0.77	7.7	9.8	19.5	NMH1205DC	NMH		
														0.40	0.30	0.77	10.0	7.5	19.5		NMH1205SC	
	6kV					78%								0.37	0.58	1.28	9.4	14.7	32.6		NMS1205C	NMS
	1kV	80%								0.21	0.50	0.70	6.0	12.7	17.8	NTH1205MC	NTH					
	24V	21.6V	26.4V	1kV	81%							0.30	0.39	0.77	7.7	9.8	19.5	NMH2405DC	NMH			
												0.40	0.30	0.77	10.0	7.5	19.5	NMH2405SC				
48V					43V	52.8V	1kV	82%					0.303	0.39	0.77	7.7	9.8	19.5		NMH4805DC		
±0.2A	2W	48V	43.2V	52.8V	1kV	82%					0.4	0.3	0.77	10.0	7.5	19.5	NMH4805SC	NMH				
						78%								0.45	1.25	0.8	11.4	31.8	20.3	BST-5/250-D12-C	BST-3W	
						77%								0.45	1.25	0.8	11.4	31.8	20.3	BWR-5/250-D12-C	BWR 3W	
±0.25A	2.5W	12V	9V	18V	1kV	76%					0.45	1.25	0.8	11.4	31.8	20.3	BST-5/250-D48-C	BST-3W				
						77%								0.45	1.25	0.8	11.4	31.8	20.3	BWR-5/250-D48-C	BWR 3W	
						48V	18V	72V	1kV	77%					0.45	1.25	0.8	11.4	31.8	20.3	BWR-5/250-D48-C	BWR 3W
±0.3A	3W	12V	9V	18V	1kV	75%					0.27	0.58	1.27	7	14.7	32.3	NDTD1205C	NDTD				
						24V	18V	36V	1kV	78%					0.27	0.58	1.27		7	14.7	32.3	NDTD2405C
						48V	36V	75V	1kV	76%					0.27	0.58	1.27		7	14.7	32.3	NDTD4805C
±0.4A	4W	12V	10.8V	13.2V	8kV	88%					0.40	2	1	10.2	50.8	25.4	HB04U12D05QC	HB04UC				
						65%								0.39	0.93	1.59	10	23.5	40.5	NMXD0505S0C	NMXSO	
±0.5A	5W	5V	4.5V	5.5V	1kV	75%					0.39	0.93	0.99	10	23.5	25	NMXD0505UC	NMXU				

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style								Package Dimensions						Further Information	
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet <i>Available at www.murata-ps.com</i>		
								1/8	1/4					1/2	H	W	D	H	W			D	
<b>±5V</b>	<b>±0.5A</b>	<b>5W</b>	12V	10.8V	13.2V	1kV	65%						0.39	0.93	1.59	10	23.5	40.5	NMXD1205SOC	NMXSO			
							75%																
			24V	18V	36V	1kV	78%							0.45	1	1	11.4	25.4	25.4	NMXD1205UC	NMXU		
			48V	36V	72V	1kV	78%							0.45	1	1	11.4	25.4	25.4	BWR-5/500-D24-C	BWR-5W		
		<b>±0.7A</b>	<b>7W</b>	5V	4.7V	7.25V	1.5kV	79%												BWR-5/700-D5A-C	BWR7-10W A-Series		
	48V			18V	75V	1.5kV	81%							0.38	2	1	9.5	50.8	25.4	BWR-5/700-D48A-C			
		<b>±0.75A</b>	<b>7.5W</b>	5V	4.5V	9V	1kV	67%							0.39	0.98	1.26	10	25	32	NDXD0505C	NDX	
																							NDXD0505EC
	12V			9V	18V	1kV	73%							0.39	0.98	1.26	10	25	32	NDXD1205C			
															0.39	0.98	1.26	10	25	32	NDXD1205EC		
	24V			18V	36V	1kV	75%								0.39	0.98	1.26	10	25	32	NDXD2405C		
													0.39	0.98	1.26	10	25	32	NDXD2405EC				
													0.39	0.98	1.26	10	25	32	NDXD4805C				
													0.39	0.98	1.26	10	25	32	NDXD4805EC				
		<b>±0.9A</b>	<b>9W</b>	12V	9V	18V	1.5kV	82%													BWR-5/900-D12A-C	BWR7-10W A-Series	
		<b>±1.5A</b>	<b>15W</b>	5V	4.7V	7.5V	1.5kV	80%														BWR-5/1500-D5A-C	BWR15-20W A-Series
	12V			10V	18V	1.5kV	81%							0.47	2	1	11.8	50.8	25.4	BWR-5/1500-D12A-C			
	24V			18V	36V	1.5kV	83%							0.47	2	1	11.8	50.8	25.4	BWR-5/1500-D24A-C	BWR15-17W A-Series		
	48V			36V	75V	1.5kV	83%							0.47	2	1	11.8	50.8	25.4	BWR-5/1500-D48A-C			
		<b>±1.70AA</b>	<b>17W</b>	12V	9V	36V	1.5kV	83%														BWR-5/1700-D12A-C	BWR15-20W A-Series
	48V			18V	75V	1.5kV	83%							0.45	2	2	11.4	50.8	50.8	BWR-5/1700-D48A-C			
		<b>±4A</b>	<b>40W</b>	12V	10V	36V	1.5kV	85%														BMP-5/4-Q12-C	BMP25-40W
	24V			18V	36V	1.5kV	86%							0.55	3.04	2.04	14	77.2	51.8	BMP-5/4-D24-C			
				36V	75V	1.5kV	85%							0.55	3.04	2.04	14	77.2	51.8	BMP-5/4-D48-C			
48V	18V			75V	1.5kV	85%							0.55	3.04	2.04	14	77.2	51.8	BMP-5/4-Q48-C				

<b>±9V</b>	<b>±0.055A</b>	<b>1W</b>	3.3V	2.97V	3.63V	3kV	75%															NKA0309DC	NKA									
																												NKA0309SC				
						3kV	76%																		NTA0309MC	NTA						
																											NKA0509DC	NKA				
																									NKA0509SC	NKA						
						5V	4.5V	5.5V	1kV	75%																NMA0509DC	NMA					
																														NMA0509SC	NMA	
									5.2kV	65%																			NMJ0509SC	NMJ		
									3kV	76%																			NMV0509DC	NMV		
									1kV	75%																NMV0509SC	NMV					
									3kV	76%																	NTA0509MC	NTA				
									3kV	77%																	NTV0509MC	NTV				
				12V	10.8V	13.2V	3kV	79%																	NKA1209DC	NKA						
																														NKA1209SC		
							1kV	74%																				NMA1209DC	NMA			
																												NMA1209SC				
							5.2kV	65%																		NMJ1209SC	NMJ					
							3kV	74%																		NMV1209DC	NMV					
							3kV	74%																		NMV1209SC	NMV					
				12V	10.8V	13.2V	1kV	74%																		NTA1209MC	NTA					
									3kV	79%																				NTV1209MC	NTV	
		<b>±0.055A</b>	<b>1W</b>	24V	21.6V	26.4V	1kV	77%																		NMA2409DC	NMA2					
									3kV	80%																					NMA2409SC	
																												NMV2409DC	NMV2			
																										NMV2409SC						
				48V	43.2V	52.8V	1kV	80%																			NMA4809DC	NMA2				
							3kV	80%																						NMA4809SC		
	<b>±0.111A</b>	<b>2W</b>	5V	4.5V	5.5V	1kV	81%																			NMH0509DC	NMH					
								6kV	76%																						NMH0509SC	
											1kV	76%																			NMS0509C	NMS
											1kV	81%																			NTH0509MC	NTH

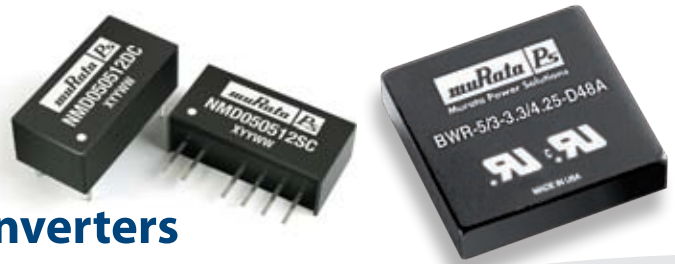
Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information		
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>		
								1/8	1/4					1/2	H	W	D	H	W			D	
<b>±9V</b>	±0.111A	2W	12V	10.8V	13.2V	1kV	83%						0.30	0.39	0.77	7.7	9.8	19.5	NMH1209DC	NMH			
						1kV	83%						0.4	0.3	0.77	10	7.5	19.5	NMH1209SC	NMH			
			12V	10.8V	13.2V	6kV	81%								0.37	0.58	1.28	9.4	14.7	32.6	NMS1209C	NMS	
						1kV	83%						0.21	0.5	0.7	6.0	12.7	17.8	NTH1209MC	NTH			
			24V	21.6V	26.4V	1kV	85%								0.3	0.39	0.77	7.7	9.8	19.5	NMH2409DC	NMH	
															0.4	0.3	0.77	10	7.5	19.5	NMH2409SC		
			48V	43.2V	52.8V	1kV	82%								0.3	0.39	0.77	7.7	9.8	19.5	NMH4809DC		
												0.4	0.3	0.77	10	7.5	19.5	NMH4809SC					
<b>±12V</b>	±0.03A	0.75W	5V	4.5V	5.5V	0.75kV	68%						0.4	0.77	0.24	10.1	19.6	6.1	HPR104C	HPR1XXC			
						1kV	66%						0.4	0.77	0.24	10.1	19.6	6.1	HPR404C	HPR4XXC			
			12V	10.8V	13.2V	0.75kV	74%								0.4	0.77	0.24	10.1	19.6	6.1	HPR110C	HPR1XXC	
						1kV	74%						0.4	0.77	0.24	10.1	19.6	6.1	HPR410C	HPR4XXC			
			15V	13.5V	16.5V	0.75kV	76%								0.4	0.77	0.24	10.1	19.6	6.1	HPR116C	HPR1XXC	
						1kV	67%						0.4	0.77	0.24	10.1	19.6	6.1	HPR122C				
	24V	21.6V	26.4V	0.75kV	67%								0.4	0.77	0.24	10.1	19.6	6.1	HPR122C	HPR4XXC			
				1kV	67%						0.4	0.77	0.24	10.1	19.6	6.1	HPR422C						
	±0.042A	1W	3.3V	2.97V	3.63V	3kV	78%							0.21	0.39	0.77	5.4	9.8	19.5	NKA0312DC	NKA		
						1kV	77%						0.26	0.3	0.6	6.6	7.7	15.2	NKA0312SC				
							70%							0.4	0.77	0.24	10.1	19.6	6.1	HPR1004C	HPR10XXC		
							78%							0.21	0.39	0.77	5.4	9.8	19.5	NKA0512DC	NKA		
				77%							0.27	0.39	0.77	6.8	9.8	19.5	NMA0512DC						
				77%							0.39	0.24	0.77	10	6	19.5	NMA0512SC	NMA					
			5V	4.5V	5.5V	5.2kV	65%									0.49	0.39	0.77	12.5	9.8	19.5	NMJ0512SC	NMJ
						3kV	78%						0.27	0.39	0.77	6.8	9.8	19.5	NMV0512DC	NMV			
							77%							0.39	0.24	0.77	10	6	19.5		NMA0512SC		
							77%							0.26	0.3	0.6	6.6	7.7	15.2	NTA0512MC	NTA		
							79%							0.26	0.3	0.6	6.6	7.7	15.2	NTV0512MC	NTV		
							79%							0.21	0.39	0.77	5.4	9.8	19.5	NKA1212DC	NKA		
	12V	10.8V	13.2V	3kV	81%								0.30	0.23	0.65	7.6	6	16.6	NKA1212SC				
				1kV	75%						0.27	0.39	0.77	6.8	9.8	19.5	NMA1212DC	NMA					
					75%							0.39	0.24	0.77	10	6	19.5		NMA1212SC				
					65%							0.49	0.39	0.77	12.5	9.8	19.5	NMJ1212SC	NMJ				
					75%							0.27	0.39	0.77	6.8	9.8	19.5	NMV1212DC	NMV				
					75%							0.39	0.24	0.77	10	6	19.5	NMV1212SC					
	15V	13.5V	16.5V	1kV	78%									0.26	0.3	0.6	6.6	7.7	15.2	NTA1212MC	NTA		
					77%						0.26	0.3	0.6	6.6	7.7	15.2	NTV1212MC	NTV					
					78%							0.27	0.39	0.77	6.8	9.8	19.5	NMA1512DC	NMA				
					75%							0.39	0.24	0.77	10	6	19.5	NMA1512SC					
				75%							0.39	0.24	0.77	10.0	6.0	19.5	NMV1512SC	NMV					
				75%							0.39	0.24	0.77	10.0	6.0	19.5	NMV1512SC						
±0.042A	1W	24V	21.6V	26.4V	1kV	72%							0.40	0.77	0.24	10.1	19.6	6.1	HPR1022C	HPR10XXC			
						80%						0.27	0.39	0.77	6.8	9.8	19.5	NMA2412DC	NMA2				
						80%							0.39	0.24	0.77	10	6	19.5		NMA2412SC			
						80%							0.27	0.39	0.77	6.8	9.8	19.5	NMV2412DC	NMV2			
			80%							0.39	0.24	0.77	10	6	19.5	NMV2412SC							
		48V	43.2V	52.8V	1kV	80%									0.3	0.39	0.77	7.7	9.8	19.5	NMA4812DC	NMA2	
						80%						0.39	0.3	0.77	10	7.5	19.5	NMA4812SC					
						80%							0.3	0.39	0.77	7.7	9.8	19.5	NMV4812DC	NMV2			
						80%							0.39	0.3	0.77	10	7.5	19.5	NMV4812SC				
		±0.063A	1.5W	5V	4.5V	5.5V	8kV	75%							0.4	1.27	0.81	10.2	32.3	20.5	PWR1304AC	PWR13XXC	
							8kV	75%						0.4	1.27	0.81	10.2	32.3	20.5	PWR1310AC			
		±0.083A	2W	5V	4.5V	5.5V	4.75V	5.25V	0.5kV	62%						0.38	1.29	0.53	9.5	32.6	13.3	HL02R05D12YC	HL02R
1kV	82%											0.3	0.39	0.77	7.7	9.8	19.5	NMH0512DC	NMH				
	77%									0.37	0.58	1.28	9.4	14.7	32.6	NMS0512C	NMS						
	82%									0.21	0.5	0.7	6.0	12.7	17.8	NTH0512MC	NTH						
12V	11.4V			12.6V	0.5kV	62%									0.38	1.29	0.53	9.5	32.6	13.3	HL02R12D12YC	HL02R	
								62%						0.38	1.29	0.53	9.5	32.6	13.3	HL02R12D12YC			





Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information											
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			Bricks							Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet <i>Available at www.murata-ps.com</i>										
								1/8	1/4	1/2	SM	TH	DIP	SIP	H	W	D	H	W	D												
<b>±15V</b>	<b>±0.067A</b>	<b>2W</b>	48V	43.2V	52.8V	1kV	85%										0.40	0.30	0.77	10.0	7.5	19.5	NMH4815SC	NMH								
							74%															0.45	1.25	0.80	11.4	31.8	20.3	BST-15/85-D5-C	BST-3W			
							72%																0.45	1.25	0.80	11.4	31.8	20.3	BWR-15/85-D5-C	BWR-3W		
			5V	4.5V	9V	1kV	75%													0.27	0.58	1.27	7.0	14.7	32.3	NDTD0515C	NDTD					
							5.5V	0.5kV	75%													0.40	1.27	0.81	10.2	32.3	20.5	PWR1205C	PWR12XXC			
							76%																0.45	1.25	0.80	11.4	31.8	20.3	BST-15/100-D12-C	BST-3W		
		12V	9V	18V	1kV	75%														0.45	1.25	0.80	11.4	31.8	20.3	BWR-15/100-D12-C	BWR-3W					
						78%															0.27	0.58	1.27	7.0	14.7	32.3	NDTD1215C	NDTD				
						66%																0.41	1.13	1.13	10.7	28.6	28.6	PWR70C	PWR70			
						15V	18V	36V	1kV	82%													0.49	0.36	1.02	12.5	9.3	26.0	NDH24155C	NDH		
										21.6V	26.4V	0.5kV	75%												0.27	0.58	1.27	7.0	14.7	32.3	NDTD2415C	NDTD
										18V	36V	1.5kV	73%													0.40	1.27	0.81	10.2	32.3	20.5	PWR1223C
	48V	18V	72V	1kV	77%													0.45	1.25	0.80	11.4	31.8	20.3	BST-15/100-D48-C	BST-3W							
					80%															0.45	1.25	0.80	11.4	31.8	20.3	BWR-15/100-D48-C	BWR-3W					
					36V	72V	1kV	78%												0.49	0.36	1.02	12.5	9.3	26.0	NDH48155C	NDH					
			75V	1kV	81%													0.27	0.58	1.27	7.0	14.7	32.3	NDTD4815C	NDTD							
	<b>±0.133A</b>	<b>4W</b>	12V	10.8V	13.2V	8kV	88%											0.40	2.00	1.00	10.2	50.8	25.4	HB04U12D15QC	HB04UC							
							15V	13.5V	16.5V	8kV	88%											0.40	2.00	1.00		10.2	50.8	25.4	HB04U15D15QC			
			5V	4.5V	5.5V	1kV	75%												0.39	0.93	0.99	10.0	23.5	25.0	NMXD0515UC	NMXU						
			0.75kV	60%														0.40	2.00	2.00	10.2	50.8	50.8	PWR1546AC	PWR1546A							
	<b>±0.167A</b>	<b>5W</b>	12V	10.8V	13.2V	1kV	75%											0.39	0.93	0.99	10.0	23.5	25.0	NMXD1215UC	NMXU							
							24V	18V	36V	1kV	83%										0.45	1.00	1.00	11.4	25.4	25.4	BWR-15/165-D24-C	BWR-5W				
							48V	36V	72V	1kV	82%											0.45	1.00	1.00	11.4	25.4	25.4	BWR-15/165-D48-C	BWR-5W			
	<b>±0.20A</b>	<b>6W</b>	5V	4.5V	5.5V	1kV	65%											0.39	0.93	1.59	10.0	23.5	40.5	NMXD0515SOC	NMXSO							
			12V	10.8V	13.2V	1kV	65%												0.39	0.93	1.59	10.0	23.5	40.5		NMXD1215SOC						
	<b>±0.25A</b>	<b>7.5W</b>	12V	9V	18V	1kV	79%											0.39	0.98	1.26	10.0	25.0	32.0	NDXD1215C	NDX							
							82%															0.39	0.98	1.26		10.0	25.0	32.0	NDXD1215EC			
			24V	18V	36V	1kV	82%												0.39	0.98	1.26	10.0	25.0	32.0		NDXD2415C						
			48V	36V	75V	1kV	82%												0.39	0.98	1.26	10.0	25.0	32.0		NDXD2415EC						
			48V	36V	75V	1kV	82%											0.39	0.98	1.26	10.0	25.0	32.0	NDXD4815C								
			48V	36V	75V	1kV	82%											0.39	0.98	1.26	10.0	25.0	32.0	NDXD4815EC								
	<b>±0.28A</b>	<b>8W</b>	5V	4.7V	7.25V	1.5kV	79%											0.38	2.00	1.00	9.5	50.8	25.4	BWR-15/275-D5A-C	BWR 7-10W A-Series							
			12V	9V	18V	1.5kV	84%												0.38	2.00	1.00	9.5	50.8	25.4		BWR-15/330-D12A-C						
<b>±0.33A</b>	<b>10W</b>	24V	18V	36V	1.5kV	79%											0.42	2.00	1.00	10.5	50.8	25.4	WPC10R24D15NC	WPC10R								
		48V	18V	75V	1.5kV	84%												0.38	2.00	1.00	9.5	50.8	25.4	BWR-15/330-D48A-C	BWR 7-10W A-Series							
<b>±0.50A</b>	<b>15W</b>	5V	4.7V	7.5V	1.5kV	82%											0.45	2.00	2.00	11.4	50.8	50.8	BWR-15/500-D5A-C	BWR 15-20W A-Series								
		12V	10V	18V	1.5kV	84%												0.47	2.00	1.00	11.8	50.8	25.4	BWR-15/575-D12A-C	BWR 15-17W A-Series							
		24V	18V	36V	1.5kV	86%											0.47	2.00	1.00	11.8	50.8	25.4	BWR-15/575-D24A-C									
		48V	36V	75V	1.5kV	87%												0.47	2.00	1.00	11.8	50.8	25.4	BWR-15/575-D48A-C								
<b>±0.67A</b>	<b>20W</b>	12V	9V	36V	1.5kV	83%											0.45	2.00	2.00	11.4	50.8	50.8	BWR-15/670-D12A-C	BWR 15-20W A-Series								
		24V	18V	36V	1.5kV	87%												0.44	1.99	1.59	11.2	50.6	40.4	WPN20R24D15C	WPN20RC							
		48V	18V	75V	1.5kV	84%												0.45	2.00	2.00	11.4	50.8	50.8	BWR-15/670-D48A-C	BWR 15-20W A-Series							
<b>±1.30</b>	<b>39A</b>	12V	10V	36V	1.5kV	85%											0.55	3.04	2.04	14.0	77.2	51.8	BMP-15/1.3-Q12-C	BMP 25-40W A-Series								
		24V	18V	36V	1.5kV	88%												0.55	3.04	2.04	14.0	77.2	51.8		BMP-15/1.3-D24-C							
		36V	75V	1.5kV	87%													0.55	3.04	2.04	14.0	77.2	51.8		BMP-15/1.3-D48-C							
		48V	18V	75V	1.5kV	85%												0.55	3.04	2.04	14.0	77.2	51.8		BMP-15/1.3-Q48-C							

# Dual Output



## (Asymmetric) Isolated DC/DC Converters

When your application requires multiple positive voltages and you can't easily derive one from the other using a non-isolated PoL, consider an asymmetric dual.

Asymmetric duals are isolated, 2-output DC/DC converters that typically provide two low voltages such as 3.3V and 1.8V. As such, they are ideal for driving the core and

I/O logic of complex PLDs or ASICs. On DSL line cards, they can power both the DSP and the line drivers. In evolving process-control systems, they can power older 5V logic and newer 3.3V micros.

Asymmetric duals provide the real estate and cost savings of a single package with one set of input circuitry (stand-up caps, filters,

etc.). On the output side, many duals feature 2-loop designs that effectively deliver two independently regulated converters in a single package . . . with a standard pinout and internationally recognized safety approvals. Why evaluate and qualify two devices when you can do one . . . for less money?

Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions						Further Information			
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			1/8	1/4	1/2	SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
															H	W	D	H	W	D			
3.3/2.5V	15/15A	50W	24V	18V	36V	1.5kV	82%							0.50	2.40	2.30	12.7	61.0	58.4	BCP-3.3/15-2.5/15-D24-C	BCP-50W		
			48V	36V	75V	1.5kV	82%								0.50	2.40	2.30	12.7	61.0	58.4		BCP-3.3/15-2.5/15-D48-C	
5/3.3V	0.1/0.152A	1W	5V	4.5V	5.5V	1.0kV	70%							0.27	0.39	0.77	6.8	9.8	19.5	NMD050503DC	NMD		
															0.39	0.24	0.77	10.0	6.0	19.5		NMD050503SC	
	2.65/3A	15W	12V	10V	18V	1.5kV	86%							0.52	2.00	1.00	13.2	50.8	25.4	DSM-5/2.65-3.3/3-D12-C	DSM-15W		
															0.45	2.00	1.00	11.4	50.8	25.4		DSM-5/2.65-3.3/3-D12-C	
			24V	18V	36V	1.5kV	86%								0.52	2.00	1.00	13.2	50.8	25.4		DSM-5/2.65-3.3/3-D24-C	
																0.45	2.00	1.00	11.4	50.8		25.4	DWR-5/2.65-3.3/3-D24-C
			48V	36V	75V	1.5kV	86%									0.52	2.00	1.00	13.2	50.8		25.4	DSM-5/2.65-3.3/3-D48-C
																0.45	2.00	1.00	11.4	50.8		25.4	DWR-5/2.65-3.3/3-D48-C
	3/4.25A	30W	12V	10V	18V	1.5kV	85%								0.48	2.00	2.00	12.2	50.8	50.8	BWR-5/3-3.3/4.25-D12A-C	BWR-5/3.3 30W	
			24V	18V	36V	1.5kV	88%								0.48	2.00	2.00	12.2	50.8	50.8	BWR-5/3-3.3/4.25-D24A-C		
			48V	36V	75V	1.5kV	88%								0.48	2.00	2.00	12.2	50.8	50.8	BWR-5/3-3.3/4.25-D48A-C		
	6/7A	33W	12V	10V	18V	1.5kV	86%								0.45	2.00	2.00	11.4	50.8	50.8	BWR-5/6-3.3/7-D12-C	BWR-5/3.3 33W	
			24V	18V	36V	1.5kV	88%								0.45	2.00	2.00	11.4	50.8	50.8	BWR-5/6-3.3/7-D24-C		
			48V	36V	75V	1.5kV	88%								0.45	2.00	2.00	11.4	50.8	50.8	BWR-5/6-3.3/7-D48-C		
	4.7/3.5A	35W	24V	18V	36V	1.5kV	81%								0.55	3.04	2.04	14.0	77.2	51.8	BMP-5/5-3.3/4-D24-C	BMP5-5	
			48V	36V	75V	1.5kV	82%								0.55	3.04	2.04	14.0	77.2	51.8	BMP-5/5-3.3/4-D48-C		
	12/15A	60W	24V	18V	36V	1.5kV	90%								0.50	1.50	2.30	12.7	38.1	58.4	VSX60LD35C	VSX60	
			48V	36	75V	1.5kV	90%								0.50	1.50	2.30	12.7	38.1	58.4	VSX60MD35-1C		
48V			36V	75V	1.5kV	90%								0.50	1.50	2.30	12.7	38.1	58.4	VSX60MD35C			
15/15A	75W	24V	18V	36V	1.5kV	87%								0.53	2.40	2.30	13.3	61.0	58.4	BCP-5/15-3.3/15-D24-C	BCP-75W		
		24V	18V	36V	1.5kV	87%								0.53	2.40	2.30	13.3	61.0	58.4	BCP-5/15-3.3/15-D48-C			
5/5V	0.1/0.1A	1W	5V	4.5V	5.5V	1.0kV	70%							0.27	0.39	0.77	6.8	9.8	19.5	NMD050505DC	NMD		
															0.39	0.24	0.77	10.0	6.0	19.5		NMD050505SC	
			12V	10.8V	13.2V	1.0kV	70%								0.27	0.39	0.77	6.8	9.8	19.5		NMD120505DC	
													0.39	0.24	0.77	10.0	6.0	19.5	NMD120505SC				
5/9V	0.1/0.056A	1W	5V	4.5V	5.5V	1.0kV	80%							0.27	0.39	0.77	6.8	9.8	19.5	NMD050509DC	NMD		
															0.39	0.24	0.77	10.0	6.0	19.5		NMD050509SC	
			12V	10.8V	13.2V	1.0kV	80%								0.27	0.39	0.77	6.8	9.8	19.5		NMD120509DC	
													0.39	0.24	0.77	10.0	6.0	19.5	NMD120509SC				
5/12V	0.1/0.042A	1W	5V	4.5V	5.5V	1.0kV	80%							0.27	0.39	0.77	6.8	9.8	19.5	NMD050512DC	NMD		
															0.39	0.24	0.77	10.0	6.0	19.5		NMD050512SC	
			12V	10.8V	13.2V	1.0kV	80%								0.27	0.39	0.77	6.8	9.8	19.5		NMD120512DC	
													0.39	0.24	0.77	10.0	6.0	19.5	NMD120512SC				
5/15V	0.1/0.034A	1W	5V	4.5V	5.5V	1.0kV	80%							0.27	0.39	0.77	6.8	9.8	19.5	NMD050515DC	NMD		
															0.39	0.24	0.77	10.0	6.0	19.5		NMD050515SC	
			12V	10.8V	13.2V	1.0kV	80%								0.27	0.39	0.77	6.8	9.8	19.5		NMD120515DC	
													0.39	0.24	0.77	10.0	6.0	19.5	NMD120515SC				



# Triple Output Isolated DC/DC Converters

If your challenge is to power an entire mixed-signal, analog/digital, system partition from a single dc source voltage, Murata Power Solutions' high-quality, triple-output DC/DC converters can provide your total solution.

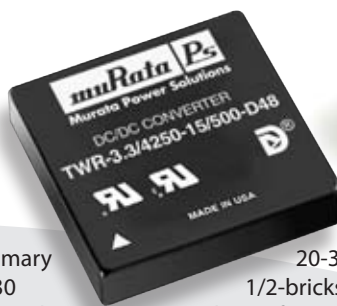
Operating from inputs as low as 4.7V or as high as 75V, each of these full-featured power

converters offers a 3.3V or 5V primary output (with current as high as 30 Amps) and either  $\pm 12V$  or  $\pm 15V$  auxiliary outputs (with currents as high as  $\pm 4.2$  Amps).

Our versatile offering includes: the industry's smallest triples (1 x 2 inches, 25 x 50mm) at 8-22W power levels; slightly larger, wide-input (9-36V and 18-75V) devices at

20-30 Watt levels; and traditional 1/2-bricks at 100 Watts. One unique product offers 24, 48 and 72V outputs.

Before you buy two or three DC/DC converters to accomplish your task, see if a single 3-output device from Murata Power Solutions does the job.



Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style							Package Dimensions						Further Information	
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			Bricks		SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
								1/8	1/4					1/2	H	W	D	H	W			D
3.3/ $\pm 12V$	4/ $\pm 0.3A$	20W	12V	10V	18V	1.5kV	85%						0.49	2	1	12.5	50.8	25.4	TWR-3.3/4-12/300-D12-C	TWR-22W		
	4.25/ $\pm 0.63A$	30W	24V	18V	36V	1.5kV	86%						0.50	2	2	12.7	50.8	50.8	TWR-3.3/4250-12/625-D24-C	TWR-30W		
			48V	36V	75V	1.5kV	87%						0.50	2	2	12.7	50.8	50.8	TWR-3.3/4250-12/625-D48-C			
3.3/ $\pm 15V$	4/ $\pm 0.25A$	21W	24V	18V	36V	1.5kV	86%						0.49	2	1	12.5	50.8	25.4	TWR-3.3/4-15/250-D24-C	TWR-22W		
	4.25/ $\pm 0.5A$	30W	48V	36V	75V	1.5kV	87%						0.49	2	1	12.5	50.8	25.4	TWR-3.3/4-15/250-D48-C	TWR-30W		
			24V	18V	36V	1.5kV	86%						0.50	2	2	12.7	50.8	50.8	TWR-3.3/4250-15/500-D24-C			
			48V	36V	75V	1.5kV	87%						0.50	2	2	12.7	50.8	50.8	TWR-3.3/4250-15/500-D48-C			
3.3/12/12V	18/2.5/2.5A	60W	24V	18V	40V	1.5kV	86%						0.50	2.4	2.3	12.7	61	58.42	VKP60LT312C	VKP60XT		
3.3/15/15V	18/2.5/2.5A	60W	24V	18V	40V	1.5kV	86%						0.50	2.4	2.3	12.7	61	58.42	VKP60LT315C	VKP60XT		
5/ $\pm 12V$	1/ $\pm 0.13A$	8W	5V	4.7V	7V	1.5kV	76%						0.38	2	1	9.5	50.8	25.4	TWR-5/1000-12/125-D5A-C	TWR8-11W		
			12V	9V	18V	1.5kV	82%							0.38	2	1	9.5	50.8	25.4		TWR-5/1000-12/210-D12A-C	
	1/ $\pm 0.21A$	8W	24V	18V	36V	1.5kV	84%						0.38	2	1	9.5	50.8	25.4	TWR-5/1000-12/210-D24A-C		TWR12-15W	
			48V	36V	72V	1.5kV	85%							0.38	2	1	9.5	50.8	25.4			TWR-5/1000-12/210-D48A-C
	1.2/ $\pm 0.25A$	12W	48V	18V	72V	1.5kV	81%						0.45	2	2	11.4	50.8	50.8	TWR-5/1200-12/250-D48A-C		TWR 20W A-SERIES	
	1.5/ $\pm 0.25A$	14W	48V	18V	72V	1.5kV	79%						0.45	2	2	11.4	50.8	50.8	TWR-5/1500-12/250-D48A-C			
	3/ $\pm 0.5A$	20W	24V	9V	36V	1.5kV	82%							0.45	2	2	11.4	50.8	50.8	TWR-5/3000-12/500-D12A-C	TWR-22W	
			48V	18V	75V	1.5kV	83%							0.45	2	2	11.4	50.8	50.8	TWR-5/3000-12/500-D48A-C		
	3/ $\pm 0.3A$	22W	12V	10V	18V	1.5kV	85%							0.49	2	1	12.5	50.8	25.4	TWR-5/3-12/300-D12-C	TMP25-40W	
			24V	18V	36V	1.5kV	86%							0.49	2	1	12.4	50.8	25.4	TWR-5/3-12/300-D24-C		
			48V	36V	75V	1.5kV	87%							0.49	2	1	12.5	50.8	25.4	TWR-5/3-12/300-D48-C		
	5/ $\pm 1A$	25W	24V	10V	36V	1.5kV	84%							0.55	3	2	14	77.2	51.8	TMP-5/5-12/1-Q12-C	TWR-22W	
48V			18V	75V	1.5kV	86%							0.55	3	2	14	77.2	51.8	TMP-5/5-12/1-Q48-C			
30W		24V	18V	36V	1.5kV	85%							0.55	3	2	14	77.2	51.8	TMP-5/5-12/1-D24-C			
		48V	36V	75V	1.5kV	86%							0.55	3	2	14	77.2	51.8	TMP-5/5-12/1-D48-C			
5/ $\pm 15V$	0.8/ $\pm 0.15A$	9W	5V	4.7V	7V	1.5kV	74%						0.38	2	1	9.5	50.8	25.4	TWR-5/800-15/150-D5A-C	TWR8-11W		
			12V	9V	18V	1.5kV	82%							0.38	2	1	9.5	50.8	25.4		TWR-5/1000-15/200-D12A-C	
	1/ $\pm 0.2A$	11W	48V	36V	72V	1.5kV	84%						0.38	2	1	9.5	50.8	25.4	TWR-5/1000-15/200-D48A-C		TWR12-15W	
			24V	18V	36V	1.5kV	84%							0.38	2	1	9.5	50.8	25.4	TWR-5/1000-15/200-D24A-C		
	1/ $\pm 0.25A$	11W	48V	18V	72V	1.5kV	80%						0.45	2	2	11.4	50.8	50.8	TWR-5/1000-15/250-D48A-C	TWR 20W A-SERIES		
	1.5/ $\pm 0.25A$	15W	48V	18V	72V	1.5kV	81%						0.45	2	2	11.4	50.8	50.8	TWR-5/1500-15/250-D48A-C			
	3/ $\pm 0.5A$	20W	24V	9V	36V	1.5kV	82%							0.45	2	2	11.4	50.8	50.8	TWR-5/3000-15/500-D12A-C	TWR-22W	
			48V	18V	75V	1.5kV	82%							0.45	2	2	11.4	50.8	50.8	TWR-5/3000-15/500-D48A-C		
	3/ $\pm 0.25A$	20W	24V	18V	36V	1.5kV	86%							0.49	2	1	12.5	50.8	25.4	TWR-5/3-15/250-D24-C	TWR-22W	
48V			36V	75V	1.5kV	87%							0.49	2	1	12.5	50.8	25.4	TWR-5/3-15/250-D48-C			
3/ $\pm 0.25A$	23W	12V	10V	18V	1.5kV	85%							0.49	2	1	12.5	50.8	25.4	TWR-5/3-15/250-D12-C			
5/ $\pm 15V$	5/ $\pm 1A$	40W	24V	10V	36V	1.5kV	85%							0.55	3	2	14	77.2	51.8	TMP-5/5-15/1-Q12-C	TWR-22W	
			48V	18V	75V	1.5kV	85%							0.55	3.04	2.04	14	77.2	51.8	TMP-5/5-15/1-Q48-C		
			24V	18V	36V	1.5kV	86%							0.55	3.04	2.04	14	77.2	51.8	TMP-5/5-15/1-D24-C		
			48V	36V	75V	1.5kV	85%							0.55	3.04	2.04	14	77.2	51.8	TMP-5/5-15/1-D48-C		

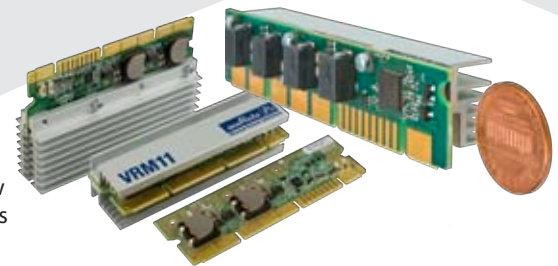
Output Characteristics			Input Voltage			Isolation	Efficiency	Package Style						Package Dimensions						Further Information		
Rated Output Voltages	Rated Output Currents	Total Output Power	Nom.	Min.	Max.			1/8	1/4	1/2	SM	TH	DIP	SIP	Inches			mm			Part Number <i>Note: Root part numbers may be shown. Please refer to datasheets for available options.</i>	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>
															H	W	D	H	W	D		
5/12/12V	12/2.5/2.5A	60W	24V	18V	40V	1.5kV	87%							0.50	2.4	2.3	12.7	61.0	58.4	VKP60LT512C	VKP60XT	
																0.50	2.4	2.3	12.7	61.0	58.4	IHB60T240512C
5/15/15V	12/2/2A	60W	24V	18V	40V	1.5kV	87%							0.50	2.4	2.3	12.7	61.0	58.4	VKP60LT515C	VKP60XT	
24/48/72V	42/21/14mA	3W	5V	4.5V	5.5V	1.0kV	85%							0.44	0.30	0.86	11.1	7.5	21.8	NMT0572SC	NMT	
			12V	10.8V	13.2V	1.0kV	85%								0.44	0.30	0.86	11.1	7.5	21.8		NMT1272SC

# Processor Support

Powering next generation 32-Bit and 64-Bit processors is becoming more demanding, requiring lower output voltages, higher currents, and higher di/dts.

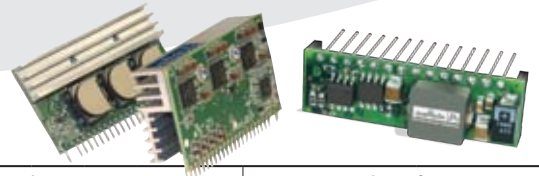
Our VRM products are designed to meet and exceed the performance demanded

by the next generation processors and are available in a variety of packages for an optimal fit in systems <1U to 2U with innovative open-frame designs that allow for better thermal management in today's system environments.



Output Characteristics				Input Voltage			Efficiency	Package Style					Package Dimensions						Further Information			
VRM Spec	Thermal Design Current	Max. Output Current	Output Voltage Range (VDC)	Nom.	Min.	Max.		Card Edge	Thru Hole	Height				Inches			mm			Part Number	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>	
										<1U	1U	1.5U	2U	H	W	D	H	W	D			
Intel® 11.1	80A	70A	0.5-1.6	12	11.04	12.6	87%								0.78	3.66	0.75	19.81	92.96	19.05	VR111B080CA-C	VR111 Series (Fall 2008)
															1.18	3.80	0.87	29.97	96.52	22.10	VR111B150CU-C	
	150A	130A	0.5-1.6	12	11.04	12.6	87%								1.86	3.80	1.00	47.24	96.52	25.40	VR111B150CL-C	
															2.50	3.80	0.87	63.50	96.52	22.10	VR111B150CS-C	
Intel® 11.0	80A	70A	0.8375-1.6	12	11.04	12.6	88%								0.78	3.66	0.75	19.81	92.96	19.05	VR110B080CA-1C	VR110 Series
							84%								1.18	3.80	0.475	29.97	96.52	12.07	VR110B080CU-1C	
															1.18	3.80	0.87	29.97	96.52	22.10	VR110B150CU-1C	
	150A	130A	0.8375-1.6	12	11.04	12.6	84%								1.86	3.80	1.00	47.24	96.52	25.40	VR110B150CL-1C	
Intel® 10.1/10.2	150A	130A	0.8375-1.6	12	11.04	12.6	85%								1.18	3.80	0.87	29.97	96.52	22.10	VR102B150CU-3C	VR102 Series
															2.50	3.80	0.87	63.50	96.52	22.10	VR102B150CS-2C	
AMD® K8	80A	70A	0.80-1.55	12	11.2	13.2	85%								1.16	3.80	1.00	29.46	96.52	25.40	VRK81B080CU-1C	VRK81 Series
							85%								2.12	3.80	0.80	53.85	96.52	20.32	VRK81B0100CS-1C	
	100A	80A	0.80-1.55	12	11.2	13.2	86%								0.42	2.73	2.22	10.54	69.34	56.39	VRK81B100TH-4C	

# Memory Support



Output Characteristics			Input Voltage			Efficiency	Package Style					Package Dimensions						Further Information				
DDR Spec	Max. Output Current	Output Voltage Range (VDC)	Nom.	Min.	Max.		Card Edge	SIP	Height				Inches			mm			Part Number	Datasheet Available at <a href="http://www.murata-ps.com">www.murata-ps.com</a>		
									<1U	1U	1.5U	2U	H	W	D	H	W	D				
DDR Termination	9A	0.7-1.45	3.3	3	5.5	83%									0.50	1.60	0.35	12.70	40.64	8.89	DDR-9-W3-C	DDR Series
																				0.35	1.60	
DDR1, DDR2, DDR3	60A	0.6-3.5	12	10.2	13.2	88%									1.25	2.40	0.38	31.75	60.96	9.53	VCN60BADJTU-1C	VCN60/70 Series
	70A	0.6-3.5	12	10.2	13.2	87%									1.25	2.40	0.66	31.75	60.96	16.76	VCN70BADJTU-1C	

# Other products from Murata Power Solutions...

## Digital Panel Meters

From standard, off-the-shelf products to application specific designs, our DATEL digital panel meters are a versatile and cost-effective solution for a number of applications.



### General Purpose Voltmeters

12-pin, dual-in-line package offering component-like "plug-in" convenience for pc-board mounting and a built-in bezel for easy panel mounting.



### 2-Wire Meters

Power your measuring instrument with the signal you're measuring! Measure the voltage at a standard USA-style wall outlet simply by "plugging in" an AC line monitor.



### Process Monitors

4/20mA and 0-10V process control monitors

### AC Ammeters

Directly measure AC currents from 0-2A to 0-100A

### DC Ammeters

Include built-in shunts, reverse-polarity protection, and connections for all supply and load wiring

## Magnetics

Two essential elements of the vast majority of power electronics applications are filtering and isolation. Whether you need to reduce noise or protect vital components, Murata Power Solutions can offer a wide range of products to suit your requirements.



### Inductors & Transformers

Over 800 highly advanced and optimized inductor and transformer solutions with the emphasis on miniaturization, reliability, and ease of handling. These power oriented designs comprise the following through-hole & surface-mount products:

- Inductors
- Common-mode chokes
- Pulse transformers (general purpose/digital audio/silicon support)
- Current sense transformers
- Agency approved transformers
- Databus isolators
- Custom designs



### DC/DC Converter Filters

To reduce differential and common mode noise

## AC/DC Power Supplies

Murata Power Solutions can develop AC/DC power supplies to meet almost every possible application requirement in terms of power, performance, efficiency, protection, size, approvals compliance, and cooling requirements.



### Front End Modules for DPAs

AC to 12Vdc or 48Vdc ultra compact front end supplies for distributed power architectures with active power factor correction



### Open Frame

High-efficiency 200-400W single, dual, and triple output solutions in 1U chassis



### CompactPCI

High-efficiency 3U and 6U solutions from 150W to 500W including space-saving 4HP models



### CATV / Telco

Ultra-reliable, ruggedized power supplies for harsh CATV and Telecommunications

### High-Rel

Our Celab division has over 30 years' experience designing and producing custom power supplies.

### Custom Solutions

Custom product solutions from 7W to 5kW

## Hybrid Technologies

Our leadership status in high-performance data acquisition components is unchallenged in the areas of electrical performance, small packaging, and low-power consumption.



### Electronic Imaging

Resolution from 8 to 18-bits and sampling rates 20MSPS, low-cost commercial and High-Rel versions



### A/D Converters

### Sampling A/D Converters

Ideal for high-end applications such as medical or life-science imaging, analytical instrumentation, and military pulse and spread-spectrum applications



### Digital-to-Analog Converters

Settling times to 20 nanoseconds, update rates to 100MHz



### Sample/Hold Amplifiers

Accuracies from 0.01% to 0.0008% (12 to 16 bit equivalent resolution)

### Single-Package Data Acquisition

Multi-channel with differential or single-ended options

### Multiplexers

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<sup>2</sup> Life Support Device means any device, system or ancillary equipment intended for implant into the body or used in relation to supporting or sustaining life.

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