

Introducing

# The Latest Products from Murata Power Solutions

## ■ **DC/DC Converters**

- Point-of-Load
- Isolated Single, Dual & Triple Output
- Bricks

## ■ **Magnetics**

## ■ **Digital Panel Meters**



# Powering Innovation...

## *The Newest Products from Murata Power Solutions*

This catalog contains the newest offering of products across our portfolio of power electronics and a quick-reference guide to a variety of popular products that continue to be perfect solutions for a broad spectrum of applications.

Innovation. New solutions. Just what you expect from the market-leading supplier of power electronics, including the industry's broadest offering of DC/DC converters.

### Point of Load DC/DC Converters

04 Fully compatible with DOSA Standards.



### Isolated DC/DC Converters

06 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.



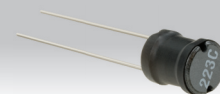
### Bricks

09 We offer surface mount or through-hole package styles with 12V, 24V, and 48V inputs and with output voltages from 0.8 to 48V.



### Magnetics

11 With an emphasis on miniaturization, reliability, and ease of handling, our designs are available in a variety of styles.



### Digital Panel Meters

13 The DATEL offering of digital panel meters has been recognized as the industry's most versatile and are expertly designed for a variety of applications.



### Other Popular DC/DC Converters

14 A number of our "tried and true" products continue to be the perfect fit for thousands of customers, year in and year out.



### AC/DC Capabilities

15 Our custom solutions will meet even the most stringent parameters in terms of power, performance, efficiency, protection, size, approvals compliance, and cooling.



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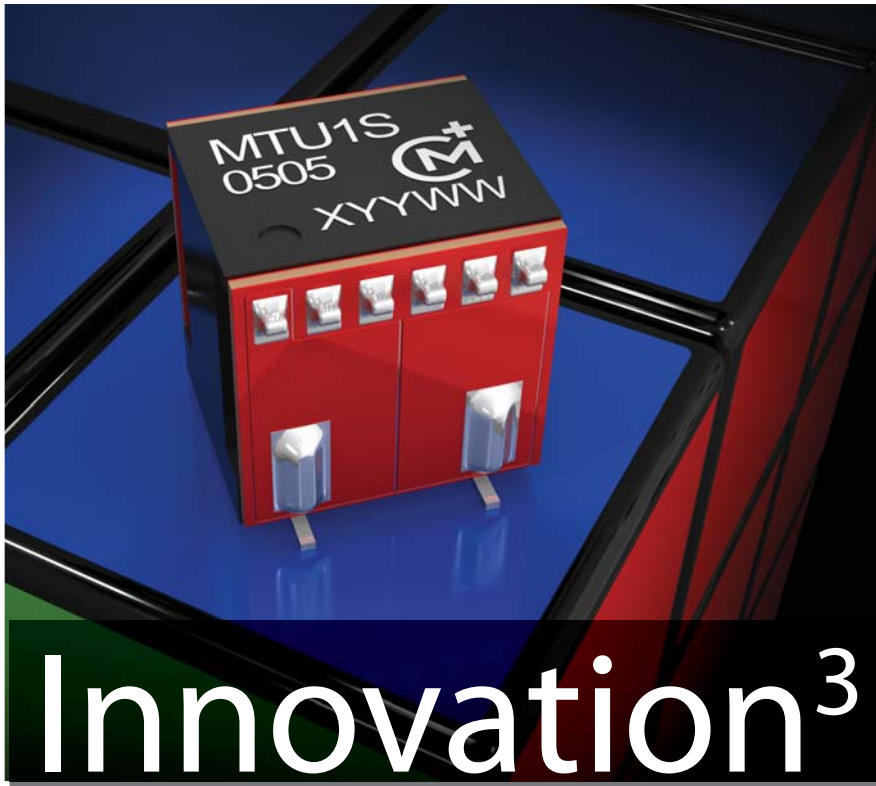
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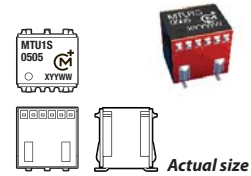
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- 2 Life Support Device means any device, system or ancillary equipment intended for implant into the body or used in relation to supporting or sustaining life.

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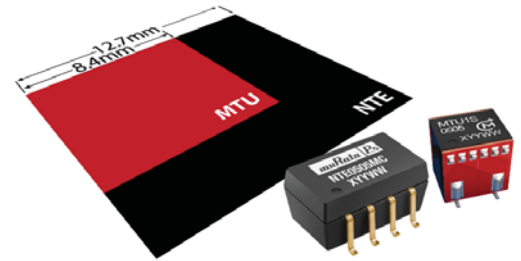


# MTU1 Series

## 1 Watt Isolated DC/DC Converters



*Changing the shape of  
DC/DC power modules*



# Innovation<sup>3</sup>

The introduction of the high performance MTU1 series marks a step-change in the miniaturization of power modules, setting new standards for footprint, load regulation and efficiency.

The MTU1 is suited for industrial, test and measurement, process control applications, and all applications where a wide output voltage variation cannot be tolerated.

- Footprint reduced by 50%
- 56% less power dissipation
- Lower running temperatures
- Patent pending



### It's small

Half the industry-standard footprint in an 8.4mm cube

### It's cool

56% less power dissipation & lower running temperatures mean...

### It's green

22% improved efficiency means less energy use & higher reliability

### It's clever

40% improved load regulation



### SELECTION GUIDE

Part Number	Nominal Input Voltage	Output Voltage	Output Current	Load Regulation (Typ.)	Load Regulation (Max)	Ripple & Noise (Typ.)	Ripple & Noise (Max.)	Efficiency (Min.)	Efficiency (Typ.)	Isolation Capacitance
	V	V	mA	%	%	mVp-p	mVp-p	%	%	pF
MTU1S0505MC	5	5	200	7.3	9	35	75	80	83	13
MTU1S0509MC	5	9	111	6.1	7.5	10	25	83	86	16
MTU1S0512MC	5	12	83	5.6	7.5	15	30	84	87	18
MTU1S0515MC	5	15	66	5.3	6.5	10	25	84	87	20
MTU1S1205MC	12	5	200	5.8	8	20	40	80	84	20
MTU1S1209MC	12	9	111	3.9	6	10	25	82	87	28
MTU1S1212MC	12	12	83	3.5	6	10	25	83	88	32
MTU1S1215MC	12	15	66	3.2	5	10	25	84	88	37

Shipped in tape & reel packaging of 300 pieces per reel.



- iLGA inspectable Land Grid Array
- 0.48"x0.48"x0.25" (12.2x12.2x6.35mm)

[www.murata-ps.com/n-okl1](http://www.murata-ps.com/n-okl1)

## Programmable Output 3-Amp iLGA SMT PoLs

### Okami OKL-T/3-W12 Series



Base Model Number	Output			Input	Efficiency
	Current	Voltage	Power	Voltage	
	A	Vdc	W	Vdc	Typical
OKL-T/3-W5	3 Amp	0.591-5.5	15.0	12 (4.5-14)	93%

#### Features

- Inspectable Land Grid Array interconnect for ease of manufacturing and inspection
- Outstanding thermal derating performance
- Over temperature and over current protection
- On/Off control and Power Good signal
- Optional Sequence/Tracking operation

#### Specifications

- Remote On/Off with positive or negative polarity
- 12Vin (4.5Vto 14V), 3A output current in compact 12.2mm x 12.2mm footprint
- Programmable output voltage from 0.591-5.5Vdc
- High power conversion efficiency at 93%
- 600kHz switching for fast transient response



- SIP PoL
- 0.41"x0.65"x0.4" (10.4x16.5x10.2mm)

[www.murata-ps.com/n-okr1](http://www.murata-ps.com/n-okr1)

## Programmable Output 3-Amp SIP DC/DC PoLs

### Okami OKR-T/3-W12-C Series



Base Model Number	Output			Input	Efficiency
	Current	Voltage	Power	Voltage	
	A	Vdc	W	Vdc	Typical
OKR-T/3-W12	3	0.591-6	15.0	12 (4.5-14)	93%

#### Features

- Miniature SIP package suited to space-constrained applications
- Over temperature and over current protection
- High power conversion efficiency at 93%
- Remote On/Off with positive or negative polarity

#### Specifications

- High power conversion efficiency at 93%
- Programmable output voltage from 0.591-6.0Vdc
- 4.5-14 Vdc input voltage range
- 600kHz switching for fast transient response



- SIP PoL
- 02.0"x0.5"x0.37" (50.8x12.7x9.4mm)

[www.murata-ps.com/n-okx1](http://www.murata-ps.com/n-okx1)

## Programmable Output 10/16-Amp SIP DC/DC PoLs

### Okami OKX-T/10 & T/16-D12 Series



Base Model Number	Output			Input	Sequence/Tracking	Efficiency
	Current	Voltage	Power	Voltage		
	A	Vdc	W	Vdc		Typical
OKX(2)-T/10-D12	10	0.7525-5.5	50	12 (8.3-14)	✓	94%
OKX(2)-T/16-D12	16		80			

#### Features

- Able to drive 1000μF capacitive loads
- Industry-standard (DOSA) SIP format
- Outstanding thermal derating performance
- On/Off control, Sense and optional Sequence/Tracking input

#### Specifications

- Remote On/Off with positive or negative polarity
- High power conversion efficiency up to 94.5%
- Programmable output voltage from 0.7525-5.5Vdc
- UL/EN/IEC 60950-1 safety approvals





## Programmable Output SMT 10/16-Amp DC/DC PoLs

### Okami OKY-T/10 & T/16-D12 Series



Base Model Number	Output			Input	Sequence/Tracking	Efficiency
	Current	Voltage	Power	Voltage		Typical
	A	Vdc	W	Vdc		
OKY(2)-T/10-D12	10	0.7525-5.5	50	12 (8.3-14)	✓	94.5%
OKY(2)-T/16-D12	16		80			94%

#### Features

- Available with 10A or 16A Output current
- Drives 1000  $\mu$ F ceramic capacitive loads
- Optional Sequence/Tracking feature
- Outstanding thermal performance and derating
- DOSA-compatible SMT package

#### Specifications

- Non-isolated output adjustable from 0.7525 to 5.5 Volts up to 16 Amps
- Remote On/Off with positive or negative polarity
- High efficiency up to 94.5%
- Designed to meet UL/EN/IEC 60950-1 safety approvals

- SMT PoL
- 1.3"x0.53"x0.33" (33x13.5x8.4mm)

[www.murata-ps.com/n-oky1](http://www.murata-ps.com/n-oky1)



## Programmable Output 3 and 5-Amp SMT PoLs

### Okami OKY-T/3, T/5-W5 Series



Base Model Number	Output			Input	Efficiency
	Current	Voltage	Power	Voltage	Typical
	A	Vdc	W	Vdc	
OKY-T/3-W5	3	0.7525-3.63	10.9	5 (2.4-5.5)	94%
OKY-T/5-W5	5		18		96%

#### Features

- Drives 1000  $\mu$ F ceramic capacitive loads
- DOSA compliant, industry standard SMT packages
- Over temperature and over current protection
- Choice of 3 Amp (T/3) or 5 Amp (T/5) output current models

#### Specifications

- 300 KHz operation
- High power conversion efficiency at 96%
- Programmable output voltage of 0.75Vdc to 3.63Vdc
- Remote On/Off with positive or negative polarity

- SMT PoL
- 0.47"x0.82"x0.28" (11.9x20.8x7.0mm)

[www.murata-ps.com/n-oky2](http://www.murata-ps.com/n-oky2)



## Industrial Input Range 3-Amp SMT DC/DC PoLs

### Okami OKI Series



Base Model Number	Output			Input	Efficiency
	Current	Voltage	Power	Voltage	Typical
	A	Vdc	W	Vdc	
OKI-T/3-W40	3	0.75-5.5	15	24 (16-40)	88%

#### Features

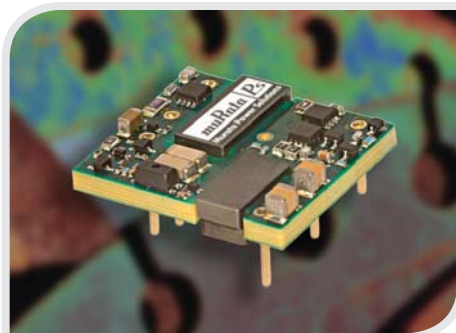
- Drives 1000  $\mu$ F ceramic capacitive loads
- Outstanding thermal derating performance
- Over temperature and over current protection
- 16-40Vdc input voltage range

#### Specifications

- Programmable output voltage from 0.7525-5.5Vdc
- 3 Amp output current models
- High power conversion efficiency 88% at 5 Vout
- Remote On/Off with positive or negative polarity

- SMT PoL
- 0.47"x0.82"x0.28" (11.9x20.8x7.0mm)

[www.murata-ps.com/n-oki1](http://www.murata-ps.com/n-oki1)



- Isolated Wide-Range
- 1.1"×0.96"×0.32" (27.9×24.4×8.1mm)

[www.murata-ps.com/n-uei15](http://www.murata-ps.com/n-uei15)

## 15W Isolated Wide Input Range DC/DC Converters

### UEI15 Series



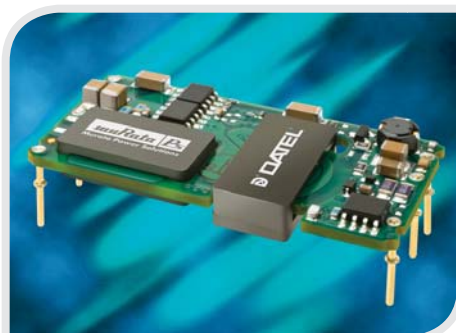
Base Model Number	Output			Input		Efficiency
	Current	Voltage	Power	Voltage (Vdc)		
	A	Vdc	W	24 (9-36)	48 (18-75)	Typical
UEI15-033	4.5 / 5	3.3	14.85 / 16.5	✓	✓	88.8 / 89%
UEI15-050	3	5	15			86 / 87.3%
UEI15-120	1.3	12	15.6			84.5 / 85%
UEI15-150	1.1	15	16.5			85 / 85.3%

#### Features

- Industry standard package and pinout
- Wide range input voltages 9-36 and 18-75 Vdc
- Stable operation with no required external components
- Up to 15 Watts output power with overtemperature shutdown

#### Specifications

- Isolation up to 2250 Vdc (basic)
- Fixed output voltages from 3.3V to 15V
- 9-36Vdc or 18-75Vdc inputs
- Usable -40 to 85°C temperature range (with derating)
- Remote On/Off with positive or negative polarity



- Isolated Wide-Range
- 0.92"×1.92"×0.35" (23.4×48.8×8.9)

[www.murata-ps.com/n-uei30](http://www.murata-ps.com/n-uei30)

## 30W Isolated Wide-Range DC/DC Converters

### UEI30 Series



Base Model Number	Output			Input		Efficiency
	Current	Voltage	Power	Voltage (Vdc)		
	A	Vdc	W	24 (9-36)	48 (18-75)	Typical
UEI30-033	9	3.3	29.7	✓	✓	88.8 / 89%
UEI30-050	6	5	30			86 / 87.3%
UEI30-120	2.5	12				84.5 / 85%
UEI30-150	2	15				85 / 85.3%

#### Features

- Industry standard open-frame package and pinout
- Extensive self-protection shutdown features
- High efficiency synchronous rectifier forward topology

#### Specifications

- Wide range input voltages 9-36 and 18-75Vdc
- Efficiency levels up to 91%
- Remote On/Off with positive or negative polarity
- -40 to +85°C temperature range



- Isolated Wide-Range
- 1.50"×1.90"×0.38" (38.1×48.3×9.7mm)

[www.murata-ps.com/n-uei5060](http://www.murata-ps.com/n-uei5060)

## 50-60W Isolated Wide-Range DC/DC Converters

### UEI Series



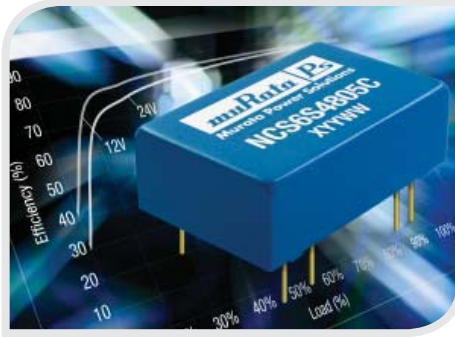
Base Model Number	Output			Input		Efficiency
	Current	Voltage	Power	Voltage (Vdc)		
	A	Vdc	W	24 (9-36)	48 (18-75)	Typical
UEI-3.3	15 / 18	3.3	49.5 / 59.4	✓	✓	88.5 / 89.5%
UEI-5	10 / 12	5	50 / 60			90 / 91%
UEI-12	4.2 / 5	12	50.4 / 60			89.5 / 89.8%
UEI-15	3.3 / 4	15	49.5 / 60			89.3 / 90%

#### Features

- Highest current from industry-standard open-frame package and pinout
- Start up capability into pre-biased loads
- Extensive self-protection shutdown features
- High efficiency synchronous rectifier forward topology

#### Specifications

- Up to 50-60W total output power
- Remote On/Off with positive or negative polarity
- Isolation up to 2250 Vdc (basic insulation)
- -40 to +85°C temperature range with derating



## Isolated 6W 4:1 Input Single Output DC/DC Converters

### NCS6 Series

Base Model Number	Voltage		Output Current 100% Load	Input Current		Ripple & Noise (Typ.) mV p-p	Efficiency Typical %
	Input (Nom.)	Output		0% Load	100% Load		
	V	V	A	mA	mA		
NCS6S12	12	3.3/5/12/15	1.52/1.2/0.5/0.4	10/7/10/12	550/610/580/580	30	78/82/86/87
NCS6S48	48			10/6/7/7	150/160/150/150	40/30/30/30	76/80/84/84

#### Features

- 4:1 Wide range voltage input
- Industry-standard pinout and package
- No electrolytic capacitors
- Low noise
- Under voltage lock out

#### Specifications

- 1.5kVDC Isolation
- Operating temperature range -40°C to 85°C
- 0.06% Typical load regulation
- 12V & 48V Nominal input
- Metal case

- 4:1 Input
- 1.26"x0.79"x0.39" (32x20x10mm)

[www.murata-ps.com/n-ncs6](http://www.murata-ps.com/n-ncs6)



## Isolated 1W Wide Input DC/DC Converters

### NTF Series

Base Model Number	Voltage		Output Current 100% Load	Input Current		Efficiency	
	Input (Nom.)	Output		0% Load	100% Load	Min.	Typical
	V	V	mA	mA	mA	%	%
NTFS05	5	5/12/15	200/83/66	25/30/60	320/300/320	60.5/63.5/60.5	62/67/63
NTFS12	12			10/12/15	110/130/120	68/65/65	73/66/67
NTFS24	24			6/8/9	120/60/60	65	70/68/67

#### Features

- Regulated output
- Lead frame technology
- Internal SMD construction
- MTTF up to 1.4 million hours
- Multilayer ceramic capacitors

#### Specifications

- 1kVDC Isolation
- Efficiency from 60.5%
- Wide temperature performance -40°C to 85°C
- 5V, 12V, & 24V Input
- 5V, 12V & 15V Output

- Wide Input
- 0.70"x0.50"x0.26" (17.8x12.7x6.6mm)

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



## Isolated 1W Dual Output DC/DC Converters

### MEA Series



Base Model Number	Voltage		Current Output	Load Regulation (Max.)	Efficiency
	Input	Output			
MEA1D05	5V	±5/9/12/15V	±100/55/42/33mA	5.4/4.5/5.0/4.5%	to 87%
MEA1D12	12V	±5/9/12/15V	±100/55/42/33mA	4.0/3.0/3.5/3.0%	to 89%
MEA1D15	15V	±5/9/12/15V	±100/55/42/33mA	3.5/2.5/2.5/2.5%	to 89.5%
MEA1D24	24V	±5/9/12/15V	±100/55/42/33mA	3.5/2.5/2.5/2.5%	to 88.5%
MEA1D48	48V	±5/9/12/15V	±100/55/42/33mA	4.0/3.0/3.0/2.5%	to 83.5%

#### Features

- Load regulation from 1.3%
- Power sharing on output
- Fully encapsulated with toroidal magnetics
- Output voltage tolerance envelope: 9%
- No electrolytic or tantalum capacitors

#### Specifications

- 1kVDC Isolation
- Wide temperature performance -40°C to 85°C
- 5V, 12V, 15V, 24V & 48V input
- 5V, 9V, 12V, & 15V output
- Power density 0.85W/cm<sup>3</sup>

- Dual Output
- 0.77"x0.39"x0.24" (19.5x10.0x6.0mm)

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





- 1W Single Output
- 0.77"x0.39"x0.24" (19.5x10x6mm)

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

## 3kVDC Isolated 1W Single Output DC/DC Converters

### MEV1 Series



Base Model Number	Voltage		Output Current	Load Regulation	Efficiency
	Input (Nom.)	Output		(Max.)	Typical
MEV1S05	5V	5/9/12/15V	200/111/84/67mA	6.2/5.5/5.5/5%	84/86.5/87/87.5%
MEV1S12	12V			5/3.3/3.6/2.9%	84/86/88/88%
MEV1S15	15V			5/3.5/3.5/3.5%	83.5/86.5/87.5/89%
MEV1S24	24V			5/3.5/3.5/3%	84/86.5/87.5/87.5%
MEV1S48	48V			5/3.5/3/3%	79.5/82/82/82.5%

#### Features

- Industry standard pinout
- Fully encapsulated with toroidal magnetics
- No electrolytic or tantalum capacitors
- Load regulation from 1.9%

#### Specifications

- Efficiency to 89% typ.
- Power density 0.85W/cm<sup>3</sup>
- 3kVDC isolation (1 minute)
- UL 60950 pending



- 2W Single & Dual Output
- 0.77"x0.4"x0.30" (19.65x10.15x7.65mm)

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

## 3kVDC Isolated 2W Single & Dual Output DC/DC Converters

### NMK Series



Base Model Number	Voltage		Output Current	Load Regulation	Efficiency
	Input (Nom.)	Output		(Max.)	
NMK05xxSAC	5V	5/9/12/15V	400/222/167/133mA	7.3/5.9/5.1/4.5%	to 87%
NMK12xxSAC	12V	5/9/12/15V		4.9/3.1/2.9/2.4%	to 89%
NMK05xxSC	5V	±5/9/12/15V	±200/111/83/67mA	6.2/5.3/4.8/5.2%	to 87%
NMK12xxSC	12V	±5/9/12/15V		3.9/2.8/2.7/2.4%	to 87%

#### Features

- Industry standard pinout
- Fully encapsulated with toroidal magnetics
- Unbalanced loading capability
- No electrolytic or tantalum capacitors

#### Specifications

- Power density 1.33W/cm<sup>3</sup>
- Wide temperature performance at full 2 Watt load, -40°C to +85°C
- 3kVDC isolation (1 minute)
- 5V & 12V input; 5V, 9V, 12V, & 15V output



- 3W Single Output
- 0.77"x0.4"x0.30" (19.65x10.15x7.65mm)

[www.murata-ps.com/n-mev3](http://www.murata-ps.com/n-mev3)

## 3kVDC Isolated 3W Single Output DC/DC Converters

### MEV3 Series



Base Model Number	Voltage		Output Current	Load Regulation	Efficiency
	Input (Nom.)	Output		(Max.)	Typical
MEV3S05	5V	5/9/12/15V	600/333/250/200mA	8/7/7/6%	83/87/85.5/87.5%
MEV3S12	12V			6/5/4.5/4%	84/87.5/88/89%

#### Features

- 3W power from a 2W package size
- Fully encapsulated with toroidal magnetics
- Wide temperature performance at full 3 Watt load, -40°C to 85°C
- No electrolytic or tantalum capacitors

#### Specifications

- Power density 1.9W/cm<sup>3</sup>
- 3kVDC isolation (1 minute)
- 5V & 12V input
- 5V, 9V, 12V, & 15V output





## 1/16-Brick Wide Input Isolated DC/DC Converters

### ULS Series



Base Model Number	Output			Input Voltage Vdc	Efficiency Typical
	Current A	Voltage Vdc	Power W		
ULS-3.3/20	20	3.5	66	48 (36-75)	90%
ULS-12/5	5	12	60		91%

#### Features

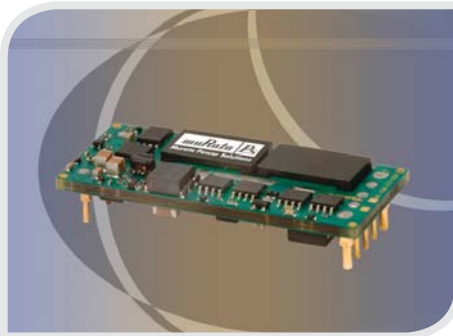
- Industry-standard DOSA brick pinout and package
- Outstanding thermal performance and derating
- Extensive self-protection shutdown features
- High efficiency synchronous rectifier forward topology

#### Specifications

- 36-75 Volts DC input range
- Tiny 0.9" x 1.3" x 0.40" open frame package
- 2250 Volt Basic input/output isolation
- Up to 66 Watts total output power with over-temperature shutdown

■ 1/16-Brick Wide Input

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



## 1/8-Brick Wide Input Isolated DC/DC Converters

### UCE Series



Base Model Number	Output			Input Voltage Vdc	Efficiency Typical
	Current A	Voltage Vdc	Power W		
UCE-1.5/20	20	1.5	30	48 (36-75)	87%
UCE-1.8/30	30	1.8	54		88%
UCE-2.5/20	20	2.5	50		91%
UCE-3.3	15/30	3.3	49.5/99		90/91%
UCE-5/10	10	5	50		90.5%
UCE-12	4.2/8.3	12	50.4/99.6		92/ 90%

#### Features

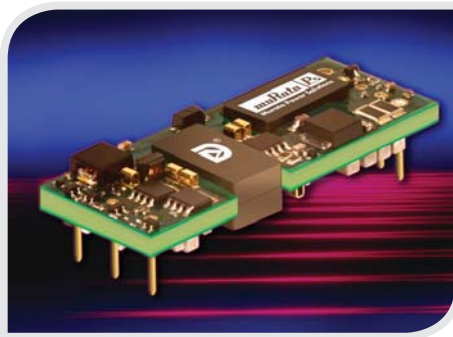
- Industry-standard eighth-brick pinout and package
- Outstanding thermal performance and derating
- Extensive self-protection and short circuit features with no output reverse conduction
- Full temperature and voltage limit protection

#### Specifications

- Outputs from 1.5V to 12V up to 100W
- Low profile 0.4" height with 0.9" x 2.3" footprint
- Remote On/Off with positive or negative polarity
- Interleaved synchronous rectification yields high efficiency over 90%

■ 1/8-Brick Wide Input

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



## 1/8-Brick Ultra Wide Input Isolated DC/DC Converters

### UWE Series



Base Model Number	Output			Input Voltage (Vdc)		Efficiency Typical
	Current A	Voltage Vdc	Power W	12 (9-36)	48 (18-75)	
UWE-3.3/20	20	3.3	66	✓	✓	89/89.5%
UWE-5/15	15	5	75			91/90%
UWE-12/6	6	12	72			91.5/91%
UWE-15/5	5	15	75			91.5%
UWE-24/3	3	24	72			89.5%

#### Features

- Synchronous rectification yields very high efficiency and low power dissipation
- Outstanding thermal performance and derating
- Industry-standard eighth-brick package
- On/Off control, trim and remote sense functions

#### Specifications

- Two wide input ranges: 9-36 Vdc or 18-75 Vdc
- Fixed output from 3.3 to 24 Volts DC up to 75W
- Up to 1500 Volt DC isolation
- Operating temperature range from -40 to +85°C
- Remote On/Off with positive or negative polarity

■ 1/8-Brick Ultra Wide Input

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



#### ■ 1/4-Brick Ultra Wide Input

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

## 1/4-Brick Ultra Wide Input Isolated DC/DC Converters

### UQQ Series



Base Model Number	Output		Power W	Input Voltage (Vdc)		Efficiency Typical
	Current A	Voltage Vdc		12 (9-36)	48 (18-75)	
UQQ-3.3	25	3.3	82.5	✓	✓	88%
UQQ-5	17/20	5	85/100	✓	✓	90.5/84.5%
UQQ-12	8	12	96	✓	✓	89/89.5%
UQQ-15	7	15	105	✓		90.5%
UQQ-24	4	24	96	12 (10-36)		89%

#### Features

- Standard quarter-brick package/pinout
- Outstanding thermal performance
- Fully I/O protected; thermal shutdown

#### Specifications

- 12V or 48V nominal input
- Output voltages: 3.3, 5, 12, 15 or 24V
- Fully isolated, 2250Vdc
- On/off control, trim and sense functions



#### ■ 1/4-Brick Wide Input

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

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

## 1/4-Brick Wide Input Isolated DC/DC Converters

### UCQ Series and HPQ Series



Base Model Number	Output		Power W	Input Voltage (Vdc)		Efficiency Typical
	Current A	Voltage Vdc		24 (18-36)	48 (36-75)	
UCQ-1.2	30	1.2	36			83%
UCQ-1.5	25/40	1.5	37.5/60			83/86%
UCQ-1.8	30	1.8	54			86%
UCQ-2.5	40/30	2.5	100/75			84/87%
UCQ-3.3	35/20/30	3.3	115.5/66/99	✓	✓	89/90/91%
UCQ-5	20	5	100			91.5/92%
UCQ-12	8.3	12	99.6			91%
HPQ-3.3/50	50	3.3	165			90%

#### Features

- Standard quarter-brick package/pinout
- Outstanding thermal performance
- Fully I/O protected; thermal shutdown

#### Specifications

- 24V or 48V nominal input
- Outputs: 1.2V to 12V
- Fully isolated, 2250Vdc (BASIC)



#### ■ 1/2-Brick Wide Input

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

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

## 1/2-Brick Wide Input Isolated DC/DC Converters

### UCH Series and HPH Series



Base Model Number	Output		Power W	Input Voltage (Vdc)		Efficiency Typical
	Current A	Voltage Vdc		24 (18-36)	48 (36-75)	
UCH-1.8	40	1.8	72			87%
UCH-2.5	40	2.5	100			89%
UCH-3.3	10/15/35/30	3.3	33/49.5/115.5/99	✓		89/90%
UCH-5	10/20/30	5	50/100/150			89/90.5/91%
UCH-12	4.2/12.5	12	50.4/150		✓	90.5/92.6%
UCH-15	6.7	15	100.5			92%
HPH-3.3/70	70	3.3	231			90%
HPH-5/40	40	5	200			91%
HPH-12/30	30	12	360			93%

#### Features

- Input under and output overvoltage shutdown
- Output current limiting & short-circuit protection
- On/off, Vout trim and sense functions

#### Specifications

- Fully isolated, 2250Vdc
- Remote On/Off with positive or negative polarity
- Meets UL/EN/IEC60950-1 safety approvals



- Radial Lead Shielded Inductors
- Ø0.413" (Ø10.5mm)

[www.murata-ps.com/n-1200rs](http://www.murata-ps.com/n-1200rs)  
[www.murata-ps.com/n-1200lrs](http://www.murata-ps.com/n-1200lrs)

## Through Hole Radial Lead Shielded Inductors

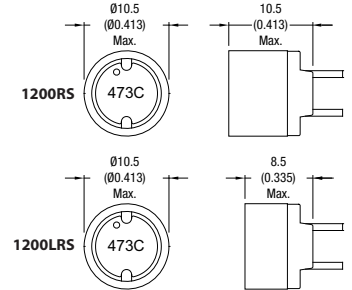
### 1200RS & 1200LRS Series

Base Model Number	Number of Models in Series	Available Performance Values					
		Inductance (L)		Current (I <sub>dc</sub> )		DC Resistance (R <sub>dc</sub> )	
		From	To	From	To	From	To
1200RS	13	10µH	1000µH	0.44A	4.6A	23mΩ	1500mΩ
1200LRS	22	6.8µH	22000µH	0.073A	4.7A	20mΩ	70000mΩ

#### Description

The 1200RS Series of inductors is suitable for power line filtering in low to medium current applications such as switching power supply circuits. The integral ferrite shield makes these devices ideal for protecting circuits susceptible to EMI.

For versions with a wider inductance range in a lower profile package see our 1200LRS Series.



- Converter Transformers
- 0.385" x 0.384" x 0.25"  
(9.77mm x 9.14mm x 6.35mm)

[www.murata-ps.com/n-782482](http://www.murata-ps.com/n-782482)

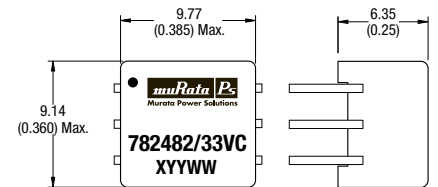
## ADM2482E/ADM2487E Compatible Converter Transformers

### 782482 Series

Part Number	Available Performance Values			
	Voltage		Turns Ratio	Isolation Voltage
	Input	Output		
782482/33VC	3.3V	3.3V	1CT:1.33CT	4000Vdc
782482/53VC	5.0V	3.3V	1.14CT:1CT	

#### Description

The 782482 series of converter transformers are specifically designed for use with Analog Devices chipsets to provide isolated RS-485 and RS-422 interfaces. Carefully controlled turns ratios ensure consistent performance whilst a toroidal construction minimizes EMI.



- SMD Common Mode Chokes
- 0.276" x 0.232" x 0.173"  
(7.0mm x 5.9mm x 4.4mm)

[www.murata-ps.com/n-5000](http://www.murata-ps.com/n-5000)

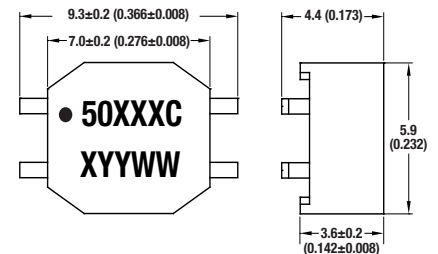
## Surface Mount Common Mode Chokes

### 5000 Series

Base Model Number	Number of Models in Series	Available Performance Values				
		Inductance, L		Current Rating		Isolation
		From	To	From	To	
5000	4	0.47mH	4.7mH	400mA	700mA	500Vrms

#### Description

The 5000 series is a range of surface-mount common mode chokes designed to attenuate up to 100MHz common mode noise where line filtering is required, such as low current switching power supplies and telecom applications.







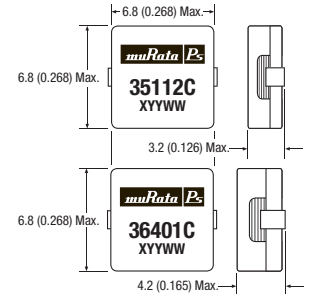
## Flat Coil Surface Mount Power Inductors

### 3500 & 3600 Series

Base Model Number	Number of Models in Series	Available Performance Values					
		Inductance (L)		Current (I <sub>dc</sub> )		DC Resistance (R <sub>dc</sub> )	
		From	To	From	To	From	To
3500	5	0.25μH	1.50μH	6.5A	15.5A	4.5Ω	19Ω
3600	7	0.4μH	4.70μH	3.6A	14.5A	4Ω	41Ω

#### Description

The 3500 & 3600 series offer a range of flat-coil power inductors in two package heights. They are ideal for high power designs which demand reliability in high temperature environments. Used to provide filtering or energy storage, they are suited to many power applications including portable devices, computers and telecom equipment.



- Flat Coil Inductors
- 0.268" x 0.268" x 0.126/0.165"  
(6.8mm x 6.8mm x 3.2/4.2mm)

[www.murata-ps.com/n-3500](http://www.murata-ps.com/n-3500)

[www.murata-ps.com/n-3600](http://www.murata-ps.com/n-3600)



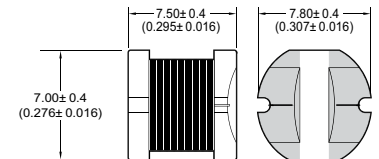
## Bobbin Wound Surface Mount Inductors

### 2200RM Series

Base Model Number	Number of Models in Series	Available Performance Values					
		Inductance (L)		Current (I <sub>dc</sub> )		DC Resistance (R <sub>dc</sub> )	
		From	To	From	To	From	To
2200RM	24	0.01mH	68mH	0.026A	2.52A	0.05Ω	242.0Ω

#### Description

The 2200RM Series is a surface mount alternative to our 2200R Series. It is a general purpose range of inductors suitable for low to medium current applications. Their small footprint makes them ideal for high density applications where a chip inductor will not cope with the power requirement.



- Bobbin Wound Inductors
- Ø0.307" (Ø7.8mm)

[www.murata-ps.com/n-2200rm](http://www.murata-ps.com/n-2200rm)

## Other Magnetics Products Available...

### Surface Mount Inductors

- Bobbin Type
- Flat Coil
- Toroidal
- Miniature/Low Profile
- Shielded/Unshielded
- Single/Dual Wound



### Through Hole Inductors

- Radial Lead
- Axial Lead
- Bobbin Type
- Toroidal



### Common Mode Chokes

- Surface Mount
- Through Hole
- Designed to attenuate up to 100MHz common mode noise



### Pulse Transformers

- Surface Mount
- Through Hole
- General Purpose
- Network Support
- Agency Approved
- Digital Audio



### Current Sense Transformers

- Surface Mount
- Through Hole
- 10A/15A Sensing
- 20 to 200 Turns Versions





## Four-Function AC Power Meters

### DATEL ACM20 Series



Base Model Number	Input Current	Input Voltage	Power	Frequency
	Amps	Volts	Watts	Hz
ACM20-5-AC1	32	85-264Vac	9999	47-63
ACM20-4-AC1	100		26.4 kW	

#### Features

- Displays AC Volts, Amps, Watts, and Power Factor
- User-selectable display modes: continuous auto cycling, or fixed reading
- Universal 85-264Vac (47-63Hz) operating voltage range
- Built-in current transformers simplify installation; choice of 32A or 100A ranges

#### Specifications

- Accurate readings: Volts and Amps to  $\pm 1\%$ ; Watts to  $\pm 2\%$ ; Power Factor to  $\pm 3\%$
- Low-power consumption: less than 1/4 watt from 120Vac line
- Frequency-reading models offer 0.1Hz resolution
- One-piece polycarbonate housing fits '0U' & '1U' racks

- Four-Function AC Power Meters
- 2.10"x1.43"x0.51" (53.3x36.3x12.95mm)

[www.murata-ps.com/n-acm20](http://www.murata-ps.com/n-acm20)



## True-rms AC Ammeters with Overcurrent Alarm

### DATEL ACA-20RM-ALM Series

Base Model Number	Input Current	Input Voltage	Input Frequency	Current Transformer	Alarm Setting Range
	Amps	Volts	Hz		Amps
ACA-20RM-5-AC3	30.0	85-140Vac	47-63	Toroid	8 to 30
ACA-20RM-5-AC4		170-264Vac			
ACA-20RM-4-AC3	50.0	85-140Vac		Split-core	13 to 50
ACA-20RM-4-AC4		170-264Vac			

#### Features

- User-settable visual alarm; flashing display indicates overcurrent faults
- Built-in current transformers with two input ranges: 0-30.0A, and 0 to 50A
- Ideal for measuring current in sensitive IT applications
- 50A model features convenient split-core transformer

#### Specifications

- 2000V isolation between ac supply and load conductor
- Two AC power options: 85-140Vac & 170-264Vac (50/60Hz)
- 0.1 Amp resolution;  $\pm 0.4\%$  typical accuracy with 60Hz line
- Bright red LED display with 0.37"/9.4mm high digits

- True-rms AC Ammeters with Alarm
- 2.10"x1.40"x0.73" (53.3x 35.56x18.5mm)

[www.murata-ps.com/n-aca20alarm](http://www.murata-ps.com/n-aca20alarm)



## Daylight Readable, Ruggedized True-rms AC Voltmeters

### DATEL DMU-30ACV Series

Base Model Number	Input Voltage	Input Frequency	Power Supply	Power Supply Current
	Volts	Hz	Volts	(120Vac / 60Hz)
DMU-30ACV-0	0 to 19.99Vac	47-1000	85-264Vac / 110-300Vdc	Full sunlight: 40mA Total darkness: 4mA
DMU-30ACV-1	0 to 199.9Vac			
DMU-30ACV-2	0 to 300Vac			

#### Features

- Measures and displays the true-rms value of complex ac voltages
- Daylight-readable LED display with automatic brightness adjustment
- Three input ranges: 20Vac, 200Vac and 300Vac
- Moisture & impact resistant package offers NEMA-4 / IP65 protection

#### Specifications

- 47-1000Hz input frequency range; accurate with crest factors up to 5
- Operates from universal 85-264Vac or 110-300Vdc
- 2000V isolation between ac power source and input
- $\pm 0.4\%$  typical accuracy with 60Hz inputs

- Daylight Readable, True-rms AC Voltmeters
- 2.85"x1.60"x1.5" (72.39x40.64x38.1mm)

[www.murata-ps.com/n-dmu30acv](http://www.murata-ps.com/n-dmu30acv)

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

[newproducts@murata-ps.com](mailto:newproducts@murata-ps.com)

**SMD Isolated Single Output****NTE Series**

- Lead frame technology
- 1kVDC Isolation
- Efficiency up to 78%
- Co-planarity 0.01mm

**Isolated Single Output****NME Series**

- Industrial temperature range -40°C to +85°C
- Industry standard pinout and package
- UL94 V-0 package material

**Isolated Single Output****HPR1 Series**

- Non-Conductive Case
- High Output Power Density: 10 Watts/Inch<sup>3</sup>
- Extended Temperature Range: -25°C to +85°C

**Isolated Single Output****NKE Series**

- Sub-Miniature SIP & DIP
- 3kVDC Isolation
- 3.3, 5 & 12V Input
- 3.3, 5, 9, 12 & 15V Output

**Isolated Single Output****NPH15 Series**

- 1.5kV isolation
- Versatile control options
- Continuous rating to 30W
- No electrolytic capacitors

**Isolated Single Output****NPH10 Series**

- Industry standard center 5-pin
- OCP & OTP
- No electrolytic capacitors
- UL1950 recognized

**Isolated Single Output****NML Series**

- 1kVDC isolation
- Wide temperature performance at full 2 watt load, -40°C to 85°C
- Power density 2W/cm<sup>3</sup>

**Isolated Single Output****NDY Series**

- 2:1 wide input range
- Low profile 24 pin case
- UL 94V-0 package material
- Operating temperature range -40°C to 85°C

**Isolated Single Output****LME Series**

- 1kVDC isolation
- High efficiency for low power applications
- SIP & DIP package styles
- Power density 0.36W/cm<sup>3</sup>

**Isolated Single Output****NMG Series**

- Industry standard pinout
- 1kVDC isolation
- 5 & 12V input
- 5, 9, 12, & 15V output
- Class-leading efficiency

**Isolated Single & Dual Output****NMV Series**

- 3kVdc 1 minute isolation test voltage
- 5, 12, & 15V input
- 5, ±5, 9, ±9, 12, ±12, 15 and ±15V output

**Isolated Single & Dual Output****PWR13 Series**

- Low Barrier Capacitance
- Low Leakage Current - 2μA Max
- 24-Pin Dip Package
- Internal Filtering

**Isolated Single & Dual Output****NMJ Series**

- 5.2kVdc isolation test voltage
- Reinforced/supplementary insulation
- 3, 5 & 12V input
- 3, 5, 9, 12 & 15V output

**Isolated Dual Output****BWR Series**

- Output voltages: ±5, ±12 or ±15 Volts
- Input voltage ranges: 10-18V, 18-36V or 36-75V
- Industry-standard pinouts

**Isolated Dual Output****NMA Series**

- UL 94V-0 package material
- Power sharing on output
- Industrial temperature range -40°C to +85°C
- 5, 9, 12 & 15V output

**SMD Isolated Dual Output****NTA Series**

- Transfer molded
- Lead frame technology
- 3.3, 5 & 12V Input
- ±3.3, ±5, ±9, ±12 & ±15V Output

**Isolated Triple Output****TWR-A Series**

- 1" x 2" x 0.5" encapsulated package
- ±12V/±15V and 3.3V/5V outputs
- 10-18V, 18-36V or 36-75V inputs

**Single Output Quarter-Brick****UQQ Series**

- 9-36V or 18-75V wide range inputs
- Output current: 4 to 25 Amps
- Output voltages: 3.3, 5, 12, 15 or 24V

**Non-Isolated Programmable Output****VCN Series**

- DDR1, 2, 3 and similar requirements
- 60 or 70 Amp single inline package
- Programmable output voltage

**Intel® VRM 11.1 Solutions****VR111 Series**

- 150A modules in 1U, 1.5U, and 2U heights
- 80A modules in 1U and ultra-low profile
- Vtt and VddQ solutions in development



## Our AC/DC Capabilities

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



### ■ Front End Modules for DPAs

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

### ■ Open Frame

High-efficiency 200-400W single output solutions in 1U chassis

### ■ High-Rel

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



### ■ CompactPCI

High-efficiency 3U x 8HP solutions from 200W to 300W

### ■ Custom Solutions

Custom product solutions from 100W to 5kW; leverage existing product platforms for modifications

## Looking for a Custom Solution?

We have a long and proud history of designing custom solutions to meet even the most stringent and challenging requirements of market leading companies.

Here are some examples:



Customer	Application	Power	Input Voltage	Output Voltage(s)	Dimension
A leading supplier of networking equipment and network management for the Internet	Router	4500W	40 – 75Vdc	–52, 12, 3.3Vdc	210.8 x 210.8 x 185.4mm (8.3" x 8.3" x 7.3")
		400W	Universal AC	12Vdc	152.4 x 63.5 x 61.0mm (6" x 2.5" x 2.4")
	PoE	3000W	220Vac	-54, 5Vdc	13.5" x 4.75" x 1U
		2100W	40 – 72Vdc		13.8" x 4" x 1U
		1100W	Universal AC	-56Vdc	13.2" x 3.2" x 1U
	Switch	400W	40 – 72Vdc Universal AC	12, 5Vdc	12.7" x 2.1" x 1U
A pioneer in building and securing reliable, high performance networks	Router	2800W	220Vac	-52, 12Vdc	11.5" x 5.5" x 1U
	Router Shelf	n/a		n/a	20" x 19" x 3U
One of the world's largest technology companies	Server	1600W		12, 3.3Vdc	13" x 4.75" x 1U
A leading provider of IP service verification platforms and performance test systems	Network Performance Test System	2000W		12, 5Vdc	12" x 4.75" x 1U
One of the world's leading providers of Internet, broadband network and enterprise business solutions	Server	1600W		12, 12Vdc	17.3" x 4" x 2"
Global leader in wireless communications networks	Wireless Networks	1300W Conduction Cool	40 – 60Vdc	32V, 24V, 5Vdc	15" x 2.5" x 2.5"
A leading supplier of networking equipment and network management for the Internet	Smart Grid Network	150W Conduction Cool	Universal AC 88 – 288Vdc	54V, 4.5V	7" x 5" x 1U
			18 – 75Vdc		

## Your online Resource for Power

For the very latest product information including comprehensive datasheets, application notes, and where to buy, visit us online now.

## CHECK Inventory

Find stock ...globally

- Search for parts in stock with our distributors and at our own sites
- Search for up to four parts at a time
- Go straight to a distributor's shopping cart



### New Product Announcements

- All the very latest products from Murata Power Solutions
- Links to datasheets
- Opt to receive via email or RSS Feed



### Product Videos

- Our design engineers talk about the latest challenges in power design



### Twitter.com

- If you're into power, you should follow us on our weekly tweets
- You can find us at twitter.com/murataps



### PCN Alerts

- Sign up to receive our Product Change and EOL notices



### PowerChat

- Online, real-time response to technical and service/support questions
- Staffed by product specialists
- High availability online service - 20 hours per day

# Sales Offices

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

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