



## FEATURES

- UL60950 Reinforced Insulation
- ANSI/AAMI ES60601-1, 2 MOOP's recognition pending
- 4:1 Wide range voltage input<sup>3</sup>
- Operating temperature range -40°C to 85°C
- 5.2kVDC isolation 'Hi Pot Test'
- Typical efficiency to 88%
- 5V, 12V & 48V Nominal input
- Power density 0.94W/cm<sup>3</sup>
- 5mm creepage guaranteed
- Under voltage lock out
- Control pin option

## PRODUCT OVERVIEW

The NCM6 series of DC/DC converters offers single & dual output voltages from wide input voltage ranges ranges of 4.5-9, 9-36V & 18-75V.. The NCM6 is housed in an industry standard package with a standard pinout. The NCM6 is encapsulated for superior thermal performance.

Applications include medical, telecommunication battery powered systems, process control and distributed power systems.

## SELECTION GUIDE

Order Code <sup>1</sup>	Input	Output	Output	Efficiency		Efficiency		Isolation Capacitance	MTTF <sup>2</sup>		
	Voltage	Voltage	Current	5V or 12V or 48V		24V Input					
	Nom.	V	A	Min. %	Typ. %	Min. %	Typ. %				
NCM6D0505C	5	±5	±0.6	78	80			10	492,600		
NCM6D0512C	5	±12	±0.25	81	83			15	537,754		
NCM6D0515C	5	±15	±0.2	81	83			15	462,042		
NCM6S0503C	5	3.3	1.52	73	75			15	548,686		
NCM6S0505C	5	5	1.2	77	80			15	576,445		
NCM6S0512C	5	12	0.5	80	82			20	608,806		
NCM6S0515C	5	15	0.4	80	82			15	566,572		
NCM6D1205C	12	±5	±0.6	81	83	79	80	15	285,466		
NCM6D1212C	12	±12	±0.25	86	88	81	84	25	412,808		
NCM6D1215C	12	±15	±0.2	85	87	82	84	25	366,356		
NCM6S1203C	12	3.3	1.52	75	79	74	77	12	685,045		
NCM6S1205C	12	5	1.2	81	82	79	80	15	475,352		
NCM6S1212C	12	12	0.5	84	86	81	83	25	490,876		
NCM6S1215C	12	15	0.4	85	87	82	84	25	457,651		
NCM6D4805C	48	±5	±0.6	77	80	79	81	10	393,923		
NCM6D4812C	48	±12	±0.25	78	82	82	84	22	444,419		
NCM6D4815C	48	±15	±0.2	81	83	84	86	25	409,328		
NCM6S4803C	48	3.3	1.52	71	74	71	76	12	552,818		
NCM6S4805C	48	5	1.2	74	78	75	80	15	467,793		
NCM6S4812C	48	12	0.5	79	82	83	84	20	520,610		
NCM6S4815C	48	15	0.4	81	83	85	86	25	499,288		

## SELECTION GUIDE (Continued)

Order Code	Input Current				Ripple & Noise	
	0% Load		100% Load			
	Typ. 5V, 12V or 48V Input	mA	0% Load	100% Load		
NCM6D0505C	20	1500			20	
NCM6D0512C	25	1450			20	
NCM6D0515C	30	1450			15	
NCM6S0503C	8	1300			10	
NCM6S0505C	20	1500			20	
NCM6S0512C	25	1500			90	
NCM6S0515C	30	1500			90	
NCM6D1205C	11	600	9	310	100	
NCM6D1212C	13	560	12	300	100	
NCM6D1215C	15	570	13	300	100	
NCM6S1203C	10	525	9	270	60	
NCM6S1205C	10	610	9	315	25	
NCM6S1212C	15	575	12	300	70	
NCM6S1215C	15	575	13	300	105	
NCM6D4805C	6	160	7	310	150	
NCM6D4812C	8	150	9	300	100	
NCM6D4815C	8	150	10	300	150	
NCM6S4803C	10	140	7	275	30	
NCM6S4805C	10	160	7	300	25	
NCM6S4812C	10	150	9	300	70	
NCM6S4815C	10	150	10	300	95	


For full details go to  
[www.murata-ps.com/rohs](http://www.murata-ps.com/rohs)


1 To order with optional control pin insert an 'E' prior to the suffix C, i.e. NCM6S1205EC.

2 Calculated using MIL-HDBK-217F FN2, parts stress method with nominal input voltage at full load.

3. 5V inputs have a 2:1 input range.

All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

**INPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	NCM6X05	4.5	5	9	V
	NCM6X12	9	12	36	
	NCM6X48	18	48	75	
Under voltage lock out	Turn on threshold NCM6X05		4.2		V
	Turn off threshold NCM6X05		3.6		
	Turn on threshold NCM6X12		8.2		
	Turn off threshold NCM6X12		6.5		
	Turn on threshold NCM6X48		14		
	Turn off threshold NCM6X48		13.7		
Reflected ripple current	All variants		10		mA p-p

**ISOLATION CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Flash tested	5200			VDC
Resistance	Viso = 1kVDC	1			GΩ

**OUTPUT CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated power	5V, 12V & 15V output types			6	W
	3.3V output types			5	
	D4812C & D4815C, SXX03C, SXX12C & SXX15C			±2	
Voltage set point accuracy	SXX05C			±2.5	%
	D1212C & D1215C			±3	
	D0505C, D0512C, D0515C, D1205C & D4805C	Positive		±2	
		Negative		±3	
	Low line to high line	Single	0.1	0.5	%
		Dual	0.1	0.75	
Load Regulation	10% total load to 100% total load	NCM6xxx03C, D0512C & D0515C	0.5	1	%
		NCM6xxx05C	0.3	1	
		NCM6Sxx12C, NCM6Sxx15C, D1212C, D1215C, D4812C & D4815C	0.06	0.5	
Cross Regulation	% voltage change on negative output when positive load varies from 12.5% to 37.5% with negative load fixed at 50%	5V		5	%
		12V & 15V		3	
Minimum output load for specification (see application notes)	10% of rated load				
	Peak deviation - Single Output (25-75% & 75-25% swing) - Dual Output (12.5-37.5% & 37.5-12.5% swing)				
Transient Response	SXX03C		10		%Vout
	SXX05C		8		
	S4815		2		
	D0505, S0512 & S0515		5		
	D0512 & D0515		2		
	D1205		6		
	D1212, D1215 & S4812		3		
	D4805 & D4815		9		
	D4812		1		
	S1212 & S1215		4		
	Settling time (within 1% Vout Nom.)		250		
					μs

**ABSOLUTE MAXIMUM RATINGS**

Short-circuit protection (for SELV input voltages)	Continuous
Lead temperature 1.0mm from case for 10 seconds (to JEDEC JESD22-B106 ISS C)	260°C
Input voltage, NCM6X05	10V
Input voltage, NCM6X12	40V
Input voltage, NCM6X48	80V
Control pin input voltage	±20V

**GENERAL CHARACTERISTICS<sup>1</sup>**

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency			300		kHz
Control pin input	Module on (or pin unconnected) Module off			1.0	V

**TEMPERATURE CHARACTERISTICS**

Parameter	Conditions	Min.	Typ.	Max.	Units
Operation		-40		85	
Storage		-50		125	
	D0515, D1212, D1215, D4815, S1212, S1215, S4812, S4815		35		
Case temperature rise above ambient	D0512, D4812, S1203, S1205		40		
	D0505, D1205, D4805, S0503, S0512, 0515, 4803, 4805		45		
	S0505C		47		
Thermal shutdown	Case Temperature			+105	

**RoHS COMPLIANCE INFORMATION**


This series is compatible with RoHS soldering systems with a peak wave solder temperature of 260°C for 10 seconds. The pin termination finish on this product series is a Gold flash (0.05-0.10 micron) over Nickel Preplate. The series is backward compatible with Sn/Pb soldering systems. For further information, please visit [www.murata-ps.com/rohs](http://www.murata-ps.com/rohs)

**APPLICATION NOTES**
**Output Capacitance and start-up times**

The NCM6 series does not require output capacitors to meet datasheet specification. To meet datasheet specification, output capacitance should not exceed:

Part No.	Maximum Load Capacitance (per output)	Start-up times
	µF	ms
NCM6D0505C	220	6
NCM6D0512C	100	12
NCM6D0515C	100	18
NCM6S0503C	470	4
NCM6S0505C	220	7
NCM6S0512C	100	12
NCM6S0515C	100	17
NCM6D1205C	220	5
NCM6D1212C	100	12
NCM6D1215C	100	17
NCM6S1203C	470	2
NCM6S1205C	220	6
NCM6S1212C	100	14
NCM6S1215C	100	17
NCM6D4805C	220	10
NCM6D4812C	100	40
NCM6D4815C	100	60
NCM6S4803C	470	2
NCM6S4805C	220	5
NCM6S4812C	100	15
NCM6S4815C	100	20

**Control Pin**

This provides an OFF function which puts the converter into a low power mode when >3V is applied to the pin. When the control pin is left un-connected or less than 1V the converter is ON

**Minimum Load**

The minimum load to meet full datasheet specification is 10% of the full rated load across the specified input voltage range. Between 0% and 10% output loading, the output voltage will remain within data sheet specification however, output ripple and noise may increase but will still be below 150mV p-p.

**TECHNICAL NOTES**
**ISOLATION VOLTAGE**

'Hi Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' & 'Isolation Test Voltage' are all terms that relate to the same thing, a test voltage, applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

Murata Power Solutions NCM6 series of DC/DC converters are all 100% production tested at their stated isolation voltage. This is 5.2kVDC for 1 second.

A question commonly asked is, "What is the continuous voltage that can be applied across the part in normal operation?"

The NCM6 series has been recognized by Underwriters Laboratory to 250Vrms for Reinforced Insulation.

**REPEATED HIGH-VOLTAGE ISOLATION TESTING**

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

## SAFETY APPROVAL

### ANSI/AAMI ES60601-1

The NCM6 series is pending recognition by Underwriters Laboratory (UL) to ANSI/AAMI ES60601-1 and provides 2 MOOP (means of operator protection) based upon a working voltage of 250 Vrms max., between Primary and Secondary.

### UL 60950

The NCM6 series has been recognised by Underwriters Laboratory (UL) to UL 60950 for reinforced insulation to a working voltage of 250Vrms.

### FUSING

The NCM6 Series of converters are not internally fused so to meet the requirements of UL an anti-surge input line fuse should always be used with ratings as defined below.

Input Voltage, 5V 3A

Input Voltage, 12V 2A

Input Voltage, 48V 1A

All fuses should be UL recognized and rated to at least the maximum allowable DC input voltage.

## CHARACTERISATION TEST METHODS

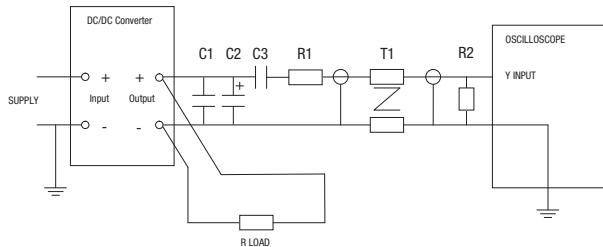
### Ripple & Noise Characterisation Method

Ripple and noise measurements are performed with the following test configuration.

C1	1µF X7R multilayer ceramic capacitor, voltage rating to be a minimum of 3 times the output voltage of the DC/DC converter
C2	10µF tantalum capacitor, voltage rating to be a minimum of 1.5 times the output voltage of the DC/DC converter with an ESR of less than 100mΩ at 100 kHz
C3	100nF multilayer ceramic capacitor, general purpose
R1	450Ω resistor, carbon film, ±1% tolerance
R2	50Ω BNC termination
T1	3T of the coax cable through a ferrite toroid
RLOAD	Resistive load to the maximum power rating of the DC/DC converter. Connections should be made via twisted wires

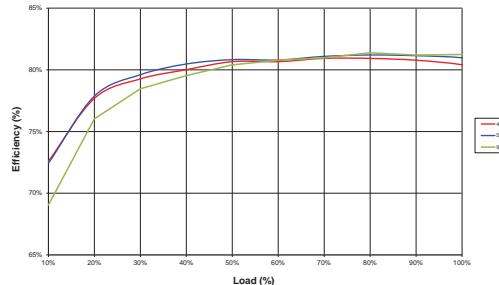
Measured values are multiplied by 10 to obtain the specified values.

Differential Mode Noise Test Schematic

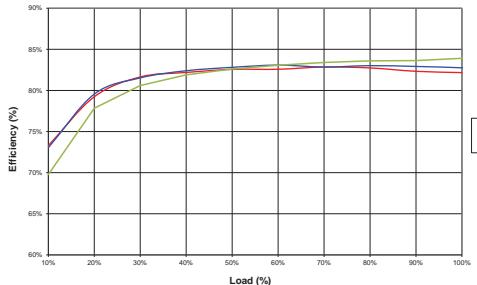


## EFFICIENCY VS LOAD

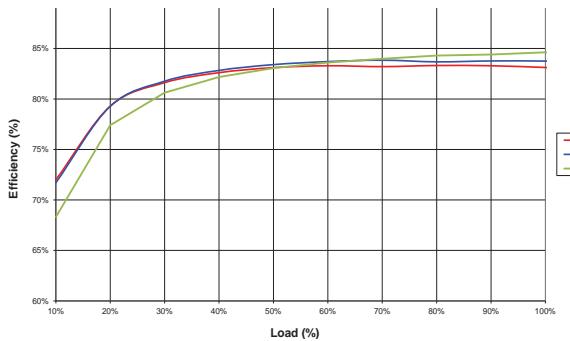
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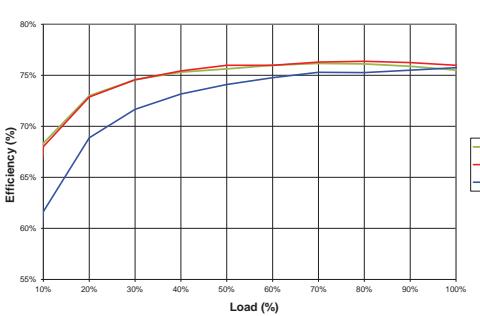
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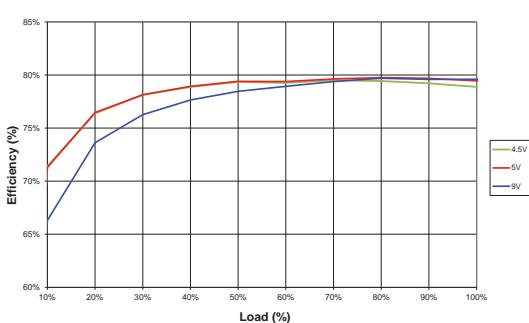
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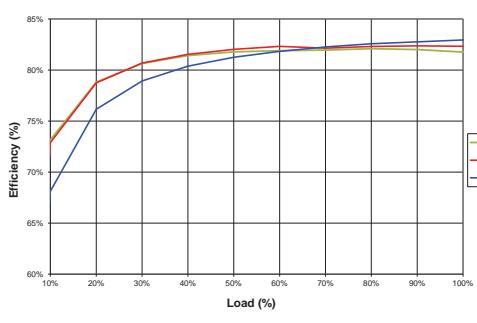
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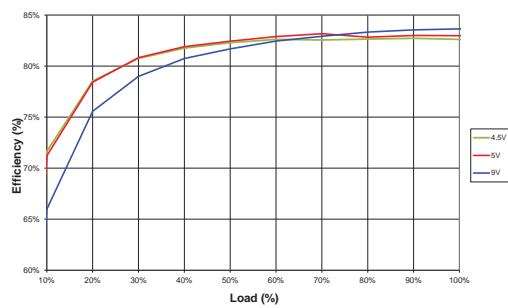
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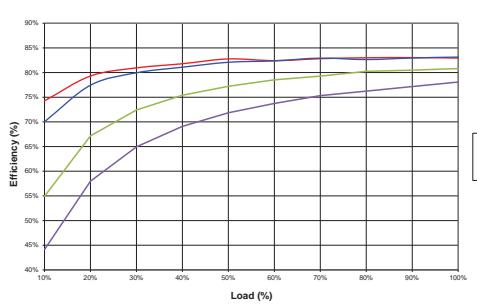
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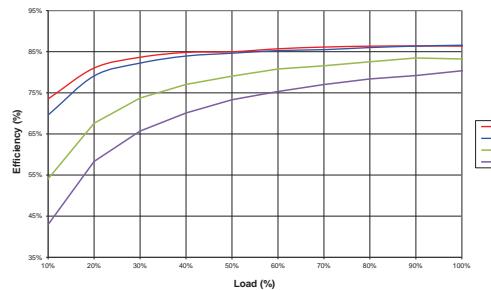


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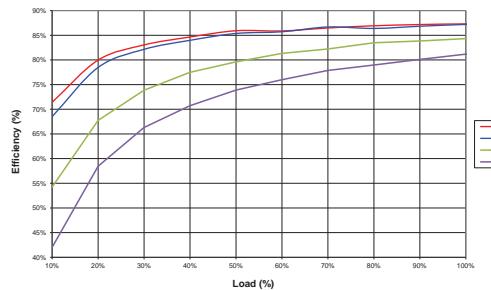


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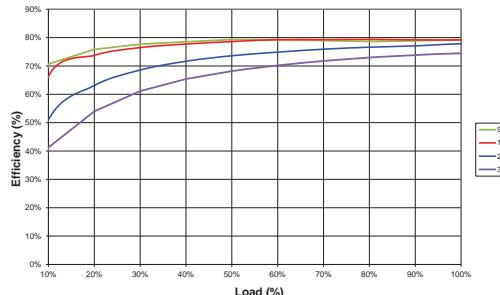
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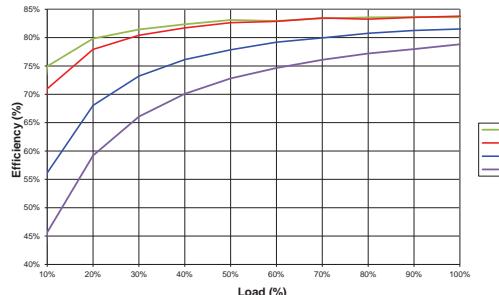
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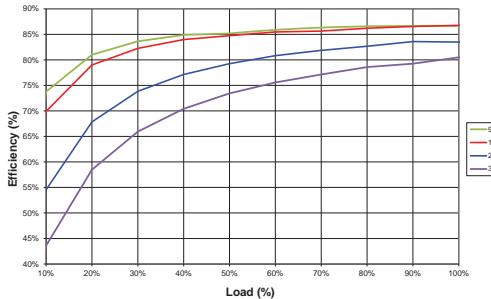
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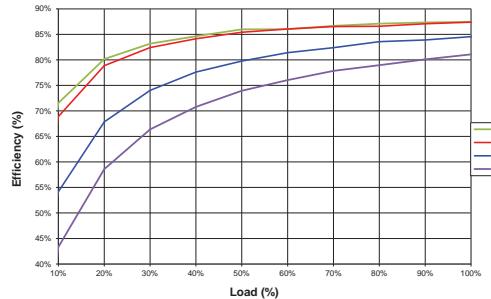
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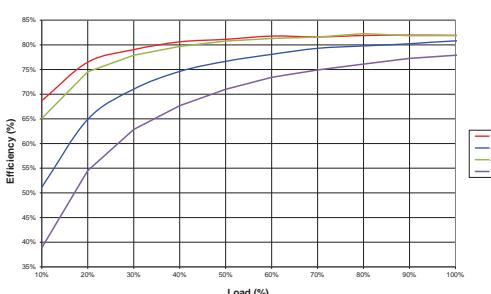
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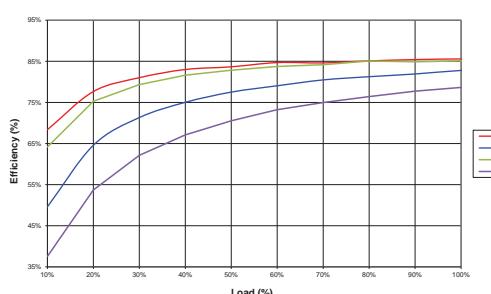
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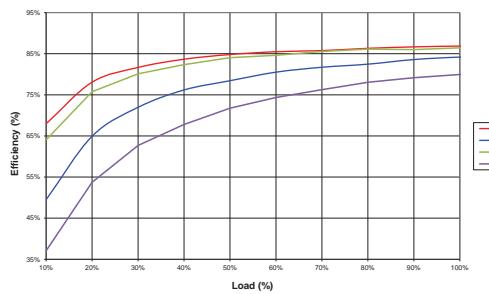


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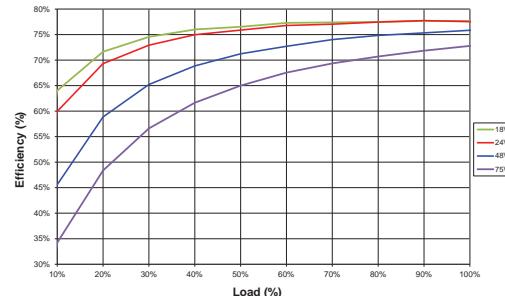


## EFFICIENCY VS LOAD

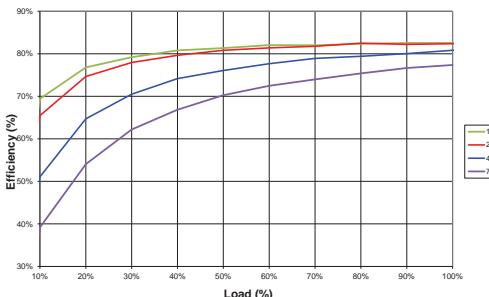
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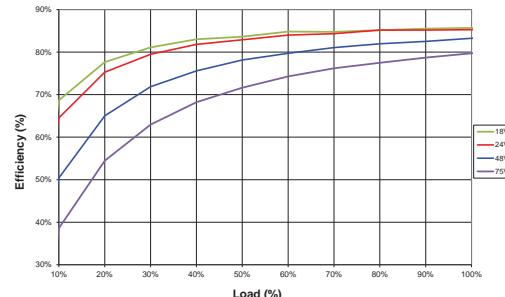
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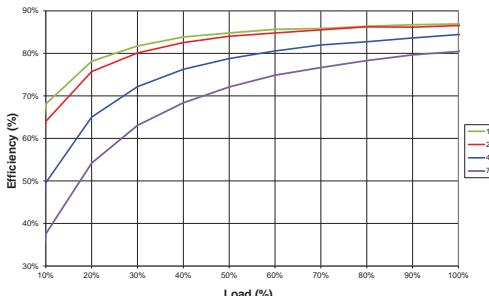
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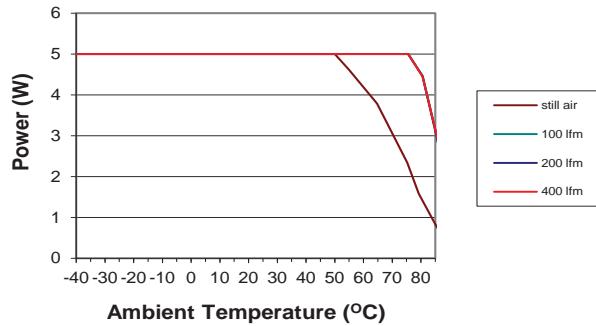


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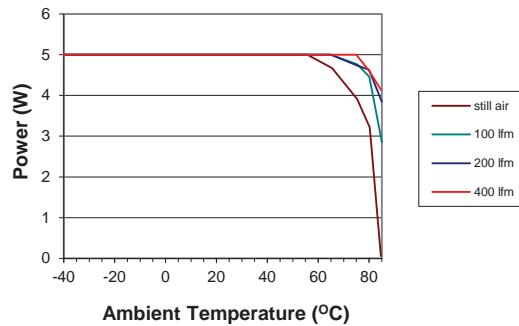


**TEMPERATURE DERATING**

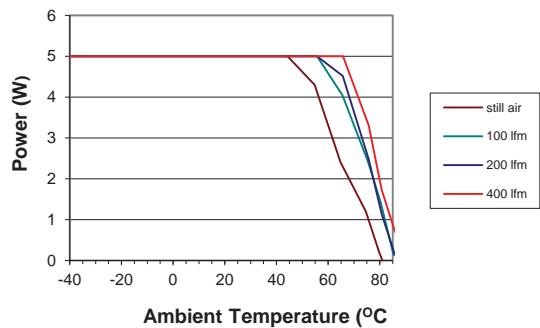
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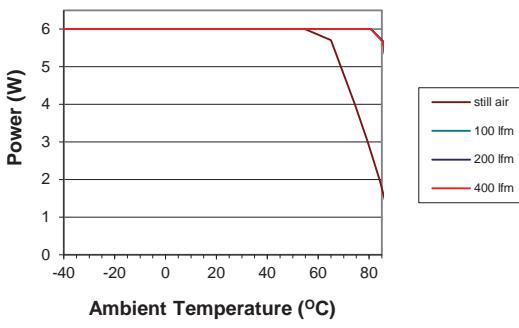
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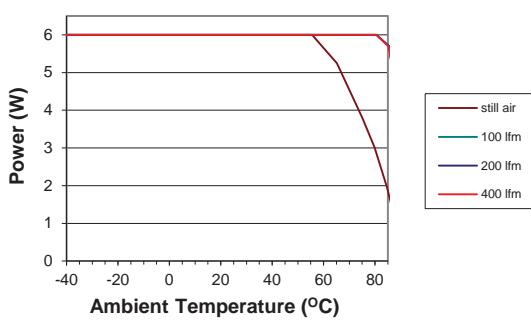
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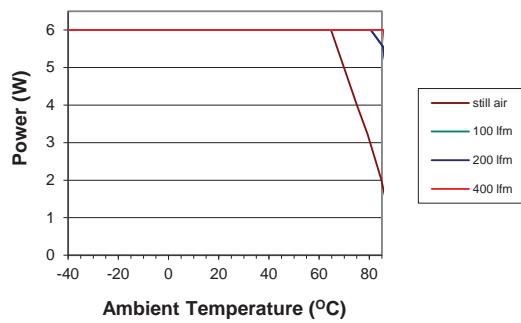
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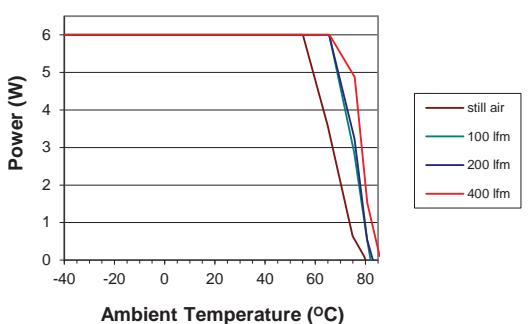
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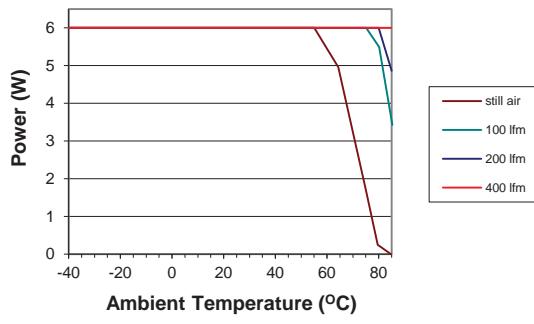
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**NCM6X1205C**

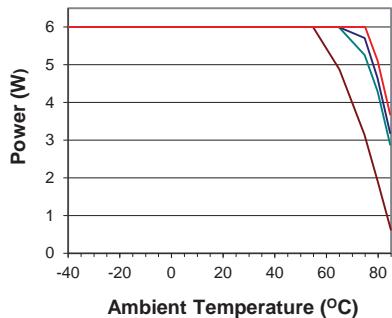


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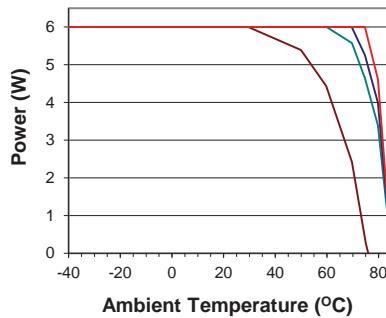


## TEMPERATURE DERATING

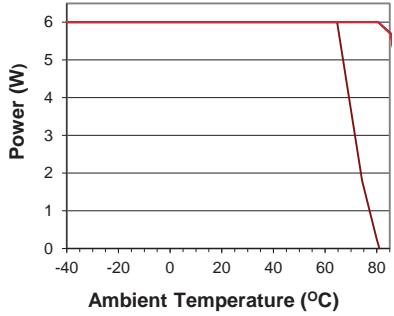
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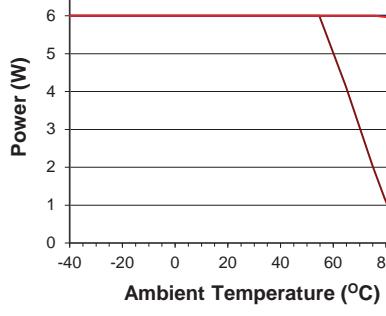
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**NCM6X4812C**



**NCM6X4815C**



## EMC FILTERING AND SPECTRA

### FILTERING

The module includes a basic level of filtering, sufficient for many applications. Where lower noise levels are desired, filters can easily be added to achieve any required noise performance.

A DC/DC converter generates noise in two principle forms: that which is radiated from its body and that conducted on its external connections. There are three separate modes of conducted noise: input differential, output differential and input-output.

This last appears as common mode at the input and the output, and cannot therefore be removed by filtering at the input or output alone. The first level of filtering is to connect capacitors between input and output returns, to reduce this form of noise. It typically contains high harmonics of the switching frequency, which tend to appear as spikes on surrounding circuits. The voltage rating of this capacitor must match the required isolation voltage. (Due to the great variety in isolation voltage and required noise performance, this capacitor has not been included within the converter.)

Input ripple is a voltage developed across the internal input decoupling capacitor. It is therefore measured with a defined supply source impedance. Although simple series inductance will provide filtering, on its own it can degrade the stability. A shunt capacitor is therefore recommended across the converter input terminals, so that it is fed from a low impedance.

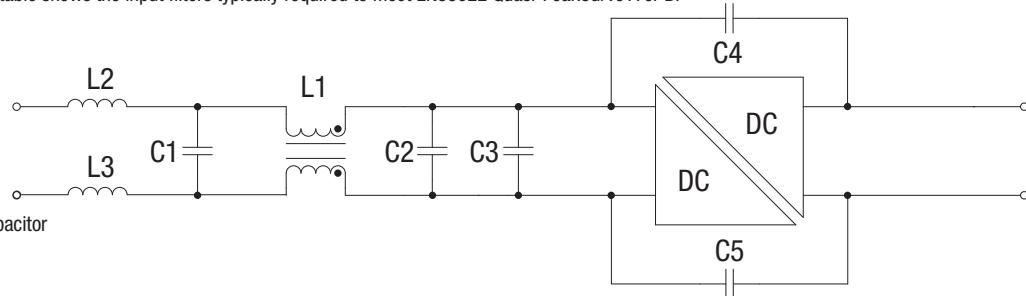
If no filtering is required, the inductance of long supply wiring could also cause a problem, requiring an input decoupling capacitor for stability. An electrolytic will perform well in these situations. The input-output filtering is performed by the common-mode choke on the primary. This could be placed on the output, but would then degrade the regulation and produce less benefit for a given size, cost, and power loss.

Radiated noise is present in magnetic and electrostatic forms. Thanks to the small size of these units, neither form of noise will be radiated "efficiently", so will not normally cause a problem. Any question of this kind usually better repays attention to conducted signals.

## EMC FILTERING AND SPECTRA

## EMC FILTER AND VALUES TO OBTAIN SPECTRA AS SHOWN

The following filter circuit and filter table shows the input filters typically required to meet EN55022 Quasi-PeakCurve A or B.



C1, C2 Polyester or ceramic capacitor

C3 Electrolytic capacitor

C4 & C5 250 VAC Y Rated

## TO MEET CURVE B

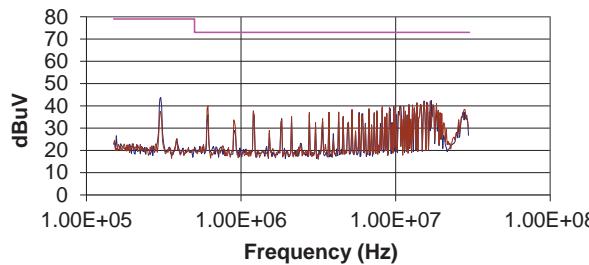
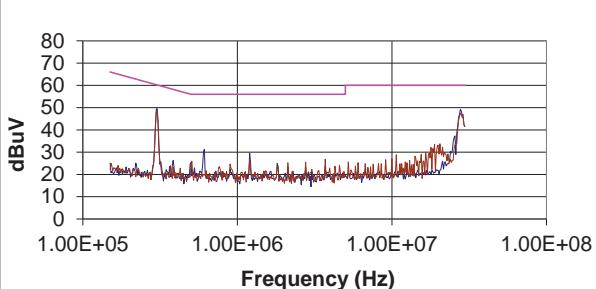
Part Number	C1	C2	C3	C4	C5	L1	L2	L3
NCM6S0503C	1µF	1µF	1000µF	10nF	10nF	51105C	20µH	Not required
NCM6S0505C	1µF	1µF	1000µF	10nF	10nF	51105C	60µH	Not required
NCM6S0512C	1µF	1µF	1000µF	15nF	15nF	51305C	60µH	60µH
NCM6S0515C	1µF	1µF	1000µF	15nF	15nF	51305C	60µH	60µH
NCM6D0505C	1µF	1µF	1000µF	10nF	10nF	51105C	20µH	Not required
NCM6D0512C	1µF	1µF	1000µF	10nF	10nF	51105C	20µH	Not required
NCM6D0515C	1µF	1µF	1000µF	10nF	10nF	51105C	20µH	Not required
NCM6S1203C	1µF	1µF	47µF	10nF	10nF	51105C	Not required	Not required
NCM6S1205C	1µF	1µF	47µF	10nF	10nF	51105C	60µH	Not required
NCM6S1212C	1µF	1µF	47µF	10nF	10nF	51105C	20µH	Not required
NCM6S1215C	1µF	1µF	47µF	10nF	10nF	51105C	20µH	Not required
NCM6D1205C	1µF	1µF	47µF	10nF	10nF	51105C	Not required	Not required
NCM6D1212C	1µF	1µF	47µF	10nF	10nF	51105C	Not required	Not required
NCM6D1215C	1µF	1µF	47µF	10nF	10nF	51105C	20µH	Not required
NCM6S4803C	1µF	1µF	47µF	10nF	10nF	51105C	Not required	Not required
NCM6S4805C	1µF	1µF	47µF	10nF	10nF	51505C	Not required	Not required
NCM6S4812C	1µF	1µF	47µF	10nF	10nF	51505C	Not required	Not required
NCM6S4815C	1µF	1µF	47µF	10nF	10nF	51505C	Not required	Not required
NCM6D4805C	1µF	1µF	47µF	10nF	10nF	51505C	Not required	Not required
NCM6D4812C	1µF	1µF	47µF	10nF	10nF	51505C	60µH	Not required
NCM6D4815C	1µF	1µF	47µF	10nF	10nF	51505C	Not required	Not required

**EMC FILTERING AND SPECTRA**

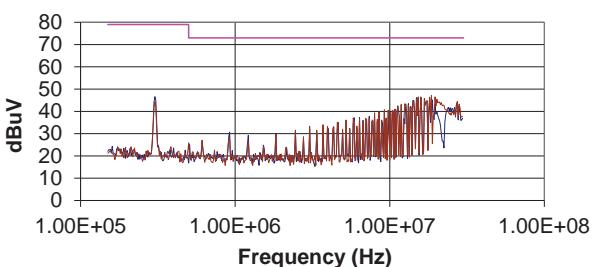
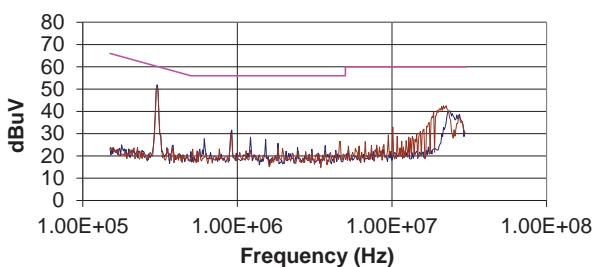
TO MEET CURVE A								
Part Number	C1	C2	C3	C4	C5	L1	L2	L3
NCM6S0503C	1µF	1µF	1000µF	Not required	Not required	51105C	60µH	60µH
NCM6S0505C	1µF	1µF	1000µF	Not required	Not required	51105C	60µH	60µH
NCM6S0512C	1µF	1µF	1000µF	Not required	Not required	51305C	60µH	60µH
NCM6S0515C	1µF	1µF	1000µF	Not required	Not required	51305C	60µH	60µH
NCM6D0505C	1µF	1µF	1000µF	Not required	Not required	51105C	60µH	60µH
NCM6D0512C	1µF	1µF	1000µF	Not required	Not required	51105C	60µH	60µH
NCM6D0515C	1µF	1µF	1000µF	Not required	Not required	51105C	60µH	60µH
NCM6S1203C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6S1205C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6S1212C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6S1215C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6D1205C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6D1212C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6D1215C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6S4803C	1µF	1µF	47µF	Not required	Not required	51105C	60µH	60µH
NCM6S4805C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH
NCM6S4812C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH
NCM6S4815C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH
NCM6D4805C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH
NCM6D4812C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH
NCM6D4815C	1µF	1µF	47µF	Not required	Not required	51505C	60µH	60µH

**EMC FILTERING AND SPECTRA**

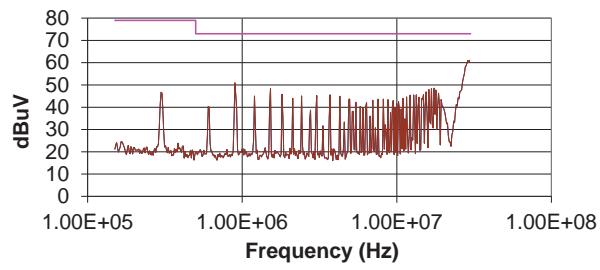
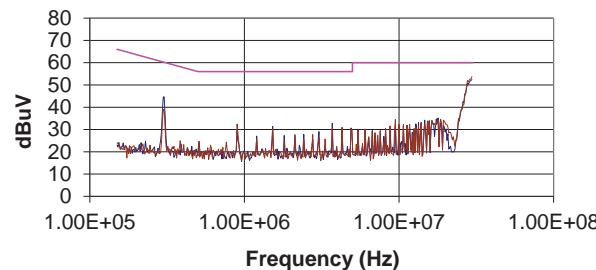
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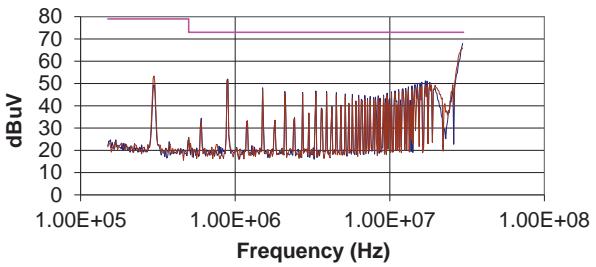
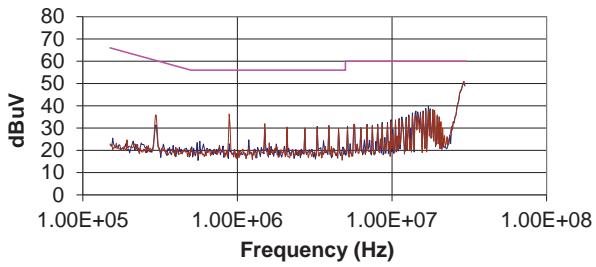
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**NCM6S0512C**

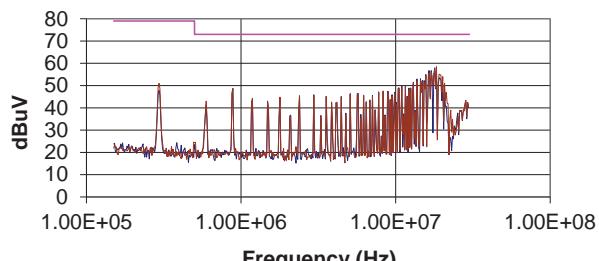
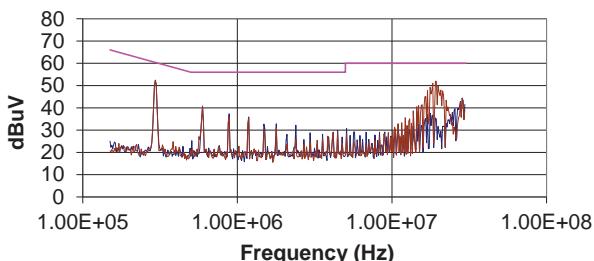


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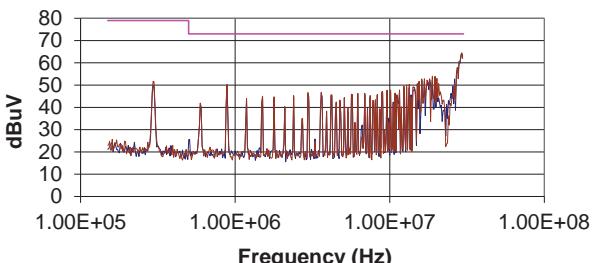
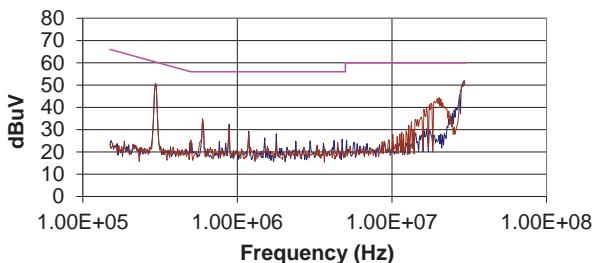


**EMC FILTERING AND SPECTRA**

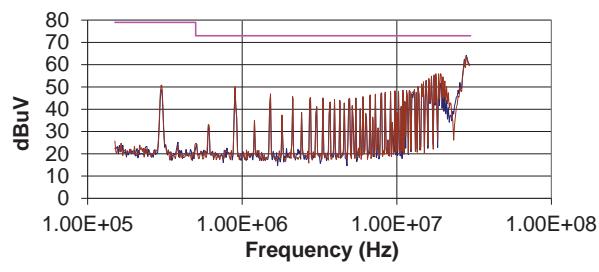
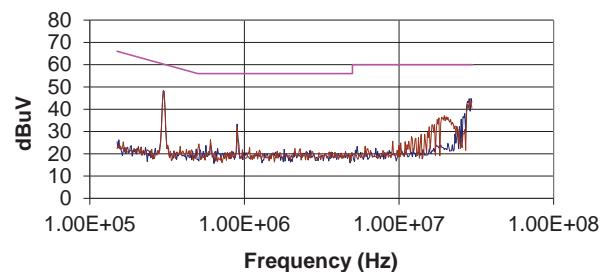
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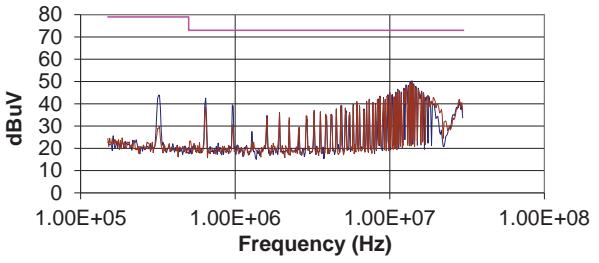
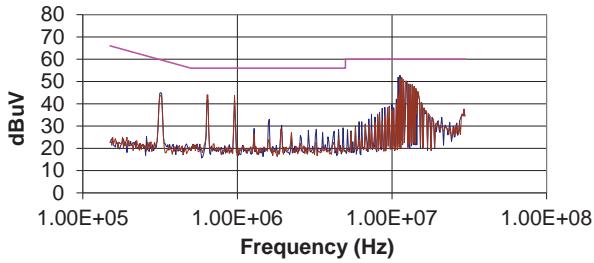
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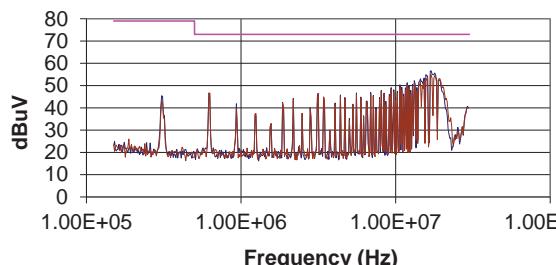
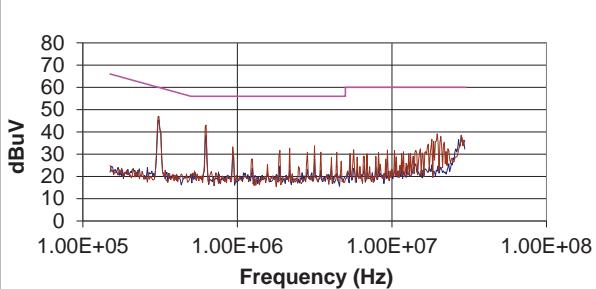


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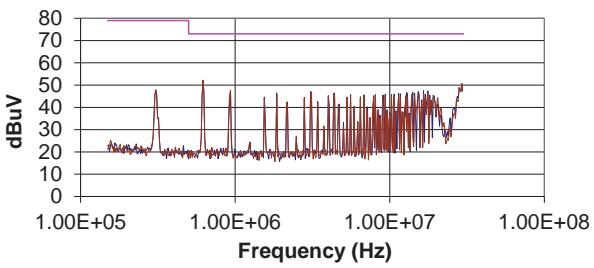
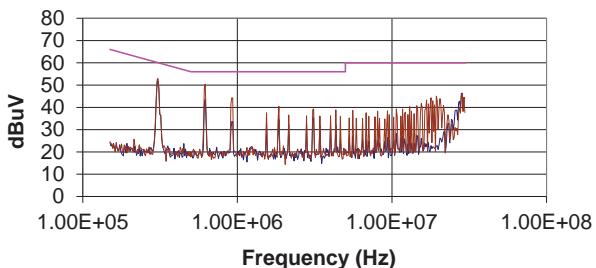


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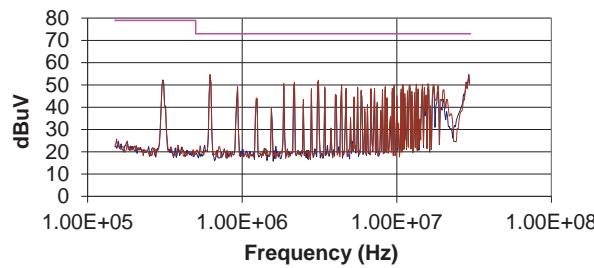
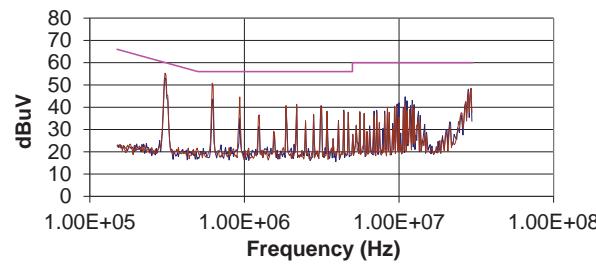
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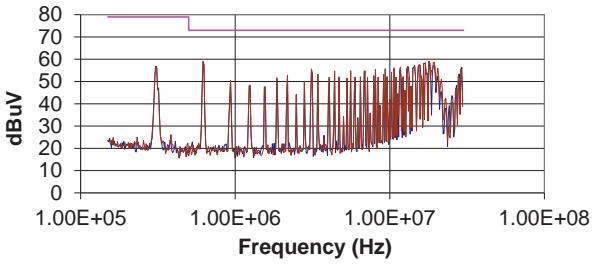
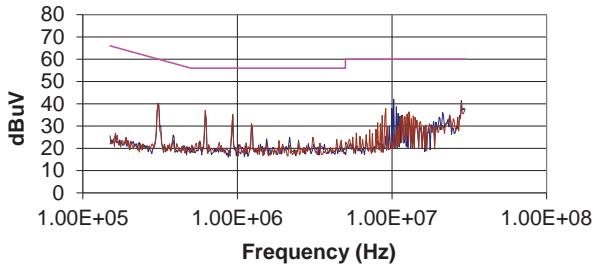
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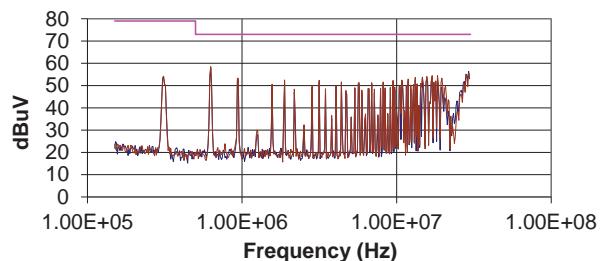
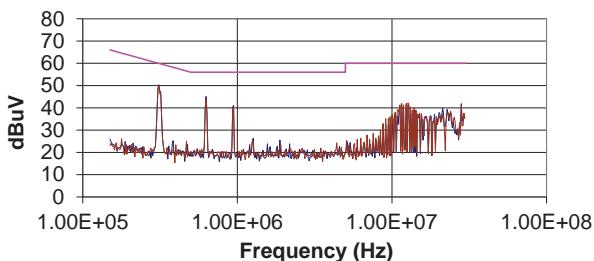


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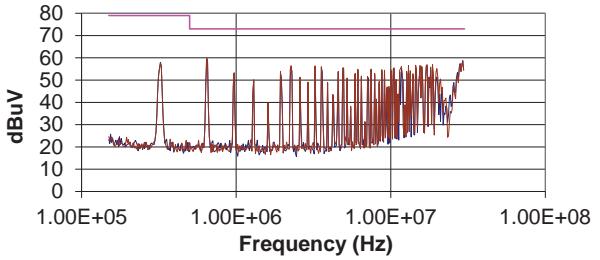
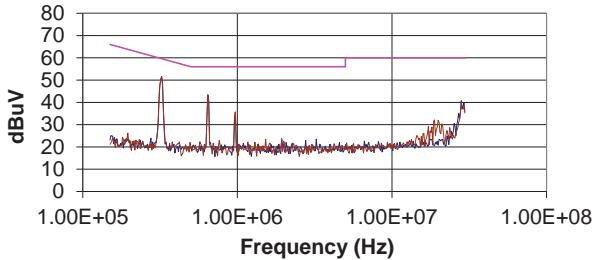


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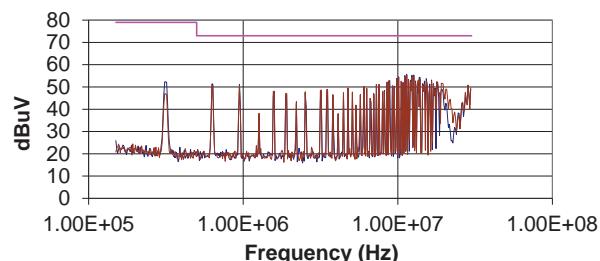
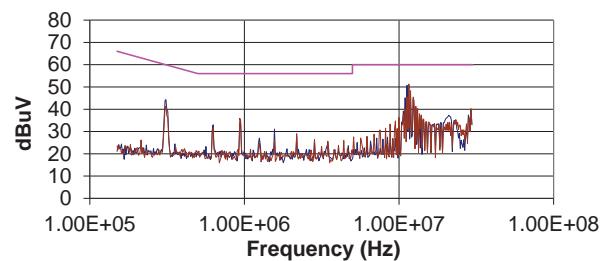
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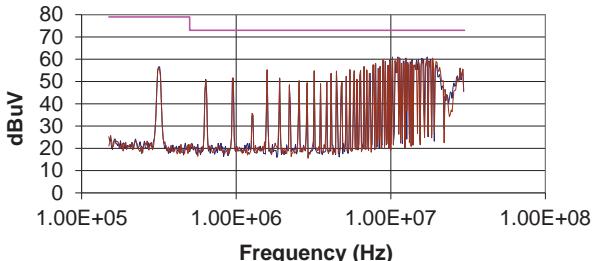
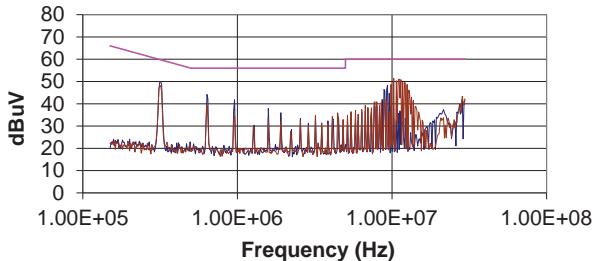
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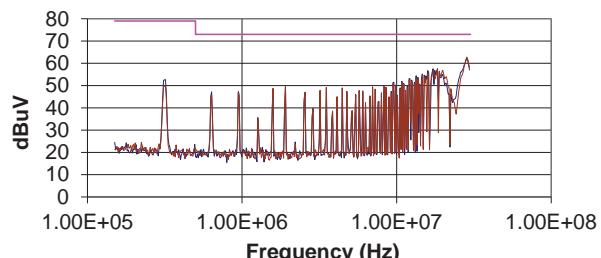
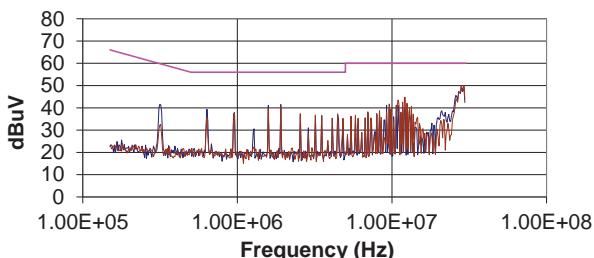


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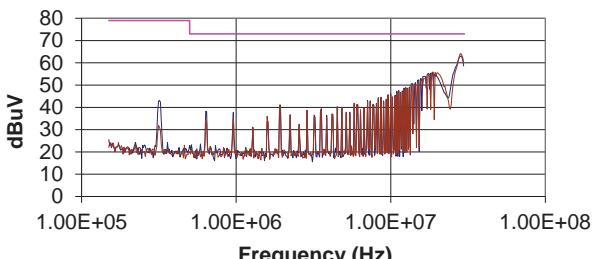
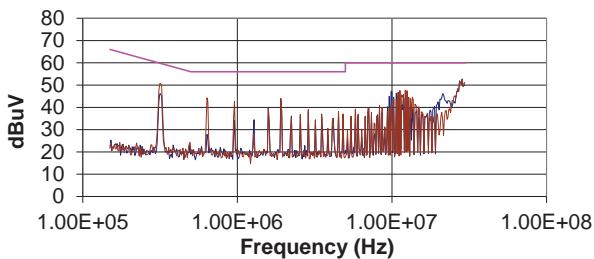


**EMC FILTERING AND SPECTRA**

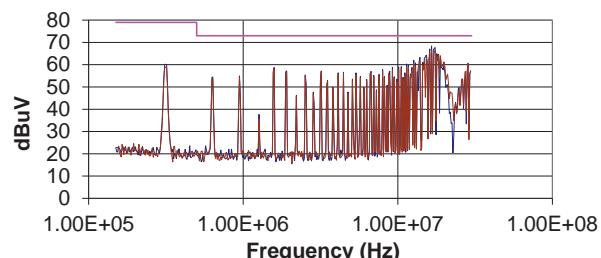
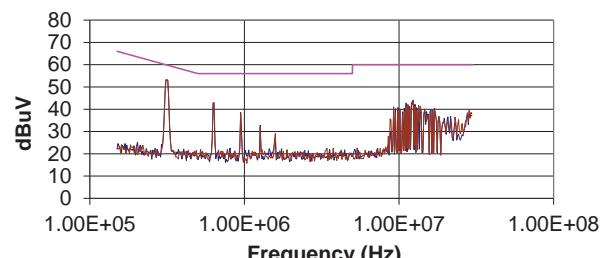
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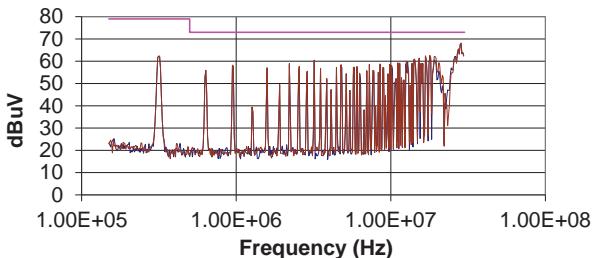
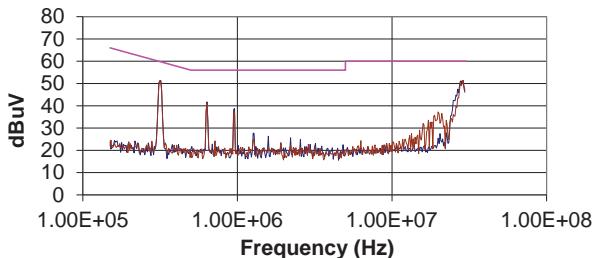
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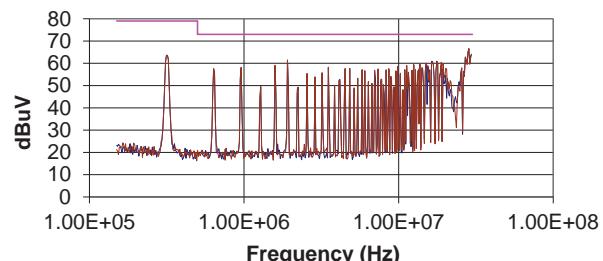
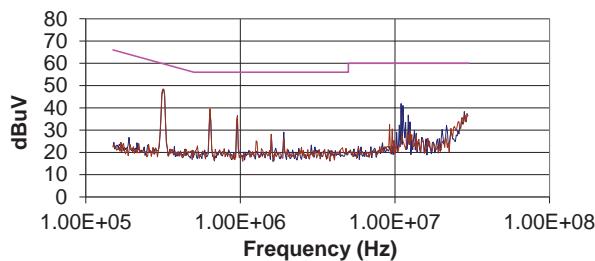


**NCM6D4812C**



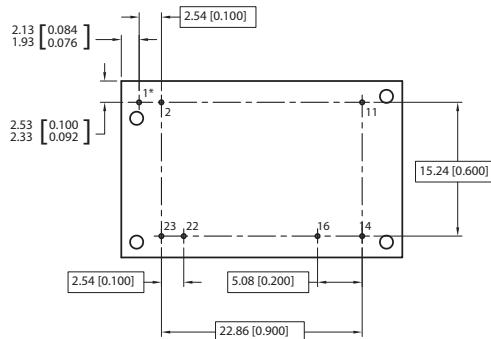
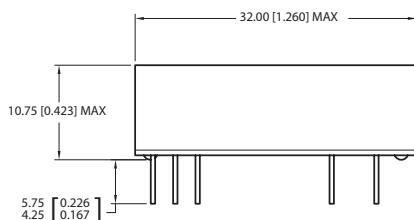
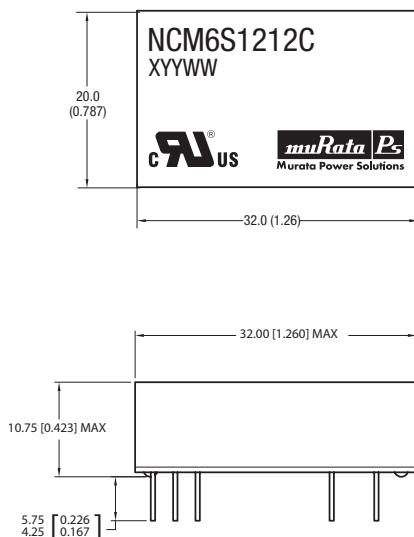
**EMC FILTERING AND SPECTRA**

**NCM6D4815C**



## PACKAGE SPECIFICATIONS

### MECHANICAL DIMENSIONS



\* Optional control pin.

All dimensions in millimetres (inches)  $\pm 0.5$  ( $0.020$ ) except pin to pin tolerance  $\pm 0.25$  ( $0.010$ ).

All pins on a  $2.54$  ( $0.100$ ) pitch and within  $0.25$  ( $0.010$ ) of true position.

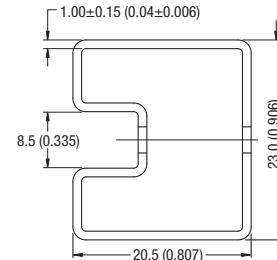
Case material: plastic.

Weight: 10.61g

### PIN CONNECTIONS

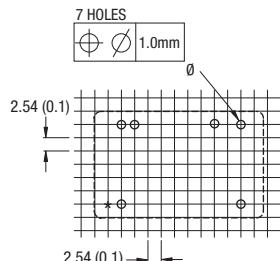
Pin	Function	
	Single	Dual
1*	ON/OFF	ON/OFF
2	-V <sub>IN</sub>	-V <sub>IN</sub>
11	N/C	-V <sub>OUT</sub>
14	+V <sub>OUT</sub>	+V <sub>OUT</sub>
16	-V <sub>OUT</sub>	0V
22	+V <sub>IN</sub>	+V <sub>IN</sub>
23	+V <sub>IN</sub>	+V <sub>IN</sub>

### TUBE OUTLINE DIMENSIONS



Tube length 20.47 (520)  
All dimensions in inches  $\pm 0.010$  (mm 0.25mm). Quantity: 15

### RECOMMENDED FOOTPRINT DETAILS



All dimensions in millimetres  $\pm 0.25$  ( $\pm 0.010$  inches).

Murata Power Solutions, Inc.  
11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A.  
ISO 9001 and 14001 REGISTERED



This product is subject to the following [operating requirements](#) and the [Life and Safety Critical Application Sales Policy](#): Refer to: <http://www.murata-ps.com/requirements/>

Murata Power Solutions, Inc. makes no representation that the use of its products in the circuits described herein, or the use of other technical information contained herein, will not infringe upon existing or future patent rights. The descriptions contained herein do not imply the granting of licenses to make, use, or sell equipment constructed in accordance therewith. Specifications are subject to change without notice.

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Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

#### Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помошь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помошь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: [org@eplast1.ru](mailto:org@eplast1.ru)

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.