

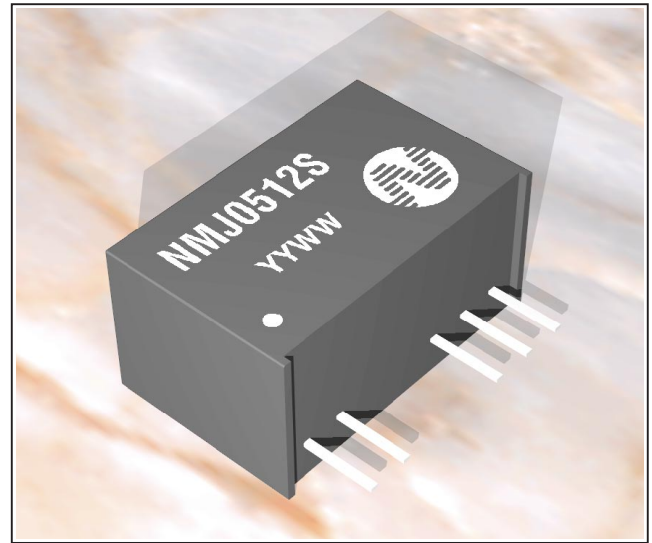
features

- BS EN 60950 Certified
- 5.2kVDC Isolation (1 Minute)
- Dual Outputs
- Power Sharing
- SIP Package Style
- Efficiency to 80%
- Power Density 0.42W/cm³
- 5V & 12V Input
- 5V, 9V, 12V & 15V Output
- Pin Compatible with NMV Series SIP DC-DC Converters
- Footprint 1.91cm²
- UL 94V-0 Package Material
- No Heatsink required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- MTF up to 1.6 Million Hours
- PCB Mounting
- Custom Solutions Available

description

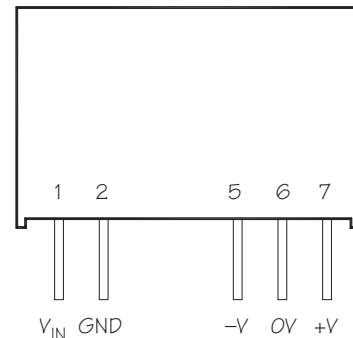
The NMJ series are dual output DC-DC converters in a 7 pin SIP package style offering pin and functionality compatibility with the NMV series SIP DC-DC converters. The series was tested by British Standards Institute (BSI) and received certificate number 8105 confirming compliance with BS EN 60950 safety standards and BS EN 41003 for supplementary insulation. The NMJ series is suitable for applications where safety and miniaturisation are of paramount importance.

EN 60950 is derived from IEC 950 and is equivalent to UL 1950 and CSA 950 standards.



pin connections

7 Pin SIP



BS EN 60950 CERTIFIED

Certified to meet BS EN 60950, BS EN 41003.
Certificate number 8105 applies.

NMJ SERIES

5.2kVDC Isolated 1W DC-DC Converters

absolute maximum ratings

Short circuit duration ¹ · · · · ·	1 second
Lead temperature 1.5mm from case for 10 seconds · · · · ·	300°C
Input voltage V_{IN} , NMJ05 types · · · · ·	7V
Input voltage V_{IN} , NMJ12 types · · · · ·	15V

electrical specifications

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Order Code	Nominal Input Voltage	Output Voltage	Output Current	Efficiency	Isolation Capacitance
	(V)	(V)	(mA)	(%)	(pF)
NMJ0505S	5	5	±100	65	1.6
NMJ0509S	5	9	±55	70	1.6
NMJ0512S	5	12	±42	70	1.8
NMJ0515S	5	15	±33	70	1.9
NMJ1205S	12	5	±100	65	1.8
NMJ1209S	12	9	±55	70	1.9
NMJ1212S	12	12	±42	70	2.0
NMJ1215S	12	15	±33	70	2.1

- i When operated **without** additional external load capacitance, the output voltage of the NMJ devices is guaranteed to be within 95% of its steady state value within 100ms after the input voltage has reached 95% of its steady state value, **irrespective of the rise time of the input voltage.**
- ii When operated **with** additional external load capacitance the rise time of the input voltage will determine the maximum external capacitance value for guaranteed start up. The slower the rise time of the input voltage the greater the maximum value of the additional external capacitance for reliable start up.

¹ Supply voltage must be discontinued at the end of the short circuit duration.

NMJ SERIES

5.2kVDC Isolated 1W DC-DC Converters

family characteristics - input

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Voltage Range	Continuous operation, 5V input types	4.5	5	5.5	V
	Continuous operation, 12V input types	10.8	12	13.2	

family characteristics - output

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Rated Power	$T_A = -40^\circ\text{C}$ to 120°C			1	W
Output Voltage Accuracy		-7.5		10	%
Line Regulation	High V_{IN} to low V_{IN}		1.0	1.2	%/%
Load Regulation	10% load to rated load, 5V output types		10		%
	10% load to rated load, 9V output types		6		
	10% load to rated load, 12V output types		6		
	10% load to rated load, 15V output types		6		
Output Ripple	BW=DC to 20MHz, all output types			200	mV p-p
Zero Load Power Consumption	5V output types		275		mW
	12V output types		185		

family characteristics - isolation

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Isolation Voltage	Flash tested for 1 minute	5200			VDC
Resistance	$V_{iso}=1000\text{V}$		200		$\text{G}\Omega$

NMJ SERIES

5.2kVDC Isolated 1W DC-DC Converters

family characteristics - general

Specifications typical at $T_A=25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Switching Frequency	$V_{IN} 5V, V_{OUT} 5V$		61		kHz
	$V_{IN} 5V, V_{OUT} 9 \& 12V$		70		
	$V_{IN} 5V, V_{OUT} 15V$		60		
	$V_{IN} 12V, V_{OUT} 5 \& 9V$		74		
	$V_{IN} 12V, V_{OUT} 12V$		85		
	$V_{IN} 12V, V_{OUT} 15V$		88		
Package Weight	SIP		4.9		g

family characteristics - temperature

Specifications typical at $T_A=25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Specification	All output types	0		70	$^{\circ}\text{C}$
Storage		-55		125	$^{\circ}\text{C}$
Temperature Rise Above Ambient	All output types			30	$^{\circ}\text{C}$

family characteristics - mean time to failure (MTTF)¹

Part Number	0 $^{\circ}\text{C}$	25 $^{\circ}\text{C}$	70 $^{\circ}\text{C}$	Units
NMJ0505S	1632	1500	1257	kHrs
NMJ0509S	665	617	534	
NMJ0512S	335	312	273	
NMJ0515S	185	172	151	
NMJ1205S	490	455	394	kHrs
NMJ1209S	341	317	277	
NMJ1212S	227	211	185	
NMJ1215S	146	136	119	

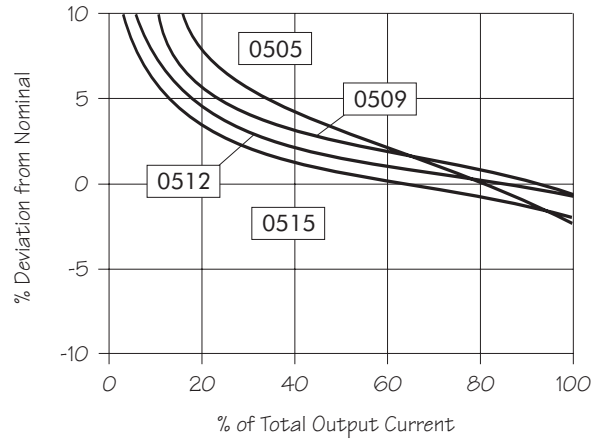
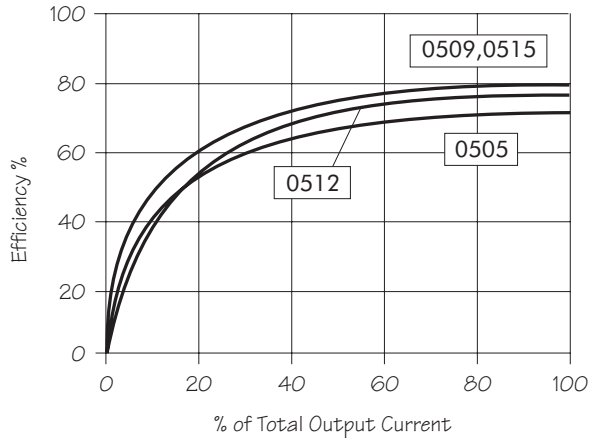
¹ Calculated using MIL-HDBK-217F with nominal input voltage at full load.

NMJ SERIES

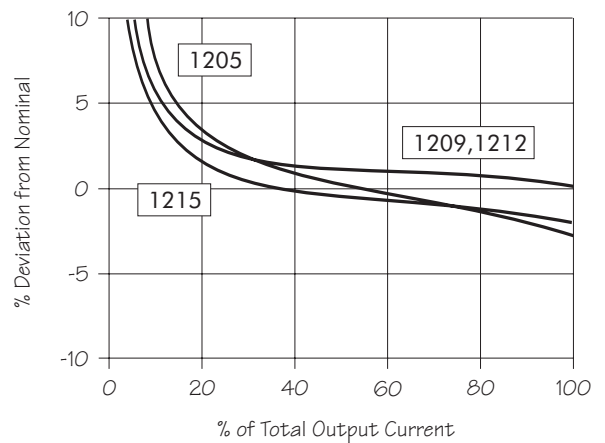
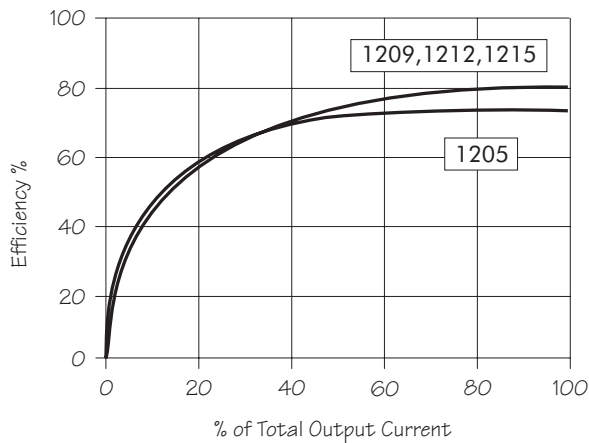
5.2kVDC Isolated 1W DC-DC Converters

typical characteristics¹

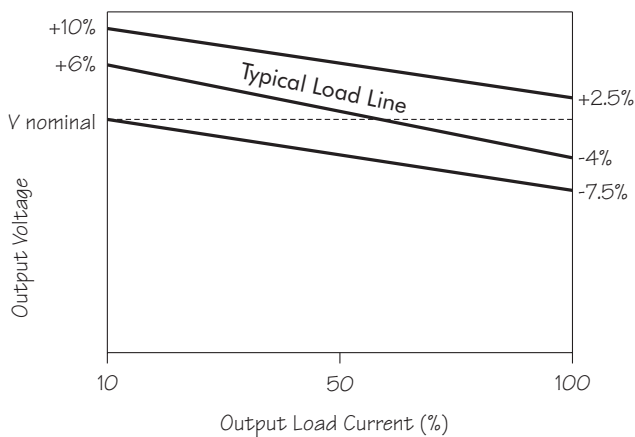
NMJ05 series



NMJ12 series



tolerance envelope



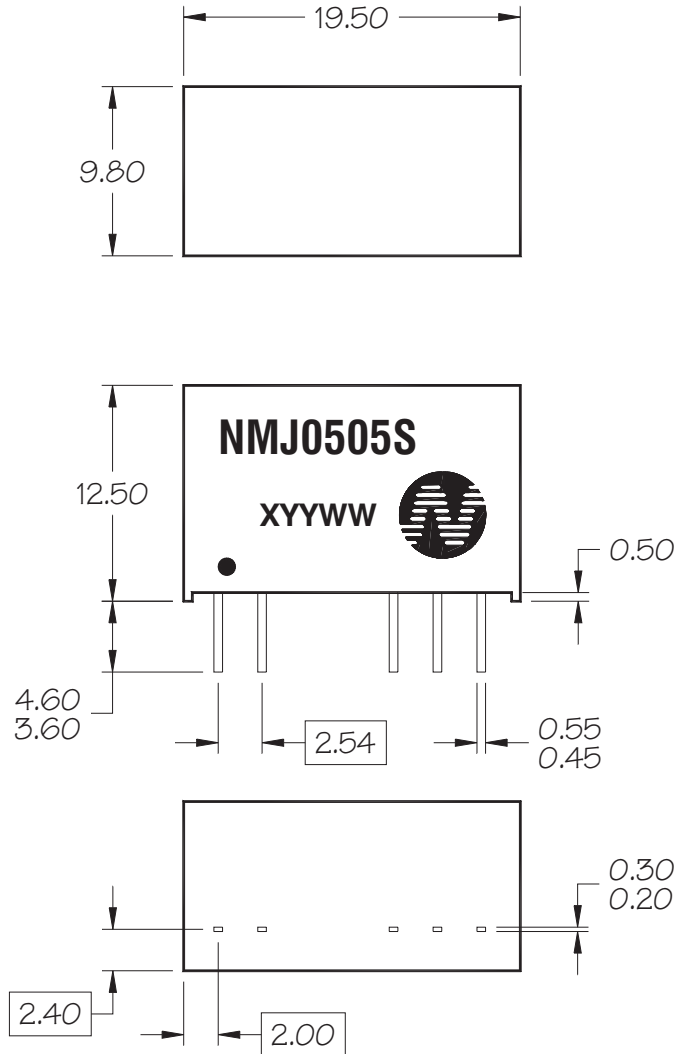
¹ All data taken at $T_A = 25^\circ\text{C}$.

NMJ SERIES

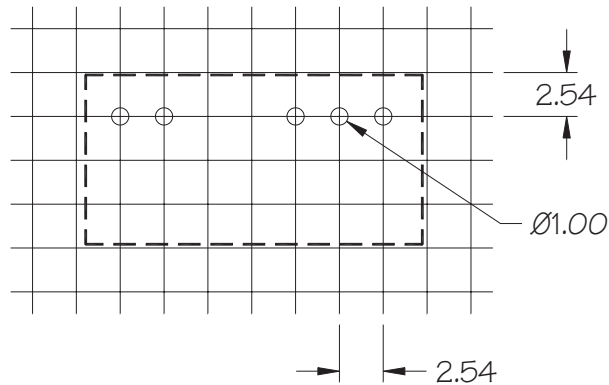
5.2kVDC Isolated 1W DC-DC Converters

outline dimensions¹

7 Pin SIP package style



recommended footprint details



¹ All dimensions in mm XX.XX ± 0.25 mm.
All pins on a 2.54mm pitch and within ± 0.25 mm of true position.