

FEATURES

- BS EN 60950 Certified
- UL 1950 Recognised
- 6kVDC Isolation
- Dual Outputs
- Low Profile Package
- Efficiency to 80%
- Power Density 0.48W/cm³
- 5V & 12V Input
- 5V, 9V, 12V & 15V Output
- Footprint 4.75cm²
- UL 94V-0 Package Material
- No Heatsink required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- MTTF up to 1.0 Million Hours
- PCB Mounting
- Custom Solutions Available

DESCRIPTION

The NMS Series of DC-DC Converters are UL 1950 recognised and fully certified to BS EN 60950, this makes them ideal for all Telecom and safety applications where approved isolation is required. The low profile package allows mounting in rack systems without risk of touching other boards. The output configuration allows all of the rated power to be drawn from a single pin provided the total load does not exceed 2 Watts. The devices feature low noise and low isolation capacitance suitable for applications in high noise environments, eg heavy electrical machine interface.

SELECTION GUIDE

| | Nominal Input Voltage | Output Voltage | Output Current | Efficiency | Isolation Capacitance | MTTF ¹ |
|----------------|-----------------------|----------------|----------------|------------|-----------------------|-------------------|
| Order Code | (V) | (V) | (mA) | (%) | (pF) | kHrs |
| NMS0505 | 5 | ±5 | ±200 | 74 | 1.8 | 747 |
| NMS0509 | 5 | ±9 | ±111 | 76 | 1.9 | 327 |
| NMS0512 | 5 | ±12 | ±83 | 77 | 2.0 | 169 |
| NMS0515 | 5 | ±15 | ±67 | 78 | 2.1 | 93 |
| NMS1205 | 12 | ±5 | ±200 | 78 | 1.9 | 365 |
| NMS1209 | 12 | ±9 | ±111 | 81 | 2.0 | 224 |
| NMS1212 | 12 | ±12 | ±83 | 82 | 2.1 | 136 |
| NMS1215 | 12 | ±15 | ±67 | 82 | 2.2 | 82 |

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.

INPUT CHARACTERISTICS

| Parameter | Conditions | MIN | TYP | 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 | |

OUTPUT CHARACTERISTICS

| Parameter | Conditions | MIN | TYP | MAX | Units |
|----------------------------|---|------|-----|-----|--------|
| Rated Power ² | T _A = 0°C to 70°C | | | 2 | W |
| Voltage Set Point Accuracy | See tolerance envelope | -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 | 15 | % |
| | 10% load to rated load, 9V output types | | 6 | 15 | |
| | 10% load to rated load, 12V output types | | 6 | 15 | |
| | 10% load to rated load, 15V output types | | 6 | 15 | |
| Ripple & Noise | BW=DC to 20MHz, all output types | | | 200 | mV p-p |

ABSOLUTE MAXIMUM RATINGS

| | |
|---|----------|
| Short-circuit duration ³ | 1 second |
| Internal power dissipation | 900mW |
| Lead temperature 1.5mm from case for 10 seconds | 300°C |
| Input voltage V _{IN} , NMS05 types | 7V |
| Input voltage V _{IN} , NMS12 types | 15V |

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

2 See derating curve

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

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

NMS SERIES

6kVDC Isolated 2W Dual Output DC-DC Converters

ISOLATION CHARACTERISTICS

| Parameter | Conditions | MIN | TYP | MAX | Units |
|------------------------|---------------------------|------|-----|-----|-------|
| Isolation Test Voltage | Flash tested for 1 second | 6000 | | | VDC |
| Resistance | Viso=500VDC | | 10 | | G |

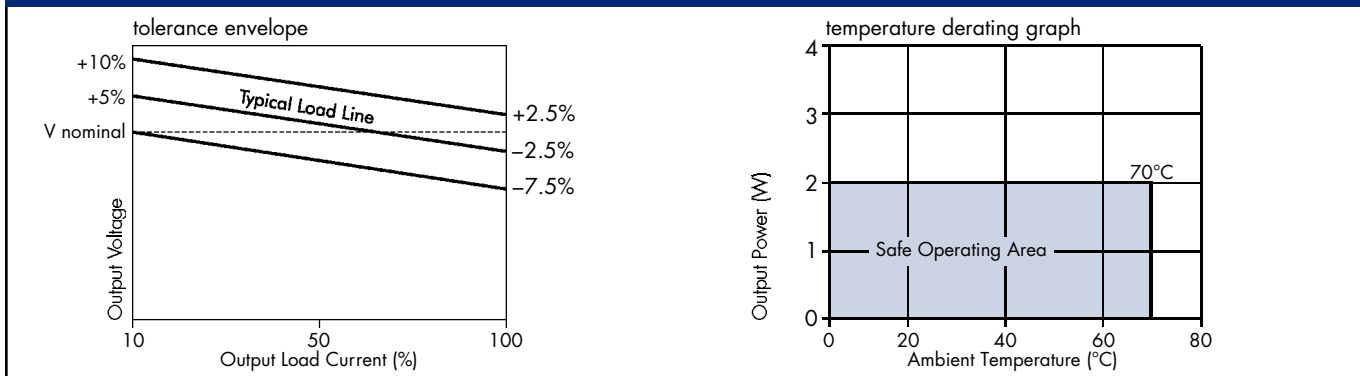
GENERAL CHARACTERISTICS

| Parameter | Conditions | MIN | TYP | MAX | Units |
|---------------------|-----------------|-----|-----|-----|-------|
| Switching Frequency | All input types | | 35 | | kHz |

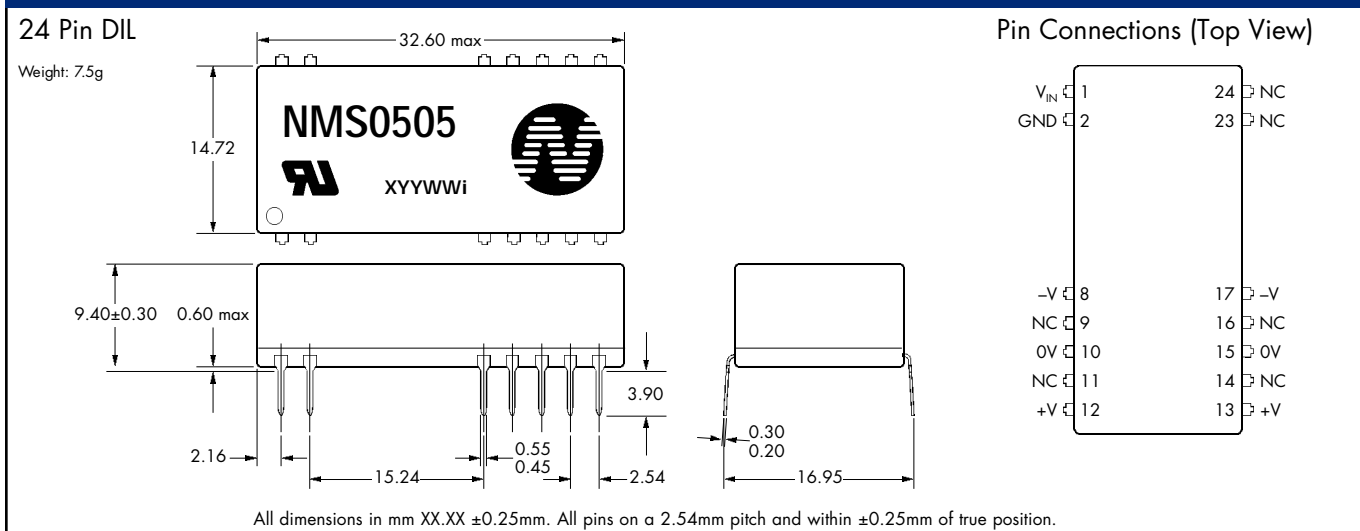
TEMPERATURE CHARACTERISTICS

| Parameter | Conditions | MIN | TYP | MAX | Units |
|--------------------------------|---------------------|-----|-----|-----|-------|
| Specification | All output types | 0 | | 70 | °C |
| Storage | | -50 | | 130 | °C |
| Case Temperature Above Ambient | All output types | | | 32 | °C |
| Cooling | Free air convection | | | | |

PERFORMANCE CHARACTERISTICS



MECHANICAL DIMENSIONS



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