78250 Series





muRata I

FEATURES

- RoHS compliant
- Maxim MAX250 compatible
- Isolation to 4kVrms
- Industry-standard pinout
- Surface mount option
- UL 94 V-0 package materials
- Low profile
- Toroidal construction
- Fully encapsulated
- Industrial temperature range

DESCRIPTION

The 78250 series of converter transformers are specifically designed for use with Maxim chipsets to provide isolated RS232 interfaces. Carefully controlled turns ratios ensure consistent performance whilst a toroidal construction minimises EMI.



CHARACTERISTICS 78250C/78250MC					
Parameter	Conditions	Min.	Тур.	Max.	Units
Primary Inductance, L _P	10kHz, 100mV	1.0	2.0	2.5	mH
Leakage Inductance, L	100kHz, 100mV		2.0	3.0	μH
Interwinding Capacitance, C _{ww}	100kHz, 100mV		69	90	pF
Primary D.C. Resistance, R _{DC}	<0.1VDC		1.0	2.0	Ω
Volt-time Product, Et	Pins1/2 or 2/3	50			Vµs

CHARACTERISTICS 78250VC/78250MVC					
Parameter	Conditions	Min.	Тур.	Max.	Units
Primary Inductance, L _P	10kHz, 100mV	1.0	2.0	2.5	mH
Leakage Inductance, L	100kHz, 100mV		35	40	μН
Interwinding Capacitance, C	100kHz, 100mV		9	12	pF
Primary D.C. Resistance, R _{DC}	<0.1VDC		1.4	1.8	Ω
Volt-time Product, Et	Pins1/2 or 2/3	50			Vµs

ORDER CODE DETAILS			
Order Code	Package Type	Packaging Type	Quantity
78250C / 78250VC	6 Pin DIL	Tube	50
78250MC / 78250MVC	6 Pin SM	Tube	50
78250MC-R / 78250MVC-R	6 Pin SM	Tape & Reel	500

ABSOLUTE MAXIMUM RATINGS	
Operating free air temperature range	-40°C to 85°C
Storage temperature range	-50°C to 125°C
Lead temperature 1.5mm from case for 10 seconds	300°C
Peak current, I _{PK}	300mA
Isolation voltage 78250(M)C (flash tested for 1 second)	1.5kVrms
Isolation voltage 78250V(M)C (flash tested for 1 second)	4.0kVrms

All specifications typical at $T_A = 25^{\circ}C$

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.

All products in this series are 100% production tested at their stated isolation voltage.

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

For a part holding no specific agency approvals both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier; but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

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. This series has toroidal isolation transformers, with no additional insulation between primary and secondary windings of enameled wire. While parts can be expected to withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. 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.

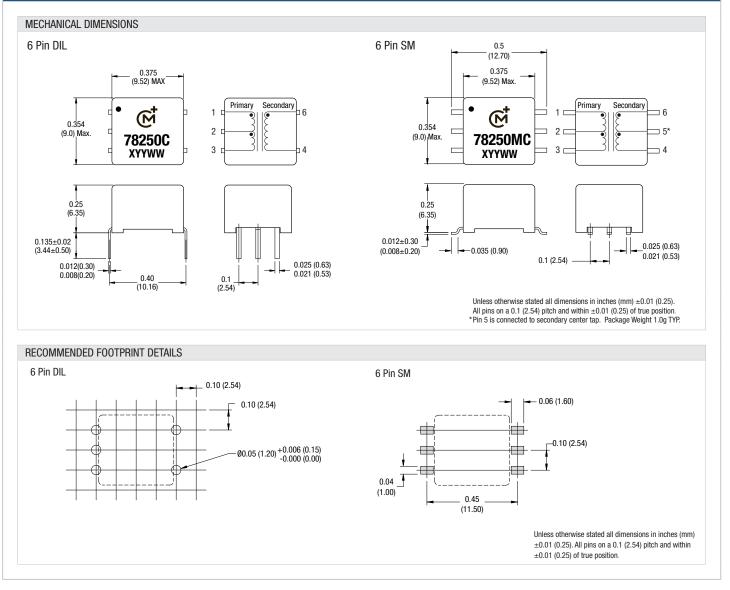
This consideration equally applies to agency recognized parts rated for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

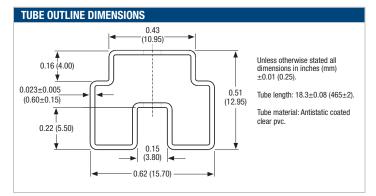
muRata Ps Murata Power Solutions

78250 Series

MAX250 Compatible Converter Transformers

PACKAGE SPECIFICATIONS





SOLDERING INFORMATION ¹	
Pin finish	Pure tin dip
Peak wave solder temperature	300°C for 10 seconds
Peak reflow temperature	220°C

1 For further information, please visit www.murata-ps.com/rohs

www.murata-ps.com

Technical enquiries - email: mk@murata-ps.com, tel: +44 (0)1908 615232



78250 Series

MAX250 Compatible Converter Transformers

TAPE & REEL SPECIFICATIONS REEL OUTLINE DIMENSIONS Ø15.039 (382) Max. -2.36 (60) Min. 0.94-1.08 (23.9-27.4)* -Ø 0.53 (13.50) 0.50 (12.80) 0 Leader section 15.7 (400) Min. 3.9 (100) Min. 0 0 0.059 (1.50) Min. 1.20 + (30.4) Max. + Goods enclosure section 0 0.96 (24.4)[†] 1.04 (26.4) 0 Trailer section 0 6.3 (160) Min. Unless otherwise stated all dimensions in inches (mm) $\pm 0.01(0.25)$. 0 Ø0.80 (20.20) Min * Includes flange distortion at outer edge. + Measured at hub. TAPE OUTLINE DIMENSIONS 0.059+0.004 (1.50+0.10) 0.069 (1.75) 0.157 (4.00) -0.079 (2.00) \oplus \oplus Ð -0-Ð Φ ---Ð Ð Ð ⊕ \oplus Œ ⊕ \oplus \oplus -0.453 (11.50) (24.00 +0.30) 78250C 0.945+0.012 (<u>7</u> φ Φ φ Æ Cover tape -0.369 (9.37)--0.472 (12.00) 0.024 (0.60) Max Direction of unreeling 0 283 (7 20) Unless otherwise stated all dimensions in inches (mm) $\pm 0.01(0.25)$.

muRata Ps Murata Power Solutions

Murata Power Solutions, Inc.

11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A.

Tel: (508) 339-3000 (800) 233-2765 Fax: (508) 339-6356

www.murata-ps.com email: sales@murata-ps.com ISO 9001 REGISTERED

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.

USA:	Mansfield (MA), Tel: (800) 233 2765, email: sales@murata-ps.com			
Canada:	Toronto, Tel: (866) 740 1232, email: toronto@murata-ps.com			
UK:	Milton Keynes, Tel: +44 (0)1908 615232, email: mk@murata-ps.com			
France:	Montigny Le Bretonneux, Tel: +33 (0)1 34 60 01 01, email: france@murata-ps.com			
Germany:	München, Tel: +49 (0)89-544334-0, email: ped.munich@murata-ps.com			
Japan:	Tokyo, Tel: 3-3779-1031, email: sales_tokyo@murata-ps.com Osaka, Tel: 6-6354-2025, email: sales_osaka@murata-ps.com Website: www.murata-ps.jp			
China:	Shanghai, Tel: +86 215 027 3678, email: shanghai@murata-ps.com Guangzhou, Tel: +86 208 221 8066, email: guangzhou@murata-ps.com			

www.murata-ps.com

Technical enquiries - email: mk@murata-ps.com, tel: +44 (0)1908 615232