PRODUCT DATA SHEET

LOW COST MICROPROFILE SMD LINE MATCHING TRANSFORMER

P3188

Features

* Low Cost
* Surface Mount
* 7mm seated height
* Vacuum encapsulated
* IEC 950 and EN60950 certified
* UL Recognized Component
* BABT Certificate of Recognition
* CSA NRTL/C Certificate of Conformance
* Matches directly to 600Ω lines

Applications

* Telecommunications
* V.22bis modems
* Voice
* Instrumentation

DESCRIPTION

P3188 is a microprofile transformer for applications where high performance and safety isolation to international standards are required in an extremely small case size.

Designed specifically as a surface mount device, the P3188 features a 7mm seated height and is vacuum encapsulated and tested to 6500VDC.

P3188 offers fully reinforced insulation, is ideal for voice telecommunications and low speed data communications whilst capable of being matched to both 600Ω and complex impedance telephone lines.

600Ω telephone lines are matched directly by P3188 without external compensation components.

In instrumentation applications, the P3188 can provide wideband frequency response from 50Hz to 50kHz.

P3188 is certified to IEC 950, EN 60950, EN 41003 and UL1950. P3188 is a UL Recognized Component, and is supported by a BABT Certificate of Recognition, a CSA Certificate of Conformance and an IEC CB Test Certificate.

E203175

1998
to Electronic Techniques (Anglia) Limited

SPECIFICATIONS

Electrical

At T = 25ºC and as circuit Fig. 2 unless otherwise stated.

Parameter	Conditions	Min	Typ	Max	Units
Insertion Loss	f = 2kHz	-	-	3.5	dB
Frequency response	200Hz - 4kHz	-	-	±0.2	dB
Return Loss	200Hz - 4kHz	18	-	-	dB
Distortion (1)	f = 450Hz 0dBm in line, 3rd Harmonic	-	-	-50	dBm
Balance	DC - 5kHz Method TG25	80	-	-	dB
Saturation	Excitation 50Hz 250Vrms. Output voltage across line	- -	- -	10 65	Vrms Vpeak
Voltage isolation(2)	50Hz DC	3.88 5.5	- -	- -	kVrms kV
Operating range: Functional Storage(5)	Ambient temperature	-10 -40	- -	+85 +125	ºC ºC

Lumped equivalent circuit parameters as Fig. 1

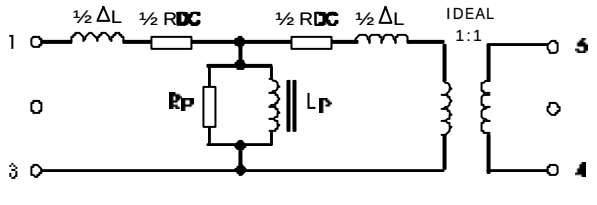
DC resistance, R_{DC}(3)	Sum of windings	168	-	206	Ω
Leakage inductance ΔL		2.9	-	3.5	mH
Shunt inductance Lp(4)	-43dBm 200Hz	1.1	-	3.2	H
Shunt loss Rp(4)	-43dBm 200Hz	3.5	-	10	kΩ

Notes

1. Third harmonic typically exceeds other harmonics by 20dB.
2. Components are 100% tested at 6.5 kVDC.
3. Caution: do not pass DC through windings. Telephone line current, etc. must be diverted using choke or semiconductor line hold circuit.
4. At signal levels greater than -20dBm, Lp will increase and Rp will decrease slightly but the effect is usually favourable to the return loss characteristic.
5. Excludes shipping materials. Components are dry-packed and sealed as shipped. Refer to Profec Technologies for appropriate storage conditions for sealed consignments.

Equivalent Circuit

Fig. 1

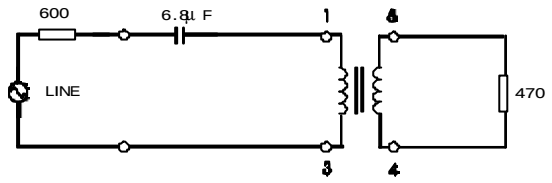


MATCHING RECOMMENDATIONS

600Ω MATCH

Recommended Circuit

Fig 2

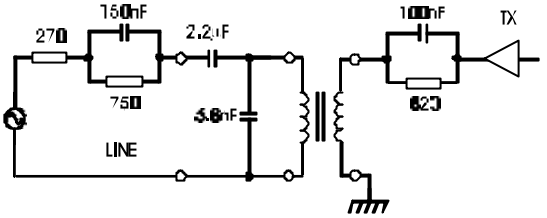


To extend matching and frequency response beyond 30kHz add 4.7nF between pins 1 and 3, and 4.7nF between pins 4 and 6.

EUROPEAN CTR21 COMPLEX MATCH

Recommended Circuit

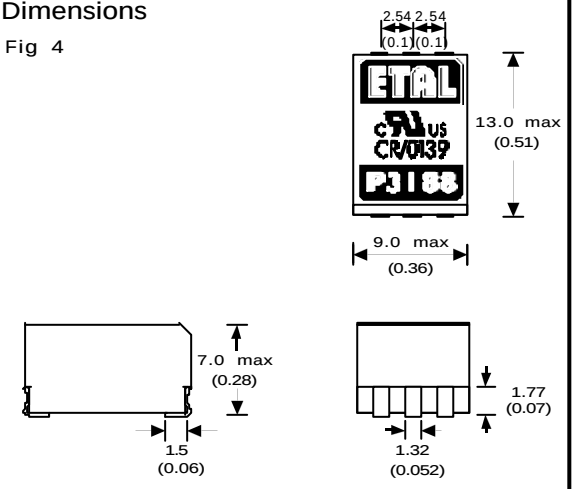
Fig 3



CONSTRUCTION

Dimensions

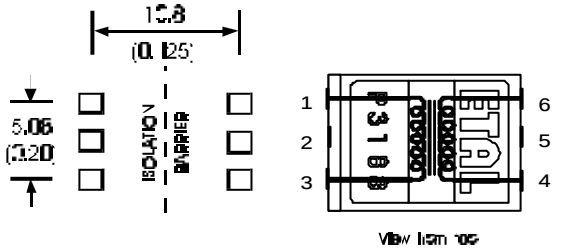
Fig 4



NOTE: Dimensions shown are in millimetres (inches)

Connections

Fig 5



View from top

Tolerance ±0.3mm
Terminals electroplated 60/40 solder 5 µm minimum
Terminal size : 1.5 (0.06) long, 1.32 (0.05) wide

SAFETY

Manufactured from materials conforming to flammability requirements of UL94V-0 and EN 60950:1992 (BS 7002:1992) sub-clause 1.2.13.2 (V-0).
Distance through reinforced insulation 0.4mm minimum.
Creepage and clearances in circuit are 7mm minimum where PCB pads do not exceed 3mmØ.
Constructed and fully encapsulated in accordance EN 60950:1992 (BS 7002:1992) and BS EN 41003:1997 (reinforced), 250Vrms maximum working voltage.

CERTIFICATION

Certified by BSI to IEC 950:1991/A4:1996 (IEC CB Test Certificate No. GB441W) sub-clauses 1.5, 1.5.1, 1.5.3, 2.2, 2.2.2, 2.2.3, 2.2.4, 2.9.2, 2.9.3, 2.9.4, 2.9.6, 2.9.7, 4.4, 4.4.3.2 (class V-0) and 5.3 for a maximum working voltage of 250Vrms, nominal mains supply voltage not exceeding 250Vrms and a maximum operating temperature of +85ºC in Pollution Degree 2 environment, reinforced insulation.

CAN/CSA C22.2 No. 950-95/UL1950, certified by CSA, Third Edition, including revisions through to revision date March 1, 1998, based on Fourth Amendment of IEC 950, Second Edition, maximum working voltage 250Vrms, Pollution Degree 2, reinforced insulation.

UL File number E203175.
CSA Certificate of Compliance 1107696 (Master Contract 1188107).
Certified by BABT to EN 60950.
BABT Certificate CR/0139.

Additionally, Profec Technologies certifies all transformers as providing voltage isolation of 3.88kVrms, 5.5kV DC minimum. All shipments are supported by a Certificate of Conformity to current applicable safety standards.

ABSOLUTE MAXIMUM RATINGS

(Ratings of components independent of circuit).

Short term isolation voltage (2s)		4.6kVrms, 6.5kVDC	
DC current		100µA	
Storage temperature		-40ºC to +125ºC	
Soldering temperature (10s)			
profile peak -	either	240ºC	60s
	or	250ºC	30s
	or	260ºC	10s

COPYRIGHT

PROFEC
TRANSFORMING THE FUTURE

ISO 9001
FM 25326

Profec Technologies Ltd., 10 Betts Avenue, Martlesham Heath, Ipswich, IP5 3RH, England
Telephone: +44 (0) 1473 611422 Fax: +44 (0) 1473 611919
Websites: www.etal.ltd.uk www.profec.com
Email: info@etal.ltd.uk sales@profec.com