

## **LINE MATCHING TRANSFORMER**

# **P3126**

### **Features**

- \* 14.6mm seated height
- \* Vacuum encapsulated
- \* Compliant with EN 50020 and EN 60950

### **Applications**

- \* Potentially explosive atmospheres
- \* Telecommunications
- \* Telemetry
- \* Line matching
- \* Instrumentation

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### **DESCRIPTION**

P3126 is a line matching transformer for applications where high performance and safety isolation to the most exacting international standards are required in a compact case size.

In conjunction with external protection (e.g. fuses, zener diodes, etc.) the device is compliant with EN 50020 for peak rated voltage  $\leq 375V$ .

Signal performance is equivalent to ETAL® P1200.

## SPECIFICATIONS

### Electrical

At T = 25°C and as reference circuit Fig. 2 unless otherwise stated.

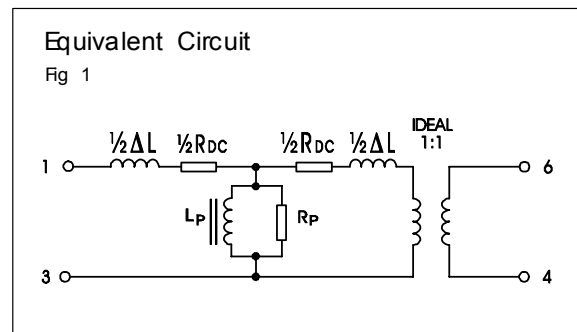
Parameter	Conditions	Min	Typ	Max	Units
Insertion loss	f = 2kHz, R <sub>L</sub> = 560Ω	-	-	1.5	dB
Frequency response	LF-3dB cutoff	-	-	50	Hz
	HF-3dB cutoff	10	-	-	kHz
	200Hz – 4kHz	-	-	±0.2	dB
Return loss	200Hz – 4kHz	18	-	-	dB
Distortion <sup>(1)</sup>	0dBm in line, 3rd Harmonic f = 450Hz	-	-72	-60	dBm
Balance	DC - 5kHz Method TG25	80	-	-	dB
Saturation	Excitation 50Hz 250Vrms Output voltage across line	-	-	10	Vrms
		-	-	65	Vpeak
Voltage Isolation <sup>(2)</sup>	50Hz	3.88	-	-	kVrms
	DC	5.5	-	-	kV
Operating range:	Ambient temperature	-10	-	+70	°C
		-40	-	+125	°C
		-	-	95	%R.H.

Lumped equivalent circuit parameters as Fig. 1

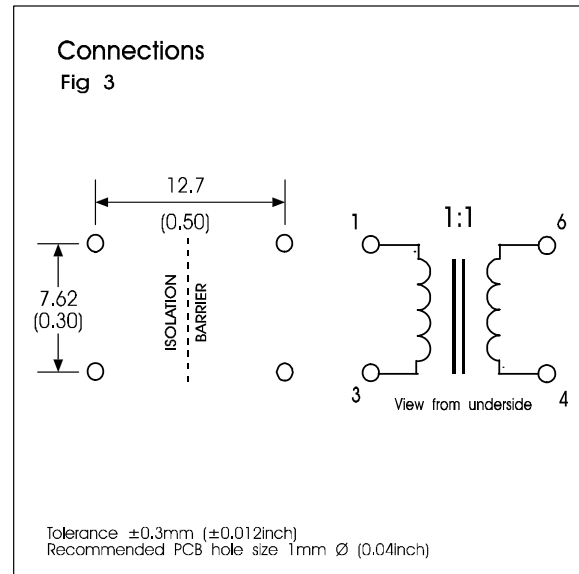
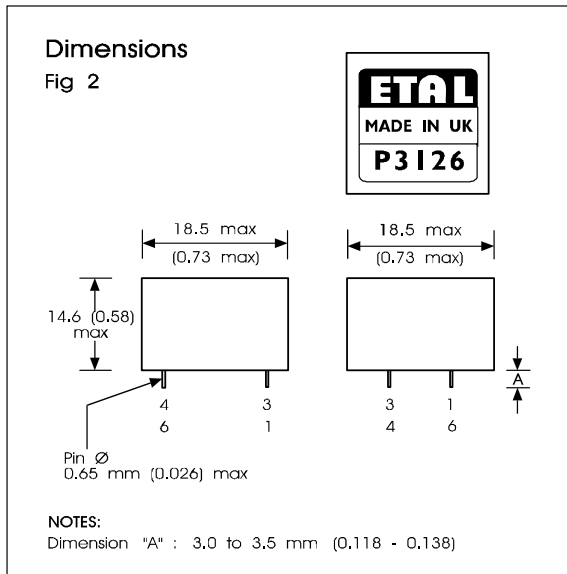
DC resistance, R <sub>DC</sub> <sup>(3)</sup>	Sum of windings	120	-	148	Ω
Leakage inductance ΔL		-	17	-	mH
Shunt inductance L <sub>p</sub> <sup>(4)</sup>	-43dBm 200Hz	2.8	4	7	H
	-43dBm 1kHz	-	2	-	H
Shunt loss R <sub>p</sub> <sup>(4)</sup>	-43dBm 200Hz	5	-	-	kΩ
	-43dBm 1kHz	7	-	-	kΩ

#### 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 L<sub>p</sub> will increase and R<sub>p</sub> will decrease slightly but the effect is usually favourable to the return loss characteristic.



## CONSTRUCTION



Dimensions shown are in millimetres (inches).  
Geometric centres of outline and pin grid coincide within a tolerance circle of 0.6mm $\varnothing$ .  
Windings may be used interchangeably as primary or secondary.

EN 50020 para 7.1.2 Type 1(a) (side-by-side on separate slots of single piece moulding).

Fully vacuum encapsulated with hard epoxy resin totally enclosing all internal parts.

### Critical Distances

- |     |  |               |     |  |                |
|-----|--|---------------|-----|--|----------------|
| (a) | Distance through bobbin dividing fillet.                         | $\geq 1.0$ mm | (c) | Distance between highest point of each winding (including lead-outs) and top of dividing fillet.             | $\geq 1.0$ mm  |
| (b) | Distance through bobbin walls to conductive core (Each winding). | $\geq 0.5$ mm | (d) | Distance between highest point of each winding (including lead-outs) to conductive core through encapsulant. | $\geq 1.0$ mm  |
|     |  |               | (e) | Distance through potting box to conductive core.   | $\geq 0.7$ mm  |
|     |  |               | (f) | Creepage/clearance (in air).   | $\geq 11.0$ mm |

## ABSOLUTE MAXIMUM RATINGS

(Ratings of components independent of circuit).

Short term isolation voltage (15s)	4.6kVrms, 6.5 kVDC
DC current	100 $\mu$ A
Storage temperature	-40°C to +125°C
Lead temperature, 10s	260°C

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