149-152

PRODUCT DATA SHEET

LINE MATCHING TRANSFORMER

P1200

Features

- Industry Standard
- 12.6mm seated height
- Vacuum encapsulated
- BS415, BS6301, AUSTEL certified
- EN 41 003, EN 60 950 certified
- Tested to 6.5kV DC isolation
- Low cost

Applications

- Telecommunications
- V.22 bis modems
- Line matching
- Instrumentation
- Portable computers
- Fax/modems

DESCRIPTION

P1200 is the transformer of choice in medium-speed applications where high performance coupled with high isolation is required at a most competitive price.

At only 12.6mm high, P1200 is significantly lower than most other similar transformers and meets the highest international safety standards, being vacuum encapsulated and 100% tested to withstand 6.5kV DC (4.60kV rms)

P1200 is ideal for voice telecommunications applications and for data communications to V.22 bis (2 400 bits/second) data rates. P1200 is specifically designed to be easily matched to both 600 ohm and complex impedance telephone lines, using a minimum of external components.

P1200 is certified to BS415, BS6301, EN 41 003, EN 60 950 and AUSTEL standards. Equipment incorporating P1200 is capable of approval worldwide.

P1200 is supported by recommended matching circuit components to meet the requirements of most National Telephone System Operators.

P1200

SPECIFICATIONS

Electrical

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

Parameter	Conditions	Min	Typ	Max	Units
Insertion loss	f = 2kHz, R_L = 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(1)	0dBm in line, 3rd Harmonic f = 450Hz	–	–72	–60	dBm
Balance	DC - 5kHz Method TG25	80	–	–	dB
Saturation	Excitation 50Hz 250V rms.				
	Output voltage across line	–	–	10	V rms
		–	–	65	V peak
Voltage isolation(2)	50Hz	3.88	–	–	kV rms
	DC	5.5	–	–	kV
Operating range:	Ambient temperature				
Functional		–10	–	+70	°C
Storage		–40	–	+125	°C
Humidity		–	–	95	%R.H.

Lumped equivalent circuit parameters as Fig. 1

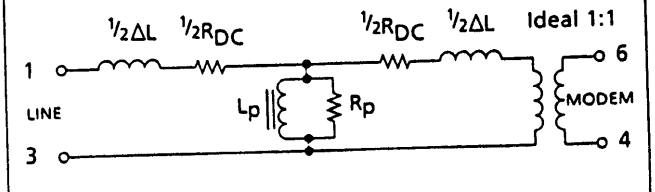
DC resistance, R_{DC}(3)	Sum of windings	118	–	146	Ω
Leakage inductance ΔL		14.5	–	17.5	mH
Shunt inductance L_p(4)	–43dBm 200Hz	2.8	4	7	H
	–43dBm 1kHz	–	2	–	H
Shunt loss R_p(4)	–43dBm 200Hz	5	–	–	kΩ
	–43dBm 1kHz	7	–	–	kΩ

Notes

1. Third harmonic typically exceeds other harmonics by 20dB.
2. Components are 100% tested at 6.5kV DC.
3. Caution: do not pass DC through windings. Telephone line current etc. must be diverted using choke or semi-conductor line hold circuit.
4. At signal levels greater than –20dBm L_p will increase and R_p will decrease slightly but the effect is usually favourable to the return loss characteristic.

Equivalent Circuit

Fig. 1



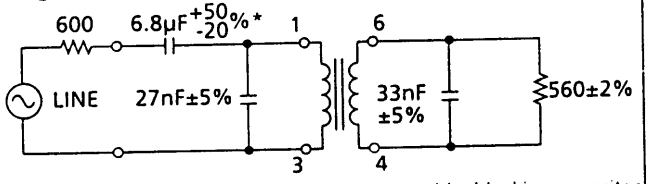
P1200

PERFORMANCE CHARACTERISTICS

600Ω MATCH

Recommended Circuit

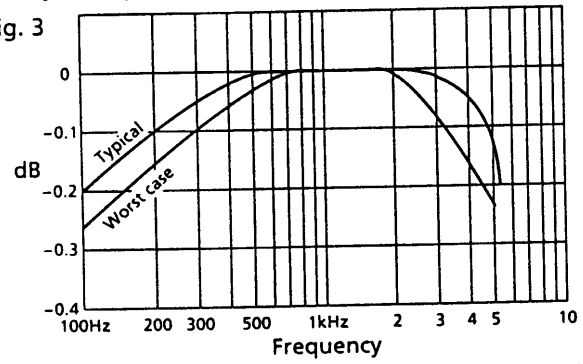
Fig. 2



* If return loss >16dB, 300Hz - 4kHz is acceptable, blocking capacitor may be relaxed to 4.7µF +50 -20 %

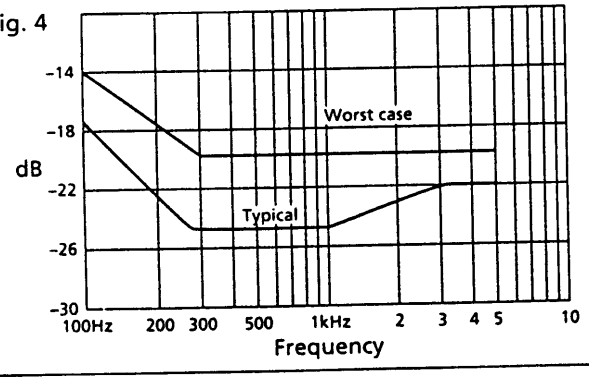
Frequency Response

Fig. 3



Return Loss

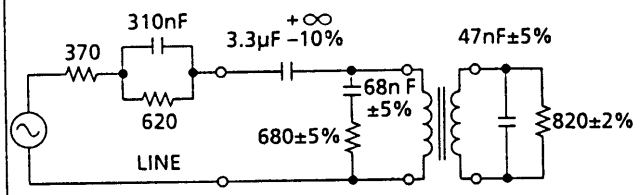
Fig. 4



BS6305 CLASS (A) MATCH

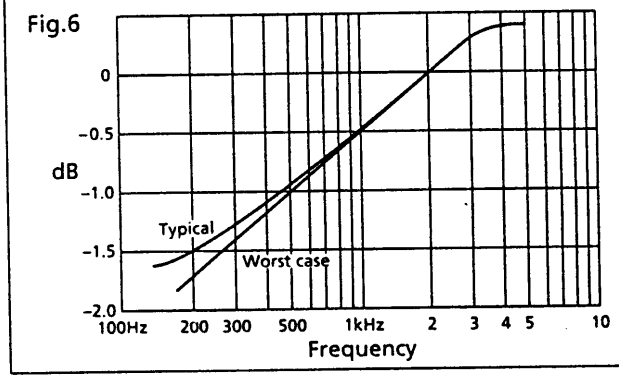
Recommended Circuit

Fig. 5



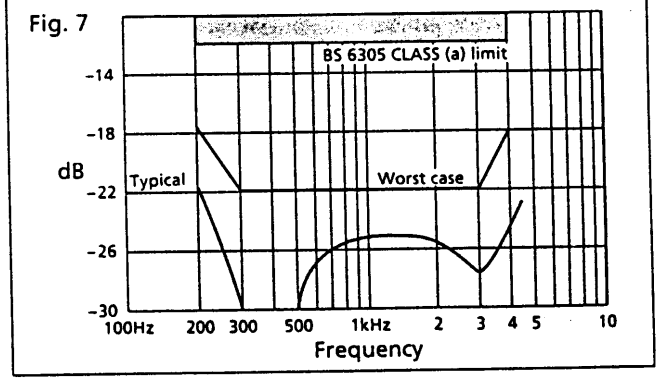
Frequency Response

Fig.6



Return Loss

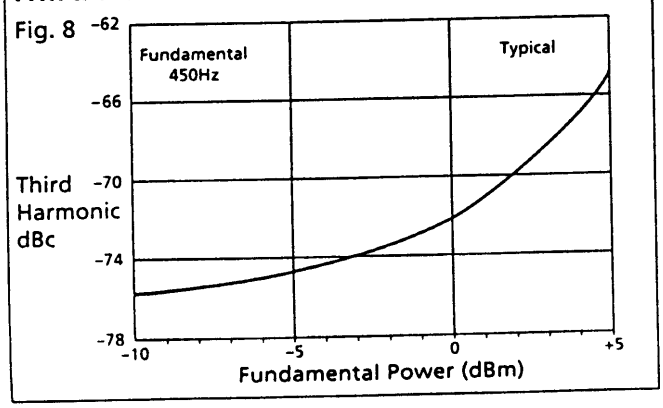
Fig. 7



For recommended matching to other PTT requirements please contact ETAL

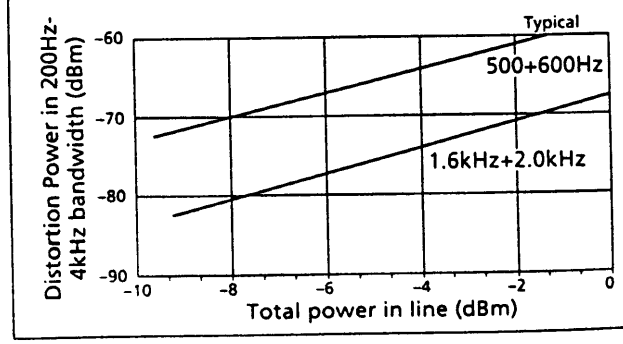
Third Harmonic Distortion vs. Signal Level

Fig. 8



2 Tone Intermodulation products vs. Signal Level

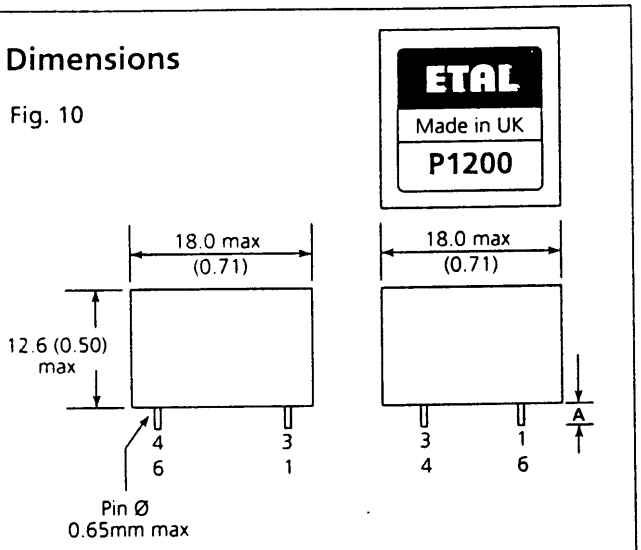
Fig. 9



CONSTRUCTION

Dimensions

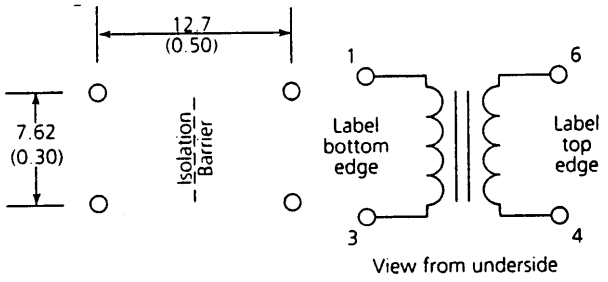
Fig. 10



Dim **A** 3.0 to 3.5mm (0.118 – 0.138)

Connections

Fig. 11



Tolerance ±0.3mm (±0.012inch)
Recommended PCB hole size 1mmØ (0.04inch)

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

SAFETY

Construction

Manufactured from materials conforming to flammability requirements of UL94V-0 and EN 60 950:1988 (BS 7002:1989) sub-clause 1.2.13.2 (V-0).
Distance through reinforced insulation 0.4mm minimum. Creepage and clearances in circuit 9mm minimum where PCB pads do not exceed ø3mm.
Constructed and fully encapsulated in accordance with BS 6301:1989, EN 60 950:1988 (BS 7002:1989), and EN 41 003:1991 (reinforced), excessive voltage 250V rms.

CERTIFICATION

Certified by BSI (Certificate 6474) to BS 6301:1989 sub-clause 3.2.2, BS 415:1990, EN 41 003, EN 60 950, CENELEC HD 195.S6 and IEC 65 (fifth edition) sub-clauses 14.3.2 (a) at 3750Vrms (5300V DC).
AUSTEL certified component (listing no. A91/LTD/0036).
Additionally, ETAL certifies all transformers as providing voltage isolation of 3.89kV rms, 5.5kV DC minimum. All shipments are supported by a certificate of conformity to current BABT requirements.

ABSOLUTE MAXIMUM RATINGS

(Ratings of components independent of circuit)

Short term isolation voltage (15s)	4.6kV rms, 6.5kV DC
DC current	100µA
Storage temperature	–40°C to +125°C
Lead temperature, 10s	260°C

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