

16kHz METERING SIGNAL FILTER

P2335

Features

- * Miniature construction
- * >40dB attenuation at 16kHz
- * Matches German complex line impedance
- * Minimal in-band attenuation

DESCRIPTION

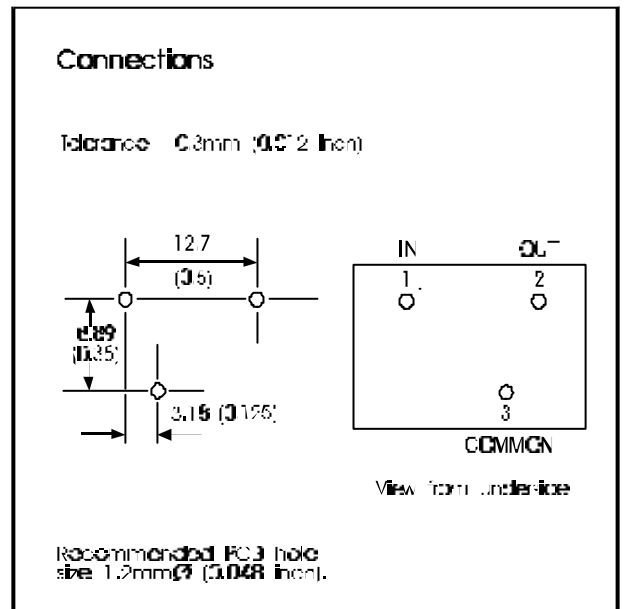
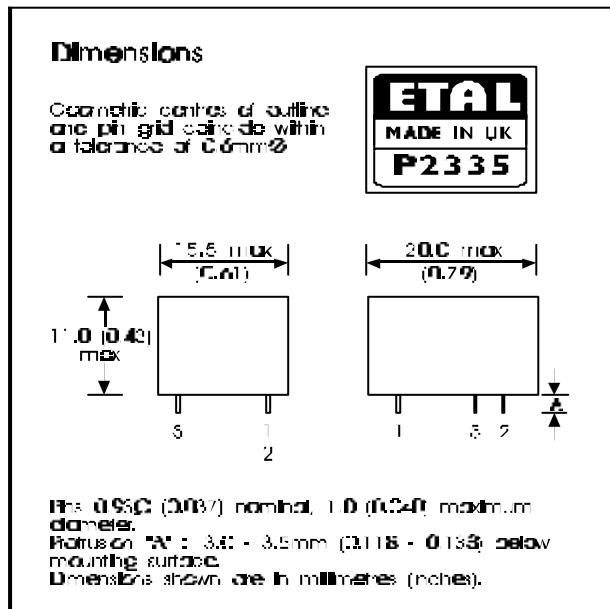
The German telephone network bears 16kHz metering signals at amplitudes sufficient to operate simple relay-type apparatus without amplification on customers' premises. Modems containing semiconductor line-hold circuits are easily upset by these large signals because the voltage swing may exceed the standing DC level. The P2335 filter deals effectively with this by problem suppressing the metering signals, its attenuation ensuring that, in the worst case, their level is reduced to less

than 0.2Vrms across the line-hold.

In the time domain, the transient response of P2335 is exceptional, minimizing data corruption at the leading and trailing edges of tone bursts and thereby preventing fallback to lower speeds.

The claimed performance is maintained even when the drive is the greatest of which the network is capable and with simultaneous maximum DC superimposed.

CONSTRUCTION



Safety

A non-safety-critical component.

Line to Line

Maximum: 200V DC.
 Supports: 75V DC plus maximum ringing voltage.

Worst-Case Drive

This is determined by the test conditions. The feeder bridge represents a source resistance of 200Ω at the simulated line terminals. This 'line' is loaded with a resistance of 200Ω and the 16kHz level adjusted to +22dBm/600. The source voltage is then +28dBm/600 or 19.50Vrms.

TEST CONDITIONS

Attenuation Test*

See circuit Fig. 1 Note that C1 etc. need not be present.

Return Loss Test*

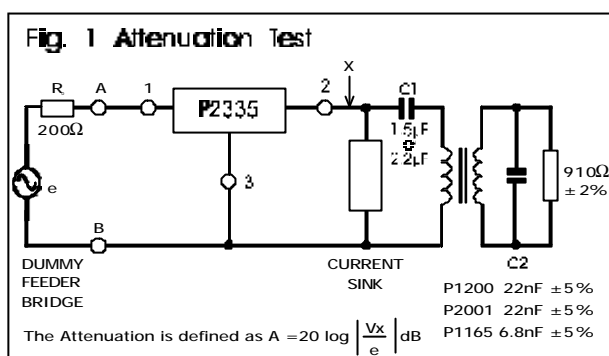
See circuit Fig. 1. Note that C2 value depends upon transformer type. The reference impedance of Fig 2 is to be used in place of R₀.

Test Conditions

Frequency	16kHz ±150Hz
Source voltage	up to 20Vrms
DC	up to 70mA
Temperature	-10°C to +70°C

*IN and OUT terminals MUST be respected but the filter may be inverted because the transformer interwinding impedances are very high, so avoiding imbalance effects.

Note: for use with other transformers or with 600Ω reference impedance please contact Profec Technologies.



PERFORMANCE CLAIMS

Attenuation

Exceeds 40dB. The voltage at X can therefore never exceed 195mV.

NOTE: Further attenuation is provided by roll-off in the transformer.

P1200 and P2001 approx 11.0dB
 P1165 approx 0.5dB

Input Impedance (15.92 – 16.08kHz)
 400Ω (almost pure capacitance)

DC Resistance

Pins 1-2: 12.5-14.5Ω

Note: 600W matching 16kHz filters and 12kHz filters are also available. Please contact Profec Technologies.

Return Loss

(applies at all practical levels)

Transformer	C1 μF	Return Loss, dB			
		300Hz	500Hz	2500Hz	3400Hz
P1200 or P2001	1.5	16	22	30	28
P1200 or P2001	2.2	19	24	30	28
P1165	1.5	16	22	30	23
P1165	2.2	19	24	30	23

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CAUTION

This signal filter has been designed and characterized for use with ETAL line isolating transformers only. Satisfactory performance cannot be guaranteed with other components.

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ISO 9001
FM 25326

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