

**ISOLATING SIGNAL TRANSFORMERS****P2820****P2821****P2822****P2823****Features**

- \* 14.6mm seated height
- \* Vacuum encapsulated
- \* Low distortion
- \* IEC 950, UL 1950 and EN 60950 certified
- \* UL Recognized Component
- \* CSA NRTL/C Certificate of Compliance

**Applications**

- \* Powerline Carrier

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**DESCRIPTION**

The family of transformers P2820, P2821, P2822 and P2823 is specifically designed to provide signal coupling with safety for Powerline Carrier applications over four bands from 40kHz to 148.5kHz.

Typically, the devices are driven from low-impedance sources and are connected to the mains network using capacitors whose values are chosen to resonate with the transformer leakage inductance.

They are particularly suitable for use with tri-state power amplifiers, e.g. Texas Instruments TLE2301.

The devices are certified to IEC 950, EN 60950 and UL 1950. They are UL Recognized components and are supported by an IEC CB Test Certificate. Furthermore, the devices are designed for low distortion and meet the requirements of EN 50065-1 for conducted emissions.



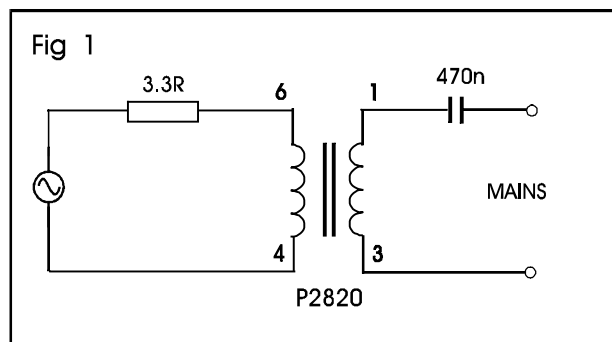
## SPECIFICATIONS

### Distortion

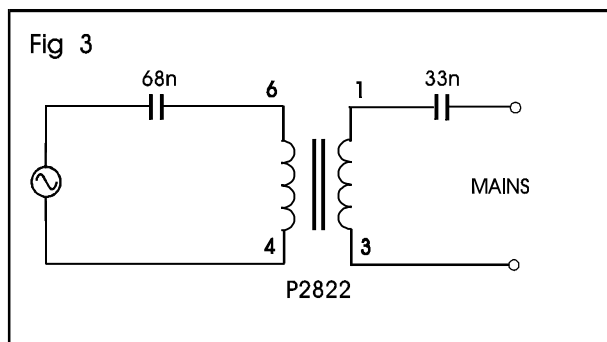
Exceed requirements of EN 50065-1 (1991) for conducted emissions

#### Conditions:

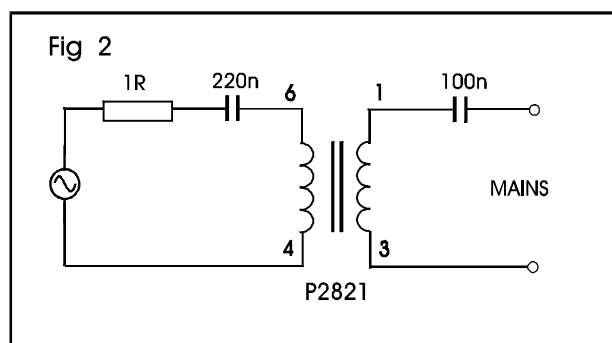
**P2820**, Fundamental 40-90kHz into artificial mains network of EN 50065-1 at 122dB $\mu$ V and AC magnetizing current of 40mA rms at 50Hz. Circuit as Figure 1.



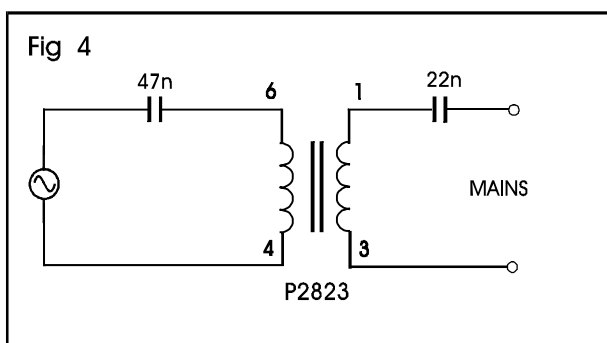
**P2822**, Fundamental 125-140kHz into artificial mains network of EN 50065-1 at 116dB $\mu$ V and AC magnetizing current of 3mA rms at 50Hz. Circuit as Figure 3.



**P2821**, Fundamental 95-125kHz into artificial mains network of EN 50065-1 at 116dB $\mu$ V and AC magnetizing current of 10mA rms at 50Hz. Circuit as Figure 2.



**P2823**, Fundamental 140-148.5kHz into artificial mains network of EN 50065-1 at 116dB $\mu$ V and AC magnetizing current of 3mA rms at 50Hz. Circuit as Figure 4.



## Voltage Isolation

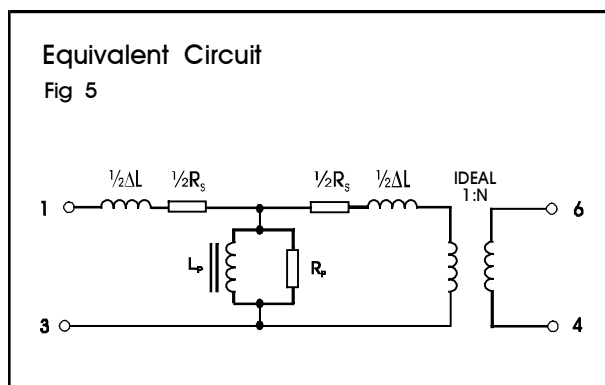
4kVrms at 50Hz

## Operating range

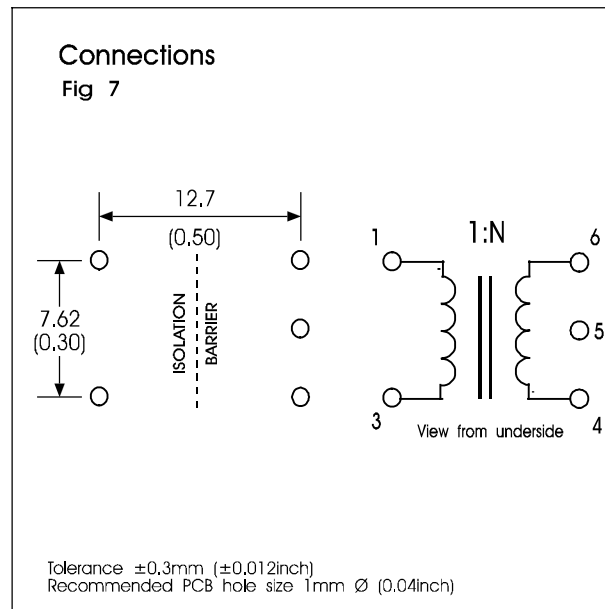
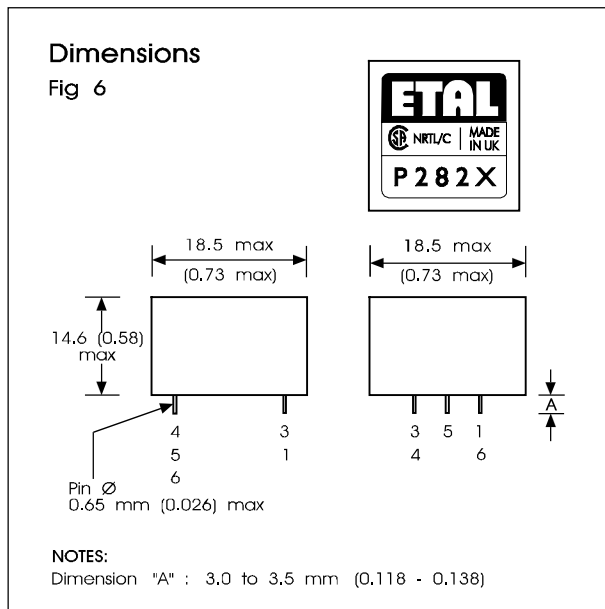
Ambient	0 to +70°C
Storage	-25 to +125°C
Relative Humidity	to 95%

Typical lumped parameters as Fig. 5 referred to pins 1-3.

Parameter	Conditions	P2820	P2821	P2822	P2823	Units
Series resistance $R_s$ (DCR+ AC resistance)	1V 100kHz	0.5	0.6	1.0	1.3	$\Omega$
Leakage inductance $\Delta L$	1V 100kHz	14.4	22	46	58	$\mu H$
Shunt inductance $L_p$	1V 100kHz	400	600	1200	1600	$\mu H$
Shunt loss $R_p$	1V 100kHz	>20	>20	>20	>20	k $\Omega$
Turns ratio, N	1V 100kHz	1.67	3.22	3.15	3.00	



## CONSTRUCTION



Dimensions shown are in millimetres (inches).

Geometric centres of outline and pad grid coincide within a tolerance circle of 0.3mmØ.

Windings may be used interchangeably a primary or secondary.

## SAFETY

Constructed in accordance with IEC950:1991, EN 60950:1992 (BS 7002:1992) to amendment 3 reinforced insulation, amendment 5 supplementary insulation and UL 1950 3rd Edition, reinforced insulation 250Vrms maximum working voltage, flammability class V-0.

Distance through solid insulation 0.4mm minimum.  
Creepage and clearances in circuit are 9mm minimum where PCB pads do not exceed Ø3mm.

## CERTIFICATION

Certified under the IEC CB scheme (Certificate GB442W) to IEC 950:1991, 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 70°C in Pollution Degree 2 environments, reinforced insulation to amendment 3, supplementary to amendment 4.

Recognized under the Component Recognition Program of Underwriters Laboratories Inc. to US and Canadian requirements CAN/CSA C22.2 No. 950-95/UL1950, 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).

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.



# P2820, P2821, P2822, P2823

## ABSOLUTE MAXIMUM RATINGS

(Ratings of components independent of circuit).

Short term isolation voltage (1s) 4.6 kVrms,  
6.5kVDC

Storage temperature -25°C to  
+125°C

Lead temperature, 10s 260°C

## COPYRIGHT

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