SMD Pulse Transformer

TNH353229NF-121-P1

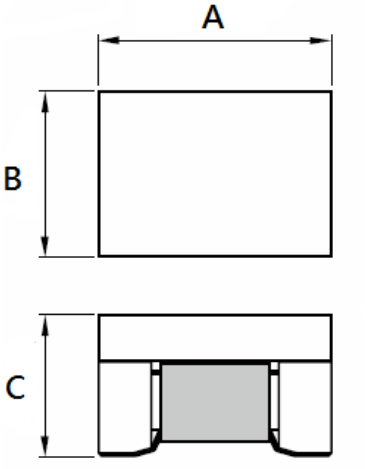
1. Features

1. SMD type pulse transformers.
2. TNH353229NF is small size and low profile 3.50X3.20X2.9 mm.
3. 100% Lead(Pb) & Halogen-Free and RoHS compliant.
4. Operating temperature-40~ +85℃ (Including self - temperature rise)
5. For 10/100/1G Base-T, POE

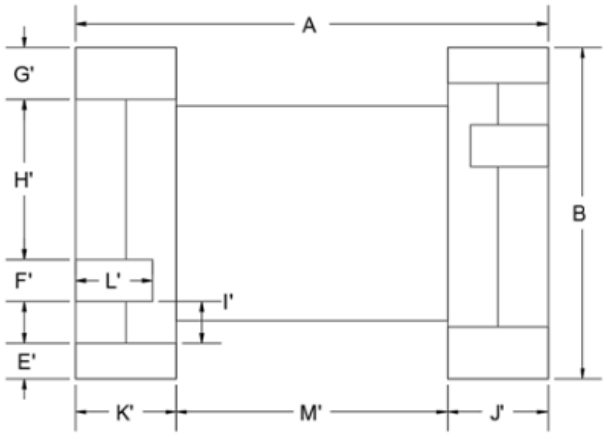
Halogen-free

RoHS

2. Dimension / Part Dimension



Dimensions in mm

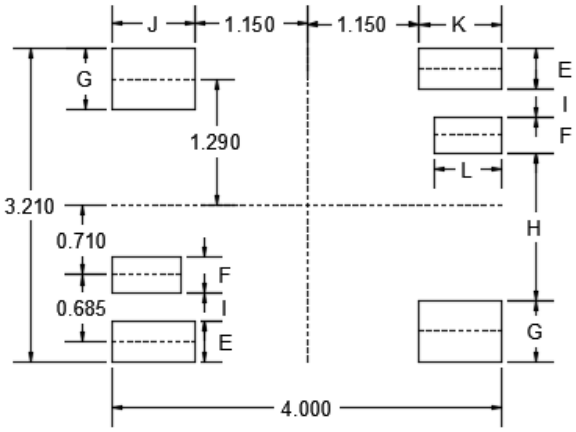


Top View

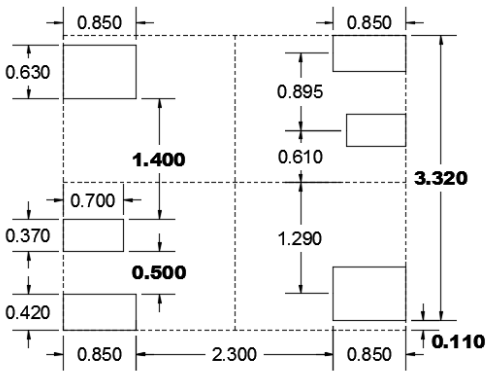
Series	A(mm)	B(mm)	C(mm)	E'(mm)	F'(mm)	G'(mm)	H'(mm)	I'(mm)	J'(mm)	K'(mm)	L'(mm)	M'(mm)
353229NF	3.50±0.20	3.20±0.20	2.90 max	0.40±0.06	0.43±0.06	0.61±0.06	1.50±0.10	0.26±0.06	0.72±0.06	0.72±0.06	0.57±0.06	2.06±0.10

Units: mm

Recommended PC Board Pattern



Solder paste stencil aperture recommendation



Series	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)	I(mm)	J(mm)	K(mm)	L(mm)
353229NF	4.00	0.42	0.37	0.63	1.50	0.29	0.85	0.85	0.70

Units: mm

3. Part Numbering

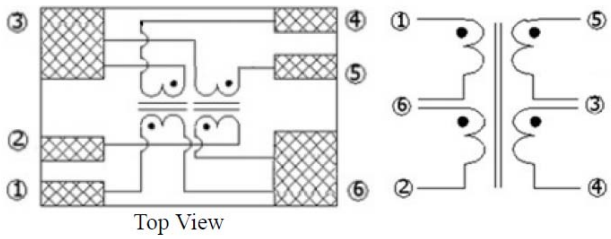
TNH	353229	N	F	-	121	-	P1
A	B	C	D		E		F

A: Series
B: Dimension AxBxC
C: Material Ferrite Core
D: RoHs F=Lead Free
E: Inductance 121=120 uH
F: Control S/N

4. Specification

TAI-TECH Part Number	Inductance (uH) DC BIAS 0mA ①to② or ④to⑤	Test Frequency (Hz/V)	Insertion loss (Max)	Rated current (mA)max	Cp Capacitance (pF) ③to⑥	Turns ratio ①to② : ④to⑤
TNH353229NF-121-P1	120uH (Min)	100K/0.1	1M-100MHz -1.0dB Max	350	35pF MAX	1:1

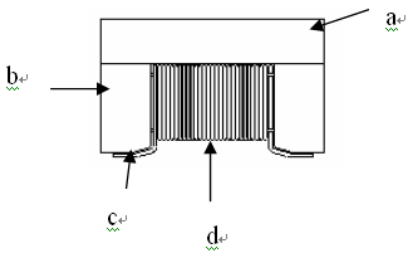
5. Schematic Diagram



Top View

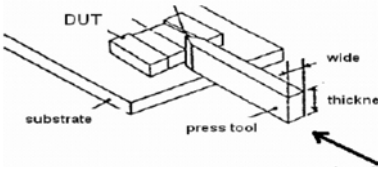
6. Materials

No.	Description	Specification
a.	Upper Plate	Ferrite
b.	Core	Ferrite Core
c	Termination	Ag/Ni/Sn
d	Wire	Enameled Copper Wire



7. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~ +85℃ (Including self - temperature rise)	
Storage temperature	-40~ +85℃ (on board)	
Electrical Performance Test		
Ls	Refer to standard electrical characteristics list.	Keysight –E4980AL+ Keysight t -16334A
Cp		Keysight –E4980AL+ Keysight t -16334A
Insertion Loss		Agilent E5071C
Reliability Test		
Life Test	Appearance：No damage. Inductance：within±10% of initial value Cp: within ±15% of initial value and shall not Insertion Loss：within Specification	Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature：85±2℃ Applied current：rated current Duration：1000±12hrs Measured at room temperature after placing for 24±2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Humidity：85±2% R.H, Temperature：85℃±2℃ Duration：1000hrs Min. Bead：with 100% rated current，Inductance: with 10% rated current Measured at room temperature after placing for 24±2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles 1. Baked at50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles Condition for 1 cycle Step1：-40±2℃ 30±5min Step2：85±2℃ ≦0.5min Step3：85±2℃ 30±5min Number of cycles： 500 Measured at room temperature after placing for 24±2 hrs
Vibration		Oscillation Frequency: 10Hz～2KHz～10Hz for 20 minute Equipment： Vibration checker Total Amplitude:10g Testing Time：12 hours(20 minutes, 12 cycles each of 3 orientations)。

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Bending</td><td rowspan="2">Appearance：No damage.
Inductance：within±10% of initial value
Cp: within ±15% of initial value and shall not
Insertion Loss：within Specification</td><td>Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm
<0805 inch(2012mm):40x100x0.8mm
Bending depth: >=0805 inch(2012mm):1.2mm
<0805 inch(2012mm):0.8mm
duration of 10 sec.</td></tr>
<tr><td>Shock</td><td>
<table>
<tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr>
<tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
<tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr>
</table>
</td></tr>
<tr><td>Solder ability</td><td>More than 95% of the terminal electrode should be covered with solder。</td><td>a. Method B, 4 hrs @155°C dry heat @235°C±5°C
Testing Time :5 +0/-0.5 seconds
b. Method D category 3. (8hours ± 15 min)@ 260°C±5°C
Testing Time :30 +0/-0.5 seconds</td></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">Appearance：No damage.
Inductance：within±10% of initial value
Cp: within ±15% of initial value and shall not
Insertion Loss：within Specification</td><td>Depth: completely cover the termination
<table>
<tr><th>Temperature(°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr>
<tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr>
</table>
</td></tr>
<tr><td>Terminal Strength</td><td>Preconditioning: Run through IR reflow for 3 times.(IPC/JEDEC J-STD-020E Classification Reflow Profiles
With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.
 
</td></tr>
</table>

8. Soldering and Mounting

8-1. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

8-1.1 IR Soldering Reflow:

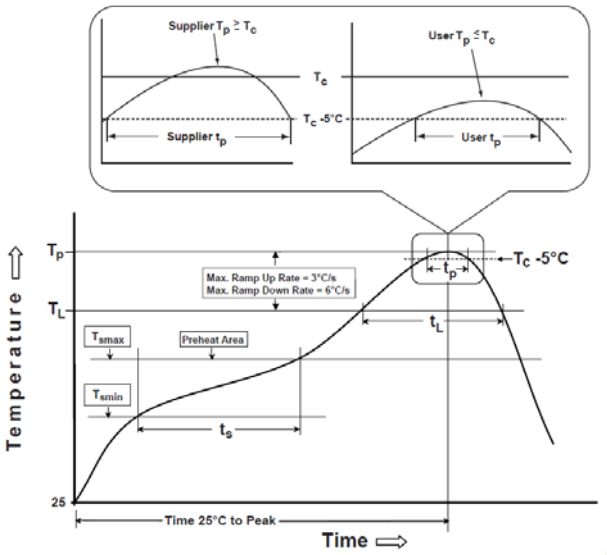
Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1&1.2 (J-STD-020E)

8-1.2 Soldering Iron:

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended. (Figure 2.)

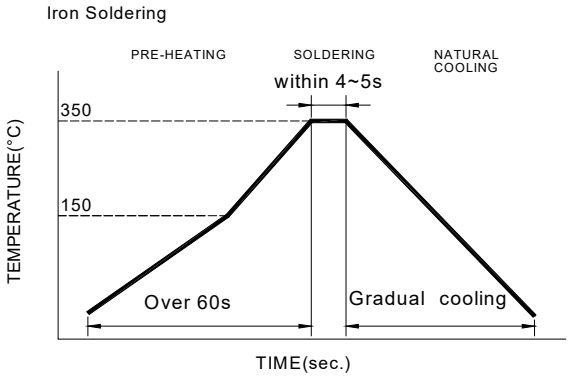
- Preheat circuit and products to 150℃
- 350℃ tip temperature (max)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (max)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4~5sec.

Fig.1 IR Soldering Reflow



Reflow times: 3 times max

Fig.2 Iron soldering temperature profiles



Iron Soldering times：1 times max

单击下面可查看定价，库存，交付和生命周期等信息

>>TAI-TECH(台庆)