ECUS INTERNATIONAL CO., LTD

Coupled Transformer

Part Number: ECUST35502

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Coupled Transformer

ECUS P#: ECUST35502

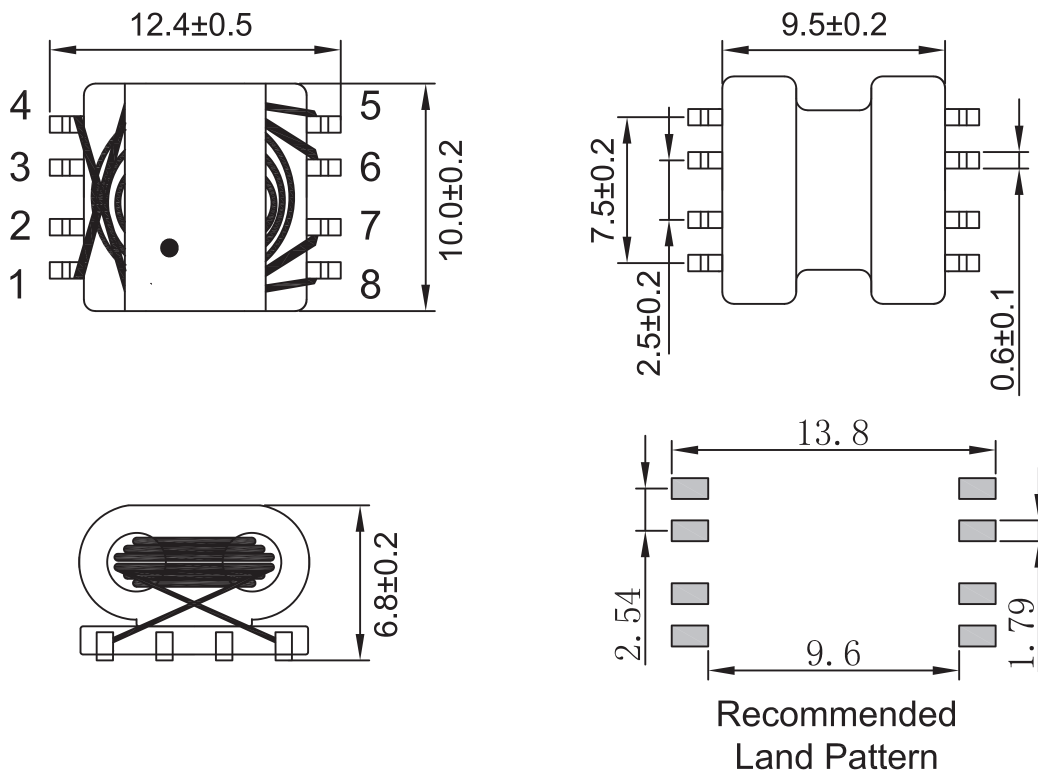
Features

- Small size
- Low profile
- Low insertion loss
- Frequency range 2 MHz to 100MHz
- RoHS compliant

Technical data

- Double-aperture transformer
- Recommended frequency range: 2 MHz to 100 MHz
- Operating temperature: −40 °C to +115 °C
- Storage Temperature Range: -30 °C to +70 °C

Mechanical Dimensions (in mm)



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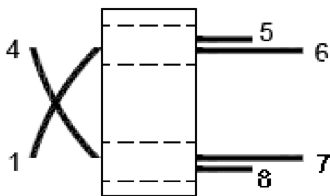
Electrical Characteristics

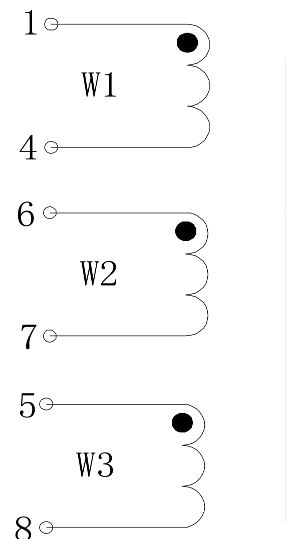
Property		Test Conditions	Value	Unit	Tol.
Inductance	W1	10KHz/50mV	23.0	μH	Min
Inductance	W2	10KHz/50mV	8.3	μH	Min
Inductance	W3	10KHz/50mV	23.0	μH	Min
RDC	W1	@25℃	26	mΩ	Max
RDC	W2	@25℃	18	mΩ	Max
RDC	W3	@25℃	26	mΩ	Max
Turns Ratio W1:W2:W3			5:3:5		

Windngs



Winding	Wire	Star	Turns	End
1	0.32 CuLL	1	5	4
2	0.32 CuLL	6	3	7
3	0.32 CuLL	5	5	8

Schematic



Hi-Pot Test

W1-W2/W3 1000 VDC, t=1s

Environmental Test

Climatic Category IEC 68-1 40/125/56

Materials:

Wire: 0.32 CuLL natur

Wire: 0.32 CuLL red

Note: wire class 130℃

Delivery mode and packing unit

■ Tape & Reel

Ncdgning

■ Minimum data on SPQ package:

Manufacturer, ECUS P/N, quantity

Note

Electrical Specifications @ 25 °C (Values specified at 25 °C)

Terminal Material: Sn99.3/Cu0.7

RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.

Customers should verify actual device performance in their specific applications

Soldering Profiles

Figure 1 Classification Profile (Not to scale)

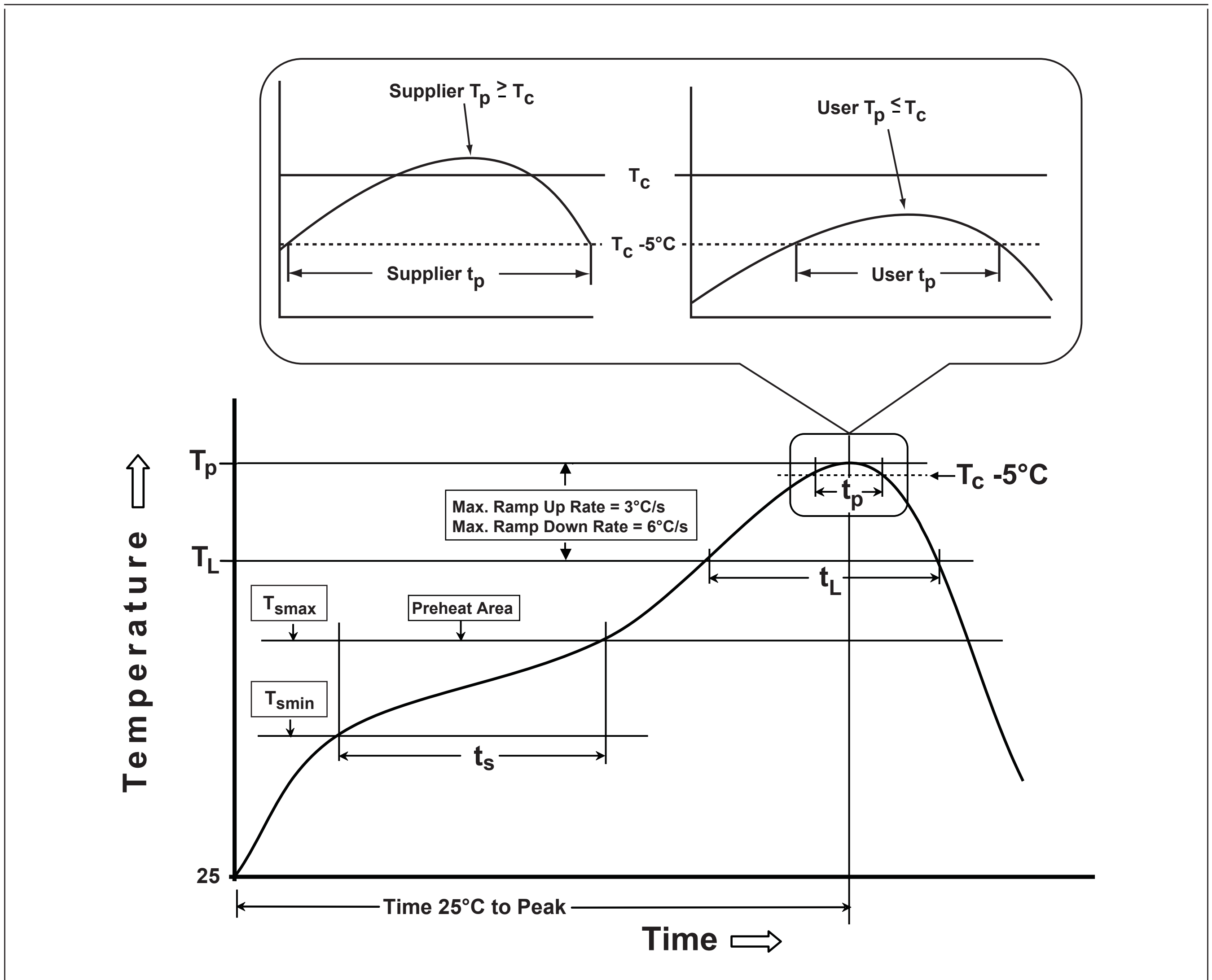


Table 1 SnPb Eutectic Process - Classification Temperatures (T_c)

Package Thickness	Volume mm³ <350	Volume mm³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 Pb-Free Process - Classification Temperatures (T_c)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Soldering Profiles

Table¨ Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat/Soak Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-120 seconds
Ramp-up rate (T_L to T_p)	3 °C/second max.	3 °C/second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (T_p)	For users T_p must not exceed the Classification temp in Table 1. For suppliers T_p must equal or exceed the Classification temp in Table 1.	For users T_p must not exceed the Classification temp in Table 2 For suppliers T_p must equal or exceed the Classification temp in Table 2.
Time (t_p)* within 5 °C of the specified classification temperature (T_c), see Figure 1.	20* seconds	30* seconds
Ramp-down rate (T_p to T_L)	6 °C/second max.	6 °C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.
* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.		

Note 1: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow (e.g., live-bug). If parts are reflowed in other than the normal live-bug assembly reflow orientation (i.e., dead-bug), T_p **shall** be within ± 2 °C of the live-bug T_p and still meet the T_c requirements, otherwise, the profile **shall** be adjusted to achieve the latter. To accurately measure actual peak package body temperatures refer to JEP140 for recommended thermocouple use.

Note 2: Reflow profiles in this document are for classification/preconditioning and are not meant to specify board assembly profiles. Actual board assembly profiles should be developed based on specific process needs and board designs and should not exceed the parameters in Table 3.

For example, if T_c is 260 °C and time t_p is 30 seconds, this means the following for the supplier and the user.

For a supplier: The peak temperature must be at least 260 °C. The time above 255 °C must be at least 30 seconds.

For a user: The peak temperature must not exceed 260 °C. The time above 255 °C must not exceed 30 seconds.

Note 3: All components in the test load **shall** meet the classification profile requirements.

Note 4: SMD packages classified to a given moisture sensitivity level by using Procedures or Criteria defined within any previous version of J-STD-020, JESD22-A112 (rescinded), IPC-SM-786 (rescinded) do not need to be reclassified to the current revision unless a change in classification level or a higher peak classification temperature is desired.

Cautions and Warnings

■ Please note the recommendations in our Inductors data book (latest edition) and in the data sheets.
– Particular attention should be paid to the derating curves given there.
– The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not the housing.

■ If the components are to be washed varnished it is necessary to check whether the washing varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. In particular, it is possible for washing varnish agent residues to have a negative effect in the long-term on wire insulation.

■ The following points must be observed if the components are potted in customer applications:
– Many potting materials shrink as they harden. They therefore exert a pressure on the plastic housing or core. This pressure can have a deleterious effect on electrical properties, and in extreme cases can damage the core or plastic housing mechanically.
– It is necessary to check whether the potting material used attacks or destroys the wire insulation, plastics or glue.
– The effect of the potting material can change the high-frequency behaviour of the components.

■ Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core.

■ Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

■ Specifications are subject to change without notice.

■ Customers should verify actual device performance in their specific applications

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