TWIN SMD CERAMIC PTC THERMISTOR

DESCRIPTION:

The component consists of two high-performance ceramic PTCs mounted in a lead-frame for (SMD) direct soldering onto a printed-circuit board (PCB) or substrate. The ceramic PTCs are soldered to the lead frame by a reflow process, during which the solder layer is melted to the metallized ceramic surface using a low residue flux. This structure can hold the low matched resistance in a loop. The component in accordance to RoHS.

FEATURES:

- Very small footprint, allowing to increase the number of lines per PCB
- Matched pairs in one component, significantly reducing the assembly time
- Limited height and weight, used on high speed pick-and-place circuit assembly
- Flat pick-up ceramic area for easy placement
- Smaller ceramics for faster response time
- Thermal coupled PTC's for enhanced protection
- Four spaced terminations for heat flow regulation and improved mechanical stability
- RoHS compliant and suitable for Pb-baring and Pb-free reflow soldering
- Compliant with ITU-T K.21
- Basic level lightning surges (10/700 µs)
- Basic level power induction (600V, 1A, 0.2s)
- Power contact criteria A/B (230V, 15min.)

APPLICATIONS

Dual SMD PTC are typically used as the principle overcurrent protectors in Telecom product interface circuit.

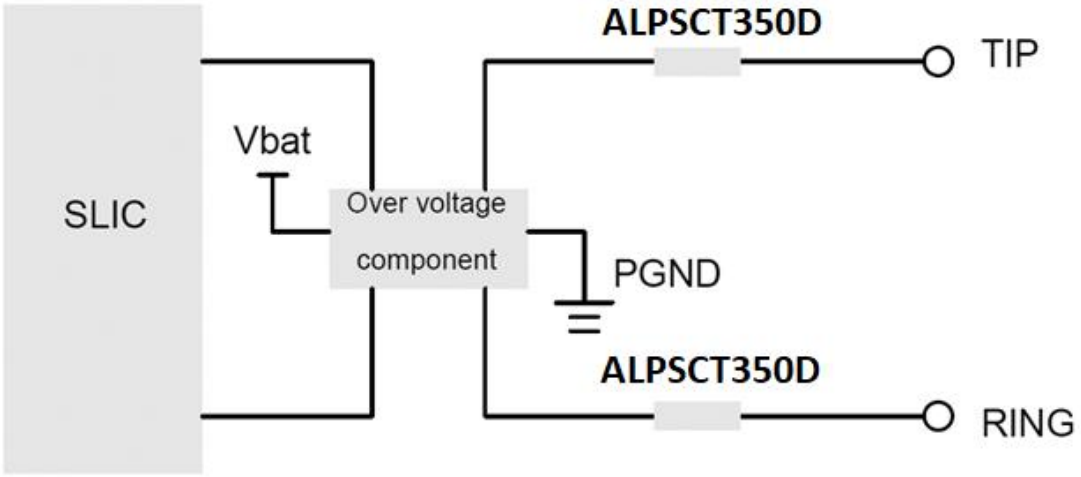
- Transmission equipment such as Central Office linecard, DLC linecard, NGN linecard, MSAN linecard, FTTx linecard.
- Customer Premises Equipment (CPE) such as IAD-VoDSL, ATA, STB, VoIPGW, VoCable, Wireless VoIP router, PC telephony card.
- PBX's and other switches.
- Primary protection including main distribution frames, building entrance equipment and station protection modules.

STANDARDS

- Housing material according to UL94-V0.
- Climatic category acc. to IEC 68-1 40/125/56.
- Compliant with ITU-T K21.

All ALPINESEMI™ parts are manufacturered at the facility approved ISO/TS 16949, ISO 9001 and ISO 14001

TYPICAL VoIP SLIC PROTECTION CIRCUIT



BASIC REFERENCE DATA

MAXIMUM RATINGS @ T_A = 25 °C unless otherwise specified		
PARAMETER	**VALUE**	**UNIT**
Rated voltage (RMS)	230	V
Maximum voltage (RMS)	250	V
Maximum Current	2.5	A
Operating temperature range	0 to +70	°C
Weight	~1.835	g
Resistance	35 ±20%	Ω
The initial resistance difference of Two PTC thermistors in one house	1.0	Ω

ELECTRICAL CHARACTERISTICS @ T_A = 25 °C unless otherwise specified

PARAMETER	MIN	TYP.	MAX	UNIT
Rated zero power resistance (25℃)	28	35	42	Ω
The initial resistance difference of two PTC thermistor in one device at 25℃			1.0	Ω
Hold current at 25 ±2℃	230			mA
Trip time 2.5A → 1.25A			0.2	S
Surge test: 10/1000μs, 1KV, 25A, impulse 30 times, No crack and fire.		25		A
Overvoltage Withstanding: AC250V, Initial current 2.5A, electrify 15min, ΔR/R≤20%		250		V
Power conduct test: 250 V_{AC}, no current-limited resistance for 15 min, no damage.		250		V
Power contact test: 220 V_{AC}, 2.5A, on 1 min, off 10 min, 20 times, ΔR/R≤20%.		250 2.5		V A
Operating temperature range (V=0) ($V=V_{max}$)		-40 ~ +85 0 ~ +70		℃

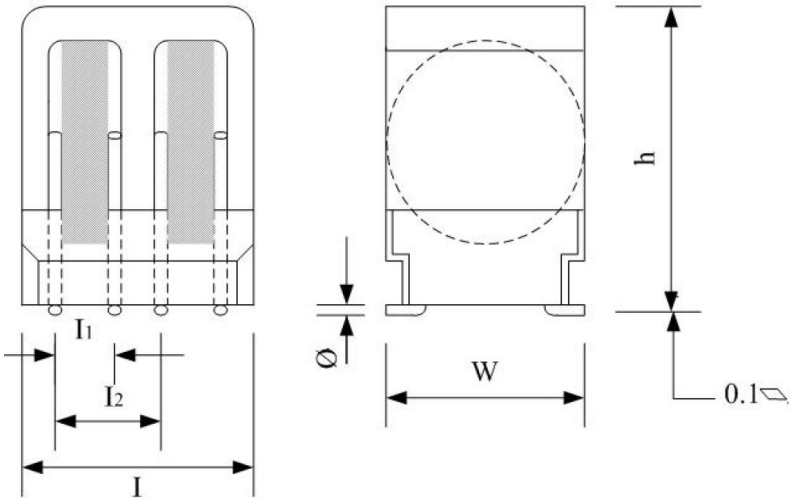
PHYSICAL SPECIFICATIONS	
Lead material	Tin plated brass
Case material	PPS
Solder heat withstand	IEC-STD 68-2-20
Lead solderability	EIC60068-2-58
Flammability rating	IEC 695-2-2 Needle Flame Test for 20 s
Storage humidity	Per IPC/JEDEC J-STD-020A Level 2a

ENVIRONMENTAL SPECIFICATIONS

ENVIRONMENTAL SPECIFICATIONS			
NO.	**ITEM**	**TEST CONDITION**	**REQUIREMENT**
1	Intensity of the down-lead	Add the axial stress on the downlead of the sample gradually until 4.9N and last for 10s, then measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
2	Solderability	Solder bath: temperature 235℃, Immerging time is 2±0.5s	Tinning must be well after testing.
3	Resistance of soldering heat	Solder bath: the temperature 350℃, immerging time is 3.5± 0.5s, measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
4	Vibration	Rivet the sample on the test board. Increase the frequency from 10HZ to 55HZ within one minute. Make sure the displacement of swing is 0.75mm. Vibrate along two directions of X/Y respectively for 45minute. Measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
5	Shock	Rivet the sample on the Collision Stand. Keep the acceleration at 100 m/s2 for 11ms. Vibrate the samples along two directions of X/Y respectively by the frequency of 60~80 time per minute and collide them for 1000 times. Measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
6	Damp heat, steady state	Put the sample in the temperature of 40℃ and humidity of 90%-95% and keep for 48hrs, Measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
7	High Temperature	Put the sample under the temperature of 70℃ and last for 2h. Measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
8	Low Temperature	Put the sample under the temperature of -10℃and last for 2h. Measure the value of its resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test
9	Change of the temperature	Put the sample under the temperature of — 10℃, high temperature 70℃, exposing for 30min, transfer for 2minute, circulate for 5 times, then measure the value of their resistance.	| (R2-R1) /R1 | ＜20% R1: the resistance before test R2: the resistance after test

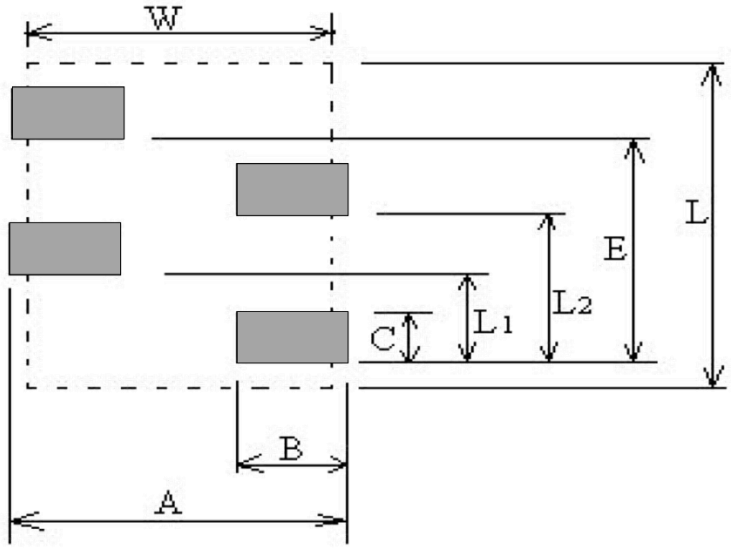
PACKAGE INFORMATION

ALPSCT350D



OUTLINE DIMENSIONS	
SYMBOL	MILLIMETERS
h(max)	10.2
I(max)	8.9
W(max)	7.2
I1	2.4
I2	3.9
Ddisc	6.8 ±0.2
Ø	0.5 ±0.02

SUGGESTED SOLDER PAD LAYOUT



OUTLINE DIMENSIONS	
SYMBOL	MILLIMETERS
Component Length "L"	Max. 8.9
Component Width "w"	Max. 7.2
L1	2.4
L2	3.9
A	8.2
B	3.2
C	2.0
E	6.3

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only.

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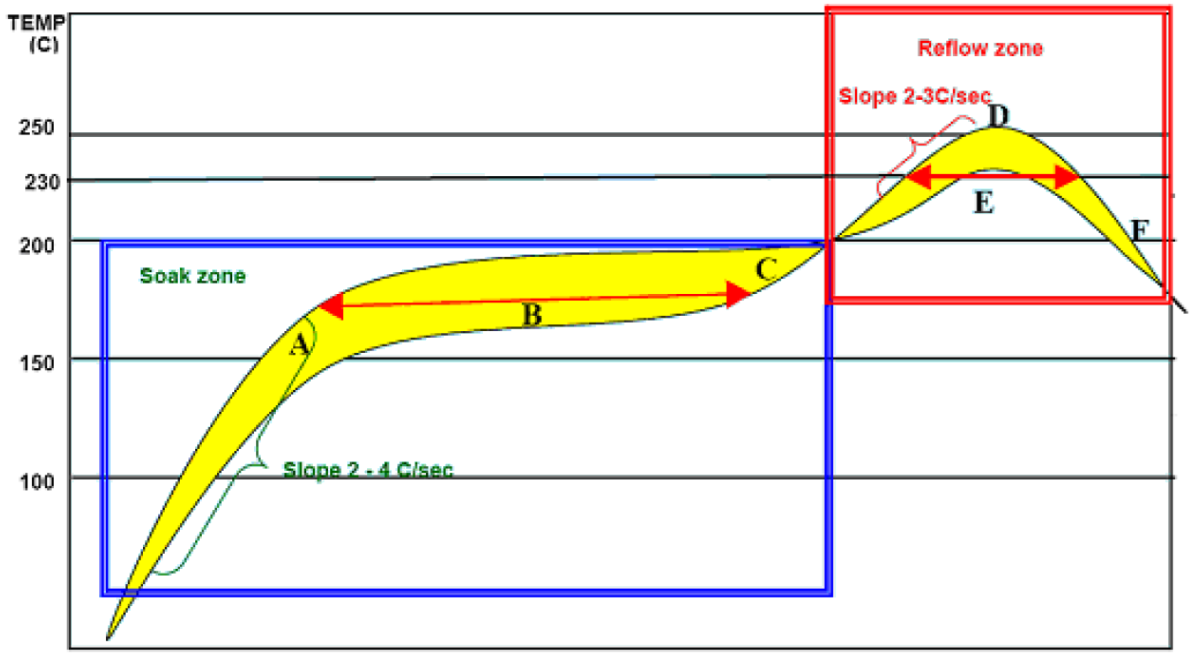
REFLOW SOLDERING AND REWORK RECOMMENDATIONS



REFLOW SOLDER CURVE

Item	Process	Description	Reach Temp.	Time or Rate
A	Soak Start	From ambient to soak temperature and soak start	150℃ - 180℃	2℃ - 4℃ / sec
B	Soak time	Soak time	---	60s - 120s
C	Soak end	Soak end	180℃ - 200℃	---
D	Peak Temp.	From soak temperature to Peak temperature	260℃	2℃ - 3℃ / sec
E	Time above	Main heating time	230℃ - 260℃	40s - 60s
F	Cooling	From main heating temperature to 100℃	100℃	Max. 4℃ / sec

Notes:

1. Peak temperature can be high to 260℃, and the recommendation time is as below
   at 230℃ 40s ~ 60s
   at 240℃ 30s ~ 40s
   at 260℃ ~ 3s
2. Recommended reflow methods: IR, Vapor phase oven, hot air oven, wave solder.
3. Devices can be cleaned using standard industry methods and solvents.
4. Component can withstand 270℃ 10 sec.
5. If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

STORAGE

The production should be in the environment of good ventilation. The indoor temperature is -40℃～+55℃, and the relative humidity ≦85%（at 25℃）, without acid, alkali, and other harmful impurity.

CUSTOMER NOTE:

DISCLAIMER

The product information and the selection guide facilitates the selection of the ALPINESEMI™'s Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review the Data sheet(s) so as to confirm that the Device(s) meets functionality parameters for your application. The information furnished on the Data Sheet and the ALPINESEMI™'s Web Site is believed to be accurate and reliable at the time of preparation of this document. ALPINESEMI™ however, does not assume any inaccuracies that may arise when the components are mounted and removed. Furthermore, ALPINESEMI™ does not assume liability whatsoever, arising out of the application or the use of any of ALPINESEMI™'s product(s). Neither, does it convey any license under its patent rights nor the rights of others. These products are not guaranteed for use in life saving/support appliances or systems. ALPINESEMI™'s customers using these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and ALPINESEMI™ will not be responsible in any way(s) for any damage(s) resulting from such use.

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Component Disposal Instructions

1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.

2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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