SCT500D
Twin SMD Ceramic PTC Thermistor

Desciption

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.

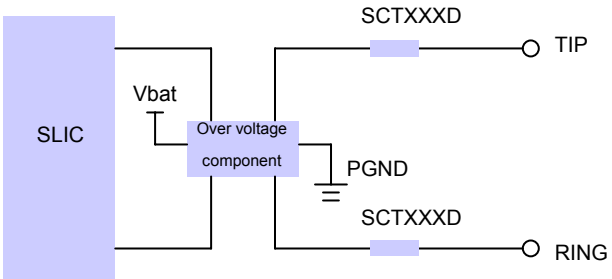
Features

- 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 (600 V, 1 A, 0.2 s)
- Power contact criteria A/B (230 V, 15 min.)

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.



Typical VoIP SLIC Protection Circuit

Basic reference data

PARAMETER	VALUE	UNIT
Rated voltage (RMS)	230	V
Maximum voltage (RMS)	250	V
Operating temperature range	0 to +70	°C
Weight	~1.557	g
Resistance	50 ± 20%	Ω
The initial resistance difference of Two PTC thermistors in one house	1.0	Ω

Electrical Characteristics

No.	ITEM	Min.	Typ.	Max.	Unit
1	Rated zero power resistance (25℃)	40	50	60	Ω
2	The initial resistance difference of two PTC thermistor in one device at 25℃			1.0	Ω
3	Hold current at 25±2℃ 40±2℃ 60±2℃	90 60 45			mA
4	Trip time 2.5A→0.5A 1A→0.5A 0.75A→0.15A			200 1 5	mS S S
5	Surge test: 10/1000μs, 1KV, 25A, impulse 30 times, No crack and fire.		25		A
6	Power induction test: 600V_{AC}, 1A, On 0.2s, Off 60s, 10 times, No damage and fire		600		V
7	Power conduct test: 250 V_{AC}, no current-limited resistance for 15min, no damage.		250		V
8	Power contact test: 220 V_{AC}, 3A, on 1 min, off 10min, 20times, ΔR/R≤20%.		220 3		V A
9	Operating temperature range (V=0) (V=Vmax)		-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

Test	Conditions
Dry Hot	125°C, 0V,1000 hours
Dry Cold	-40°C, 0V,1000 hours
Humidity aging	40°C, 95% RH, 0V,1000 hours
Thermal shock	85°C, -40°C (10 times)
Solvent resistance	MIL-STD-202, Method 215F

Standards

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

ITU K.21 Performance

	Test No.	ITU K.21	
		Basic test level	Enhanced test leve l
Power Induction	1	A	A
	2	B	C
Power Contact	3	D	E
Lightning Surge	4	F	G
	5	H	I

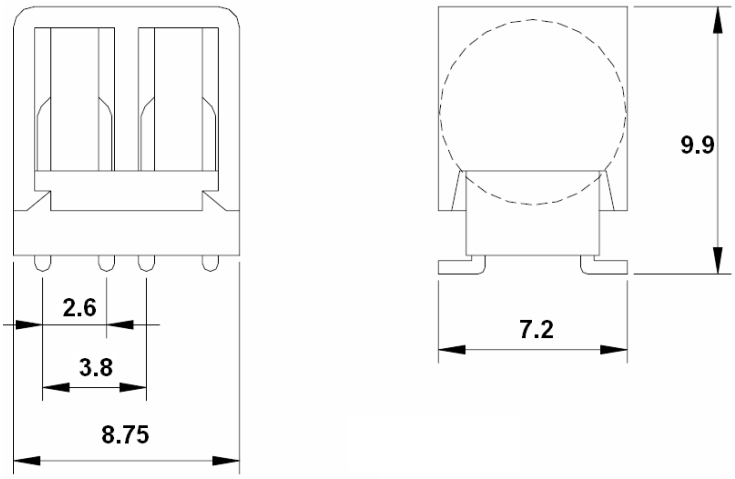
ITU K.21 Test Condition Overview

Power Induction	A	600VAC,R=600 ohm,t=0,2S,criteria A
	B	600VAC,R=600 ohm,t=1,0S,with GDT,criteria A
	C	1500VAC,R=200 ohm,t=2,0S,with GDT,criteria A
Power contact	D	230VAC,t=15 min,R=10-1000 Ohm,criteria B
	E	230VAC,t=15min,R=10,20,40,80,1000Ohm,criteriaB R=160,300,600Ohm,criteria A
Lightning Surge	F	Uc(max)=1,0KVAC,R=25 Ohm,t=10/700 Gs,without GDT,Cruteria A
	G	Uc(max)=1,5KVAC,R=25 Ohm,t=10/700 Gs,without GDT,Criteria A
	H	Uc(max)=4,0KVAC,R=25 Ohm,t=10/700 Gs,with GDT,Criteria A
	I	Uc(max)=6,0KVAC,R=25 Ohm,t=10/700 Gs,,with GDT,Criteria A

Criteria A: no damage, function must be fulfilled.

Criteria B: no fire hazard.

Product Dimension (mm) and Marking



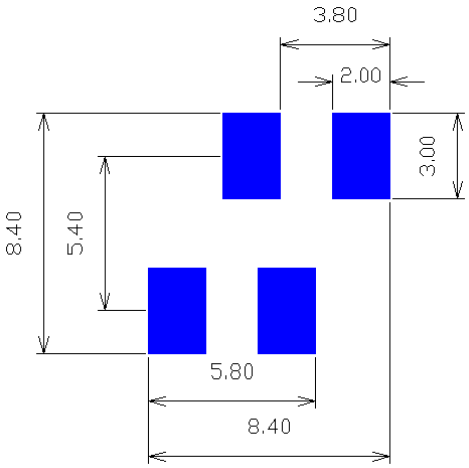
Product Dimensions

SCT

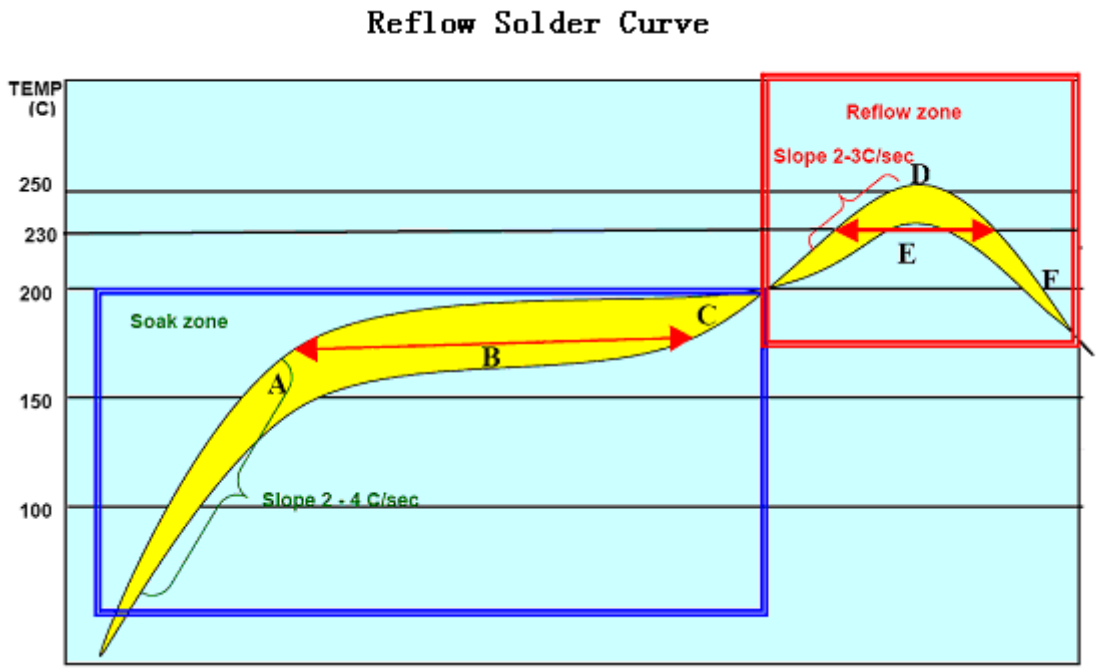
500D

Marking

Recommend Solder Pad (mm)



Reflow Soldering and Rework Recommendations



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.

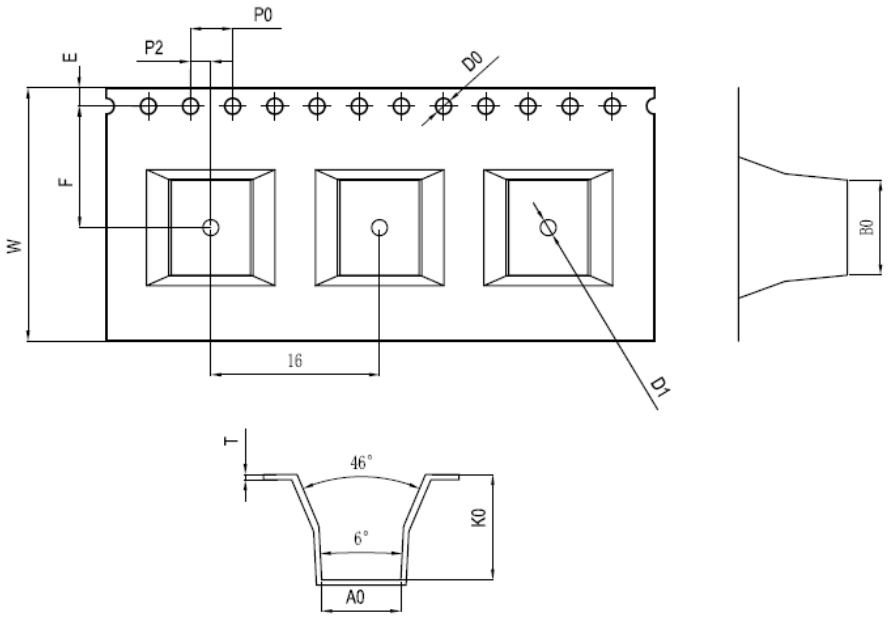
4* Component can withstand 270℃ 10 sec.

5* If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

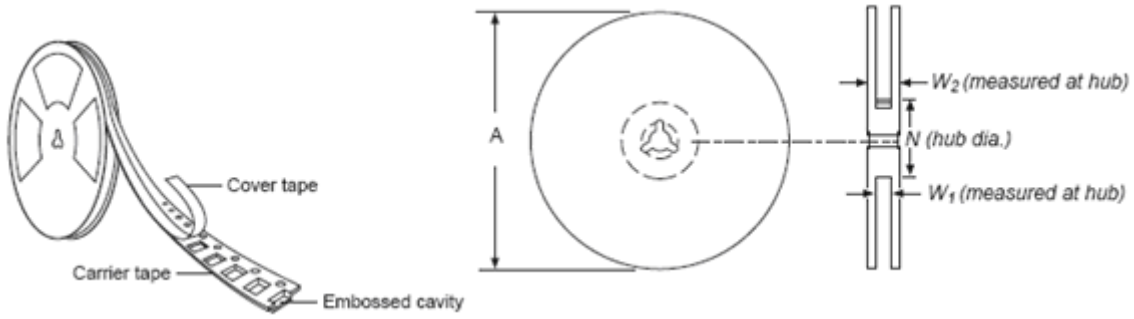
Storage

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.

Tape Information



W	24±0.3
F	11.5±0.1
T	0.5±0.05
E	1.75±0.1
P	16±0.1
P0	4±0.1
P2	2±0.1
A0	7.5±0.1
B0	9.2±0.1
K0	10.3±0.1
D0	□1.5±0.1
D1	□1.5±0.1



Dimension	330mm reel
A	330 -2.0/+0
W1	24.4 max
W2	30.4 +2.0/-0
N	80 max
Quantity per reel (min)	400 pcs

Package Information

Package	Reel QTY	Box QTY	Component Weight	Net Weight Per Box	Gross Weight/Per Box	Box Outline
	PCS	PCS	g	Kg	Kg	mm
Tape	400	4000	1.557	6.23	10.25	405×360×370