

Specification Status: Released

Maximum Operating Voltage: 60V_{DC}

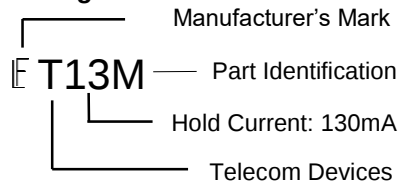
Fault Ratings at 20°C:

250 V_{RMS}, 3A, 10 applications

600 V_{RMS}, 1A, 5 applications

Configuration: Two PPTC devices per TSM250 part

Marking:



Terminal Description:

T1 = Tip In T2 = Tip Out

R1 = Ring In R2 = Ring Out

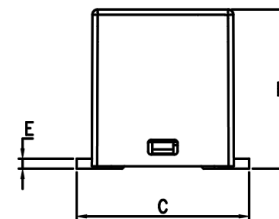
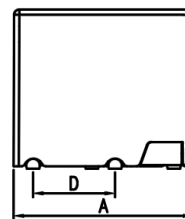
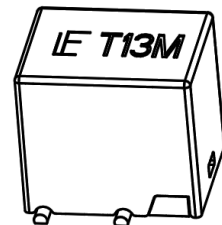
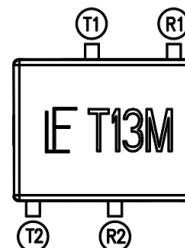


Table I. Dimensions

	A		B		C		D		E	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
mm:	8.2	8.9	--	9.0	7.8	8.6	--	3.9	--	0.7
in:	(0.323)	(0.350)	--	(0.354)	(0.307)	(0.339)	--	(0.154)	--	(0.026)

Table II. Performance Ratings @ 20°C (unless otherwise noted)

Part No.	I _{hold} (A)	I _{trip} (A)	RESISTANCE ** @ 20° C (Ω)			TIME TO TRIP @ 1.0 A (Seconds)		OPERATING TEMPERATURE (°C)		TRIPPED STATE POWER DISSIPATION @ 60V _{DC} (W)
	20°C	20°C	R _{MIN}	R _{MAX}	R _{1 MAX} *	TYP	MAX	MIN	MAX	TYP
TSM250-130F	0.13	0.26	4.0	9.0	15.0	1.0	2.4	-40	85	1.5
TSM250-130F-RA	0.13	0.26	4.0	22.0	30.0	1.0	2.4	-40	85	1.5

* Maximum device resistance: measured 1-hour post reflow or post trip.

** Resistance per PPTC device.

Additional Ratings @ 20°C

Line Balance:

Lightning Withstand: 10/700μS, 40 Ω (ITU-T K.20, K.21):

Lightning Withstand: 10/1000μS, 60 Ω:

Moisture Sensitivity Level (MSL):

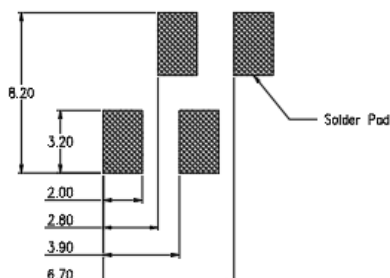
0.5 Ohm

1.5kV, 10 shots, 1 minute interval

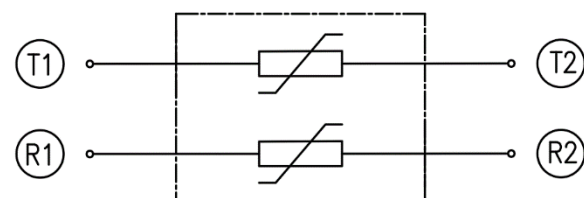
2.0kV, 30 shots, 3 minutes interval

1

Recommended Pad Layout (mm)

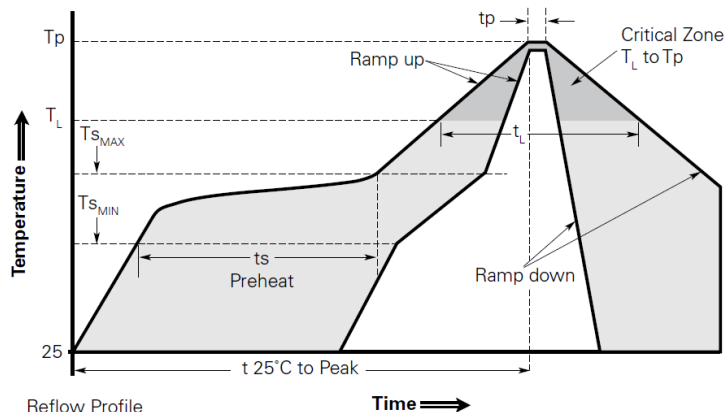


Schematic



Recommended Reflow Profile

Profile Feature	Pb-Free Assembly
Average ramp up rate ($T_{S_{MAX}}$ to T_p)	3°C/second max.
Preheat	
* Temperature min. ($T_{S_{MIN}}$)	150°C
* Temperature max. ($T_{S_{MAX}}$)	200°C
* Time ($t_{S_{MIN}}$ to $t_{S_{MAX}}$)	60-180 seconds
Time maintained above:	
* Temperature (T_L)	217 °C
* Time (t_L)	60-150 seconds
Peak/Classification Temperature (T_p)	260°C
Time within 5°C of actual peak temperature	
* Time (t_p)	20-40 seconds
Ramp down rate	6°C/second max.
Time 25°C to peak temperature	8 minutes max.



Note: All temperatures refer to topside of the package, measured on the package body surface.

Agency Recognitions: UL (File #E74889)
Reference Documents: PS300
Precedence: This specification takes precedence over documents referenced herein
Effectivity: Reference documents shall be the issue in effect on the date of invitation for bid.

Part Numbering System and Ordering Information

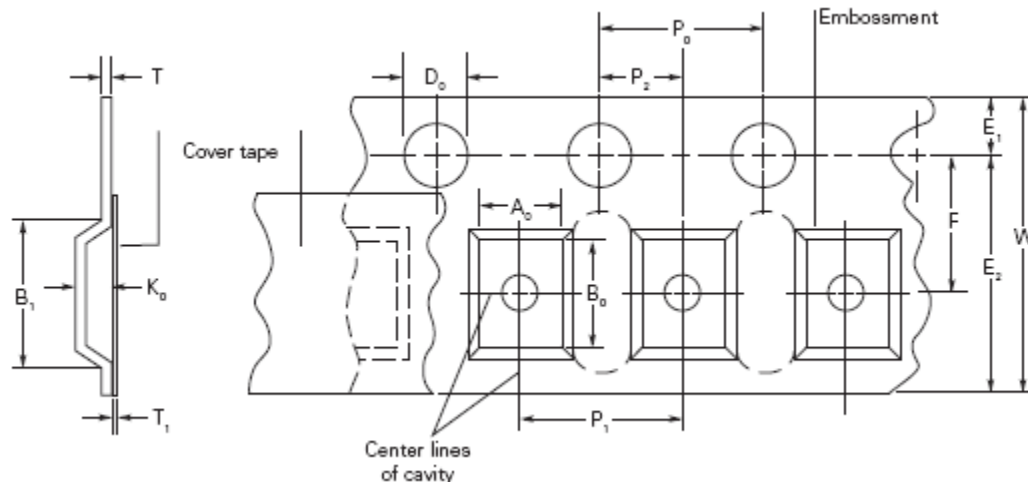
TSM	250	-	130	F	-	RA	-	2

Packaging: 2 = Tape and Reel, (Blank)=Bulk
Resistance Range
F = RoHS Compliant, ELV Compliant
Hold Current, mA
Maximum Voltage Withstand, V
Product Series: Dual Channels Surface Mount Device

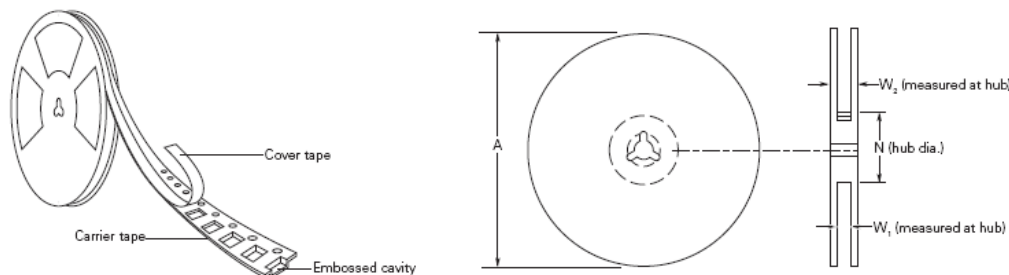
- Packaged with Tape and Reel only, Per EIA481-2
- Standard Package Quantity: 600pcs per reel
- MPQ/MOQ: 3000pcs

TSM250 Tape and Reel Specifications: per EIA 481 standard

Description	EIA Mark	Dimension (mm)	Tolerance (mm)
Carrier tape width	W	24.0	±0.5
Sprocket hole pitch	P ₀	4.0	±0.1
	P ₁	16.0	±0.1
	P ₂	2.0	±0.1
	A ₀	7.05	±0.2
	B ₀	8.85	±0.2
	B ₁ max.	12.45	
Sprocket hole diameter	D	1.5	-0/+1.0
	F	11.5	±0.1
	E ₁	1.75	±0.1
	E ₂ max.	22.25	
Tape thickness	T max.	0.5	±0.5
Tape thickness with splice	T ₁ max.	0.1	
	K ₀	8.55	±0.2
Reel Dimensions			
Reel diameter	A max.	390	
Core diameter	N min.	75	
Space between flanges less device	W ₁	25.4	±0.5
Reel width	W ₂ max.	30.4	



EIA Referenced Reel Dimensions for TSM250 Devices



Materials Information

ROHS Compliant

Directive 2011/65/EU
Compliant

ELV Compliant

Directive 2000/53/EC
Compliant

Pb-Free



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