308 Constitution Drive
Menlo Park, CA USA
www.circuitprotection.com

Reflowable Thermal Protection Device

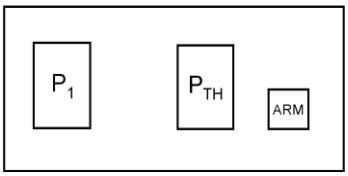
PRODUCT: RTP200R060SA

DOCUMENT: SCD28104
REV LETTER: E
REV DATE: OCTOBER 30, 2013

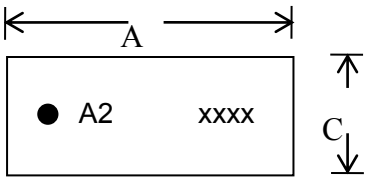
Specification Status: Released

PIN CONFIGURATION AND DESCRIPTION:

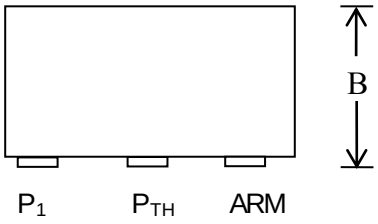
Pin Configuration
(Bottom View of Device)



(Top View of Device)



(Side View of Device)



Note:
A2 is product code
xxxx is Batch Code
P1 indicated by inmolded mark

TABLE 1. DIMENSIONS:

	A		B		C	
	MIN	**MAX**	**MIN**	**MAX**	**MIN**	**MAX**
mm	11.60	12.00	6.00	6.35	5.25	5.50
in:	(0.46)	(0.47)	(0.24)	(0.25)	(0.21)	(0.22)

TABLE 2. ABSOLUTE MAX RATINGS:

Absolute Max Ratings		**Max**	**Units**
Max DC Open Voltage [1]		32	V_{DC}
Max DC Interrupt Current [1]	@ 16 V_{DC}	200	A
	@ 24 V_{DC}	130	
	@ 32 V_{DC}	100	
ESD rating (Human Body Model)		25	KV
Max Reflow Temperature (pre-arming)		260	°C
Operating temperature limits, post-arming, non-opening		-55 +175	°C

1. Performance capability at these conditions can be influenced by board design. Performance should be verified in the user's system.

TABLE 3. PERFORMANCE CHARACTERISTICS (Typical unless otherwise specified):

Resistance and Open Characteristics P_1 to P_{TH}		Min	Typ	Max	Units
R_{PP} (Resistance from P_1 to P_{TH})	@ 23+/-3°C @ 175+/-3°C		0.6 0.8	0.8 1.2	mΩ
Operating Voltage			32		V_{DC}
Open Temperature, post-arming	I_{PP} = 0	196	205	213	°C
Thermal Resistance: Junction to Case	Case = P_{TH} pad		0.5		°C/W
Installation dependent Operating Current, post-arming [2, 3]	@ 23+/-3°C @ 100+/-3°C @ 175+/-3°C	32 27	34 28 10		A
Moisture Sensitivity Level Rating [4]			1		

2. Results obtained on 44.4mm x 57.2mm x 1.6mm single layer FR4 boards with 2oz Cu traces, a 645 sq. mm, 2oz Cu heat spreader connected to the P_{TH} pad, and a 387 sq. mm Cu heat spreader connected to the P_1 pad of the RTP device. (See RTP test board drawing in the RTP Datasheet). Results are highly installation-dependent. Users should confirm for their own applications.
3. Operating current is measured on the RTP test board (see the RTP Datasheet) at the specified temperature. It is a highly installation dependent value. Users should confirm for their own applications.
4. As per JEDEC J-STD-020C

TABLE 4. ARMING CHARACTERISTICS:

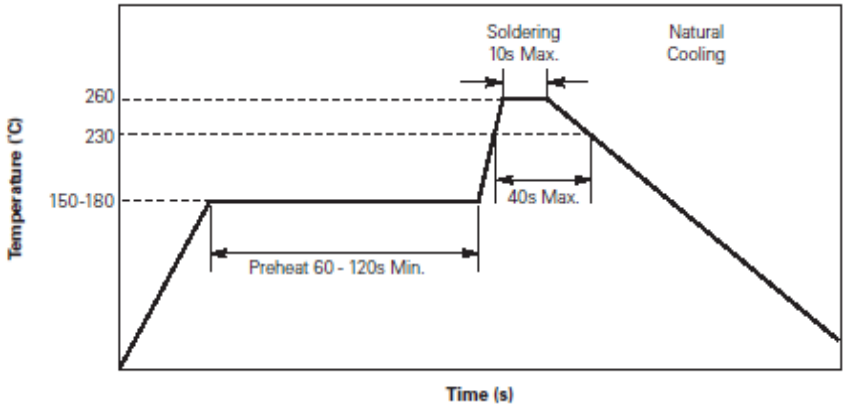
Arming Characteristics ARM		Min	Typ	Max	Units
Arming Type		Electronically Armed			
R_{ARM} (Resistance from ARM to P_1 or P_{TH})	Pre-Arming		300		mΩ
	Post-Arming	10			KΩ
Arming Current (I_{ARM}) [5]	@ 23 +/-3°C	2		5	A
Arming Time (@23 +/-3°C) [5]	@ 2A @ 5A		0.10 0.01		Sec

5. Results obtained on 44.4mm x 57.2mm x 1.6mm single layer FR4 boards with 2oz, Cu traces, a 645 sq. mm 2oz Cu heat spreader connected to the P_{TH} pad, and a 387 sq. mm Cu heat spreader connected to the P_1 pad of the RTP device. (See RTP test board drawing in the RTP Datasheet.) Results are highly installation dependent. Users should confirm for their own applications.

Solder Reflow Recommendation:

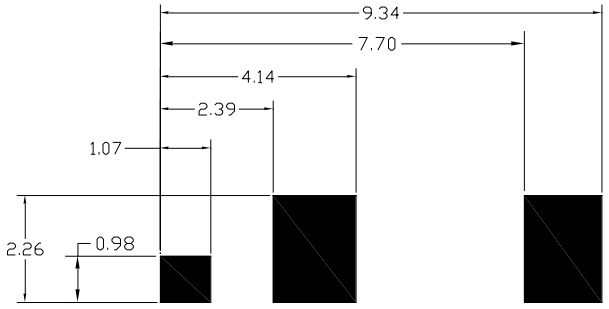
Classification Reflow Profiles	
Profile Feature	**Pb-Free Assembly**
Average ramp up rate (Ts_{MAX} to Tp)	3°C/second max.
Preheat	
• Temperature min. (Ts_{MIN})	150°C
• Temperature max. (Ts_{MAX})	200°C
• Time (ts_{MIN} to ts_{MAX})	60-180 seconds
Time maintained above:	
• Temperature (T_L)	217°C
• Time (t_L)	60-150 seconds
Peak/Classification temperature (Tp)	260°C
Time within 5°C of actual peak temperature	
Time (tp)	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.



Recommended Pad Layout:

mm



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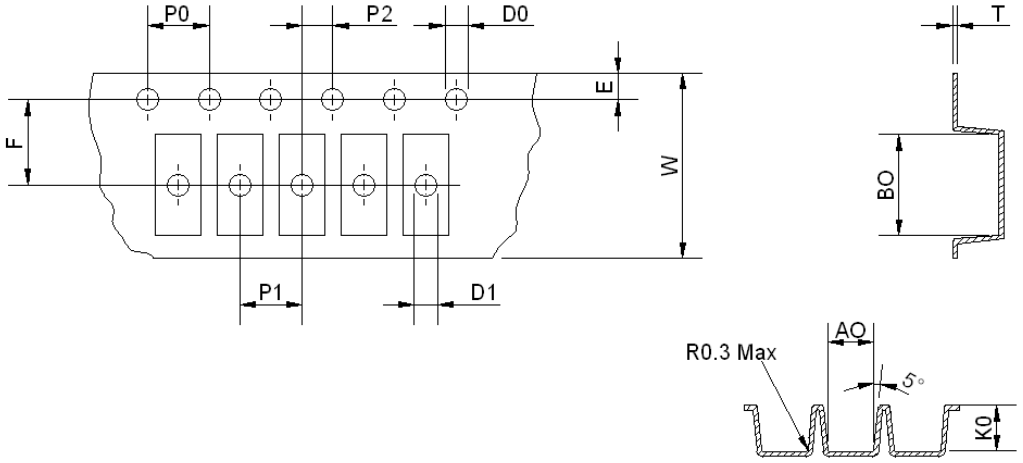
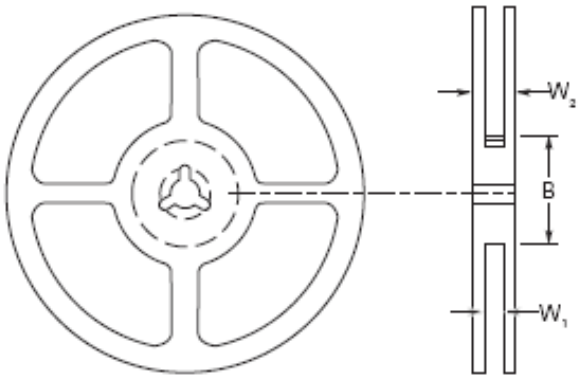
Package Information:



	E	F	W	P1	P0	P2
mm (in)	1.75±0.10 (0.069±0.004)	11.50±0.10 (0.453±0.004)	24.00±0.30 (0.945±0.012)	12.00±0.10 (0.472±0.004)	4.00±0.10 (0.157±0.004)	2.00±0.10 (0.079±0.004)
	D0	D1	T	A0	B0	K0
mm (in)	1.50+0.10/-0.00 (0.059+0.004/-0.000)	1.50±0.10 (0.059±0.004)	0.46±0.046 (0.018±0.002)	5.70±0.18 (0.224±0.007)	12.40±0.18 (0.488±0.007)	6.50±0.18 (0.256±0.007)



	B	W_1	W_2 Max
mm (inch)	102.0 ± 2.0 (4.0 ± 0.079)	24 (0.945)	29 (1.14)

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.

Important Installation Instructions:

RTP200R060SA devices are compatible with some, but not all, conformal coating materials and processes. Avoid significant intrusion of coating inside the device enclosure. Where conformal coating is required, selective coating may be used to avoid covering the RTP device. All devices should be coated and tested using the customer's production equipment to verify minimal coating intrusion and appropriate performance

MATERIALS INFORMATION

RoHS Compliant
Directive 2002/95/EC Compliant

ELV Compliant
Directive 2000/53/EC Compliant

Pb-Free

Halogen Free*
HF

* Halogen Free refers to: Br≤900ppm, Cl≤900ppm, Br+Cl≤1500ppm.