

Reflowable Thermal Protection Device

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

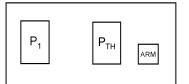
PRODUCT: RTP200R060SA

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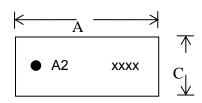
Specification Status: Preliminary

PIN CONFIGURATION AND DESCRIPTION:

Pin Configuration (Bottom View of Device)



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



(Side View of Device)

(Top View of Device)

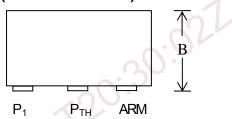


TABLE 1. DIMENSIONS:

| Α | | A B | | C | |
|--------|---------------------|------------------|--------------------------------|---|--|
| MIN | MAX | MIN | MAX | MIN | MAX |
| 11.60 | 12.00 | 6.00 | 6.35 | 5.25 | 5.50 |
| (0.46) | (0.47) | (0.24) | (0.25) | (0.21) | (0.22) |
| | | | | | |
| | MIN 11.60 | MINMAX11.6012.00 | MIN MAX MIN 11.60 12.00 6.00 | MIN MAX MIN MAX 11.60 12.00 6.00 6.35 | MIN MAX MIN MAX MIN 11.60 12.00 6.00 6.35 5.25 |

TABLE 2. ABSOLUTE MAX RATINGS:

| Absolute Max Rating | Max | Units | |
|---|----------------------|-----------------|---|
| Max DC Open Voltage 1 | 32 | V_{DC} | |
| . 605 | @ 16 V _{DC} | 200 | |
| Max DC Interrupt Current ¹ | @ 24 V _{DC} | 130 | А |
| | @ 32 V _{DC} | 100 | |
| ESD rating (Human Body Model) | 25 | KV | |
| Max Reflow Temperature (pre-arr | 260 | °C | |
| Operating temperature limits, pos 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.



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

| Resistance and Open Characteristics P_1 to P_{TH} | | | Тур | Max | Units |
|--|---------------------|-----|-----|-----|-----------------|
| R_{PP} (Resistance from P ₁ to P _{TH}) | @ 23+/-3°C | | 0.6 | 0.8 | mΩ |
| r_{PP} (resistance from r_1 to r_{TH}) | @ 175+/-3°C | | 0.8 | 1.0 | 11122 |
| Operating Voltage | | | 32 | | V_{DC} |
| Open Temperature, post-arming | I _{PP} = 0 | 200 | 205 | 210 | °C |
| Thermal Resistance: Junction to Ambient ² | See note 2 | | 150 | | °C/W |
| Thermal Resistance: Junction to Case | Case = P_{TH} pad | | 0.5 | | °C/W |
| Installation demondent Operation Operations | @ 23+/-3°C | 32 | 34 | | |
| Installation dependent Operating Current, post- arming ^{2,3} | @ 100+/-3°C | | 28 | | А |
| | @ 175+/-3°C | | 10 | | 1 |
| Moisture Sensitivity Level Rating ⁴ | | | 1 | ~ | |

 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 P₁ 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.

 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 | | | Тур | Max | Units |
|---|-------------|-------|-------------|------|-------|
| Arming Type | | Elect | ronically A | rmed | |
| R_{ARM} (Resistance from ARM to P ₁ or P _{TH}) | Pre-Arming | | 300 | | mΩ |
| RARM (RESISTANCE NOT ARM TO F1 OF FTH) | Post-Arming | 10 | | | KΩ |
| Arming Current (I _{ARM}) ⁵ | @ 23 +/-3°C | 2 | | 5 | А |
| Arming Time (@23 +/-3°C) ⁵ | @ 2A | | 0.20 | | Sec |
| | @ 5A | | 0.02 | | 380 |

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 P₁ 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.



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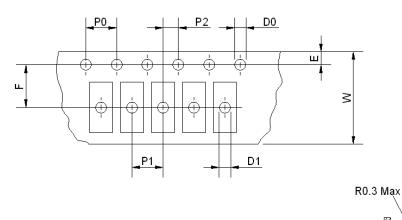
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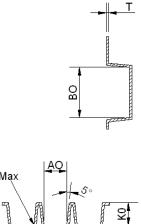
| Classification Reflow Profiles | |
|--|------------------------|
| rofile Feature | Pb-Free Assembly |
| verage ramp up rate (Ts _{MAX} to Tp) | 3°C/second max. |
| reheat | |
| Temperature min. (Ts _{MIN}) | 150°C |
| Temperature max. (Ts _{MAX}) | 200°C |
| Time (ts _{MIN} to ts _{MAX}) | 60-180 seconds |
| ime maintained above: | |
| Temperature (TL) | 217°C |
| Time (t _L) | 60-150 seconds |
| eak/Classification temperature (Tp) | 260°C |
| ime within 5°C of actual peak temperature | |
| īme (tp) | 20-40 seconds |
| amp down rate | 6°C/second max. |
| ïme 25°C to peak temperature | 8 minutes max. |
| 230 150-180 | Preheat 60 - 120s Min. |
| | |
| commended Pad Layout: | Preheat 60 - 120s Min. |



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Package Information:

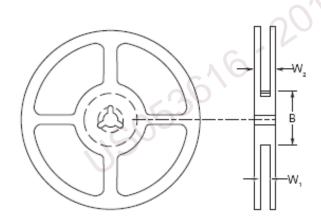




| | E | F | w | P1 | P0 | P2 |
|------------|---|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|
| mm (in) | 1.75±0.10 (0.069±0.004) | 11.50±0.10 (0.453±0.004) | 24.00±0.30 (0.945±0.012) | 12.00±0.10 (0.472±0.004) | 4.00±0.10 (0.157±0.004) | 2.00±0.10 (0.079±0.004) |
| | D0 | D1 | Т | 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) |

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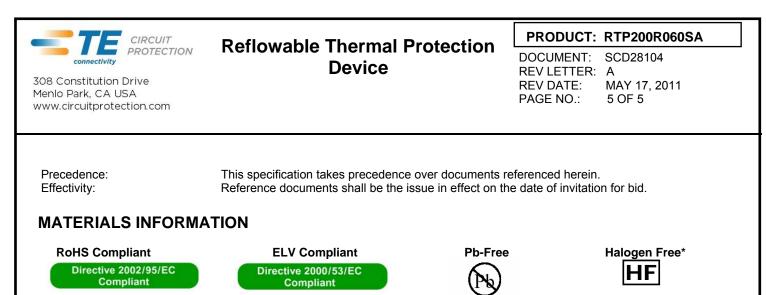
Device



| | В | W ₁ | W₂ Max |
|--------|---------------|-----------------------|--------|
| mm | 102.0 ± 2.0 | 24 | 29 |
| (inch) | (4.0 ± 0.079) | (0.945) | (1.14) |

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

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