

Reflowable Thermal Protection Device

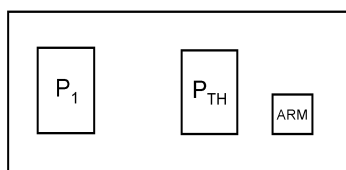
PRODUCT: RTP140R060S

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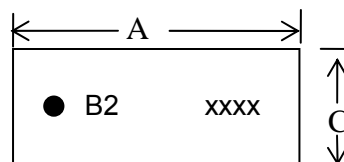
Specification Status: Released

PIN CONFIGURATION AND DESCRIPTION:

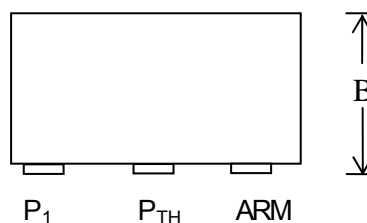
Pin Configuration (Bottom View of Device)



(Top View of Device)



(Side View of Device)



Note:
B2 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 AC Open Voltage ¹ | | 250 | V _{AC} |
| Max Interrupt Current ¹ | @ 120 V _{AC} | 80 | A |
| | @ 135 V _{AC} | 70 | |
| | @ 250 V _{AC} | 40 | |
| ESD rating (Human Body Model) | | 25 | kV |
| Dielectric Strength Between Contacts (post operation) | | 1.0 | kV _{AC} |
| Max Reflow Temperature (pre-arming) | | 260 | °C |
| Operating temperature limits, post arming, non-opening | | -40 +105 | °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} | | Min | Typ | Max | Units |
|--|----------------------------|-----|-----|-----|-----------------|
| R _{PP} (Resistance from P ₁ to P _{TH}) | @ -40+/-3°C | | 0.6 | 1.0 | mΩ |
| | @ 23+/-3°C | | 0.7 | 1.1 | |
| | @ 105+/-3°C | | 0.9 | 1.2 | |
| Operating Voltage | | | 250 | | V _{AC} |
| Open Temperature, post-arming | I _{PP} = 0 | 135 | 140 | 145 | °C |
| Thermal Resistance: Junction to Case | Case = P _{TH} pad | | 0.5 | | °C/W |
| Installation dependent Operating Current, post-arming ^{2,3} | @ -40+/-3°C | 30 | | | A |
| | @ 23+/-3°C | 25 | | | |
| | @ 105+/-3°C | 12 | | | |
| 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 108 mm², 2oz Cu heat spreader connected to the P_{TH} pad, and a 131 mm², 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 dependent value. Users should confirm for their own applications.
- 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 | | 0.10 | | Sec |
| | @ 5A | | 0.01 | | |

- Results obtained on 44.4mm x 57.2mm x 1.6mm single layer FR4 boards with 2oz, Cu traces, a 108 mm², 2oz Cu heat spreader connected to the P_{TH} pad, and a 131 mm², 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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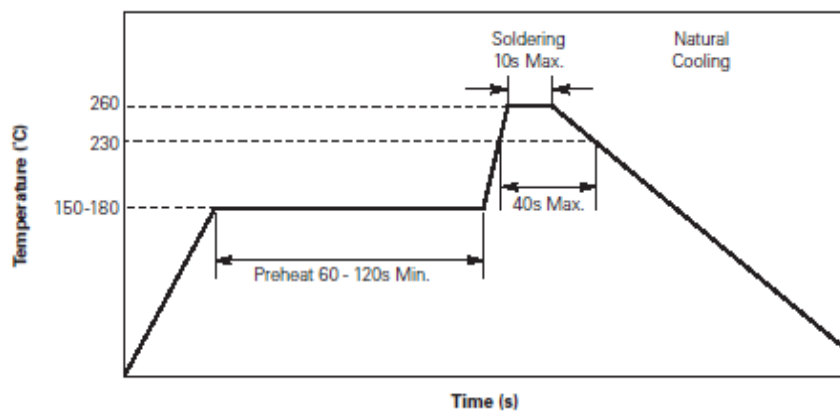
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Solder Reflow Recommendation:

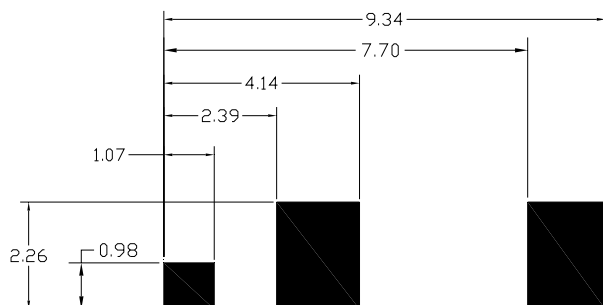
Classification Reflow Profiles

| 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.



Recommended Pad Layout: mm

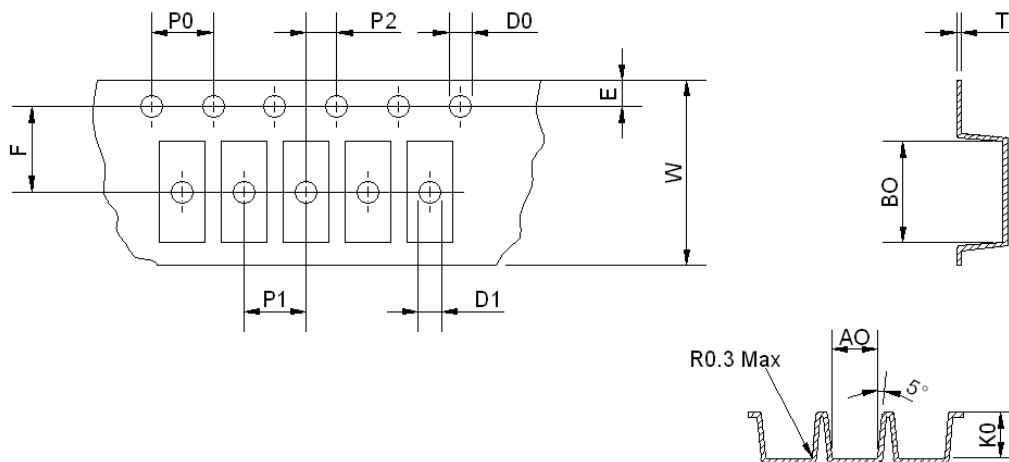


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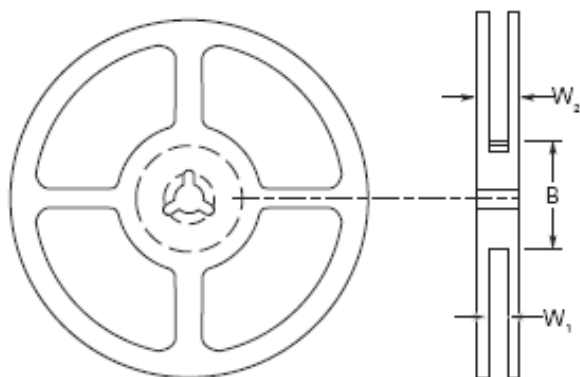
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Package Information:



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



| | B | W1 | W2 Max |
|--------|---------------|---------|--------|
| mm | 102.0 ± 2.0 | 24 | 29 |
| (inch) | (4.0 ± 0.079) | (0.945) | (1.14) |

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PAGE NO.: 5 OF 5Precedence:
Effectivity:This specification takes precedence over documents referenced herein.
Reference documents shall be the issue in effect on the date of invitation for bid.

MATERIALS INFORMATION

RoHS CompliantDirective 2002/95/EC
Compliant**ELV Compliant**Directive 2000/53/EC
Compliant**Pb-Free****Halogen Free***

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

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