



### Description

This system bus bias network is designed to provide high performance resistor bias termination for single ended parallel busses.

Designed with a ceramic substrate, this device minimizes channel capacitance, a primary cause of reduced system performance. In addition, the BGA package eases routing design, saving the designer many hours of printed circuit layout.

The BGA packaging has been proven to reduce rework and improve reliability.

### Features

- 8 or 16 Bit Network
- Compliant to PCI and PCIX
- Ultra Low Channel Capacitance
- Laser Trimmed Resistance to 1% Tolerance
- Slim BGA Package
- RoHS Compliant Designs Available
  - Compatible with both lead and lead free processes

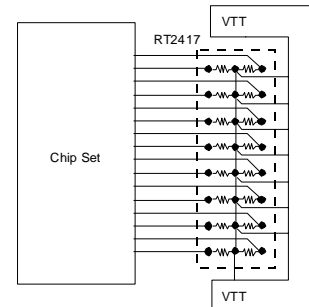
### Style F



### Electrical Specifications

|                              |                          |
|------------------------------|--------------------------|
| Resistor Tolerance:          | ± 1.0%                   |
| TCR                          | ±200ppm/°C               |
| Operating Temperature Range  | -55°C to +125°C          |
| Maximum Resistor Power:      | 0.05 Watts at 70°C       |
| Maximum Package Power:       | 1.0 Watts at 70°C        |
| <b>Process Requirements:</b> |                          |
| Maximum Temperature          | Per IPC/JEDEC J-STD-020C |

### Typical Application



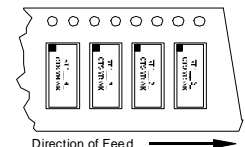
### Ordering Information

| 1.00mm Pitch Standard Part No. | 1.27mm Pitch Standard Part No. | Style   | R Ω  | Array Size | 1.00mm Pitch RoHS Part No. | 1.27mm Pitch RoHS Part No. |
|--------------------------------|--------------------------------|---------|------|------------|----------------------------|----------------------------|
| RT1415B7                       | RT1415B6                       | 8 Bits  | 4.7K | 3 x 4      | RT2415B7                   | RT2415B6                   |
| RT1416B7                       | RT1416B6                       | 8 Bits  | 8.2K | 3 x 4      | RT2416B7                   | RT2416B6                   |
| RT1417B7                       | RT1417B6                       | 16 Bits | 4.7K | 3 x 8      | RT2417B7                   | RT2417B6                   |
| RT1418B7                       | RT1418B6                       | 16 Bits | 8.2K | 3 x 8      | RT2418B7                   | RT2418B6                   |

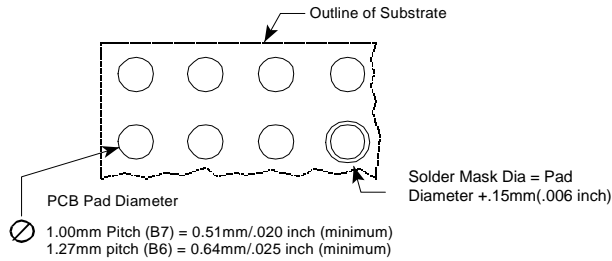
### Packaging Information

| Suffix        | TR7    | TR13    |
|---------------|--------|---------|
| Tape Width    | 24 mm  | 24mm    |
| Carrier Pitch | 8 mm   | 8 mm    |
| Reel Diameter | 7 inch | 13 inch |
| Parts/Reel    | 1,000  | 4,000   |

**Part Number Coding**  
 7 inch reel, Add TR7 to part number, example RT2415B7TR7  
 13 inch reel, Add TR13 to part number, example RT2415B7TR13  
 (Bulk packaging is not available)



## Recommended Land Pattern

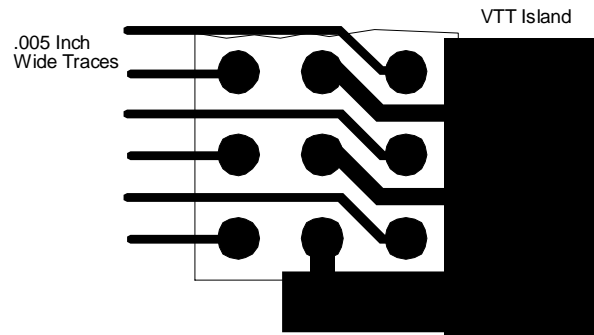


1.00mm Pitch (B7) = 0.51mm/.020 inch (minimum)  
1.27mm pitch (B6) = 0.64mm/.025 inch (minimum)

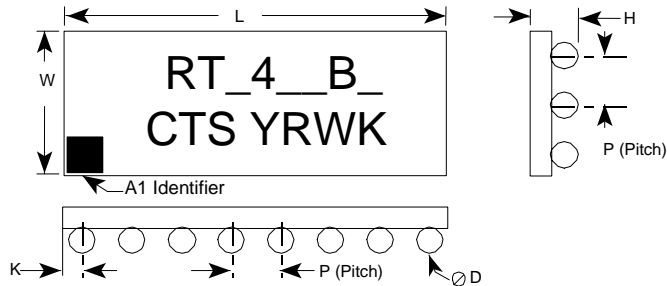
For .006" Thick Solder Paste Stencil, Aperture Opening Should be Equal to the PCB Pad Diameter.

Refer to [www.ctscorp.com/components/clearone.asp](http://www.ctscorp.com/components/clearone.asp) for additional PCB design information

## BGA Routing Scheme



## Mechanical Diagram



| 1.27 mm Pitch |        | L          | W         | H         | P         | D         | K         |
|---------------|--------|------------|-----------|-----------|-----------|-----------|-----------|
| RT1415B6      | 8 Bit  | 5.08±0.15  | 3.81±0.15 | 1.32±0.15 | 1.27±0.25 | 0.76±0.05 | 0.64±0.25 |
| RT1416B6      |        | .200±.006  | .150±.006 | .052±.006 | .050±.010 | .030±.002 | .025±.010 |
| RT1417B6      |        |            |           |           |           |           |           |
| RT2415B6      | 16 Bit | 10.16±0.15 | 3.81±0.15 | 1.32±0.15 | 1.27±0.25 | 0.76±0.05 | 0.64±0.25 |
| RT2416B6      |        | .400±.006  | .150±.006 | .052±.006 | .050±.010 | .030±.002 | .025±.010 |
| RT2417B6      |        |            |           |           |           |           |           |
| RT2418B6      |        |            |           |           |           |           |           |
| 1.00 mm Pitch |        | L          | W         | H         | P         | D         | K         |
| RT1415B7      | 8 Bit  | 4.00±0.15  | 3.00±0.15 | 1.19±0.15 | 1.00±0.25 | 0.64±0.05 | 0.50±0.25 |
| RT1416B7      |        | .157±.006  | .118±.006 | .047±.006 | .039±.010 | .025±.002 | .020±.010 |
| RT1417B7      |        |            |           |           |           |           |           |
| RT2415B7      | 16 Bit | 8.00±0.15  | 3.00±0.15 | 1.19±0.15 | 1.00±0.25 | 0.64±0.05 | 0.50±0.25 |
| RT2416B7      |        | .315±.006  | .118±.006 | .047±.006 | .039±.010 | .025±.002 | .020±.010 |
| RT2417B7      |        |            |           |           |           |           |           |
| RT2418B7      |        |            |           |           |           |           |           |

Complete ClearONE Product, Processing, and Application Information can be found at the following link:

<http://www.ctscorp.com/components/clearone.asp>