

DESCRIPTION

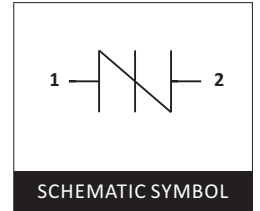
DO-214AA/SMB Thyristor solid state protection thyristor protect telecommunications equipment such as modems, line cards, fax machines, and other CPE. This Series devices are used to enable equipment to meet various regulatory requirements including GR1089, ITUK.20, K.21 and K.45, IEC 60950, and TIA-968 (formerly known as FCC Part 68).

FEATURES

- > Excellent capability of absorbing transient surge
- > Quick response to surge voltage
- > Eliminates overvoltage caused by fast rising transients
- > Solid-state silicon technology, non degenerative

APPLICATIONS

- > Audio/Video line
- > Network and telecom
- > Data lines and security systems
- > Serial ports



PART NUMBER AND ELECTRICAL PARAMETER @ T=25°C RH = 45%-75%

| PART NUMBER | V _{DRM} V Min. | I _{DRM} uA Max. | V _s V Max. | I _s mA | V _T V Max. | I _T A | I _H mA | C _o pF Max. |
|-------------|-------------------------------|--------------------------------|-----------------------------|----------------------|-----------------------------|---------------------|----------------------|------------------------------|
| P0080SB | 6 | 5 | 25 | 800 | 4 | 2.2 | ≥50 | 80 |
| P0300SB | 25 | 5 | 40 | 800 | 4 | 2.2 | ≥50 | 80 |
| P0640SB | 58 | 5 | 77 | 800 | 4 | 2.2 | ≥150 | 80 |
| P1800SB | 170 | 5 | 220 | 800 | 4 | 2.2 | ≥150 | 80 |
| P2300SB | 190 | 5 | 260 | 800 | 4 | 2.2 | ≥150 | 80 |
| P2600SB | 220 | 5 | 300 | 800 | 4 | 2.2 | ≥150 | 80 |
| P3100SB | 275 | 5 | 350 | 800 | 4 | 2.2 | ≥150 | 40 |
| P3500SB | 320 | 5 | 400 | 800 | 4 | 2.2 | ≥150 | 40 |
| P4200SB | 390 | 5 | 500 | 800 | 4 | 2.2 | ≤50 | 70 |

1、V_s is measured at 100KV/S

2、Off-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, F=1MHz

3、All measurements are made at an ambient temperature of 25°C

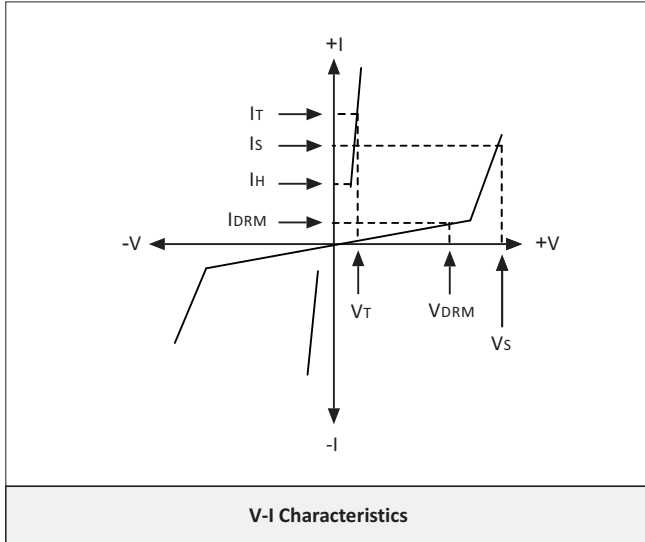
SURGE RATINGS

| Series | IPP 2x10us (A) | IPP 8x20us (A) | IPP 10x560us (A) | IPP 10x1000us (A) | VPP 10x700us (V) | I _{TSM} 60Hz (A) | d _i /d _t (A/us) |
|----------------------------|----------------------|----------------------|------------------------|-------------------------|------------------------|---------------------------------|--|
| P0080SB Thru P4200SB | 300 | 300 | 100 | 80 | 4000 | 32 | 500 |

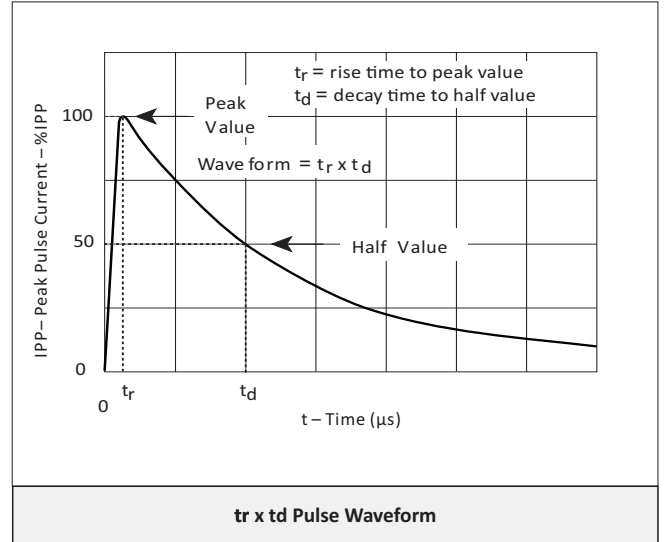
THERMAL CONSIDERATIONS

| Symbol | Parameter | Value | Unit |
|----------------|--|-------------|------|
| T _J | Operating Junction Temperature | -40 to +150 | °C |
| T _S | Storage Temperature Range | -40 to +150 | °C |
| ReJA | Junction to Ambient on printed circuit | 90 | °C/W |

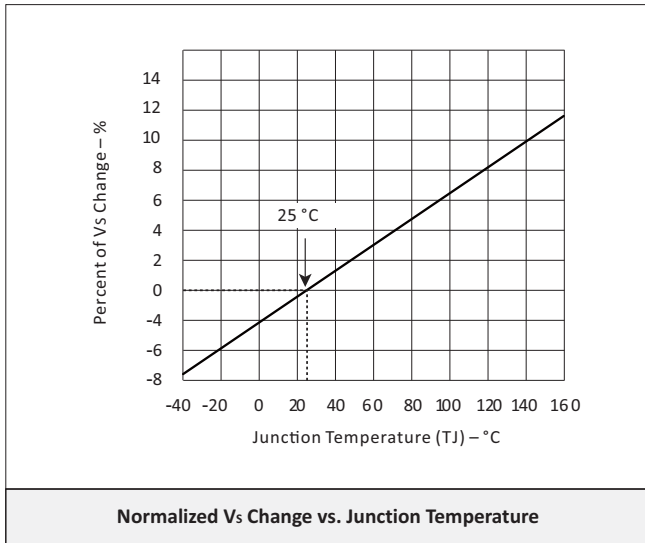
TYPICAL DEVICE CHARACTERISTICS



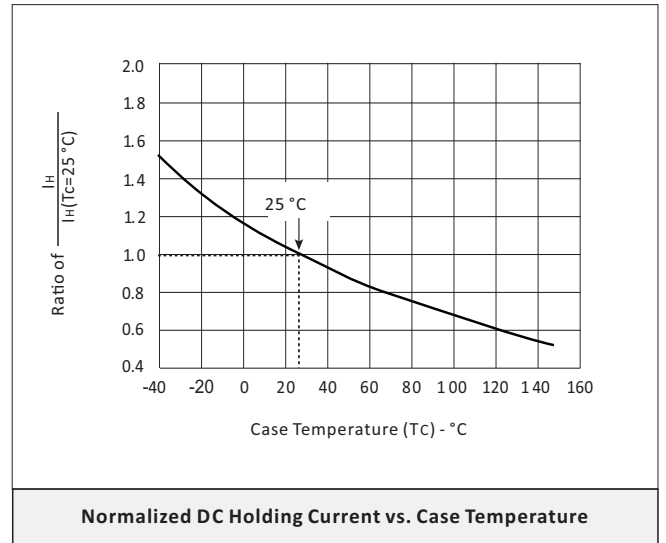
V-I Characteristics



tr x td Pulse Waveform



Normalized V_S Change vs. Junction Temperature



Normalized DC Holding Current vs. Case Temperature

ENVIRONMENTAL CHARACTERISTICS

| Testing Items | Technical Standards |
|-------------------------------------|--|
| High Temperature Reverse Bias Test | Temperature:150±3°C,Bias=80%V _{DRM} ;Time:168H |
| High Temperature Life Test | Temperature:150°C;Time:168H |
| High-Low Temperature Cycle Test | Temperature:From -40°C to 150°C;Dwell Time:30min,10-100 Cycles |
| High Temperature&High Humidity Test | Temperature:85°C.Humidity:85%; Time:168H |
| Pressure Cooker Test | Temperature:121°C,2 atm.Humidity:100%; Time:24H To 168H |
| Resistance Of Soldering Heat | Temperature:260±5°C;Time Of Dip Soldering:10s,3 Times |

PRODUCT DIMENSIONS

| SMB PACKAGE DIMENSIONS | | | | |
|------------------------|-------------|------|--------|-------|
| DIM | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 1.96 | 2.20 | 0.077 | 0.087 |
| B | 4.35 | 4.85 | 0.171 | 0.191 |
| C | 3.30 | 3.94 | 0.130 | 0.155 |
| D | 2.20 | 2.50 | 0.087 | 0.098 |
| E | 0.76 | 1.52 | 0.030 | 0.060 |
| F | 0.02 | 0.20 | 0.001 | 0.008 |
| G | 5.08 | 5.59 | 0.200 | 0.220 |
| H | 0.15 | 0.30 | 0.006 | 0.012 |

NOTES:

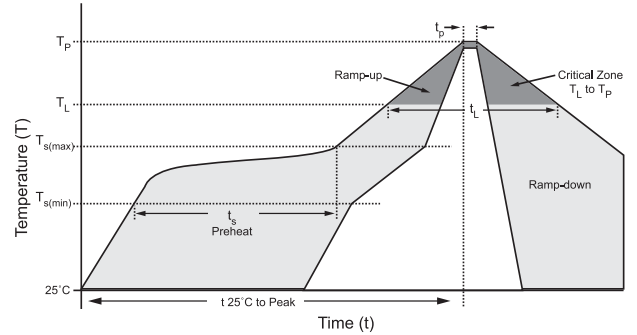
- Dimensions are exclusive of mold flash and metal burrs
- Cathode Band is only applicable to the unidirectional package

RECOMMENDED PAD LAYOUT DIMENSIONS

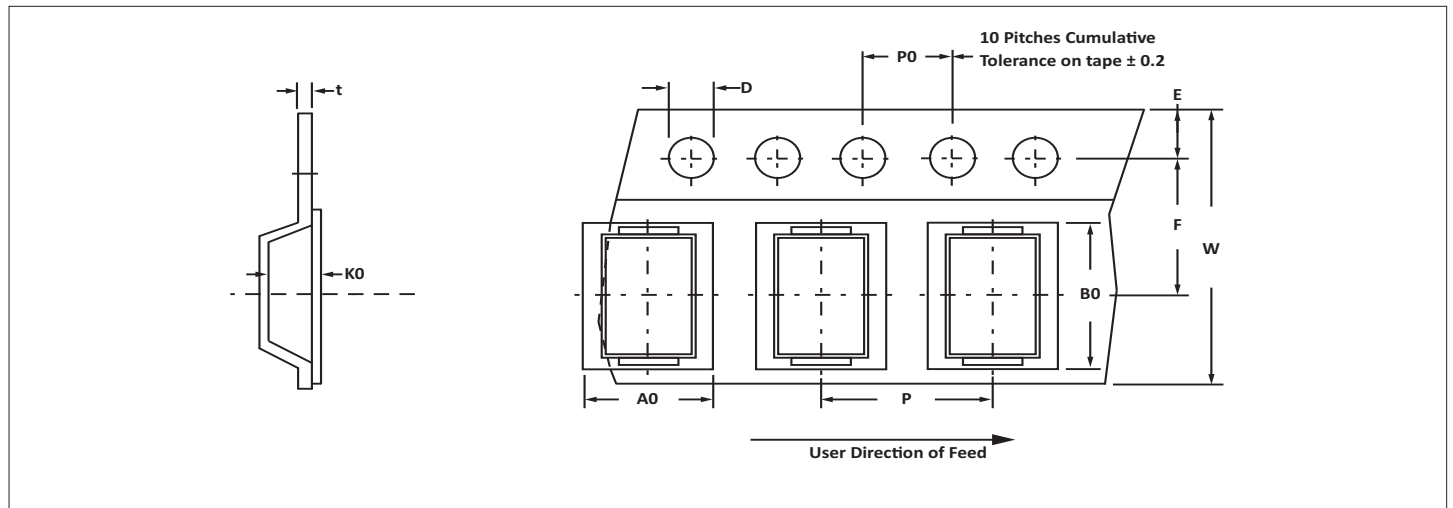
| RECOMMENDED PAD LAYOUT DIMENSIONS | | | | |
|-----------------------------------|-------------|------|-----------|-------|
| DIM | MILLIMETERS | | INCHES | |
| | MIN | MAX | MIN | MAX |
| A | 2.20 | - | 0.087 | - |
| B | 1.45 | - | 0.057 | - |
| C | - | 2.55 | - | 0.100 |
| D | 1.45 | - | 0.057 | - |
| E | 5.60 REF | | 0.220 REF | |

SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|---|-----------------------------|--------------------|
| Pre Heat | Temperature Min (Ts(min)) | 150°C |
| | Temperature Max (Ts(max)) | 200°C |
| | Time (min to max) (ts) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (TL) to peak) | | 3°C/second max |
| Ts(max)to TL - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature (TL) (Liquidus) | 217°C |
| | Time (min to max) (ts) | 60 – 150 seconds |
| Peak Temperature (Tp) | | 260°C |
| Time within 5°C of actual peak Temperature (tp) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (Tp) | | 8 minutes Max. |
| Do not exceed | | 260°C |



TAPE AND REEL SPECIFICATION



SPECIFICATIONS

| REEL DIA. | TAPE WIDTH | A0 | B0 | K0 | D | E | F | W | P0 | P | tmax |
|-------------|------------|-------------|-------------|-------------|-------------|-------------|------------|--------------|-------------|-------------|-------------|
| 330mm (13") | 12mm | 3.79 ± 0.15 | 5.72 ± 0.15 | 2.46 ± 0.30 | 1.55 ± 0.05 | 1.75 ± 0.10 | 5.5 ± 0.05 | 12.00 ± 0.30 | 4.00 ± 0.10 | 8.00 ± 0.10 | 0.25 ± 0.10 |

NOTES

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T = 13" Reel - 3,000 pieces per 12mm tape.

ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| PxxxxSB | DO-214AA | 3000PCS | 13" |

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