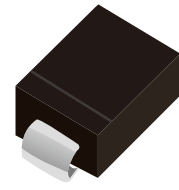
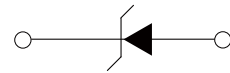


## FEATURES

- | Low profile package
- | Ideal for automated placement
- | 600 Watt peak pulse power capability with a 10/1000µs waveform
- | For surface mounted applicatons to optimize board space
- | Excellent clamping capability
- | Very fast response time
- | Low incremental surge resistance
- | Meet AEC-Q101 Requirements1



DO-214AA(SMB)



Schematic Symbol

## APPLICATIONS

- | Power supply protection
- | Automotive application
- | Industrial application
- | Power management

## APPROVALS

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | Compliance with IEC61249-2-21:2003 |

## MAXIMUM RATINGS (T<sub>A</sub>=25°C )

| Parameter  | Symbo            | Value | Unit  |
|--|------------------|-------|-------|
| Peak Pulse Power Dissipation on 10/1000µs waveform (Note1, Note2). | P <sub>PPM</sub> | 600   | Watts |
| Steady State Power Dissipation at T <sub>A</sub> =50°C(Note2).     | P <sub>D</sub>   | 5.0   | Watts |

- Notes :** 1.Non-repetitive current pulse,T<sub>A</sub>=25°C.  
 2.Mounted on 5.0mm\*5.0mm (0.03mm thick) Copper Pads to each terminal.

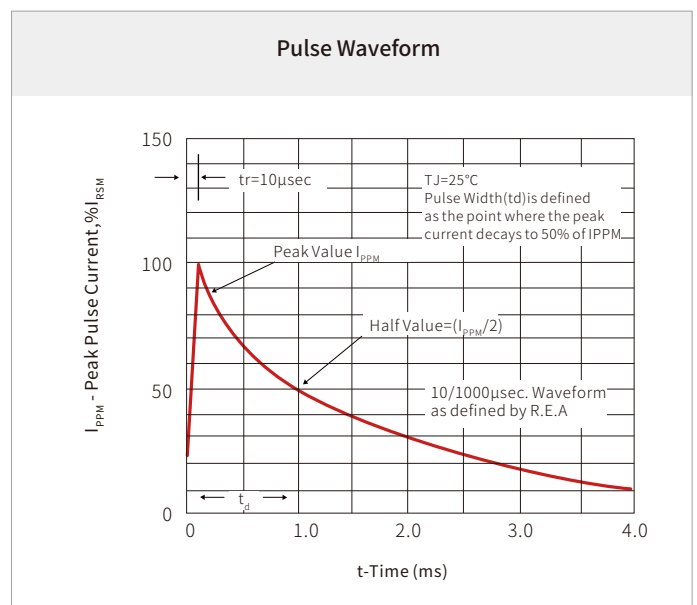
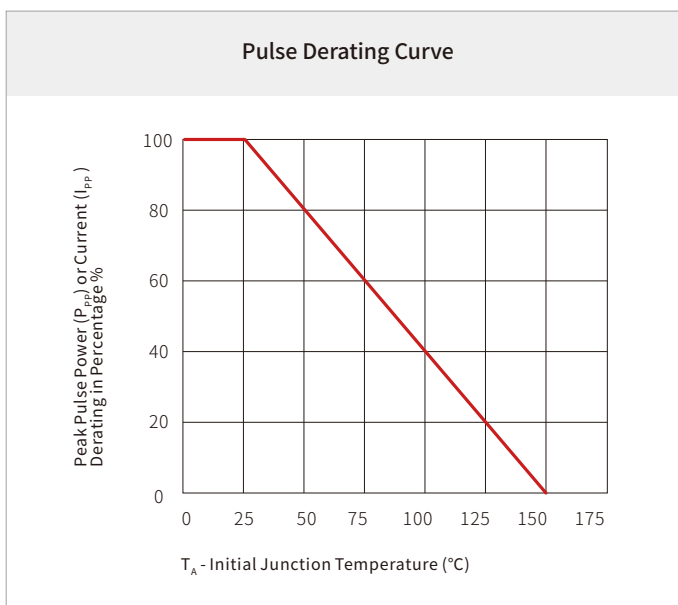
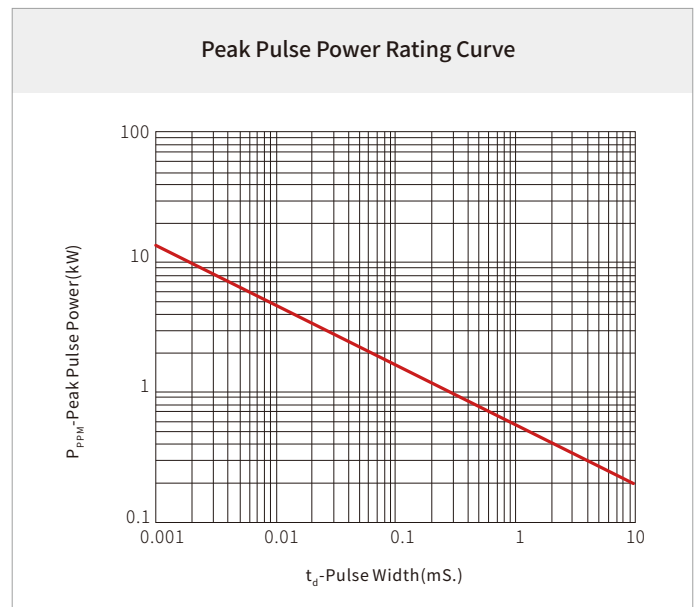
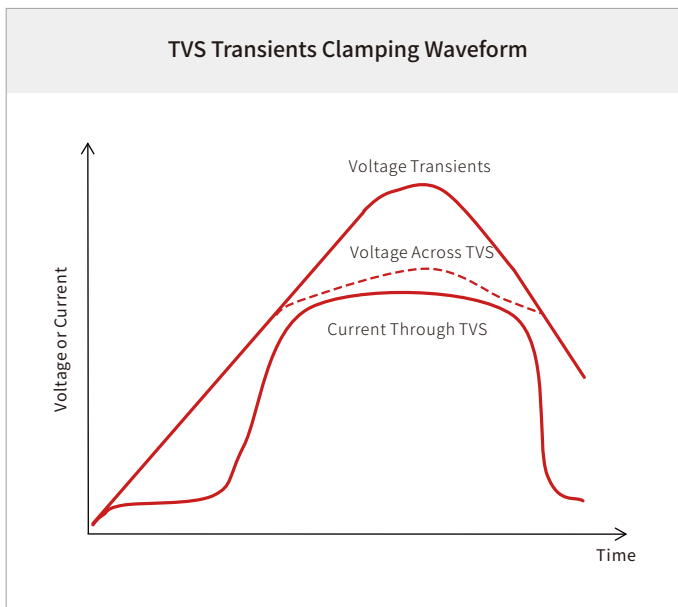
## THERMAL CONSIDERATIONS

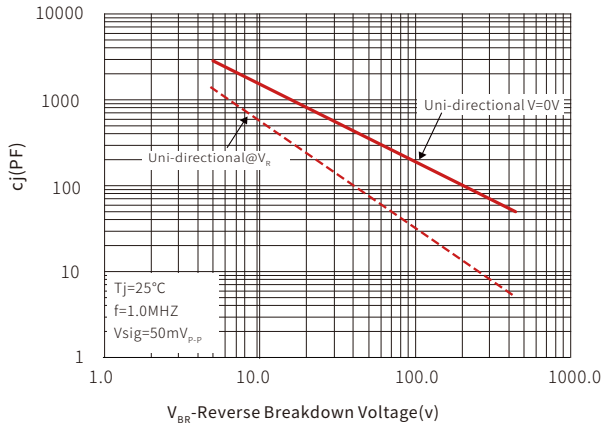
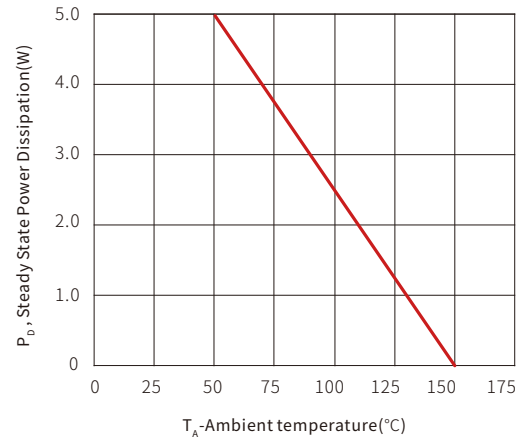
| Parameter                              | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Operating Junction Temperature         | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage Temperature Range              | T <sub>STG</sub> | -55 to +150 | °C   |
| Junction to Ambient on printed circuit | R <sub>θJA</sub> | 90          | °C/W |

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

| Part Number | Device Marking Code | Reverse Stand-off Voltage | Breakdown Voltage Min.@I <sub>T</sub> | Breakdown Voltage Max.@I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|-------------|---------------------|---------------------------|---------------------------------------|---------------------------------------|---------------------|---|---------------------|-----------------------------------|
|             |                     | V <sub>RWM</sub> (V)      | V <sub>BR</sub> (V)                   | V <sub>BR</sub> (V)                   | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (μA)               |
| TPSVB60U45  | MVA                 | 45.0                      | 50.0                                  | 55.3                                  | 1.0                 | 77.4                                      | 7.8                 | 1.0                               |

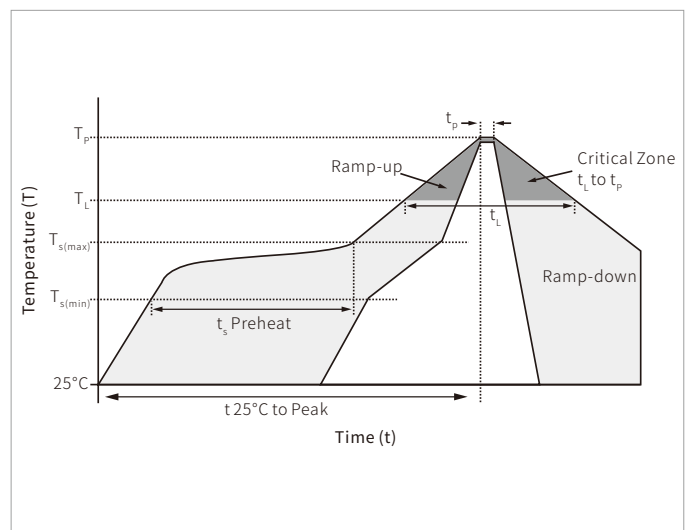
## CHARACTERISTIC CURVES



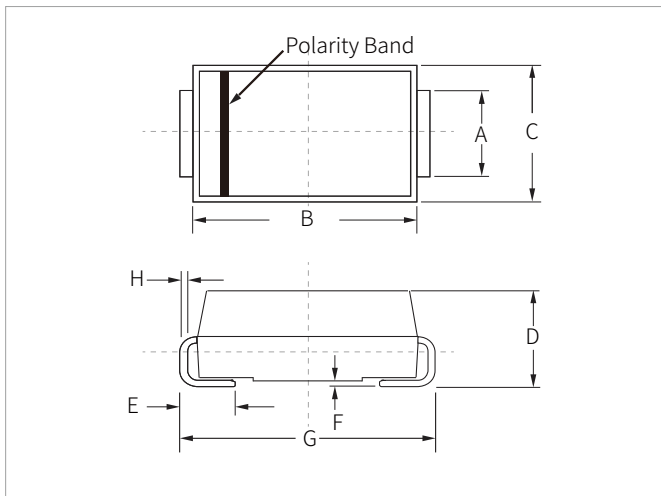
**Typical Junction Capacitance**

**Steady State Power Dissipation Derating Curve**


## SOLDERING PARAMETERS

| Reflow Condition                                       |                                  | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat   | Temperature Max ( $T_{s(min)}$ ) | 150°C              |
|  | Temperature Max ( $T_{s(max)}$ ) | 200°C              |
|  | Time (min to max) ( $t_s$ )      | 60 – 180 secs      |
| Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak) |                                  | 3°C/second max     |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                  | 3°C/second max     |
| Reflow   | Temperature ( $T_L$ ) (Liquidus) | 217°C              |
|  | Time (min to max) ( $t_r$ )      | 60 – 150 seconds   |
| Peak Temperature ( $T_p$ )                             |                                  | 260°C              |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                  | 20 – 40 seconds    |
| Ramp-down Rate   |                                  | 6°C/second max     |
| Time 25°C to peak Temperature ( $T_p$ )                |                                  | 8 minutes max.     |
| Do not exceed  |                                  | 260°C              |

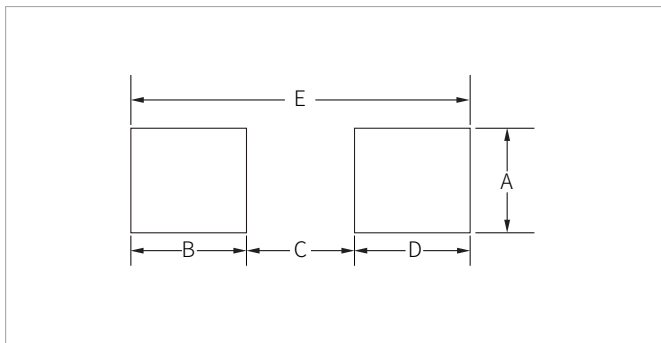


## DO-214AA(SMB) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 1.80        | 2.20 | 0.071  | 0.087 |
| B    | 4.30        | 4.70 | 0.170  | 0.185 |
| C    | 3.40        | 3.90 | 0.134  | 0.153 |
| D    | 2.15        | 2.75 | 0.085  | 0.108 |
| E    | 1.00        | 1.50 | 0.039  | 0.059 |
| F    | 0.02        | 0.20 | 0.001  | 0.008 |
| G    | 5.10        | 5.50 | 0.200  | 0.216 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 2.20        | -    | 0.087    | -     |
| B    | 1.45        | -    | 0.057    | -     |
| C    | -           | 2.55 | -        | 0.010 |
| D    | 1.45        | -    | 0.057    | -     |
| E    | 5.60REF     |      | 0.220REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| TPSVB60U45  | DO-214AA(SMB)     | 3000PCS  | 13"       |

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