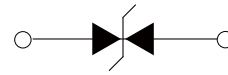


## FEATURES

- | Low profile package
- | Ideal for automated placement
- | 400 Watt peak pulse power capability with a 10/1000 $\mu$ s waveform
- | For surface mounted applicatons to optimize board space
- | Excellent clamping capability
- | Very fast response time
- | Low incremental surge resistance
- | Meet AEC-Q101 Requirements



DO-214AC(SMA)



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 10/1000 $\mu$ s waveform (Note1, Note2).                 | P <sub>PPM</sub> | 400   | Watts |
| Steady State Power Dissipation at T <sub>L</sub> =75°C,Lead lengths.375"(9.5mm) ( Note2) | P <sub>D</sub>   | 3.3   | Watts |

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

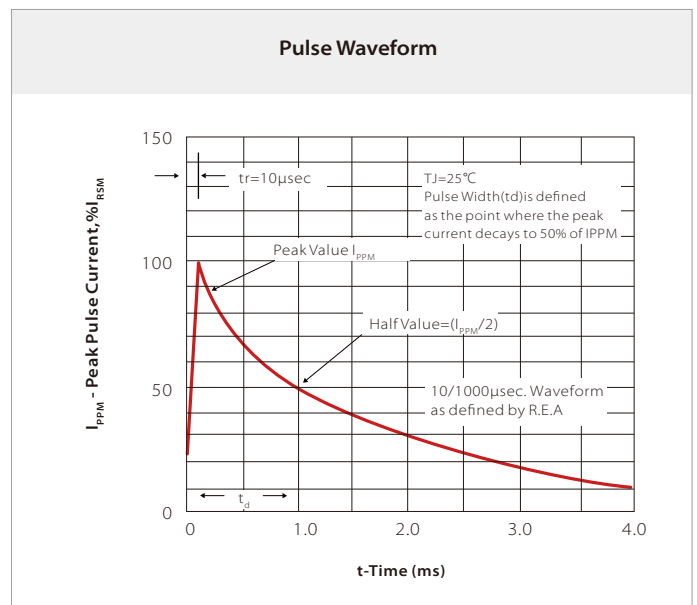
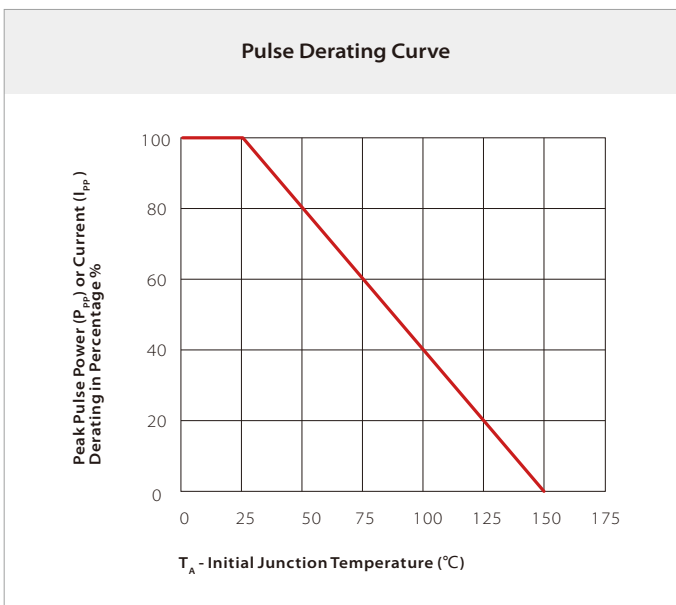
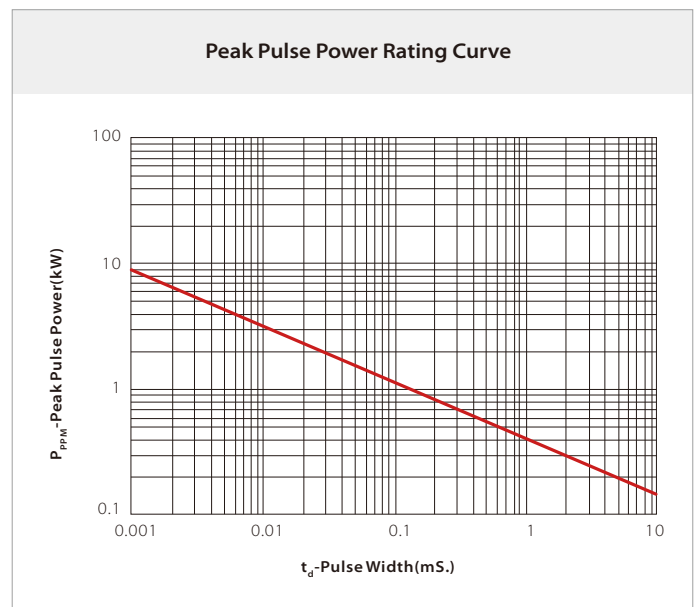
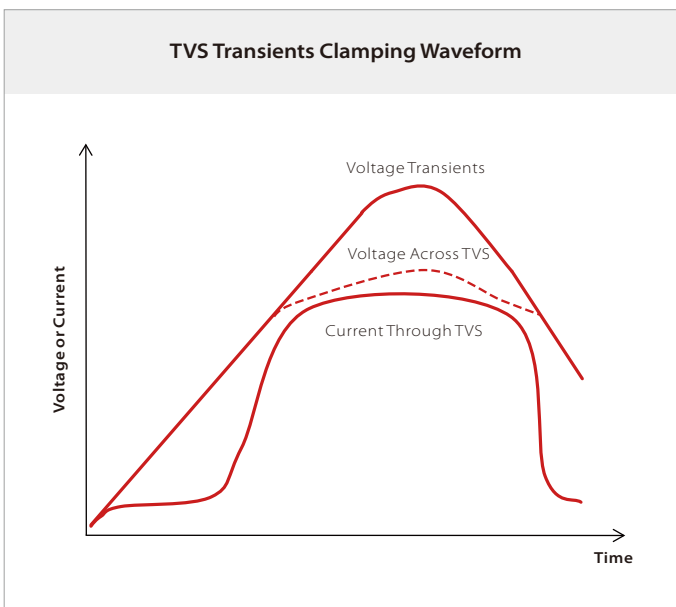
## THERMAL CONSIDERATIONS

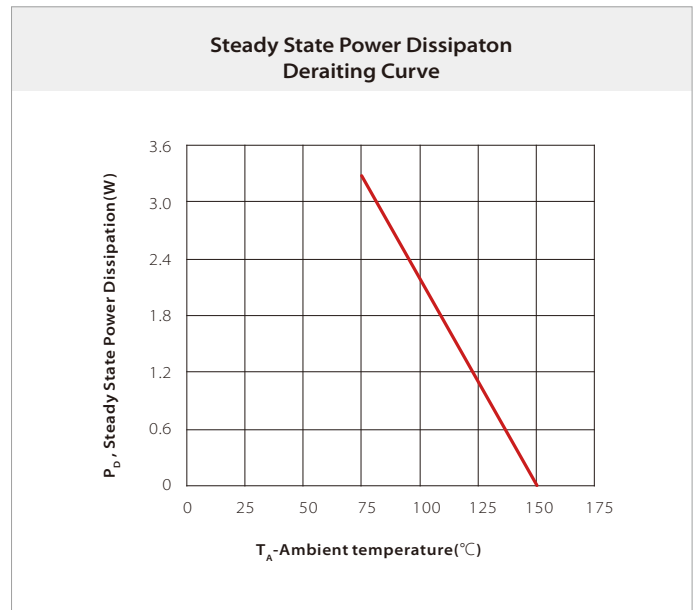
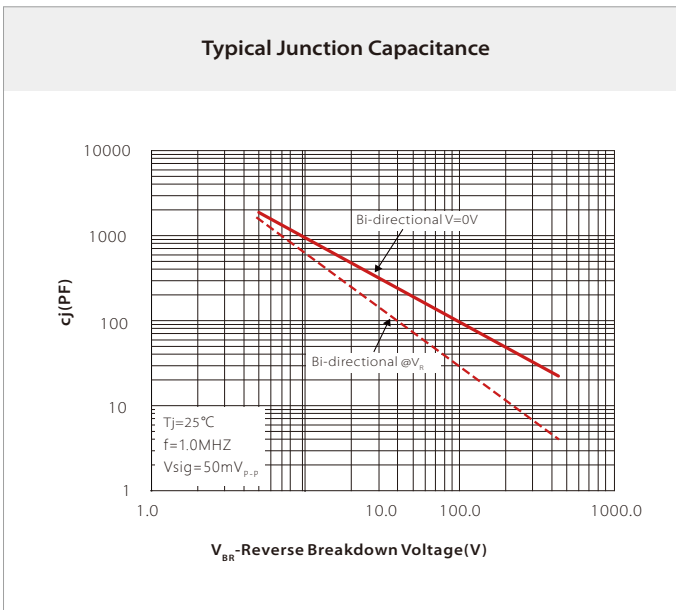
| Parameter                              | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Operating Junction Temperature         | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage Temperature Range              | T <sub>STG</sub> | -55 to +150 | °C   |
| Junction to Ambient on printed circuit | R <sub>θJA</sub> | 120         | °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> (uA)               |
| TPSVA40B33  | YMA                 | 33.0                      | 36.7                                  | 40.6                                  | 1.0                 | 53.3                                      | 7.5                 | 1.0                               |

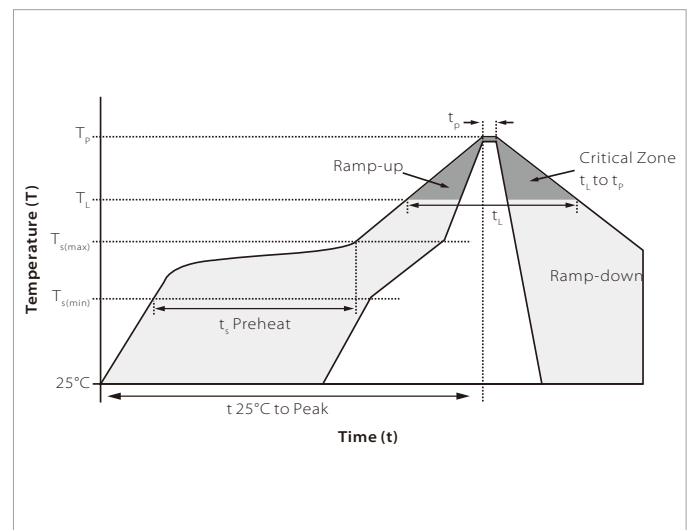
## CHARACTERISTIC CURVES



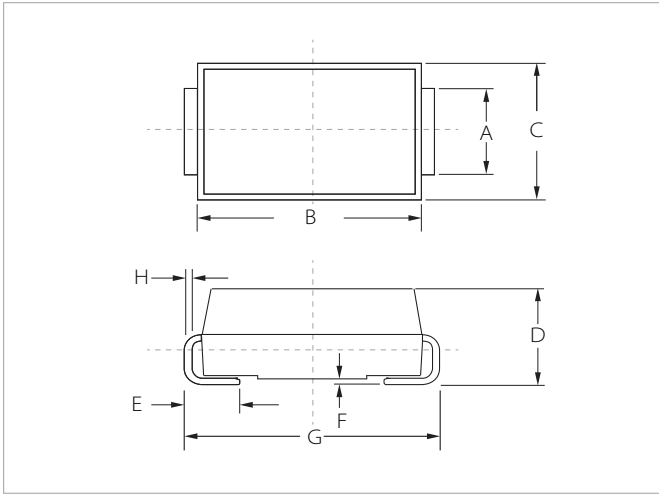


## SOLDERING PARAMETERS

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

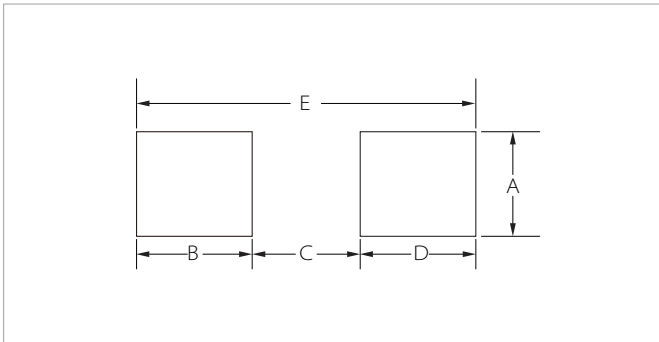


## DO-214AC(SMA) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 1.20        | 1.60 | 0.047  | 0.063 |
| B    | 4.20        | 4.60 | 0.165  | 0.181 |
| C    | 2.60        | 2.80 | 0.102  | 0.110 |
| D    | 2.10        | 2.40 | 0.083  | 0.094 |
| E    | 0.76        | 1.52 | 0.030  | 0.060 |
| F    | 0.02        | 0.20 | 0.001  | 0.008 |
| G    | 4.85        | 5.25 | 0.191  | 0.207 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 1.63        | -    | 0.064    | -     |
| B    | 1.45        | -    | 0.057    | -     |
| C    | -           | 2.80 | -        | 0.090 |
| D    | 1.45        | -    | 0.057    | -     |
| E    | 5.28REF     |      | 0.208REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| TPSVA40B33  | DO-214AC(SMA)     | 5000PCS  | 13"       |

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