

## FEATURES

- | Low profile package
- | Ideal for automated placement
- | 5000 Watt peak pulse power capability with a 10/1000 $\mu$ s waveform
- | For surface mounted applications to optimize board space
- | Excellent clamping capability
- | Very fast response time
- | Low incremental surge resistance



DO-214AB(SMC)



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 ( $T_A=25^{\circ}\text{C}$ )

| Parameter                                                                                       | Symbol    | Value | Unit  |
|-------------------------------------------------------------------------------------------------|-----------|-------|-------|
| Peak Pulse Power Dissipation on 10/1000 $\mu$ s waveform (Note1, Note2).                        | $P_{PPM}$ | 5000  | Watts |
| Steady State Power Dissipation at $T_L=50^{\circ}\text{C}$ , Lead lengths.375" (9.5mm) ( Note2) | $P_D$     | 6.5   | Watts |

**Notes :** 1.Non-repetitive current pulse,  $T_A=25^{\circ}\text{C}$ .  
 2.Mounted on 5.0mm\*5.0mm (0.03mm thick) Copper Pads to each terminal.

## THERMAL CONSIDERATIONS

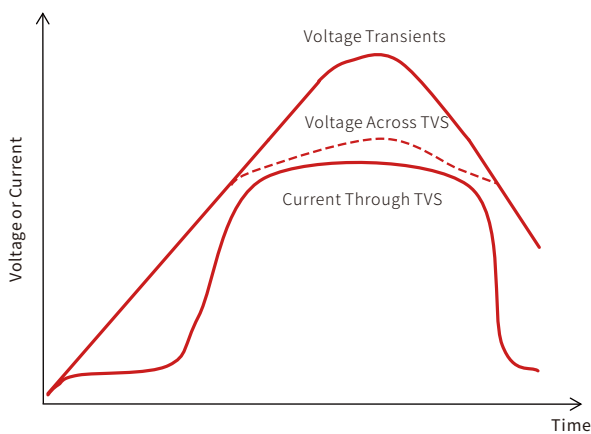
| Parameter                              | Symbol          | Value       | Unit                 |
|----------------------------------------|-----------------|-------------|----------------------|
| Operating Junction Temperature         | $T_J$           | -55 to +150 | $^{\circ}\text{C}$   |
| Storage Temperature Range              | $T_{STG}$       | -55 to +150 | $^{\circ}\text{C}$   |
| Junction to Ambient on printed circuit | $R_{\theta JA}$ | 75          | $^{\circ}\text{C/W}$ |

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

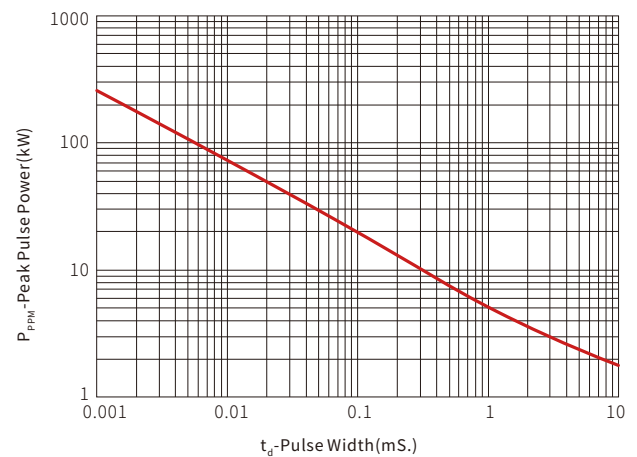
| Part Number | Device Marking Code | Reverse Stand-off Voltage | Breakdown Voltage Min.@I <sub>T</sub> | Breakdown Voltage Max.@I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|-------------|---------------------|---------------------------|---------------------------------------|---------------------------------------|---------------------|-------------------------------------------|---------------------|-----------------------------------|
|             |                     | 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)               |
| SVC500B78   | 5BGT                | 78.0                      | 86.7                                  | 95.8                                  | 1.0                 | 126.0                                     | 39.7                | 5.0                               |

## CHARACTERISTIC CURVES

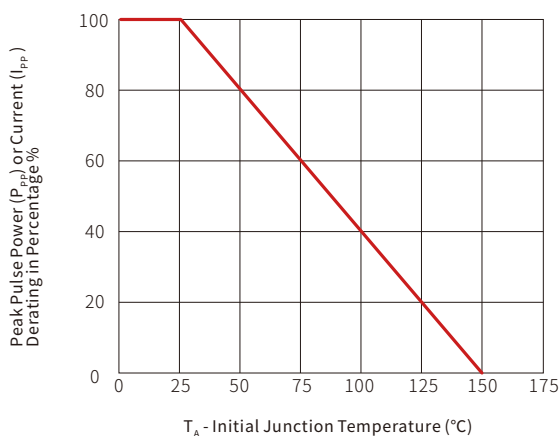
TVS Transients Clamping Waveform



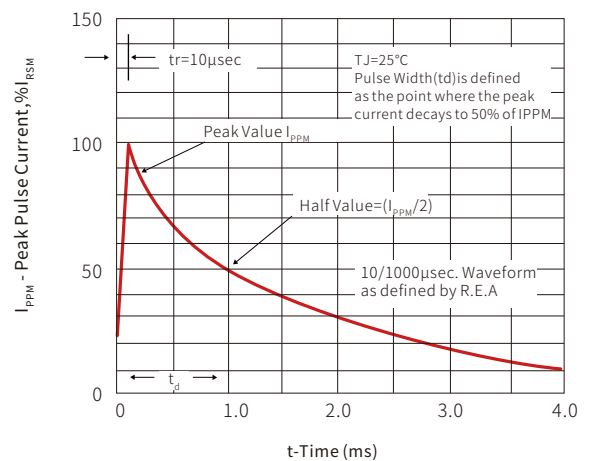
Peak Pulse Power Rating Curve



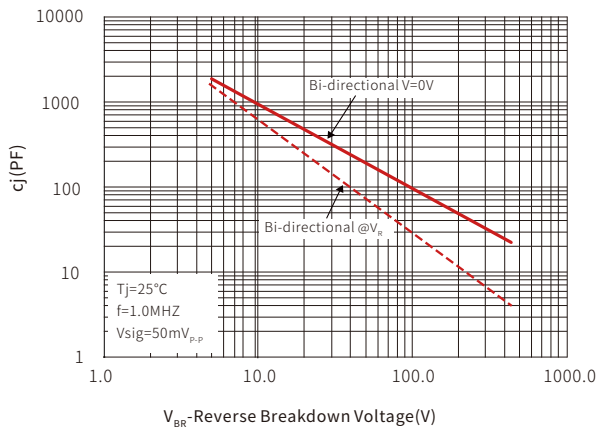
Pulse Derating Curve



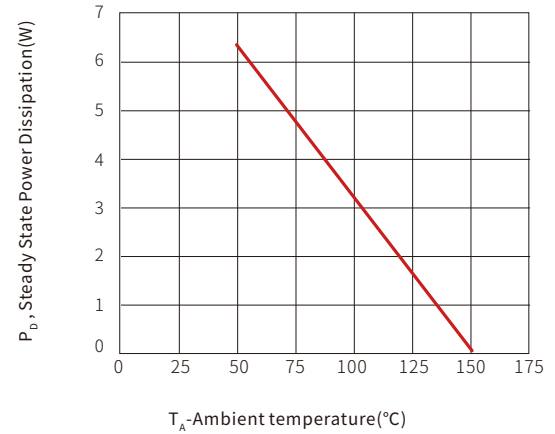
Pulse Waveform



Typical Junction Capacitance

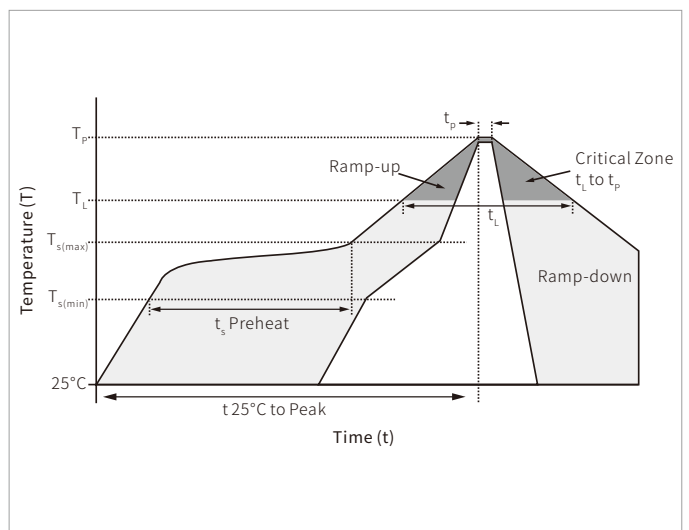


Steady State Power Dissipation Derating Curve

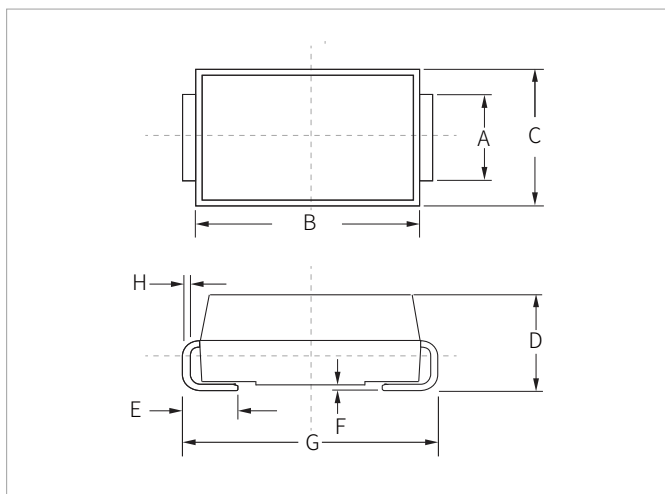


## SOLDERING PARAMETERS

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

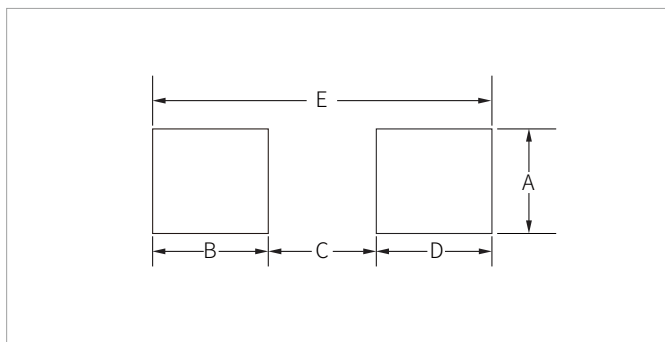


## DO-214AB(SMC) PACKAGE INFORMATION



| Ref. | Millimeters |      | Inches |       |
|------|-------------|------|--------|-------|
|      | Min.        | Max. | Min.   | Max.  |
| A    | 2.80        | 3.20 | 0.110  | 0.126 |
| B    | 6.60        | 7.20 | 0.260  | 0.283 |
| C    | 5.70        | 6.10 | 0.224  | 0.240 |
| D    | 2.15        | 2.75 | 0.085  | 0.108 |
| E    | 1.00        | 1.60 | 0.039  | 0.063 |
| F    | 0.02        | 0.20 | 0.000  | 0.008 |
| G    | 7.60        | 8.00 | 0.299  | 0.315 |
| H    | 0.15        | 0.30 | 0.006  | 0.012 |

## RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters |      | Inches   |       |
|------|-------------|------|----------|-------|
|      | Min.        | Max. | Min.     | Max.  |
| A    | 3.30        | -    | 0.129    | -     |
| B    | 2.40        | -    | 0.094    | -     |
| C    | -           | 4.20 | -        | 0.165 |
| D    | 2.40        | -    | 0.094    | -     |
| E    | 8.20REF     |      | 0.323REF |       |

## ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| SVC500B78   | DO-214AB(SMC)     | 3000PCS  | 13"       |

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