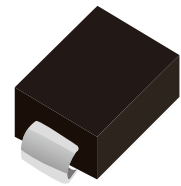


## FEATURES

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



SMB(DO-214AA)



Schematic Symbol

## APPLICATIONS

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

## APPROVALS

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

## ELECTRICAL CHARACTERISTICS

| Part Number | Marking | $V_{DRM}$ | $V_S$    | $V_T$    | $I_{DRM}$ | $I_S$ | $I_T$    | $I_H$     | $C_o$    |
|-------------|---------|-----------|----------|----------|-----------|-------|----------|-----------|----------|
|             |         | Min. (V)  | Max. (V) | Max. (V) | Max. (μA) | mA    | Max. (A) | Min. (mA) | Typ.(pF) |
| P0060SA     | P006A   | 6         | 15       | 4        | 5         | 800   | 2.2      | 40        | 50       |
| P0080SA     | P008A   | 6         | 25       | 4        | 5         | 800   | 2.2      | 40        | 50       |
| P0150SA     | P015A   | 15        | 25       | 4        | 5         | 800   | 2.2      | 40        | 50       |
| P0300SA     | P03A    | 25        | 40       | 4        | 5         | 800   | 2.2      | 40        | 70       |
| P0640SA     | P06A    | 58        | 77       | 4        | 5         | 800   | 2.2      | 120       | 50       |
| P0720SA     | P07A    | 65        | 88       | 4        | 5         | 800   | 2.2      | 120       | 50       |
| P0900SA     | P09A    | 75        | 98       | 4        | 5         | 800   | 2.2      | 120       | 45       |
| P1100SA     | P11A    | 90        | 130      | 4        | 5         | 800   | 2.2      | 120       | 45       |
| P1300SA     | P13A    | 120       | 160      | 4        | 5         | 800   | 2.2      | 120       | 45       |
| P1500SA     | P15A    | 140       | 180      | 4        | 5         | 800   | 2.2      | 120       | 40       |
| P1800SA     | P18A    | 170       | 220      | 4        | 5         | 800   | 2.2      | 120       | 40       |
| P2300SA     | P23A    | 190       | 260      | 4        | 5         | 800   | 2.2      | 120       | 35       |
| P2600SA     | P26A    | 220       | 300      | 4        | 5         | 800   | 2.2      | 120       | 35       |
| P3100SA     | P31A    | 275       | 350      | 4        | 5         | 800   | 2.2      | 120       | 30       |
| P3500SA     | P35A    | 320       | 400      | 4        | 5         | 800   | 2.2      | 120       | 30       |
| P4200SA     | P42A    | 400       | 520      | 4        | 5         | 800   | 2.2      | ≤50       | 30       |

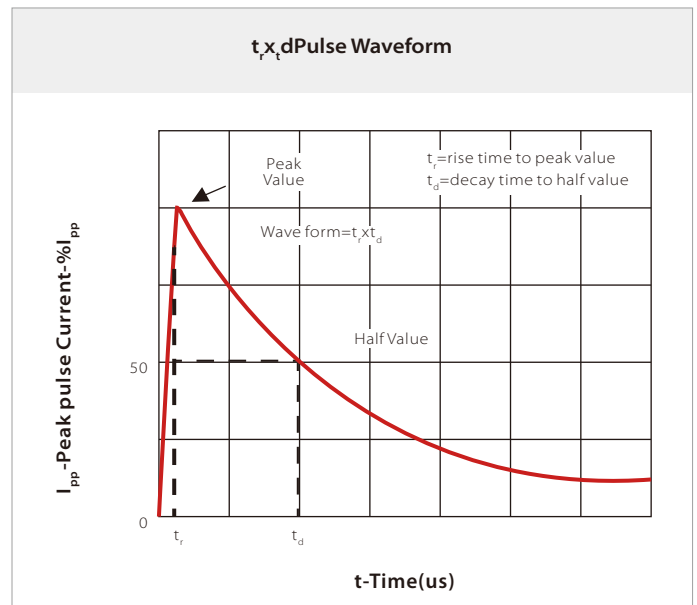
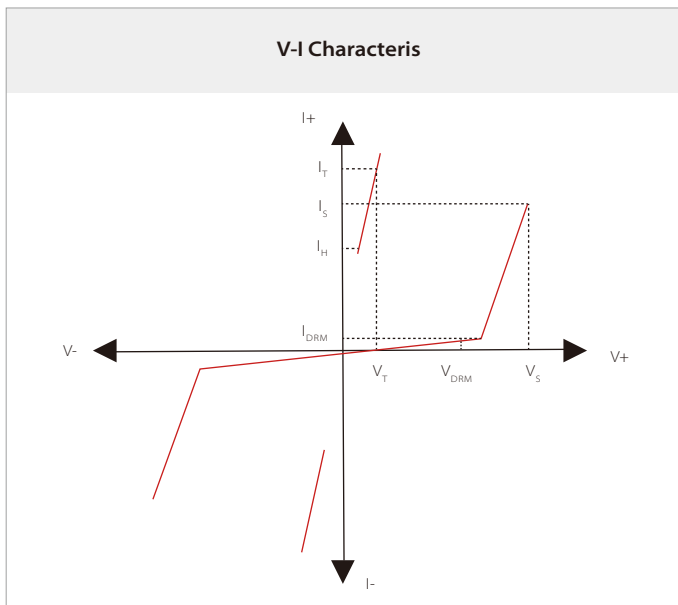
## SURGE RATINGS

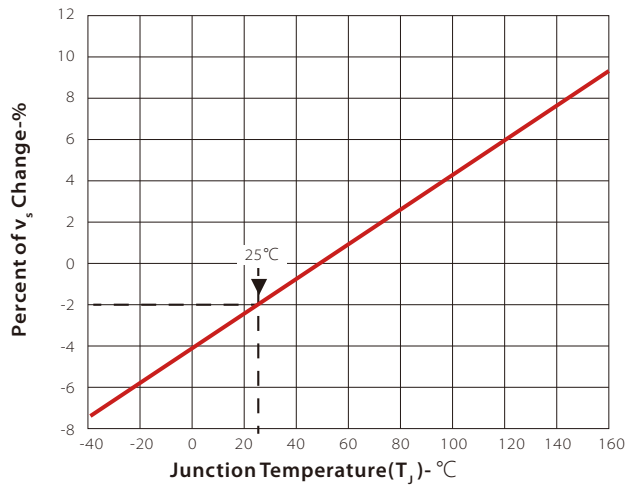
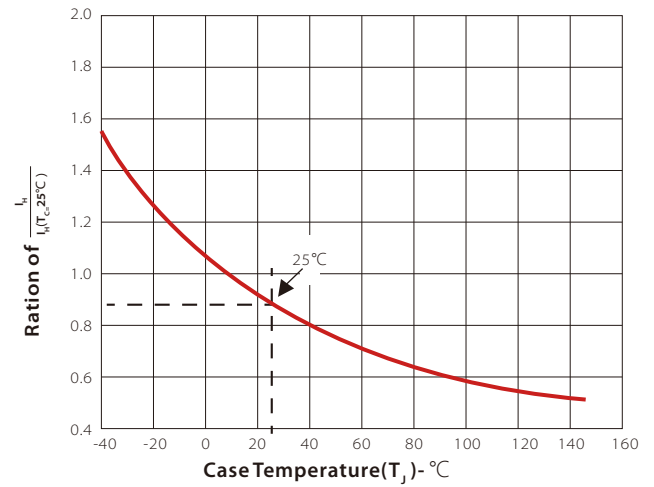
| Part Number          | $I_{PP}$<br>2x10us | $I_{PP}$<br>8x20us | $I_{PP}$<br>10x560us | $I_{PP}$<br>10x1000us | $V_{PP}$<br>10x700us | $I_{TSM}$<br>60Hz | $d_i/d_t$ |
|----------------------|--------------------|--------------------|----------------------|-----------------------|----------------------|-------------------|-----------|
|                      | (A)                | (A)                | (A)                  | (A)                   | (V)                  | (A)               | (A/us)    |
| P0060SA Thru P4200SA | 150                | 150                | 100                  | 50                    | 3000                 | 20                | 500       |

## THERMAL CONSIDERATIONS

| Symbol          | Parameter                              | Value       | Unit |
|-----------------|----------------------------------------|-------------|------|
| $R_{\theta JA}$ | Junction to Ambient on printed circuit | 90          | °C/W |
| $T_J$           | Operating Junction Temperature         | -55 to +150 | °C   |
| $T_{STG}$       | Storage Temperature Range              | -55 to +150 | °C   |

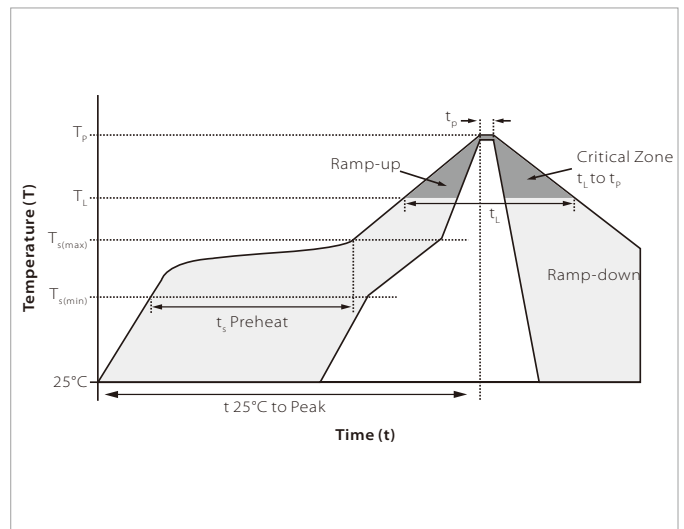
## RATINGS AND CHARACTERISTIC CURVES ( $T_A=25^\circ\text{C}$ )



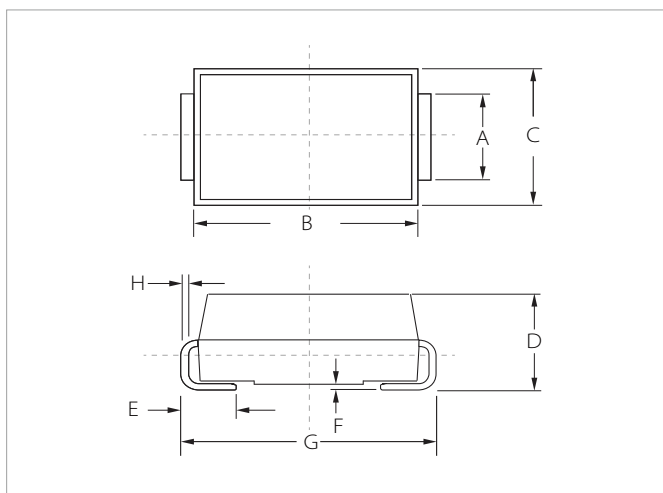
**Normalized VSChange vs. Junction Temperature**

**Normalized DC Holding Current vs. Case Temperature**


## 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) ( $t_L$ )      | 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              |

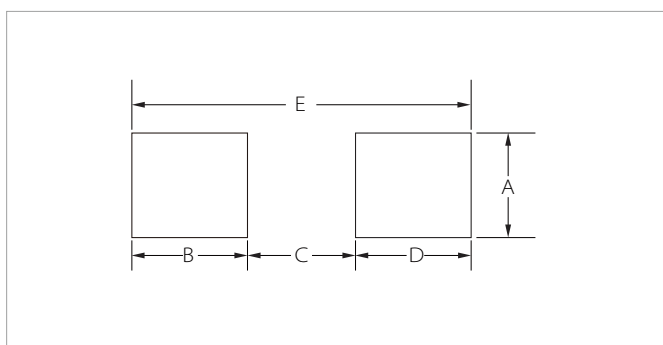


## DO-214AA(SMB) PACKAGE INFORMATION



| 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        | 2.55 | 0.085  | 0.100 |
| 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 |
|-------------|-------------------|----------|-----------|
| PxxxxSA     | DO-214AA(SMB)     | 3000PCS  | 13"       |

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