

Features

- The plastic package carries UL Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief, ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed:260°C/10 seconds at terminals


Mechanical Characteristics

- Case: SMC(DO-214AB) package molded plastic body over passivated chip
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any
- Weight: 0.0088 ounce, 0.25 grams

Absolute Maximum Ratings and Electrical Parameters (TA=25°C unless otherwise specified)

| PARAMETER | SYMBOL | ES5A | ES5B | ES5C | ES5D | ES5E | ES5G | ES5J | UNIT | |
|---|-------------------------|------------|------|------|------|------|------|------|--------------------|---------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V | |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | V | |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V | |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load | I_{AV} | 5 | | | | | | | A | |
| Peak forward surge current | I_{FSM} | 150 | | | | | | | A | |
| Maximum instantaneous forward voltage at 5A | V_F | 0.95 | | | | | 1.25 | 1.7 | V | |
| Maximum DC reverse current at rated DC blocking voltage | $T_A=25^\circ\text{C}$ | I_R | 5 | | | | | | | μA |
| | $T_A=100^\circ\text{C}$ | I_{RT} | 50 | | | | | | | μA |
| Maximum reverse recovery time ^(NOTE 1) | t_{rr} | 35 | | | | | | | ns | |
| Typical junction capacitance ^(NOTE 2) | C_J | 75 | | | | | | | pF | |
| Typical Thermal Resistance Junction to Ambient ^(NOTE3) | $R_{\theta JA}$ | 55 | | | | | | | $^\circ\text{C/W}$ | |
| Typical Thermal Resistance Junction to Lead ^(NOTE3) | $R_{\theta JL}$ | 15 | | | | | | | $^\circ\text{C/W}$ | |
| Operating Temperature Range | T_J | -55 to 150 | | | | | | | $^\circ\text{C}$ | |
| Storage Temperature Range | T_{STG} | -55 to 150 | | | | | | | $^\circ\text{C}$ | |

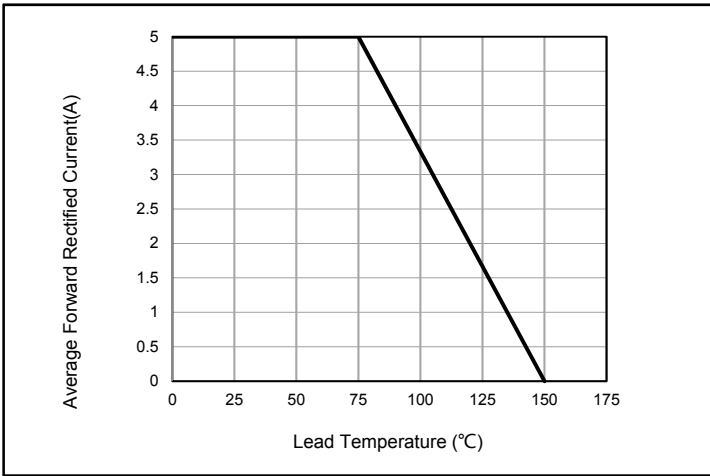
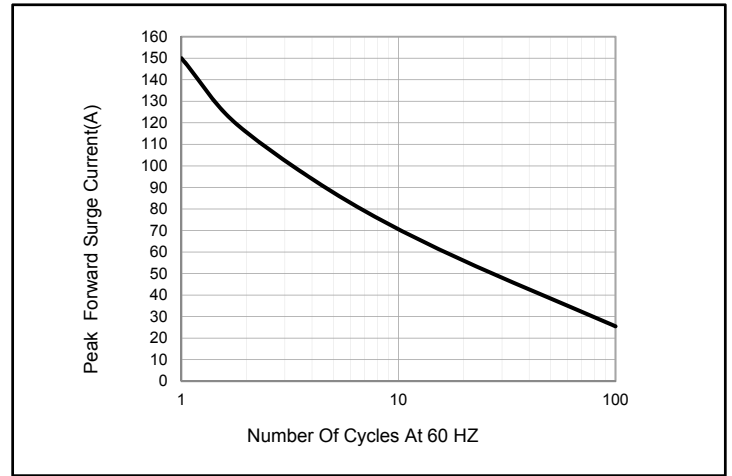
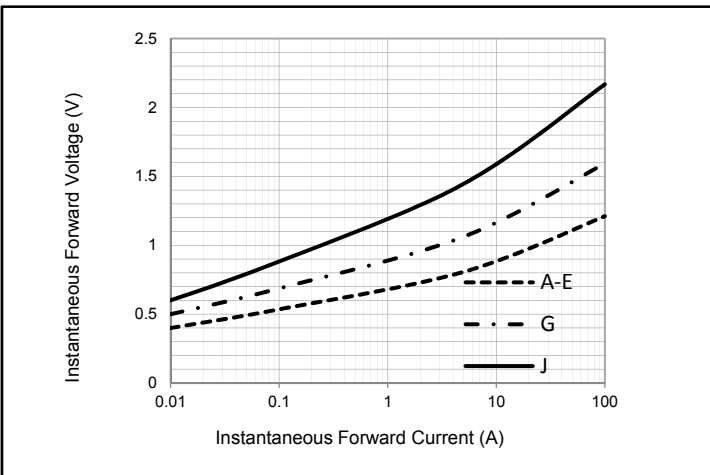
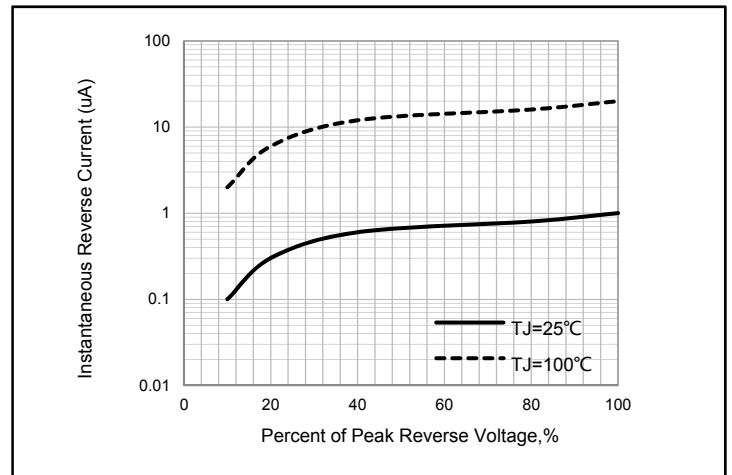
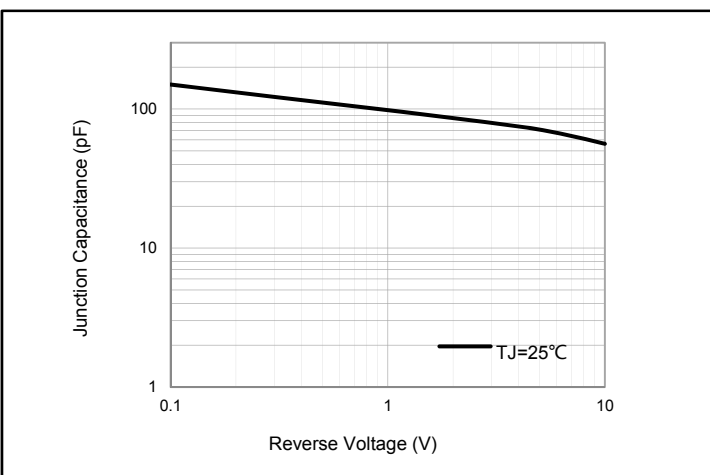
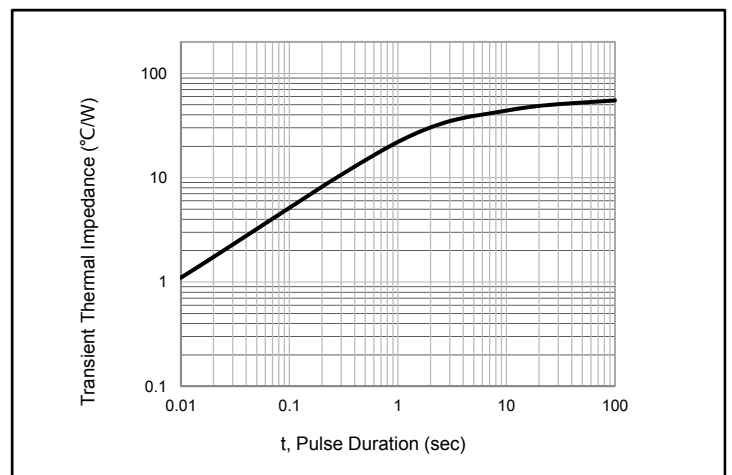
Note1: Reverse recovery condition $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$

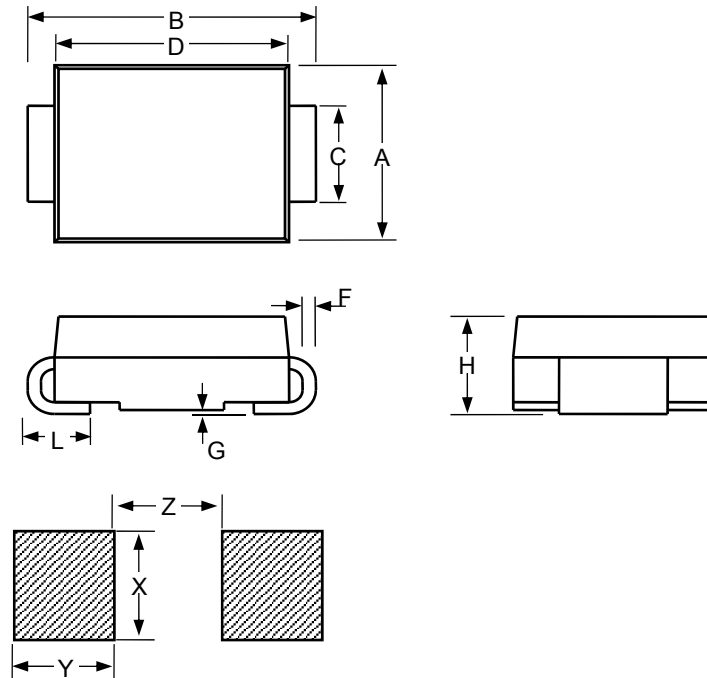
Note2: Measured at 1MHz and applied reverse voltage of 4.0V DC.

Note3: PCB. mounted with 16×16mm copper pad areas

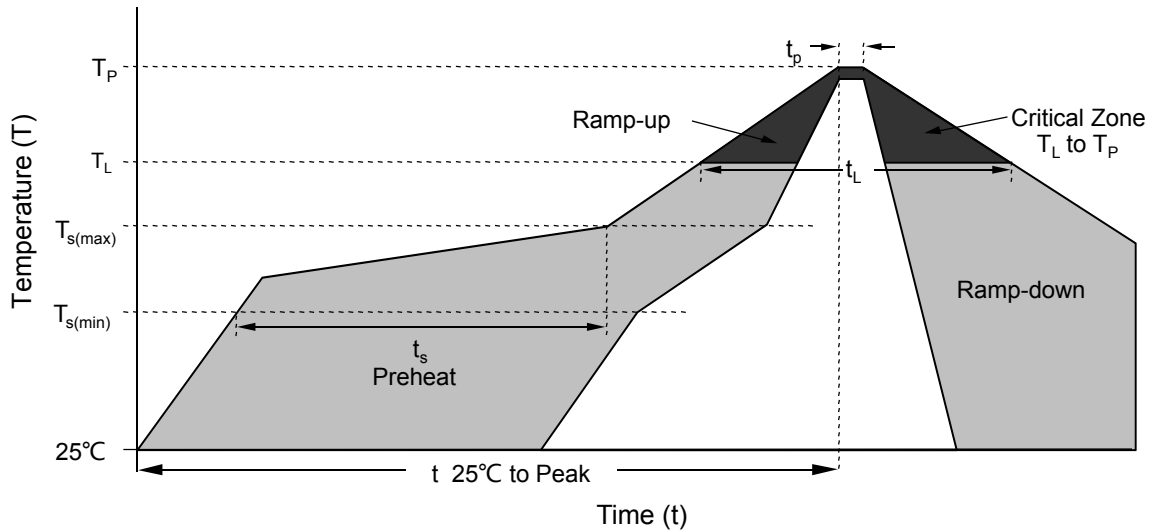
Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| SMC | Tape/Reel, 13" reel | 3000 | EIA-481-1 |
| | Tape/Reel, 7" reel | 500 | EIA-481-1 |

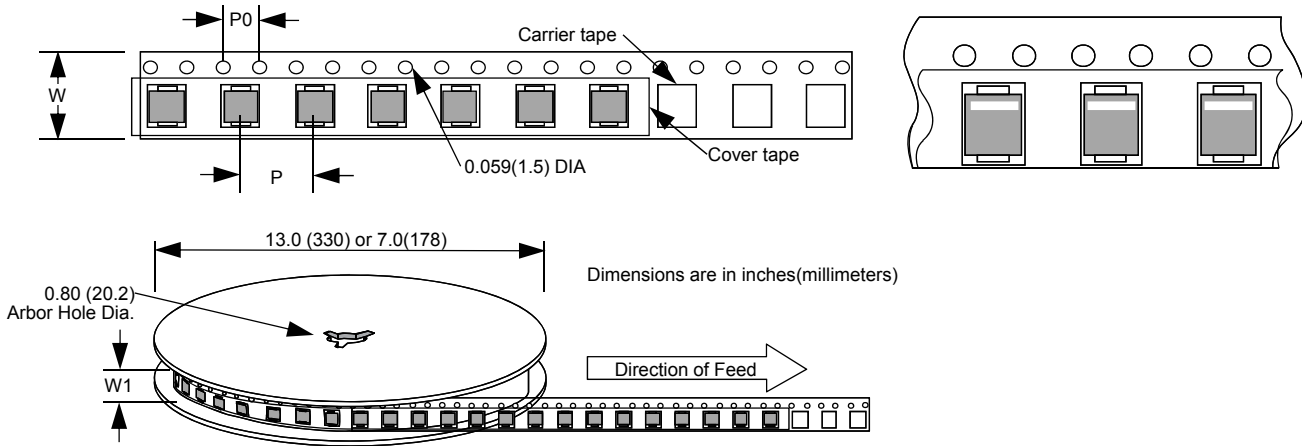

Fig. 1 - Forward Current Derating Curve

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 4 - Typical Reverse Characteristics

Fig. 5 - Typical Junction Capacitance

Fig. 6 - Typical Transient Thermal Impedance



| SMC | | | | | | |
|-----------|--------|-------|-------|-------------|------|-------|
| Dimension | Inches | | | Millimeters | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.22 | | 0.245 | 5.59 | | 6.22 |
| B | 0.305 | | 0.32 | 7.75 | | 8.13 |
| C | 0.114 | | 0.126 | 2.9 | | 3.2 |
| D | 0.26 | | 0.28 | 6.6 | | 7.11 |
| L | 0.03 | | 0.06 | 0.76 | | 1.52 |
| F | 0.006 | | 0.012 | 0.15 | | 0.305 |
| G | - | | 0.008 | - | | 0.203 |
| H | 0.087 | | 0.11 | 2.2 | | 2.8 |
| X | | 0.15 | | | 3.82 | |
| Y | | 0.119 | | | 3.03 | |
| Z | | 0.151 | | | 3.84 | |



| Reflow Condition | | Lead-free assembly |
|--|------------------------------------|-------------------------|
| Pre Heat | - Temperature Min ($T_{s(min)}$) | 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 (t_L) | 60 – 150 secs |
| Peak Temperature (T_P) | | 260 ^{+0/-5} °C |
| Time within 5°C of actual peak Temperature (t_p) | | 20 – 40 secs |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (t) | | 8 minutes Max. |
| Do not exceed | | 260°C |



| Dimension | Inches | | | Millimeters | | |
|-----------|--------|-------|-----|-------------|------|-----|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| P | | 0.315 | | | 8 | |
| P0 | | 0.157 | | | 4 | |
| W | | 0.63 | | | 16 | |
| W1 | | 0.646 | | | 16.4 | |

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