

Primary Characteristics

| | | |
|-----------|-----------|---|
| I_F | 1 | A |
| V_{RRM} | 20~200 | V |
| I_{FSM} | 30 | A |
| V_F | 0.50~0.90 | V |

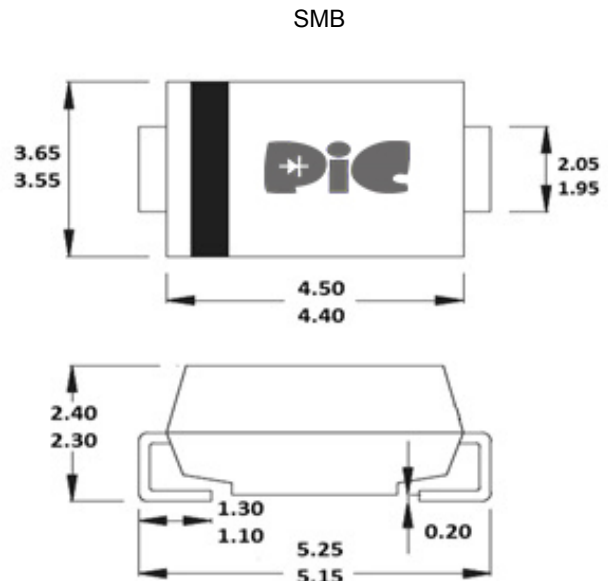
Features

- Low profile package
- Ideal for automated placement
- Guard Ring for over voltage protection
- Low forward voltage drop
- Component in accordance to RoHS 2002/95/EC

Mechanical Data

- Case: SMB(DO-214AA)
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Terminals: Lead free Plating (Tin Finish)
Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.092 grams (approximate)

Package Outline Dimensions



Dimensions in inches and millimeters

Maximum Ratings (TA=25°C unless otherwise noted)

| PARAMETER | SYMBOL | SK12B | SK13B | SK14B | SK15B | SK16B | SK18B | SK 110B | SK 115B | SK 120B | UNIT | |
|--|------------------------------------|-------------|-------|-------|-------|-------|-------------|---------|---------|---------|------|----|
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | V | |
| Maximum RMS voltage | V_{RMS} | 14 | 21 | 28 | 35 | 42 | 56 | 70 | 105 | 140 | V | |
| Maximum DC blocking voltage | V_{DC} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | V | |
| Maximum average forward rectified current | I_F | 1.0 | | | | | | | | | A | |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 30.0 | | | | | | | | | A | |
| Maximum Instantaneous Forward Voltage IF=1A @ 25°C | V_F | 0.50 | | 0.70 | | 0.85 | | 0.87 | 0.90 | | V | |
| Maximum DC Reverse Current @ Tc=25°C at Rated DC Blocking Voltage @ Tc=100°C | I_R | 0.5 | | | | 0.2 | | | 5.0 | | mA | |
| Typical Junction Capacitance(NOTE1) | C_j | 90 | 70 | | 60 | | 50 | | 35 | | pF | |
| Typical Thermal Resistance | $R_{\theta Ja}$ $R_{\theta Jc}$ | 90 60 | | | | | | | | | °C/W | |
| Operating Temperature Range | T_J | -55 to +125 | | | | | -55 to +150 | | | | | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | | | | | | | | | | °C |

NOTES:

1. Measured at 1.0MHZ and applied reverse voltage of 4.0V DC
2. Device mounted on FR-4 substrate, 1"×1", 2oz, single-sided, PC boards with 0.1"×0.15" copper pad.

Rating and Characteristics Curves

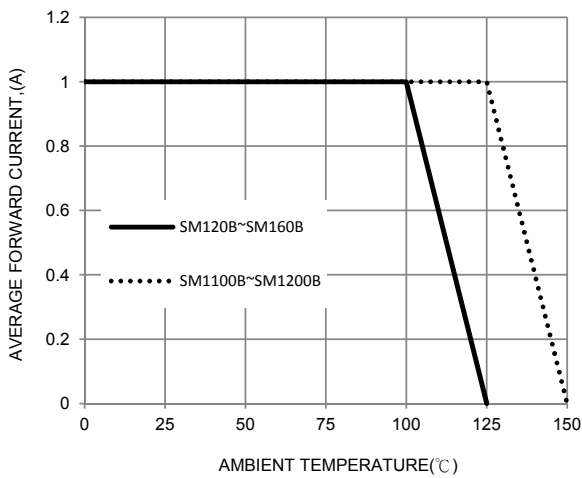


FIG. 1-Typical Forward Current Derating Curve

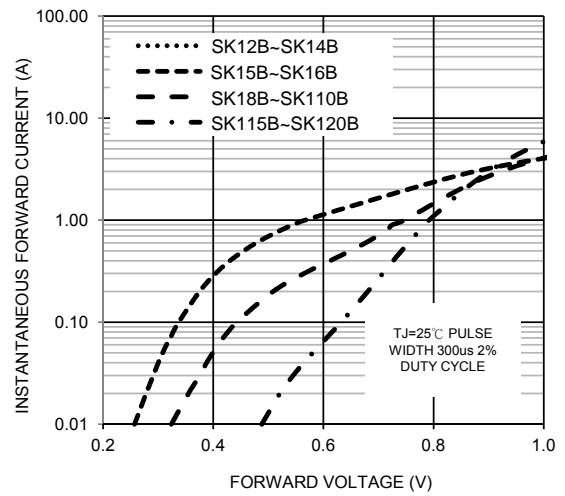


FIG. 2-Typical Forward Characteristics

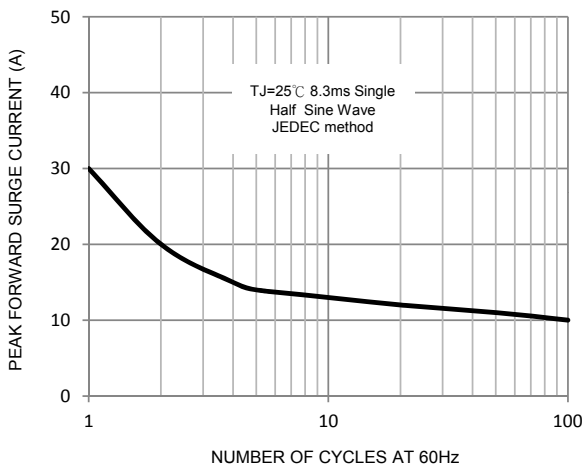


FIG. 3-Maximum Non-Repetitive Forward Surge Current

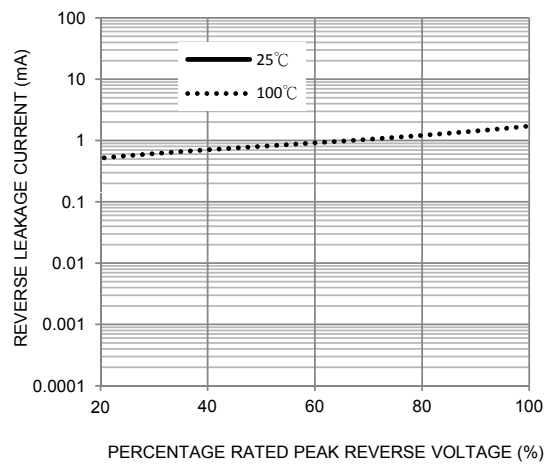


FIG. 4-Typical Reverse Characteristics

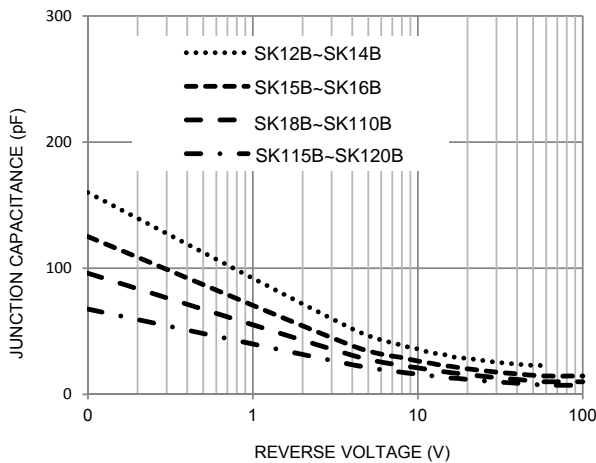
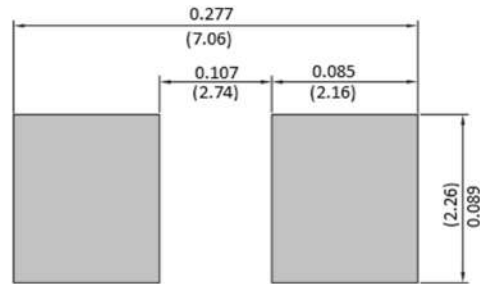


FIG. 5-Typical Junction Capacitance

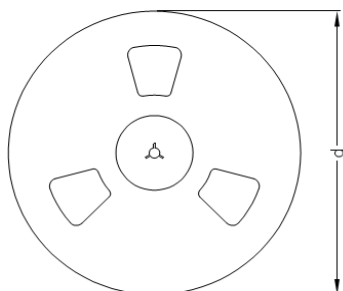
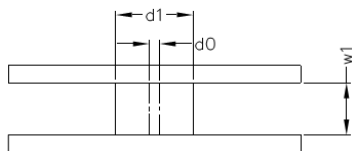
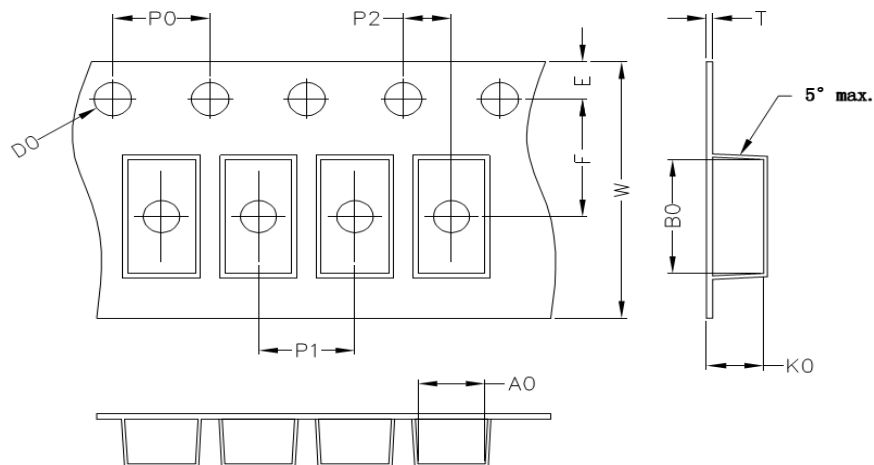
Pad Layout



Unit: mm

Packaging Specifications

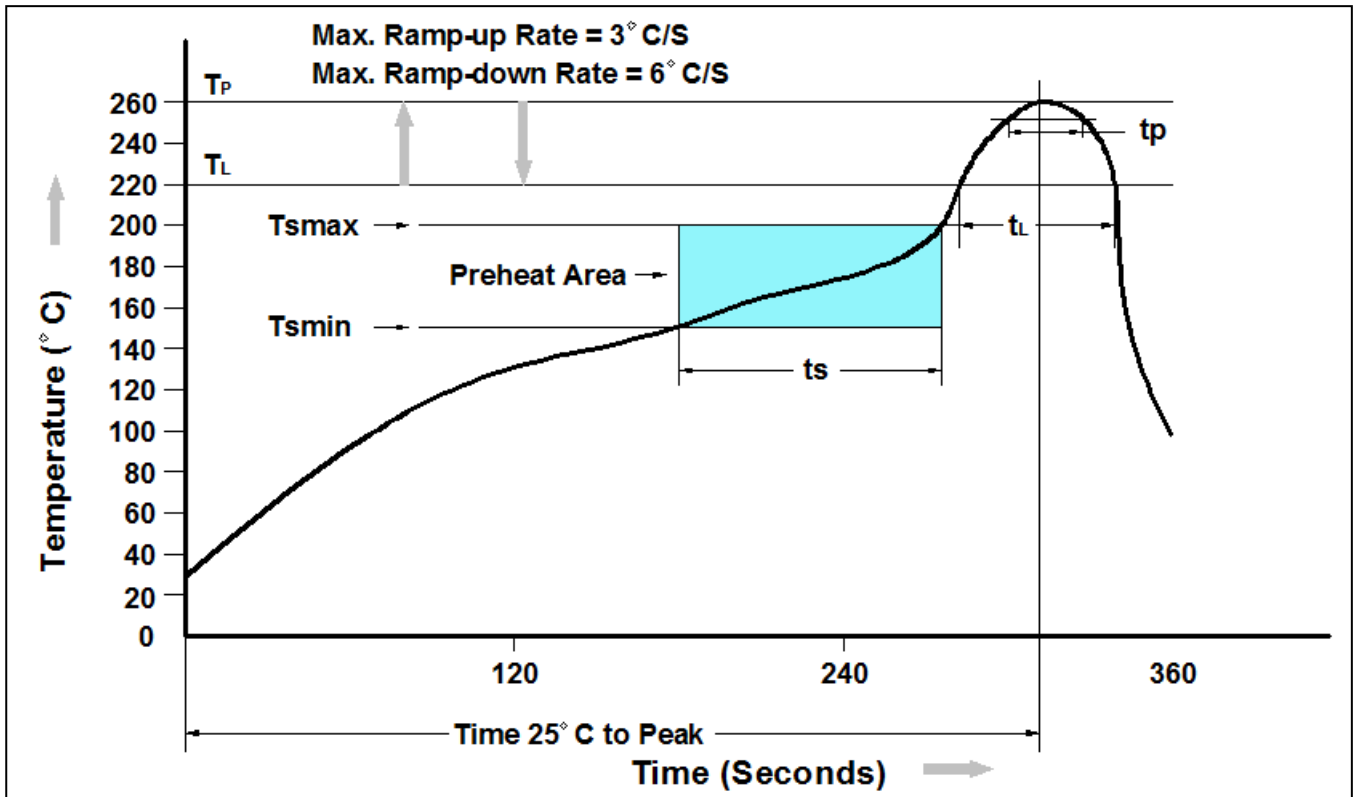
| Package | A0 (mm) | B0 (mm) | K0 (mm) | D0 (mm) | E (mm) | F (mm) | P0 (mm) | P1 (mm) | P2 (mm) | T (mm) | W (mm) |
|---------|------------|------------|------------|------------|-----------|-----------|------------|------------|------------|-----------|-----------|
| SMA | 2.8±0.1 | 5.33±0.1 | 2.36±0.1 | 1.55±0.1 | 1.75±0.1 | 5.50±0.1 | 4.0±0.1 | 4.0±0.01 | 2±0.1 | 0.25±0.1 | 9.4±0.1 |
| SMB | 3.8±0.1 | 5.40±0.1 | 2.45±0.1 | 1.55±0.1 | 1.75±0.1 | 5.50±0.1 | 4.0±0.1 | 8.0±0.01 | 2±0.1 | 0.25±0.1 | 9.4±0.1 |
| SMC | 6.05±0.1 | 8.31±0.1 | 2.54±0.1 | 1.55±0.1 | 1.75±0.1 | 7.50±0.1 | 4.0±0.1 | 8.0±0.05 | 2±0.1 | 0.25±0.1 | 12±0.1 |



| Package | D1 (mm) | D0 (mm) | W1 (mm) | D (mm) |
|---------|------------|------------|------------|-----------|
| SMA | 75 | 13.5 | 13.5 | 330 |
| SMB | 75 | 13.5 | 13.5 | 330 |
| SMC | 75 | 13.5 | 17.0 | 330 |

NOTE : The tolerance of reel is ±2mm

Recommend IR Reflow Soldering Thermal Profile



| Profile Feature | Pb-Free Assembly Profile |
|---|--------------------------|
| Temperature Min. (T _{smin}) | 150°C |
| Temperature Max. (T _{smax}) | 200°C |
| Time (t _s) from (T _{smin} to T _{smax}) | 60-120 seconds |
| Average Ramp-up Rate (t _L to t _P) | 3°C/second max. |
| Liquidous Temperature (T _L) | 217°C |
| Time (t _L) Maintained Above (T _L) | 60 – 150 seconds |
| Peak Temperature | 260°C +0°C / -5°C |
| Time (t _P) within 5°C of actual Peak Temperature | 30 seconds |
| Ramp-down Rate (T _P to T _L) | 6°C/second max |
| Time 25°C to Peak Temperature | 8 minutes max. |

Ordering Information

| Part Number | Description | Quantity |
|--------------|-------------|----------|
| SK12B~SK120B | SMB Reel | 3000 pcs |

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