



5.0Amp. Surface Mount Schottky Barrier Diodes

SK520SB thru SK5100SB

Features

- For surface mounted applications.
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- Low leakage current
- High surge capability
- Exceeds environmental standards of MIL-S-19500/228

Mechanical Data

- Case: Molded plastic, SMB/JEDEC DO-214AA.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Indicated by cathode band.
- Mounting Position : Any.
- Weight: 0.0878 gram

Maximum Ratings and Electrical Characteristics

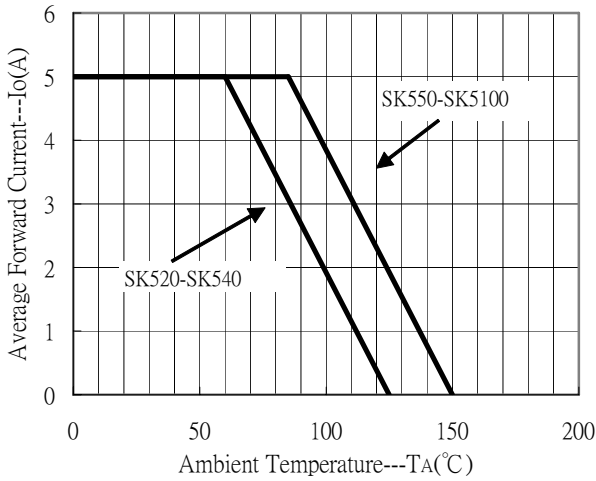
(Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | Type | | | | | | | Units |
|---|--------------------|------------|--------|--------|------------|--------|--------|---------|----------|
| | | SK 520 | SK 530 | SK 540 | SK 550 | SK 560 | SK 580 | SK 5100 | |
| Repetitive peak reverse voltage | V _{RRM} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum RMS voltage | V _{RMS} | 14 | 21 | 28 | 35 | 42 | 56 | 70 | V |
| Maximum DC blocking voltage | V _R | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum instantaneous forward voltage, I _F =5A (Note 1) | V _F | 0.55 | 0.55 | 0.55 | 0.7 | 0.7 | 0.85 | 0.85 | V |
| Average forward rectified current | I _O | 5 | | | | | | | A |
| Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method) | I _{FSM} | 150 | | | | | | | A |
| Maximum DC reverse current V _R =V _{RRM} , T _A =25°C (Note) V _R =V _{RRM} , T _A =125°C (Note) | I _R | 0.5 50 | | | | | | | mA mA |
| Maximum thermal resistance, Junction to Lead | R _{th,JL} | 12 (typ) | | | | | | | °C/W |
| Diode junction capacitance @ f=1MHz and applied 4VDC reverse voltage | C _J | 380(typ) | | | | | | | pF |
| Storage temperature | T _{stg} | -55 ~ +150 | | | | | | | °C |
| Operating temperature | T _J | -55 ~ +125 | | | -55 ~ +150 | | | | °C |

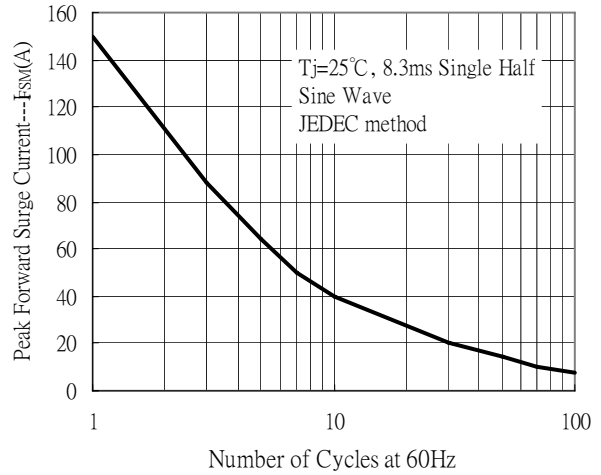
Notes : Pulse test, pulse width=300 μ sec, 2% duty cycle

Characteristic Curves

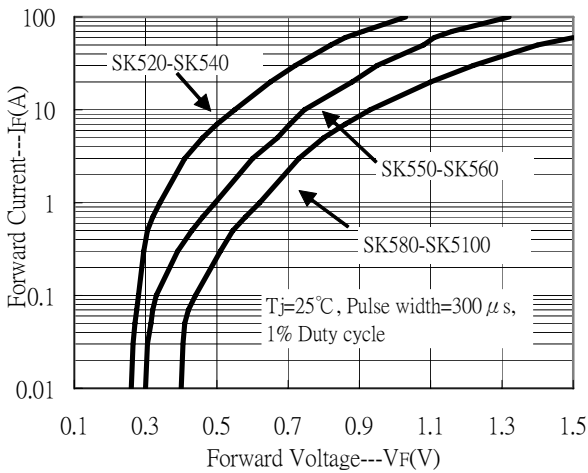
Forward Current Derating Curve



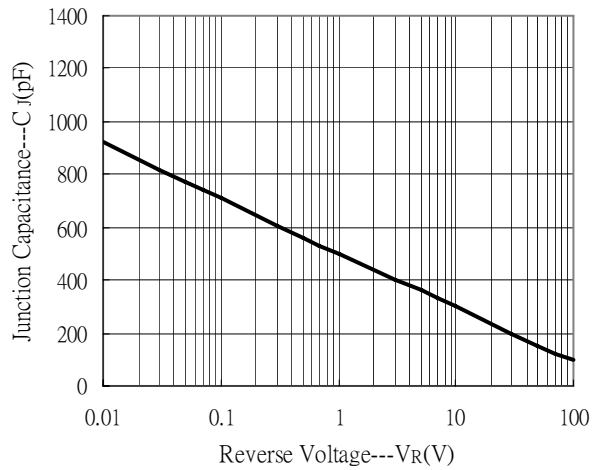
Maximum Non-Repetitive Forward Surge Current



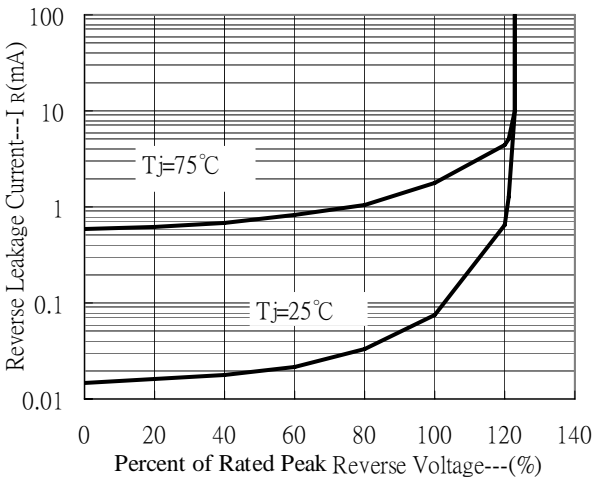
Forward Current vs Forward Voltage



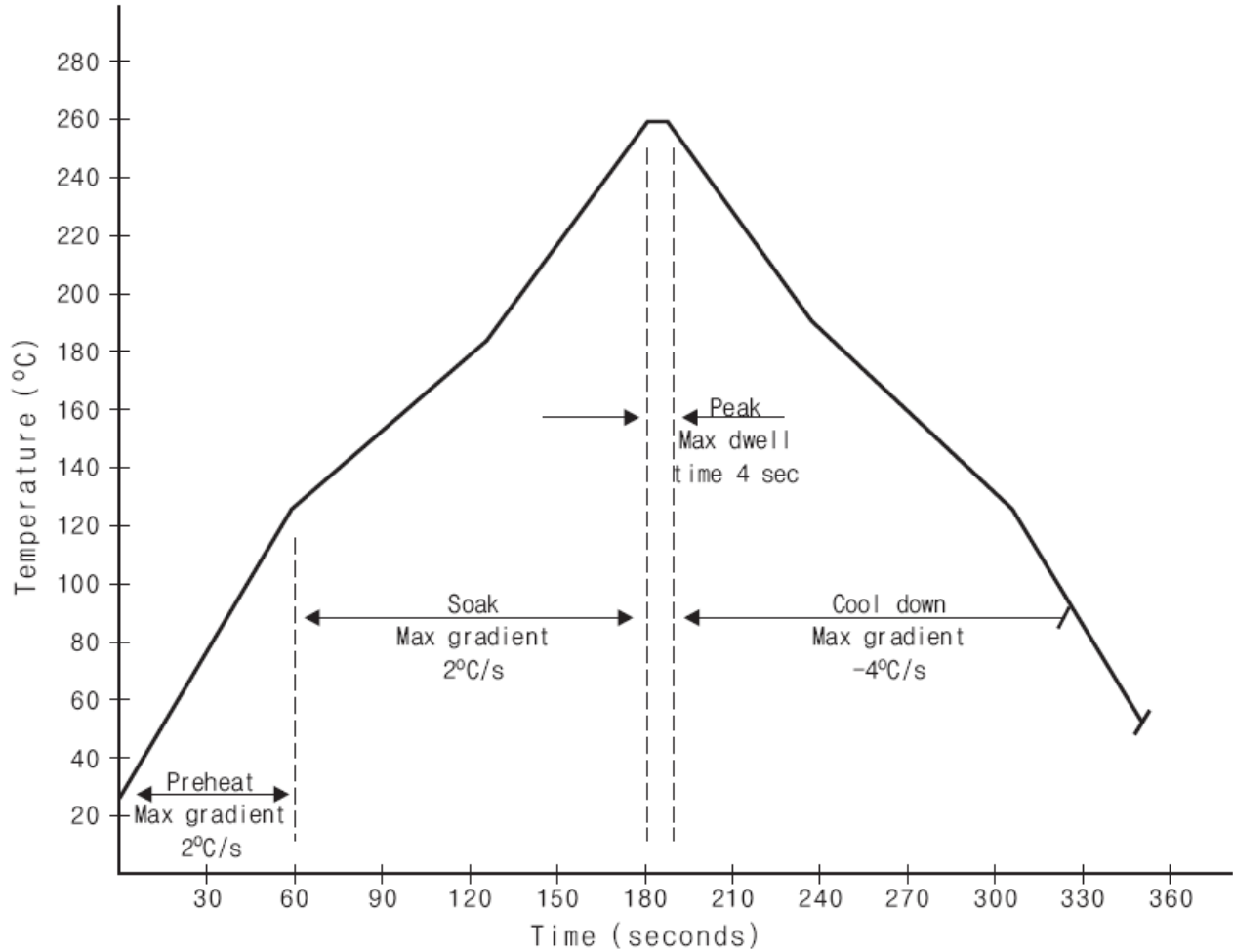
Junction Capacitance vs Reverse Voltage



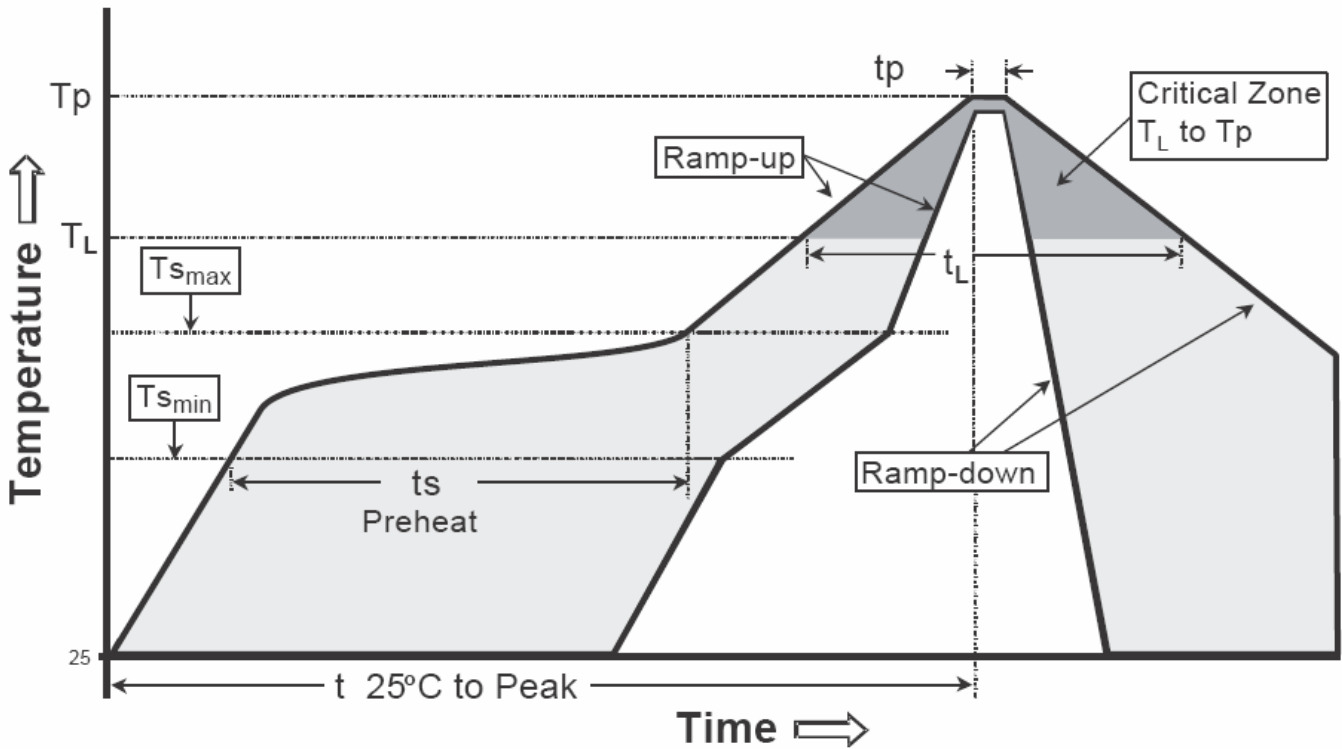
Reverse Leakage Current vs Reverse Voltage



Recommended Wave Soldering Profile



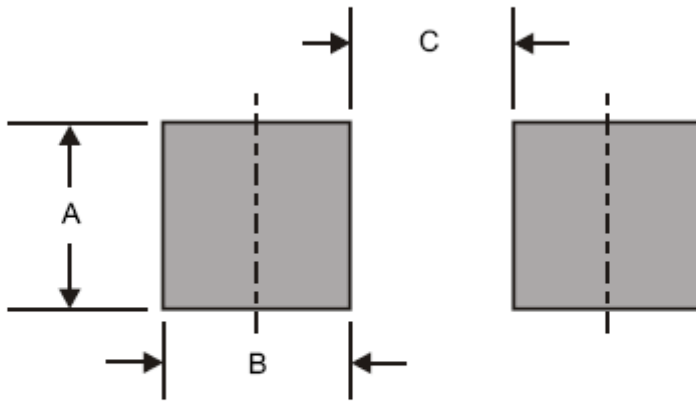
Recommended temperature profile for IR reflow



| Profile feature | Sn-Pb eutectic Assembly | Pb-free Assembly |
|--|-------------------------|------------------|
| Average ramp-up rate (Tsmax to Tp) | 3°C/second max. | 3°C/second max. |
| Preheat | | |
| -Temperature Min(Ts min) | 100°C | 150°C |
| -Temperature Max(Ts max) | 150°C | 200°C |
| -Time(ts min to ts max) | 60-120 seconds | 60-180 seconds |
| Time maintained above: | | |
| -Temperature (T _L) | 183°C | 217°C |
| - Time (t _L) | 60-150 seconds | 60-150 seconds |
| Peak Temperature(T _P) | 240 +0/-5 °C | 260 +0/-5 °C |
| Time within 5°C of actual peak temperature(tp) | 10-30 seconds | 20-40 seconds |
| Ramp down rate | 6°C/second max. | 6°C/second max. |
| Time 25 °C to peak temperature | 6 minutes max. | 8 minutes max. |

Note : All temperatures refer to topside of the package, measured on the package body surface.

Recommended Footprint



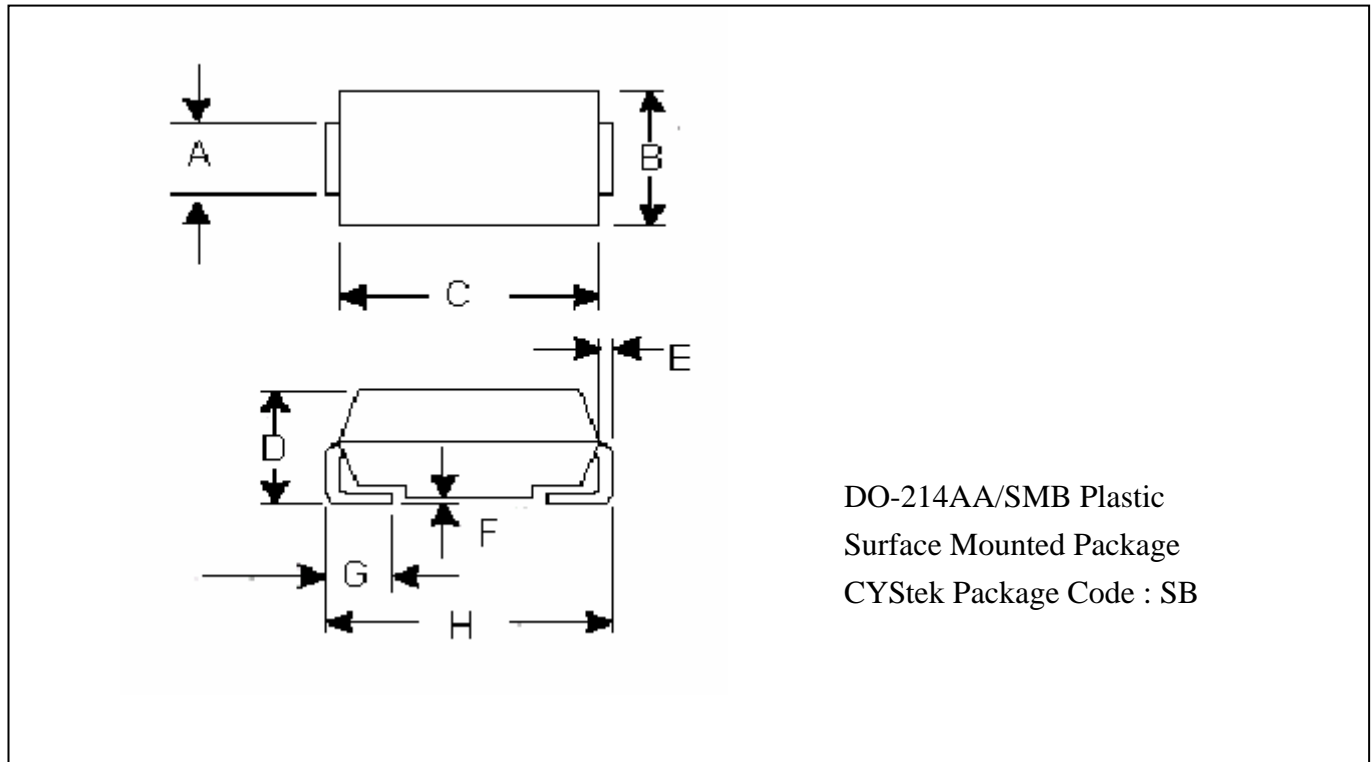
Dimensions in inches and (millimeters)

| DIM | Inches | Millimeters |
|-----|--------|-------------|
| | Typ | Typ |
| A | 0.142 | 3.60 |
| B | 0.059 | 1.50 |
| C | 0.118 | 3.00 |

Ordering Information

| Device | Package | Shipping | Marking |
|----------|---------|------------------------|---------|
| SK520SB | SMB | 3000 pcs / Tape & Reel | SS52 |
| SK530SB | SMB | 3000 pcs / Tape & Reel | SS53 |
| SK540SB | SMB | 3000 pcs / Tape & Reel | SS54 |
| SK550SB | SMB | 3000 pcs / Tape & Reel | SS55 |
| SK560SB | SMB | 3000 pcs / Tape & Reel | SS56 |
| SK580SB | SMB | 3000 pcs / Tape & Reel | SS58 |
| SK5100SB | SMB | 3000 pcs / Tape & Reel | S510 |

DO-214AA/SMB Dimension



*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|-------|-------------|------|-----|--------|-------|-------------|------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.076 | 0.082 | 1.93 | 2.08 | E | 0.006 | 0.012 | 0.15 | 0.31 |
| B | 0.137 | 0.147 | 3.48 | 3.73 | F | 0.004 | 0.008 | 0.10 | 0.20 |
| C | 0.167 | 0.187 | 4.25 | 4.75 | G | 0.035 | 0.056 | 0.90 | 1.41 |
| D | 0.078 | 0.103 | 1.99 | 2.61 | H | 0.207 | 0.215 | 5.26 | 5.46 |

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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