

# SK22A - SK215A



2.0 AMPS. Surface Mount Schottky Barrier Rectifiers

#### SMA/DO-214AC



#### Features

- ♦ For surface mounted application
- ♦ Metal to silicon rectifier, majority carrier conduction
- ♦ Low forward voltage drop
- ♦ Easy pick and place
- ♦ High surge current capability
- Plastic material used carriers Underwriters Laboratory Classification 94V-0
- ♦ Epitaxial construction
- High temperature soldering: 260°C / 10 seconds at terminals

### Mechanical Data

- ♦ Case: Molded plastic
- ♦ Terminals: Pure tin plated, lead free.
- ♦ Polarity: Indicated by cathode band
- ♦ Packaging: 12mm tape per EIA STD RS-481
- ♦ Weight: 0.093gram

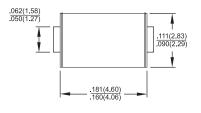
## **Maximum Ratings and Electrical Characteristics**

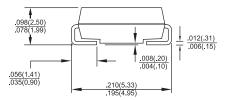
Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%

| Type Number  | Symbol            | SK<br>22A   | SK<br>23A | SK<br>24A | SK<br>25A | SK<br>26A   | SK<br>29A | SK<br>210A | SK<br>215A | Units |
|--|-------------------|-------------|-----------|-----------|-----------|-------------|-----------|------------|------------|-------|
| Maximum Recurrent Peak Reverse Voltage   | V <sub>RRM</sub>  | 20          | 30        | 40        | 50        | 60          | 90        | 100        | 150        | V     |
| Maximum RMS Voltage  | V <sub>RMS</sub>  | 14          | 21        | 28        | 35        | 42          | 63        | 70         | 105        | V     |
| Maximum DC Blocking Voltage  | V <sub>DC</sub>   | 20          | 30        | 40        | 50        | 60          | 90        | 100        | 150        | V     |
| Maximum Average Forward Rectified Current at $T_L$ (See Fig. 1)  | I <sub>(AV)</sub> | 2.0         |           |           |           |             |           |            | А          |       |
| Peak Forward Surge Current, 8.3 ms Single<br>Half Sine-wave Superimposed on Rated<br>Load (JEDEC method )          | I <sub>FSM</sub>  | 50          |           |           |           |             |           |            | А          |       |
| Maximum Instantaneous Forward Voltage<br>(Note 1) @ 2.0A   | V <sub>F</sub>    | 0.5 0.7     |           |           | 0.        | 85          | 0.95      | V          |            |       |
| Maximum DC Reverse Current $@T_A = 25 °C$  | I <sub>R</sub>    | 0.5 0.1     |           |           |           |             |           |            | mA         |       |
| at Rated DC Blocking Voltage $@T_A = 125 \degree C$  |                   |             | 10        |           | 5         | .0          | 2.0       |            |            | mA    |
| Non-repetitive Peak Reverse Avalanche<br>Energy L=40mH Tj=25 °C max prior to Surge,<br>Inductive load Switched off | E <sub>RSM</sub>  | 20          |           |           |           |             |           | mJ         |            |       |
| Typical Junction Capacitance   | Cj                | 10          |           |           |           | 50          |           |            | рF         |       |
| Typical Thermal Resistance (Note 2)  | R <sub>θJA</sub>  | 88          |           |           |           |             |           |            | °C/W       |       |
| Operating Temperature Range  | TJ                | -65 to +125 |           |           |           | -65 to +150 |           |            | °C         |       |
| Storage Temperature Range  | Tstg              | -65 to +150 |           |           |           |             |           |            | °C         |       |

Notes: 1. Pulse Test with PW=300 usec, 1% Duty Cycle

2. Measured on P.C.Board with 0.2" x 0.2"(5.0mm x 5.0mm) Copper Pad Areas.





Dimensions in inches and (millimeters)



100

#### FIG. 1- MAXIMUM FORWARD CURRENT DERATING FIG. 2- MAXIMUM NON-REPETITIVE FORWARD CURVE SURGE CURRENT 2.0 50 RESISTIVE OR PEAK FORWARD SURGE CURRENT.(A) INDUCTIVELOAD AVERAGE FORWARD CURRENT.(A) 8.3ms Single Half Sine Wave JEDEC Method AT RATED TL 40 SK26A - SK215A 1.5 30 SK22A -SK25A 1.0 20 0.5 10 PCB MOUNTED ON 0.2X0.2" 11 Т 0 0 10 NUMBER OF CYCLES AT 60Hz 90 100 110 120 130 LEAD TEMP ERATURE.( C) 70 50 60 80 140 150 160 FIG. 4- TYPICAL REVERSE CHARACTERISTICS FIG. 3- TYPICAL FORWARD CHARACTERISTICS 100 50 INSTANTANEOUS REVERSE CURRENT.(mA) SK2 INSTANTANEOUS FORWARD CURRENT.(A) 10 10 SK22A-24A' TJ=125 -26A .TJ=125 0 0.1 2A-24 0.0 PULSE WIDTH=300µs SK2 1% DUTY CYCLE 0.001 0.01 0 20 40 60 80 100 120 140 0.3 0.5 0.7 0.9 FORWARD VOLTAGE.(V) 0 0.1 1.1 1.3 1.5 PERCENT OF RATED PEAK REVERSE VOLTAGE.(%) FIG.6- TYPICAL TRANSIENT THERMAL FIG. 5- TYPICAL JUNCTION CAPACITANCE CHARACTERISTICS 400 100 (v/) Tj=25°C SI f=1.0MHz Vsig=50mVp-p JUNCTION CAPACITANCE.(pF) ?6A TRANSCIENT THERMAL IMPEDANCE, 100 10 ┼┼┼┼ SA 9 П тп

0.

100

0.01

0.1

PULSE DURATION, (sec)

#### RATINGS AND CHARACTERISTIC CURVES (SK22A THRU SK215A)

Version: C07

10

100

10

0.1

1 10 REVERSE VOLTAGE.(V)