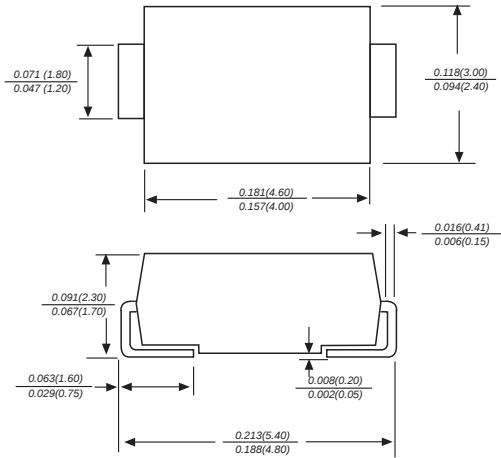


# ST54A THRU ST510A

## SURFACE MOUNT TRENCH SCHOTTKY RECTIFIER

Reverse Voltage - 40 to 100 Volts    Forward Current - 5.0 Amperes

### DO-214AC



### FEATURES

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ Metal silicon junction, majority carrier conduction
- ◆ High efficiency operation
- ◆ Ultra low forward voltage drop, low power losses
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed:  
260°C/10 seconds, 0.375" (9.5mm) lead length,  
5 lbs. (2.3kg) tension

### MECHANICAL DATA

**Case:** JEDEC DO-214AC molded plastic body

**Terminals:** leads solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denotes cathode end

**Mounting Position:** Any

**Weight:** 0.002 ounce, 0.07 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

*Dimensions in inches and (millimeters)*

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

|                                                                                                             | SYMBOLS           | ST54A       | ST56A       | ST510A | UNITS |
|-------------------------------------------------------------------------------------------------------------|-------------------|-------------|-------------|--------|-------|
| Maximum repetitive peak reverse voltage                                                                     | V <sub>RRM</sub>  | 40          | 60          | 100    | V     |
| Maximum RMS voltage                                                                                         | V <sub>RMS</sub>  | 28          | 42          | 70     | V     |
| Maximum DC blocking voltage                                                                                 | V <sub>DC</sub>   | 40          | 60          | 100    | V     |
| Maximum average forward rectified current<br>0.375”(9.5mm) lead length(see fig.1)                           | I <sub>(AV)</sub> | 5.0         |             |        | A     |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed on<br>rated load (JEDEC Method)      | I <sub>FSM</sub>  | 100.0       | 80.0        |        | A     |
| Maximum instantaneous forward voltage at 5.0A                                                               | V <sub>F</sub>    | 0.43        | 0.50        | 0.70   | V     |
| Maximum DC reverse current    T <sub>A</sub> =25°C<br>at rated DC blocking voltage    T <sub>A</sub> =100°C | I <sub>R</sub>    | 0.10        | 0.05        | 0.03   | mA    |
|                                                                                                             |                   | 20.0        |             | 10.0   |       |
| Typical junction capacitance (NOTE 1)                                                                       | C <sub>J</sub>    | 500         |             |        | pF    |
| Typical thermal resistance (NOTE 2)                                                                         | R <sub>θJA</sub>  | 80          |             |        | °C/W  |
| Operating junction temperature range                                                                        | T <sub>J</sub>    | -55 to +125 | -55 to +150 |        | °C    |
| Storage temperature range                                                                                   | T <sub>STG</sub>  | -55 to +150 |             |        | °C    |

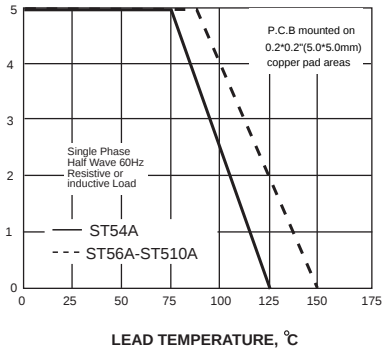
**Note:** 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

2. Thermal resistance from junction to ambient at 0.375" (9.5mm) lead length, P.C.B. mounted

# RATINGS AND CHARACTERISTIC CURVES ST54A THRU ST510A

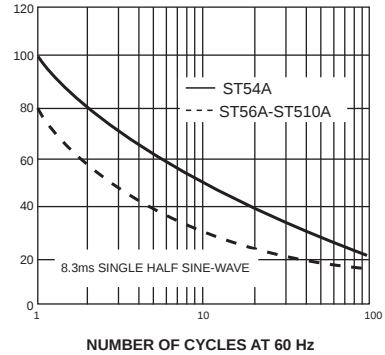
AVERAGE FORWARD RECTIFIED CURRENT,  
AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



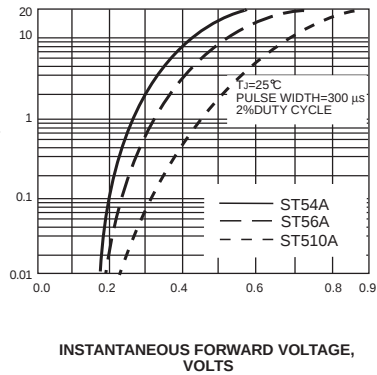
PEAK FORWARD SURGE CURRENT,  
AMPERES

FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



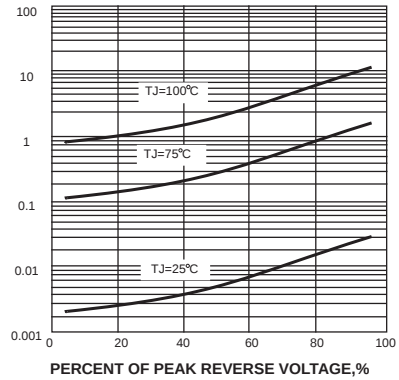
INSTANTANEOUS FORWARD  
CURRENT, AMPERES

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



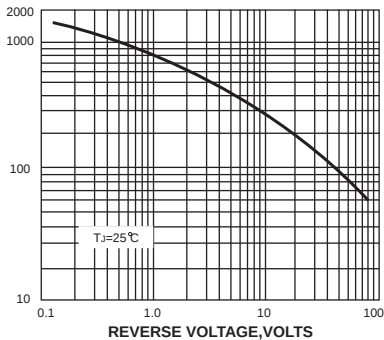
INSTANTANEOUS REVERSE CURRENT,  
MILLIAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS



JUNCTION CAPACITANCE, pF

FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE,  
°C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

