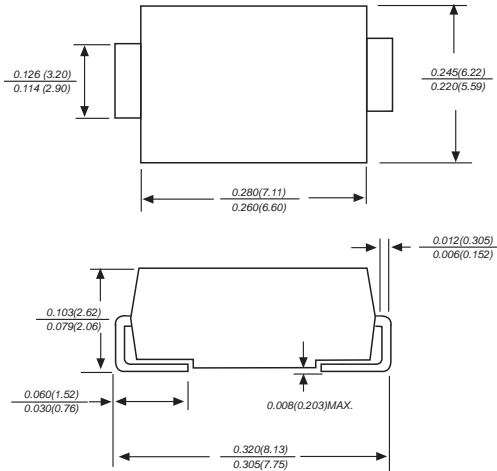


# ST54C THRU ST510C

## SURFACE MOUNT TRENCH SCHOTTKY RECTIFIER

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

### DO-214AB



Dimensions in inches and (millimeters)

### 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-214AB molded plastic body  
**Terminals:** leads solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denotes cathode end  
**Mounting Position:** Any  
**Weight:** 0.007 ounce, 0.25grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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	ST54C	ST56C	ST510C	UNITS
Maximum repetitive peak reverse voltage	$V_{RRM}$	40	60	100	V
Maximum RMS voltage	$V_{RMS}$	28	42	70	V
Maximum DC blocking voltage	$V_{DC}$	40	60	100	V
Maximum average forward rectified current 0.375" (9.5mm) lead length (see fig. 1)	$I_{(AV)}$	5.0			A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	100.0	90.0		A
Maximum instantaneous forward voltage at 5.0A	$V_F$	0.43	0.50	0.60	V
Maximum DC reverse current at rated DC blocking voltage	$I_R$	0.10	0.05	0.03	mA
$T_A=25^\circ\text{C}$ $T_A=100^\circ\text{C}$		20.0		10.0	
Typical junction capacitance (NOTE 1)	$C_J$	500			pF
Typical thermal resistance (NOTE 2)	$R_{\theta JA}$	60			°C/W
Operating junction temperature range	$T_J$	-55 to +125	-55 to +150		°C
Storage temperature range	$T_{STG}$	-55 to +150			°C

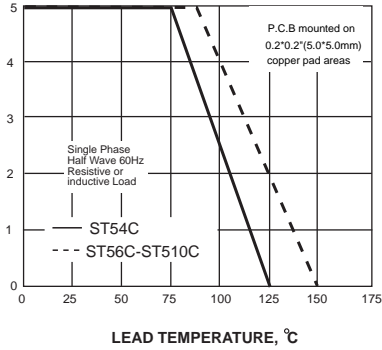
**Note:** 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

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

# RATINGS AND CHARACTERISTIC CURVES ST54C THRU ST510C

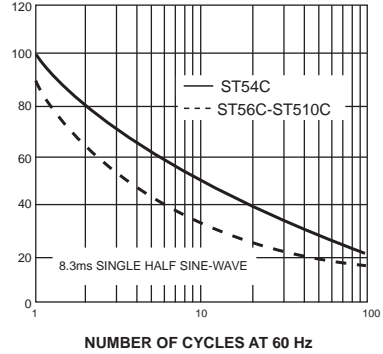
AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



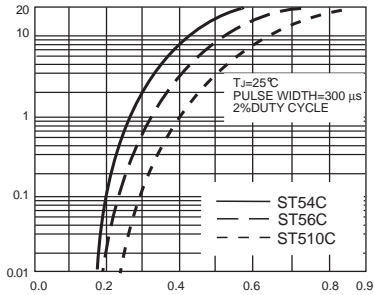
PEAK FORWARD SURGE CURRENT, AMPERES

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



INSTANTANEOUS FORWARD CURRENT, AMPERES

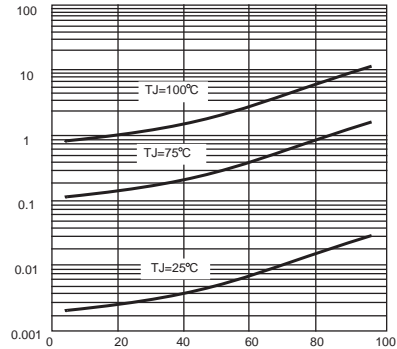
FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS FORWARD VOLTAGE, VOLTS

INSTANTANEOUS REVERSE CURRENT, MILLIAMPERES

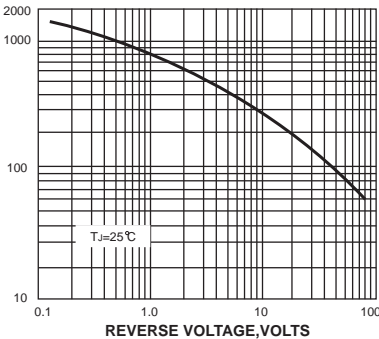
FIG. 4-TYPICAL REVERSE CHARACTERISTICS



PERCENT OF PEAK REVERSE VOLTAGE, %

JUNCTION CAPACITANCE, pF

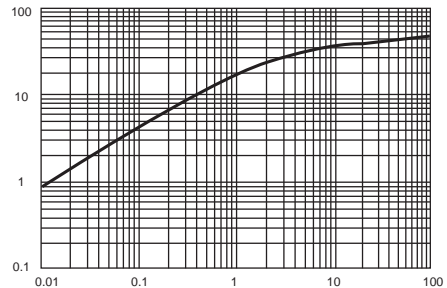
FIG. 5-TYPICAL JUNCTION CAPACITANCE



REVERSE VOLTAGE, VOLTS

TRANSIENT THERMAL IMPEDANCE,  $^{\circ}\text{C}/\text{W}$

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



t, PULSE DURATION, sec.