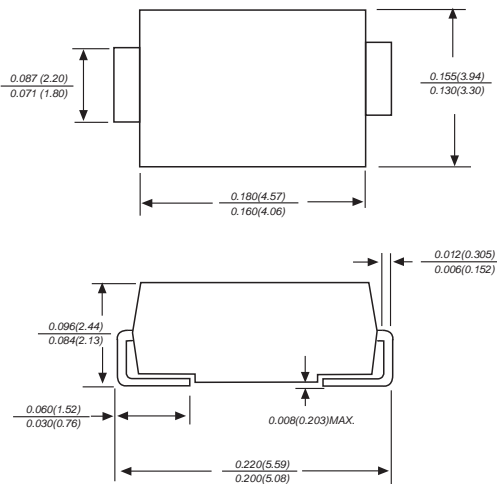




# ST54B THRU ST510B

**SURFACE MOUNT TRENCH SCHOTTKY RECTIFIER**  
 Reverse Voltage - 40 to 100 Volts Forward Current - 5.0 Amperes

## DO-214AA/SMB



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-214AA molded plastic body  
**Terminals:** leads solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denotes cathode end  
**Mounting Position:** Any  
**Weight:** 0.003 ounce, 0.093 grams

## 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%.

MDD Catalog Number	SYMBOLS	ST54B	ST56B	ST510B	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)	$R_{\theta JA}$	75			°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

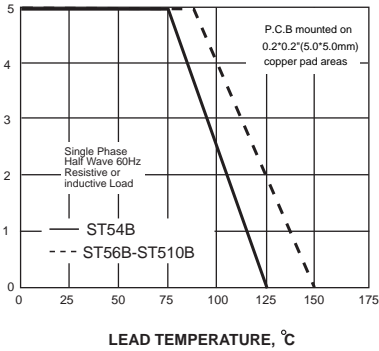


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# RATINGS AND CHARACTERISTIC CURVES ST54B THRU ST510B

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

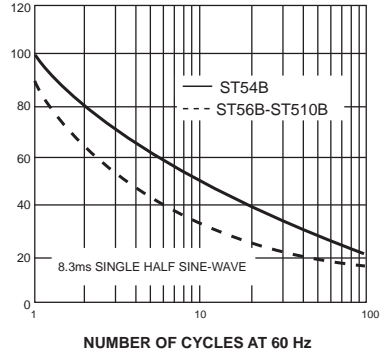
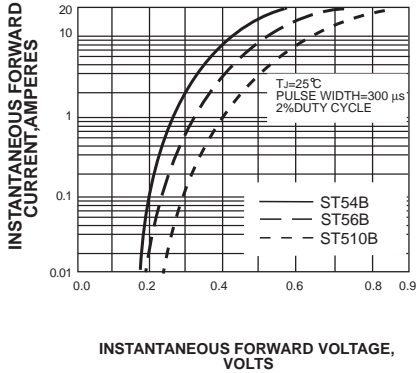


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT, MILLIAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS

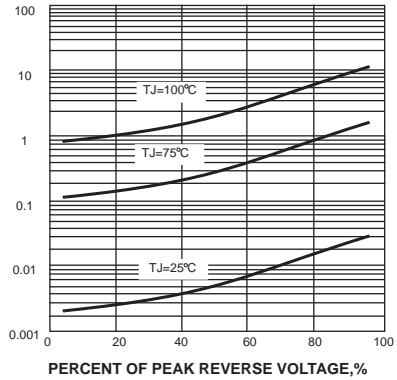
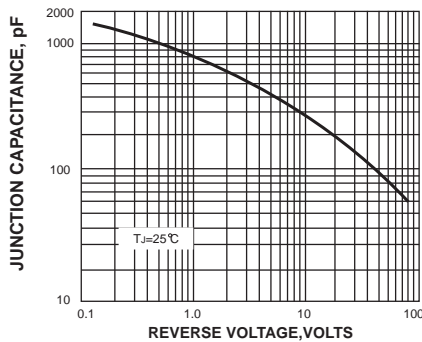
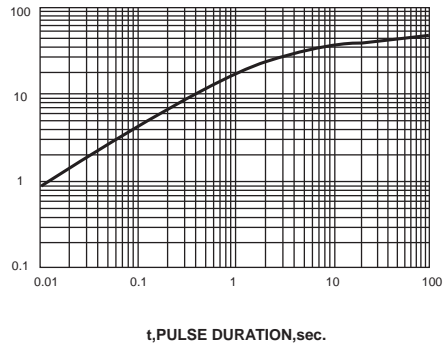


FIG. 5-TYPICAL JUNCTION CAPACITANCE



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

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



The cruve graph is for reference only, can't be the basis for judgment(曲线图仅供参考)!



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