



# US5A THRU US5M

## SURFACE MOUNT ULTRA FAST RECTIFIER

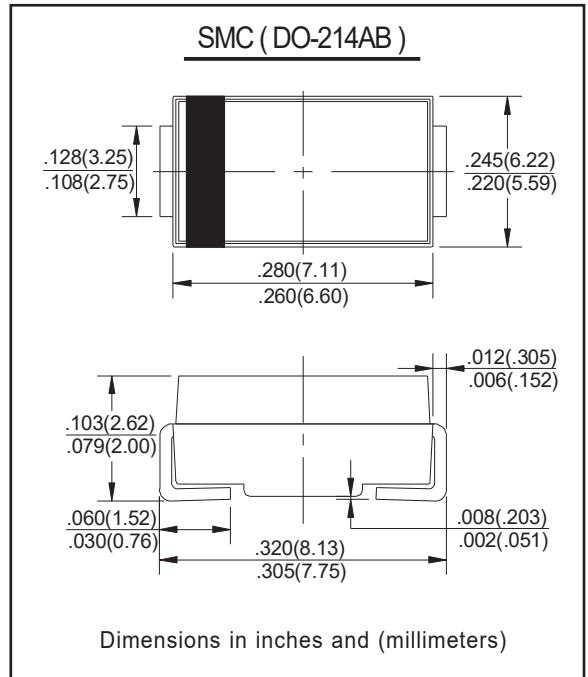
Reverse Voltage - 50 to 1000 Volts    Forward Current - 5.0 Ampere

### FEATURES

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- Ultra fast switching for high efficiency
- Low reverse leakage
- High forward surge current capability
- High temperature soldering guaranteed:  
250°C/10 seconds

### MECHANICAL DATA

**Case:** JEDEC DO-214AB molded plastic body  
**Terminals:** DO-214AB solder plated, solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denotes cathode end  
**Mounting Position:** Any  
**Weight:** 0.20 grams



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	US5A	US5B	US5D	US5G	US5J	US5K	US5M	Unit	
Peak Repetitive Reverse Voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V	
Working Peak Reverse Voltage	$V_{RWM}$									
DC Blocking Voltage	$V_R$									
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	800	V	
Average Rectified Output Current @ $T_L = 100^\circ\text{C}$	$I_O$	5.0							A	
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	$I_{FSM}$	100							A	
Forward Voltage @ $I_F = 5.0\text{A}$	$V_{FM}$	1.0		1.3		1.7			V	
Peak Reverse Current @ $T_A = 25^\circ\text{C}$ At Rated DC Blocking Voltage @ $T_A = 100^\circ\text{C}$	$I_{RM}$	2.0 500							$\mu\text{A}$	
Reverse Recovery Time (Note 1)	$t_{rr}$	50				75				nS
Typical Junction Capacitance (Note 2)	$C_j$	25							pF	
Typical Thermal Resistance (Note 3)	$R_{\theta JL}$	30							$^\circ\text{C/W}$	
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150							$^\circ\text{C}$	

- Note: 1. Measured with  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $I_{rr} = 0.25\text{A}$ . See figure 5.  
 2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V DC.  
 3. Mounted on P.C. Board with 8.0mm<sup>2</sup> land area.



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## RATINGS AND CHARACTERISTIC CURVES

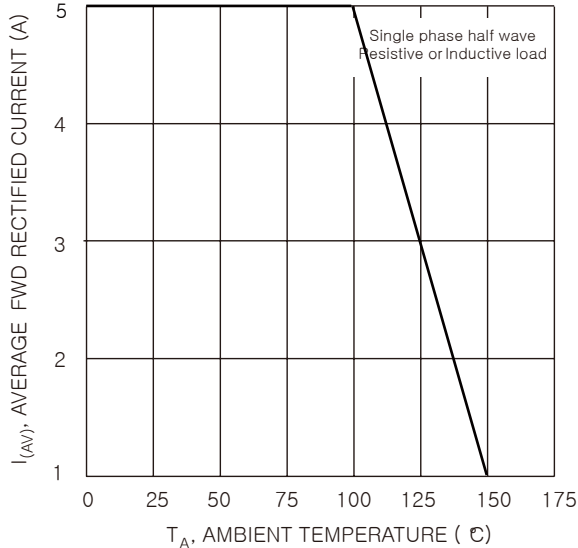


Fig. 1 Forward Current Derating Curve

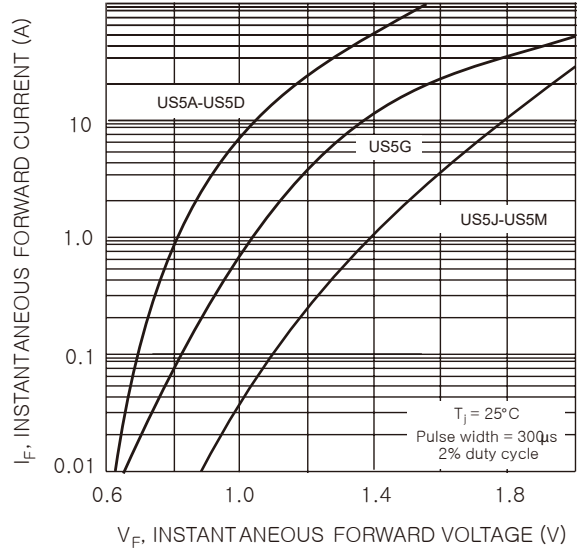


Fig. 2 Typical Forward Characteristics

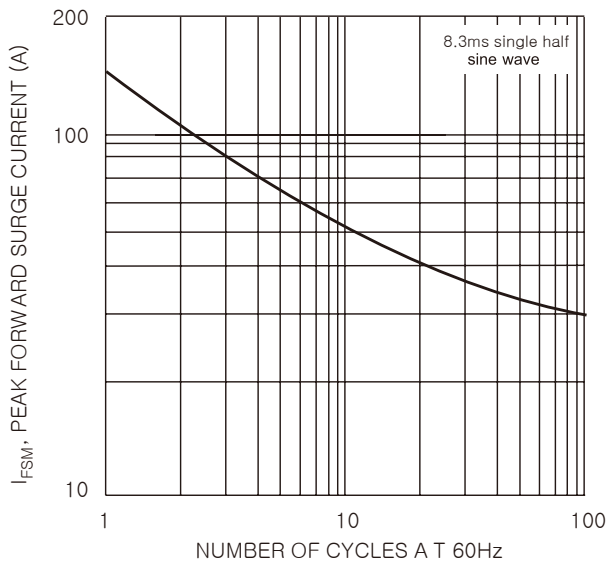


Fig. 3 Peak Forward Surge Current

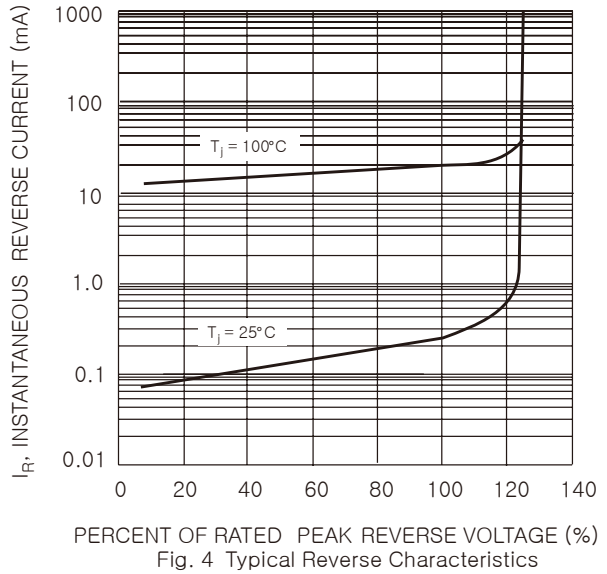
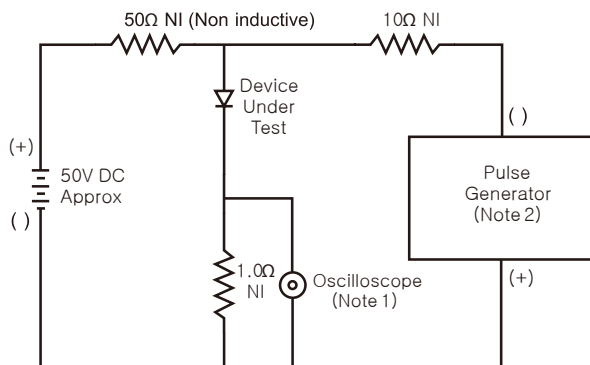
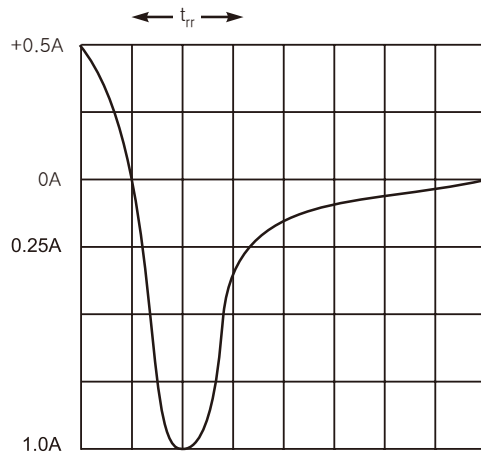


Fig. 4 Typical Reverse Characteristics



- Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
  2. Rise Time = 10ns max. Input Impedance = 5Ω.

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit



Set time base for 5/10ns/cm