

### III. Fast / Ultra Fast / Super Fast Recovery Rectifier

#### 5.0A Surface Mount Ultra Fast Recovery Rectifier

#### US5AB~US5MB

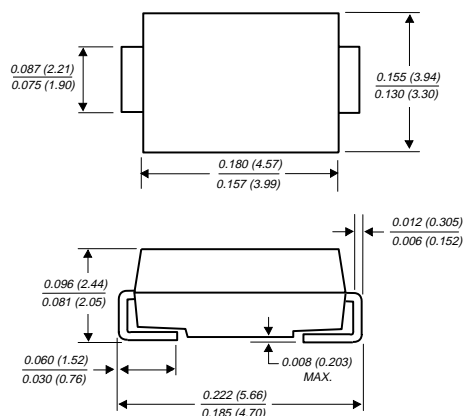
(Package: SMB (DO-214AA))

#### FEATURES

- For surface mounted applications.
- Glass passivated junction chip.
- Built-in strain relief, ideal for automated placement.
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0.
- Ultra Fast recovery for high efficiency.
- High temperature soldering : 250 /10 seconds at terminals.

#### MECHANICAL DATA

- Case : Molded plastic
- Terminals : Solder plated
- Polarity : Indicated by cathode band
- Weight : 0.090 grams



Case: SMB  
Dimensions in inches and (millimetres)

### Ratings & Electrical Characteristics

Ratings at 25 ambient temperature unless otherwise specified.

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

Characteristics	Symbol	US5AB	US5BB	US5DB	US5GB	US5JB	US5KB	US5MB	Units
Maximum recurrent peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	Volts
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	Volts
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	Volts
Maximum average forward rectified current See Fig. 1 @ $T_L=110$	$I_o$	5.0							Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load. (JEDEC Method)	$I_{FSM}$	150							Amps
Maximum instantaneous forward voltage @ 5.0 A	$V_F$	1.0		1.4		1.85		Volts	
Maximum DC reverse current @ $T_a=25$ at rated DC blocking voltage @ $T_a=100$	$I_R$	10.0 250							$\mu A$
Maximum reverse recovery time (Note 1)	$T_{rr}$	50				100			ns
Typical junction capacitance (Note 2)	$C_j$	98				82			Pf
Typical thermal resistance	$R_{th-JA}$	47							/W
Operating temperature range	$T_j$	-65 to +150							
Storage temperature range	$T_{stg}$	-65 to +150							

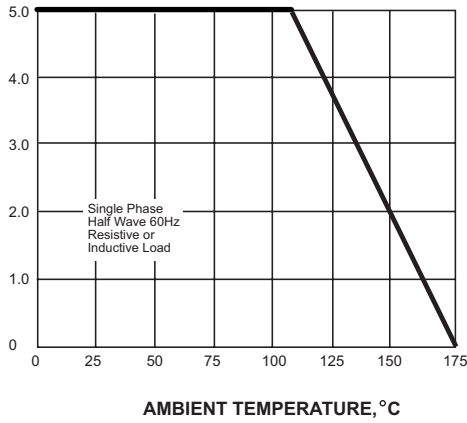
Notes:

1. Reverse recovery test conditions:  $I_F=0.5A$ ,  $I_R=1.0A$ ,  $I_{RR}=0.25A$
2. Measured at 1.0 MHz and applied  $V_R=4.0V$ .

# Ratings and Characteristic Curves of US5AB~US5MB

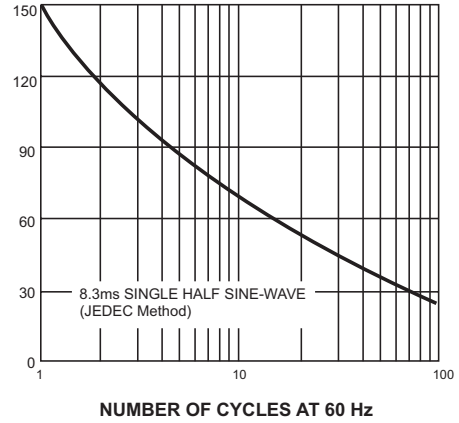
AVERAGE FORWARD RECTIFIED CURRENT, AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



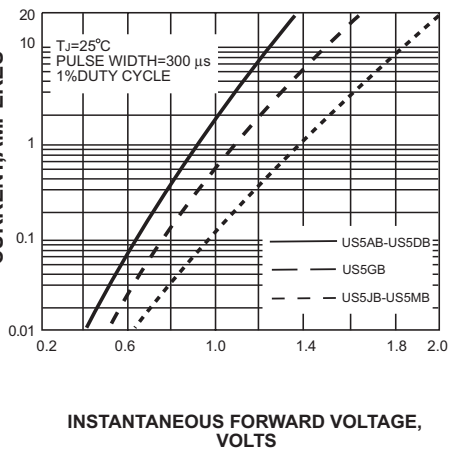
PEAK FORWARD SURGE CURRENT, AMPERES

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



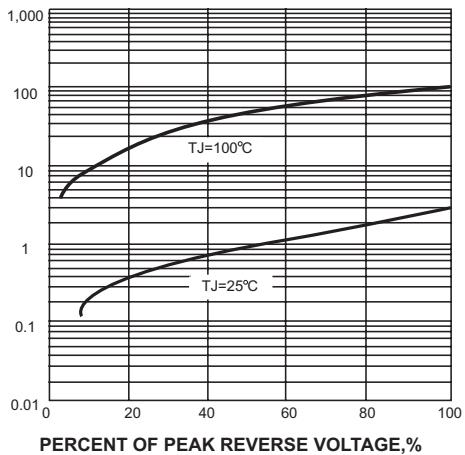
INSTANTANEOUS FORWARD CURRENT, AMPERES

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



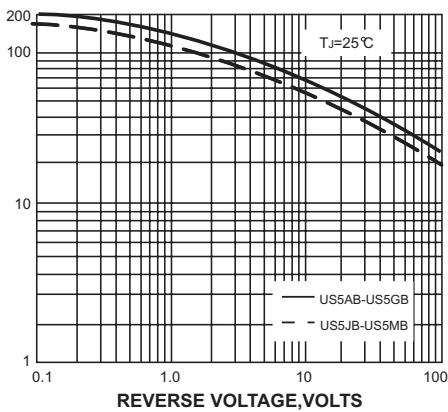
INSTANTANEOUS REVERSE CURRENT, MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS



JUNCTION CAPACITANCE, pF

FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE, °C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

