

III. Fast / Ultra Fast / Super Fast Recovery Rectifier

5.0A Surface Mount Ultra Fast Recovery Rectifier

US5A~US5M

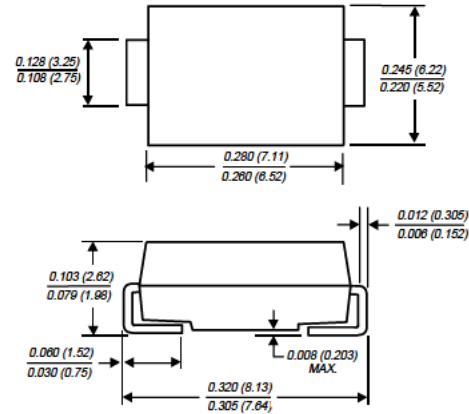
(Package: SMC (DO-214AB))

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°C/10 seconds at terminals.

MECHANICAL DATA

- Case : Molded plastic
- Terminals : Solder plated
- Polarity : Indicated by cathode band
- Weight : 0.220 grams



Case: SMC
Dimensions in inches and (millimetres)

Ratings & Electrical Characteristics

Characteristics	Symbol	US5A	US5B	US5D	US5G	US5J	US5K	US5M	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 @ $T_L=55^\circ C$	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 @ $T_a = 25^\circ C$ at rated DC blocking voltage @ $T_a = 100^\circ C$	I_R	10.0 250							μA
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							$^\circ C/W$
Operating temperature range	T_j	-65 to +150							$^\circ C$
Storage temperature range	T_{stg}	-65 to +150							$^\circ C$

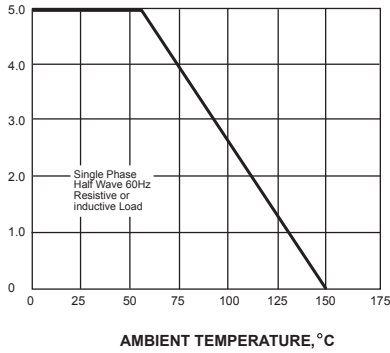
Notes:

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 US5A~US5M

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

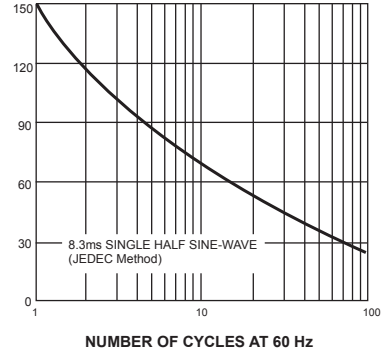
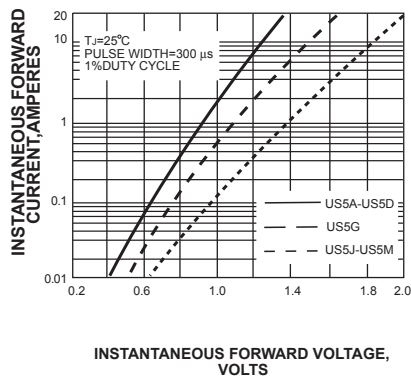


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT,
MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS

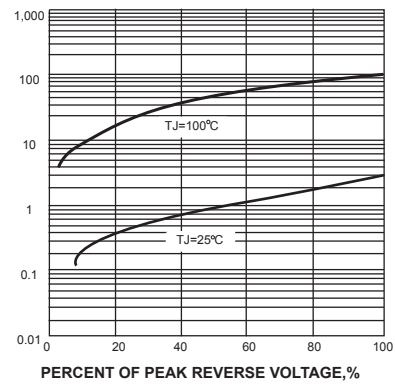
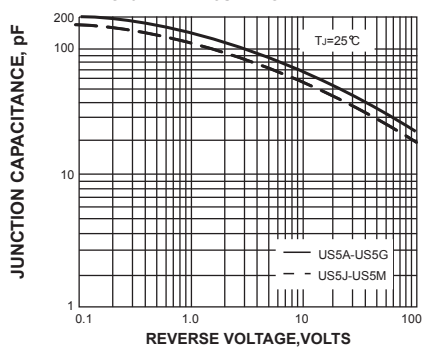


FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE,
°C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

