

III. Fast / Ultra Fast / Super Fast Recovery Rectifier

5.0A Surface Mount Super Fast Recovery Rectifier

ES5A~ES5J

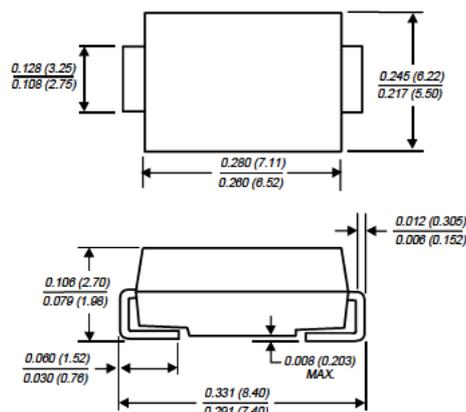
(Package: SMC (DO-214AB))

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.
- Super 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

Ratings at 25°C ambient temperature unless otherwise specified.

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

Characteristics	Symbol	ES5A	ES5B	ES5C	ES5D	ES5E	ES5G	ES5J	Units	
Maximum recurrent peak reverse voltage	V_{RRM}	50	100	150	200	300	400	600	Volts	
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	420	Volts	
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	600	Volts	
Maximum average forward rectified current at $T_L=75^\circ\text{C}$	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	0.95			1.30		1.70		Volts	
Maximum DC reverse current @ $T_a = 25^\circ\text{C}$ at rated DC blocking voltage @ $T_a = 100^\circ\text{C}$	I_R	10				300				μA
Maximum reverse recovery time (Note 1)	T_{rr}	35								ns
Typical junction capacitance (Note 2)	C_j	58								PF
Typical thermal resistance	R_{th-JA}	47								$^\circ\text{C/W}$
Operating temperature range	T_j	-65 to +150								$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 to +150								$^\circ\text{C}$

Notes:

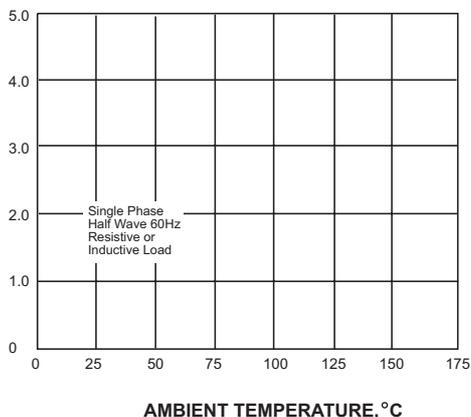
1. Reverse recovery test conditions: $I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{RR}=0.25\text{A}$

2. Measured at 1.0 MHz and applied $V_R=4.0\text{V}$.

Ratings and Characteristic Curves of ES5A~ES5J

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

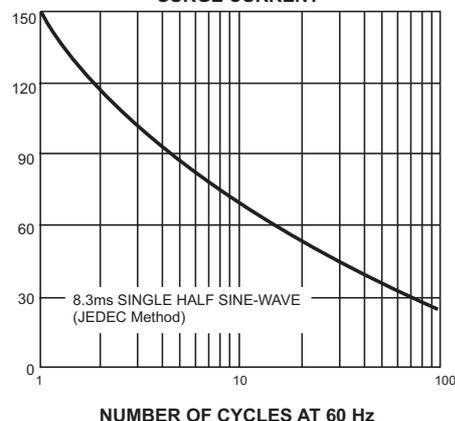
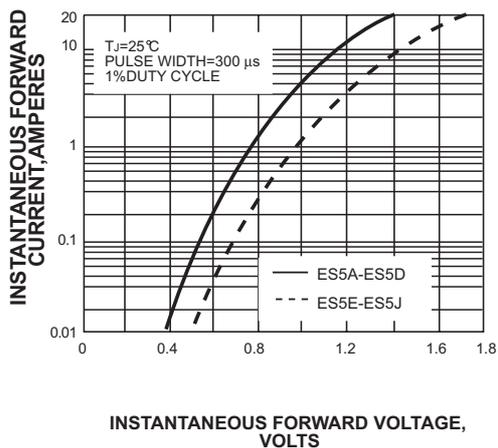


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



INSTANTANEOUS REVERSE CURRENT,
MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS

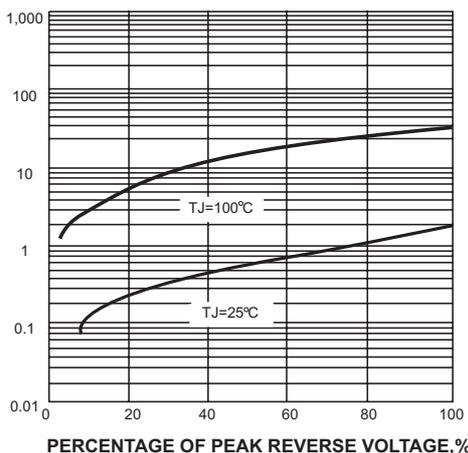
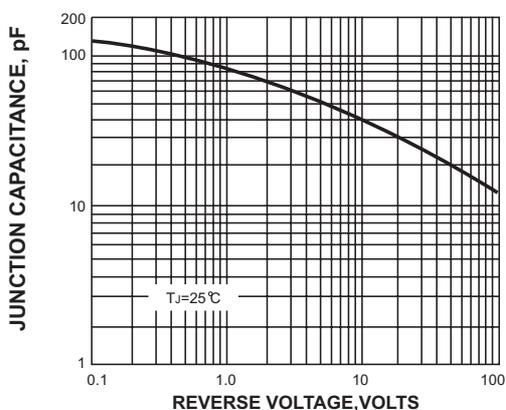


FIG. 5-TYPICAL JUNCTION CAPACITANCE



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

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

