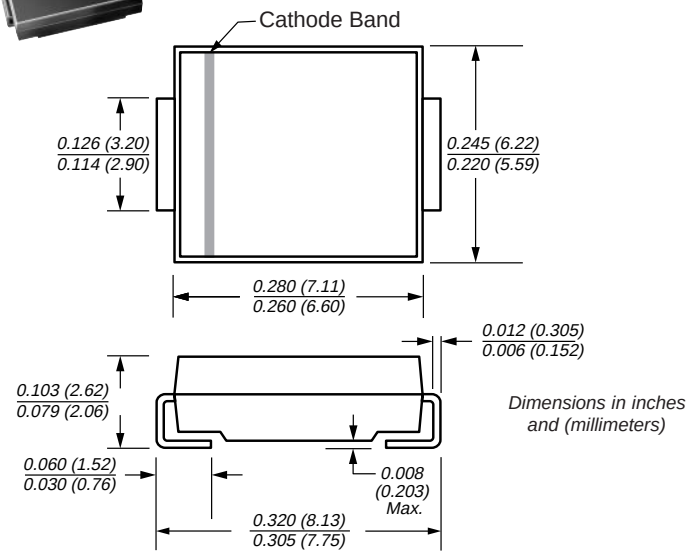
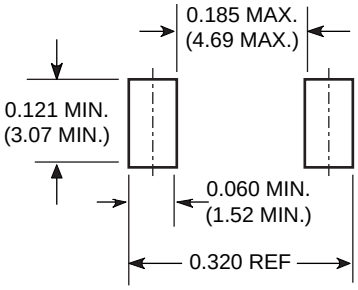
Surface Mount Ultrafast Plastic Rectifier

DO-214AB (SMC)



Reverse Voltage 300 to 400V
Forward Current 3.0A
Reverse Recovery Time 35ns

Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AB molded plastic body over passivated chip
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode end
Weight: 0.007 ounce, 0.21 gram

Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for use in very high frequency switching power supplies, inverters and as free wheeling diodes
- Ultrafast recovery time for high efficiency
- Excellent high temperature switching
- Glass passivated junction
- High temperature soldering guaranteed: 250°C/10 seconds, at terminals

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	ES3F	ES3G	Unit
Device marking code		EF	EG	
Maximum repetitive peak reverse voltage	V_{RRM}	300	400	V
Working peak reverse voltage	V_{RWM}	225	300	V
Maximum RMS voltage	V_{RMS}	210	280	V
Maximum DC blocking voltage	V_{DC}	300	400	V
Maximum average forward rectified current at T_L = 110°C	$I_{F(AV)}$	3.0		A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_L = 110°C	I_{FSM}	100		A
Typical thermal resistance (1)	$R_{\Theta JA}$ $R_{\Theta JL}$	50 15		°C/W
Operating junction and storage temperature range	T_J, T_{STG}	–55 to +150		°C

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	ES3F	ES3G	Unit
Maximum instantaneous forward voltage at 3.0A	V_F	1.1		V
Maximum DC reverse current T_A = 25°C at working peak reverse voltage T_A = 100°C	I_R	10 350		µA
Maximum reverse recovery time at I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	35		ns
Maximum reverse recovery time I_F=1.0A, di/dt=100A/µs, V_R=30V, I_{rr}=0.1I_{RM}	t_{rr}	50		ns
Maximum reverse recovery current I_F=1.0A, di/dt=100A/µs, V_R=30V, I_{rr}=0.1I_{RM}	I_{RM}	3.0		A
Maximum stored charge I_F = 1.0A, di/dt = 100A/µs, V_R = 30V, I_{rr} = 0.1I_{RM}	Q_{rr}	50		nC
Typical junction capacitance at 4.0V, 1MHz	C_J	30		pF

Note: (1) Units mounted on P.C.B. 5.0 x 5.0mm (0.013mm thick) land areas

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Maximum Forward Current Derating Curve

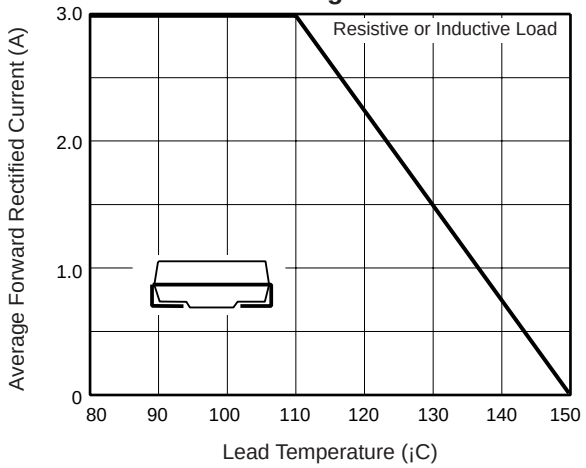


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

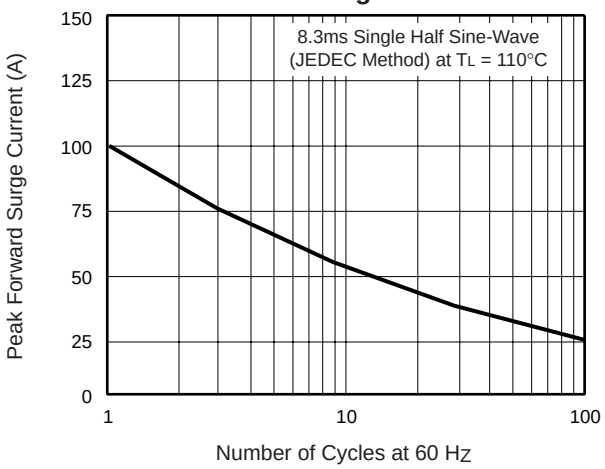


Fig. 3 – Typical Instantaneous Forward Characteristics

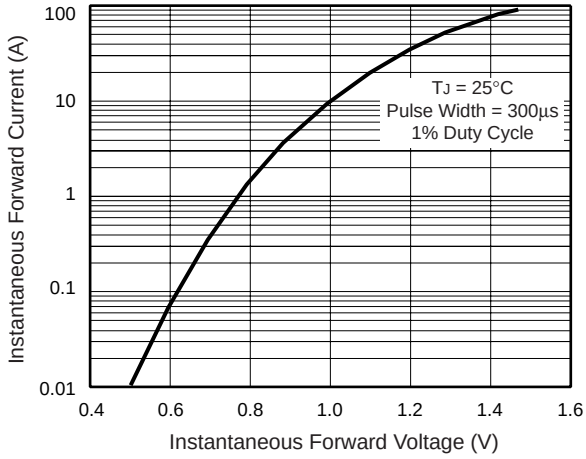


Fig. 4 – Typical Reverse Leakage Characteristics

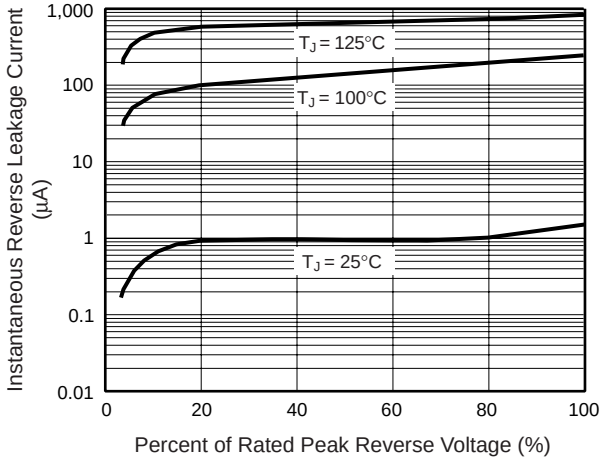


Fig. 5 - Reverse Switching Characteristics

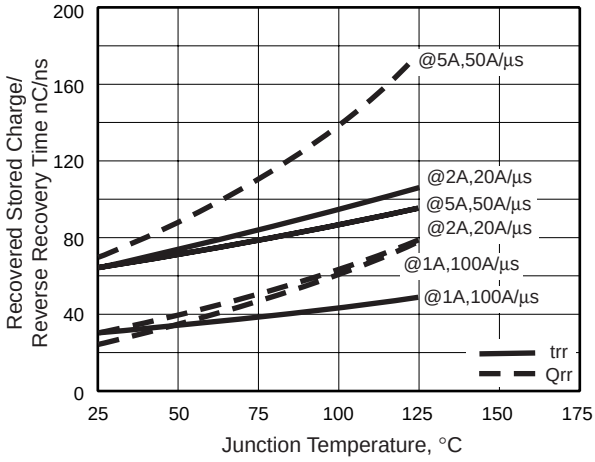


Fig. 6 - Typical Junction Capacitance