GOOD-ARK SEMICONDUCTOR

ES5A thru ES5J

Surface Mount Glass Passivated Superfast Rectifiers
Reverse Voltage 50-600V Forward Current 5A

Features

- Glass passivated superfast recovery rectifiers
- Low leakage current
- Moisture sensitivity: level 1, per J-STD-020
- Solder dip 260°C, 10s
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21 definition

RoHS COMPLIANT

Package: DO-214AB (SMC)

Applications

For use in secondary rectification and freewheeling for ultrafast switching speeds of converters.

Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	ES5A	ES5B	ES5C	ES5D	ES5F	ES5G	ES5J	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	600	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	420	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	600	V
Maximum average forward rectified current	$I_{F(AV)}$	5.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	150							A
Rating for fusing(t<8.3ms)	I^2t	93.8							A^2sec
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150							°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Test Conditions	Symbol	ES5A	ES5B	ES5C	ES5D	ES5F	ES5G	ES5J	Unit
Maximum instantaneous forward voltage	I_F=5.0A,T_a=25°C	V_F	0.95				1.4		1.7	V
	I_F=5.0A,T_a=125°C		0.75				1.05		1.25	
Maximum DC reverse current at rated DC blocking voltage	T_a=25°C	I_R	5.0							μA
	T_a=125°C		100							
Maximum reverse recovery time	I_F=0.5A,I_R=1.0A, I_{RR}=0.25A	t_{rr}	35							nS
Typical junction capacitance	4.0V, 1MHz	C_J	95.3				100.4		52.6	pF

Thermal Characteristics

Parameter	Symbol	ES5A	ES5B	ES5C	ES5D	ES5F	ES5G	ES5J	Unit
Typical thermal resistance	$R_{\theta JA}$ [1]	27							°C/W
	$R_{\theta JC}$ [1]	8							
	$R_{\theta JL}$ [1]	4							
	$R_{\theta JC}$ [2]	5							

Notes:1. The thermal resistance from junction to ambient, case or mount, mounted on P.C.B with 30×30mm copper pads, 2 OZ, FR4 PCB
2. The thermal resistance from junction to case, mounted on P.C.B with 30×30mm copper pads, 2 OZ, Aluminum substrate PCB

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

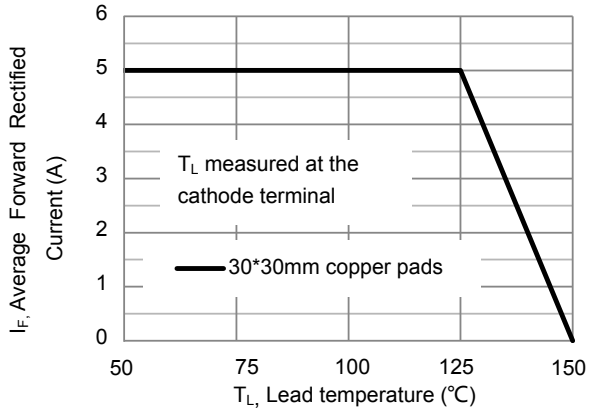

Figure 1. Forward Current Derating Curve

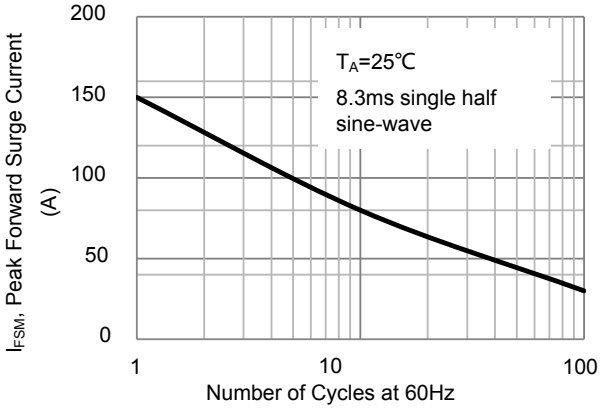

Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

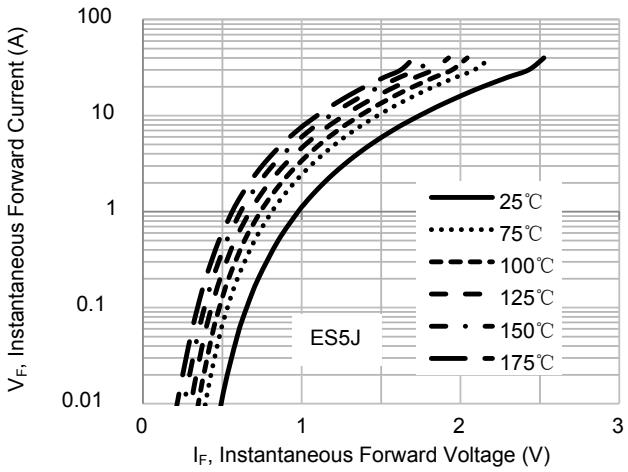

Figure 3. Typical Instantaneous Forward Characteristics

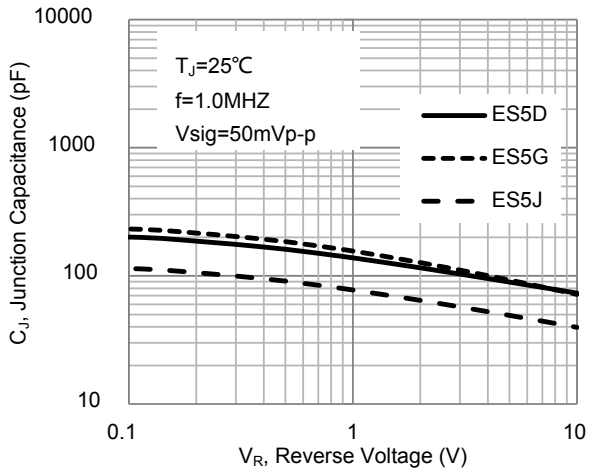

Figure 4. Typical Junction Capacitance

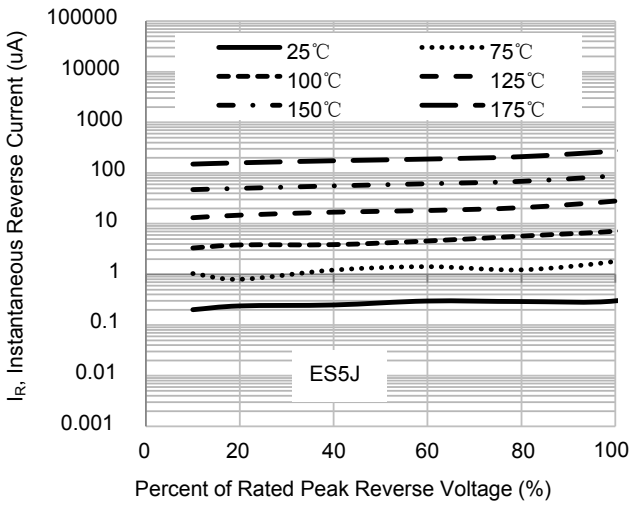

Figure 5. Typical Reverse Characteristics

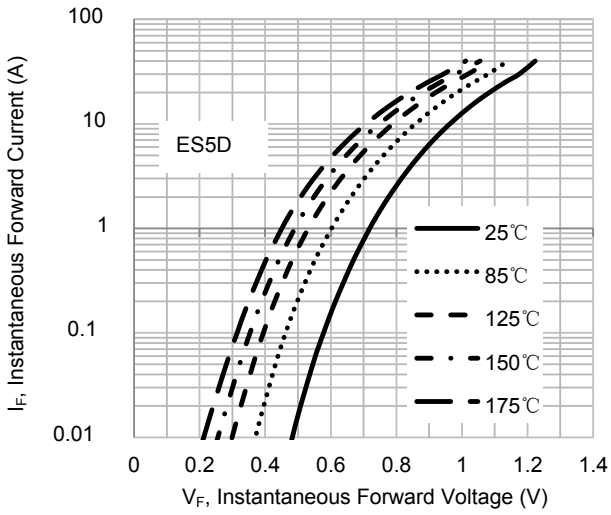

Figure 6. Typical Instantaneous Forward Characteristics

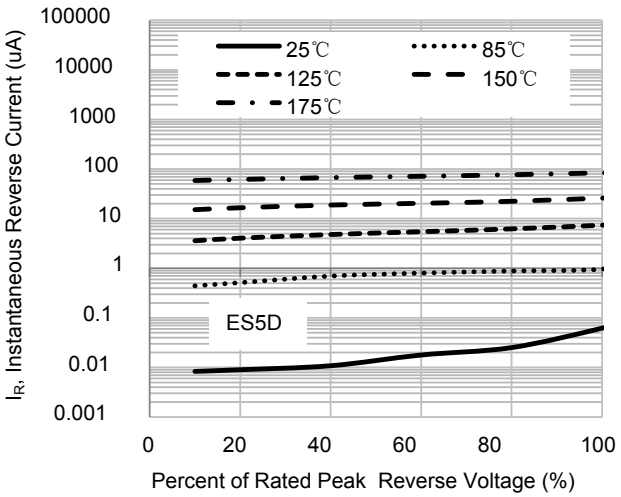

Figure 7. Typical Reverse Characteristics

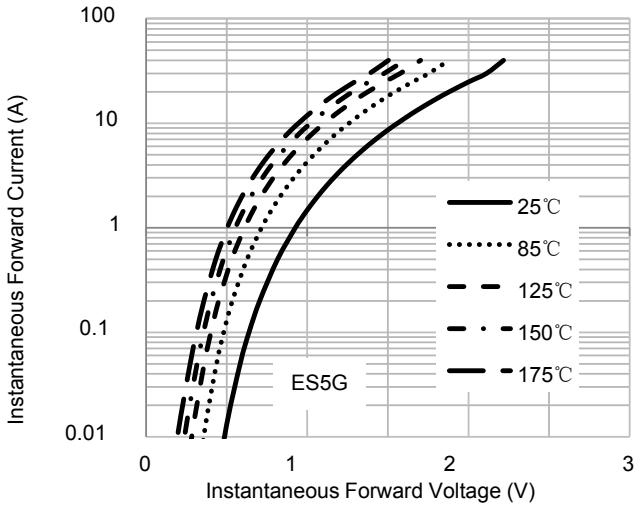

Figure 8. Typical Instantaneous Forward Characteristics

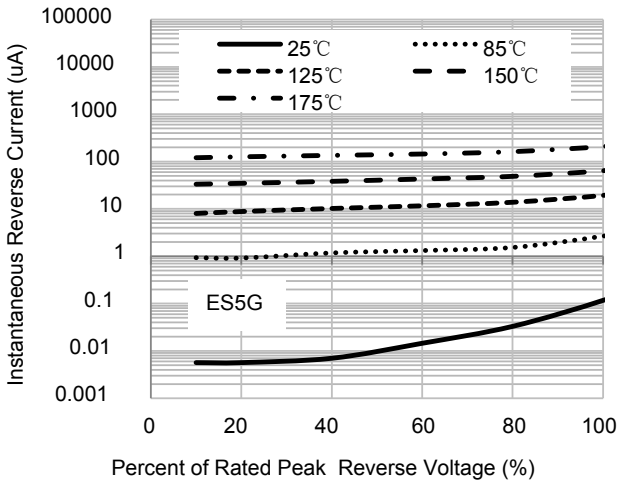

Figure 9. Typical Reverse Characteristics

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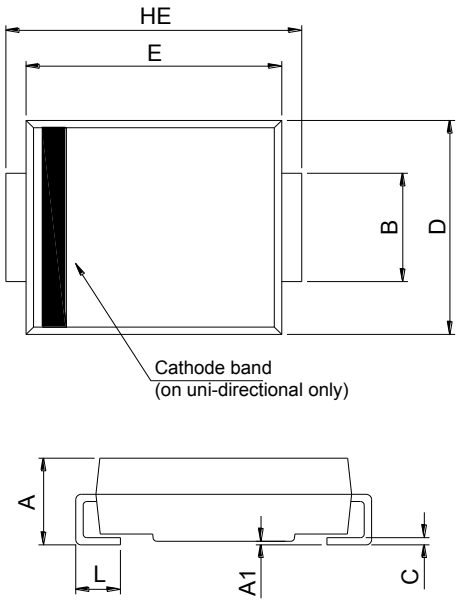
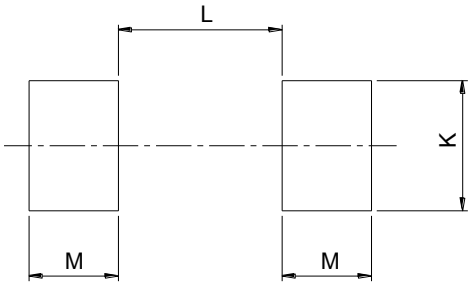
Package Outline Dimensions DO-214AB (SMC)



SMC (DO-214AB)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.00	0.20	0.000	0.008
B	2.90	3.20	0.114	0.126
C	0.15	0.31	0.006	0.012
D	5.58	6.22	0.220	0.245
E	6.60	7.15	0.260	0.281
HE	7.75	8.15	0.305	0.321
L	0.76	1.60	0.030	0.063

Recommended Pad Layout



SMC Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	4.60	-	0.181
K	3.20	-	0.126	-
M	2.00	-	0.079	-