

## 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



Package: DO-214AB (SMC)

## Applications

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

## Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

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

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Test Conditions	Symbol	ES5A	ES5B	ES5C	ES5D	ES5F	ES5G	ES5J	Unit	
Maximum instantaneous forward voltage	I <sub>F</sub> =5.0A, T <sub>a</sub> =25°C	V <sub>F</sub>	0.95				1.4		1.7		V
	I <sub>F</sub> =5.0A, T <sub>a</sub> =125°C		0.75				1.05		1.25		
Maximum DC reverse current at rated DC blocking voltage	T <sub>a</sub> =25°C	I <sub>R</sub>	5.0							µA	
	T <sub>a</sub> =125°C		100								
Maximum reverse recovery time	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>RR</sub> =0.25A	t <sub>rr</sub>	35							nS	
Typical junction capacitance	4.0V, 1MHz	C <sub>J</sub>	95.3			100.4		52.6		pF	

## Thermal Characteristics

Parameter	Symbol	ES5A	ES5B	ES5C	ES5D	ES5F	ES5G	ES5J	Unit
Typical thermal resistance	R <sub>θJA</sub> <sup>1</sup>	27							°C/W
	R <sub>θJC</sub> <sup>1</sup>	8							
	R <sub>θJL</sub> <sup>1</sup>	4							
	R <sub>θJC</sub> <sup>2</sup>	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 ( $T_A=25^\circ\text{C}$ unless otherwise noted)

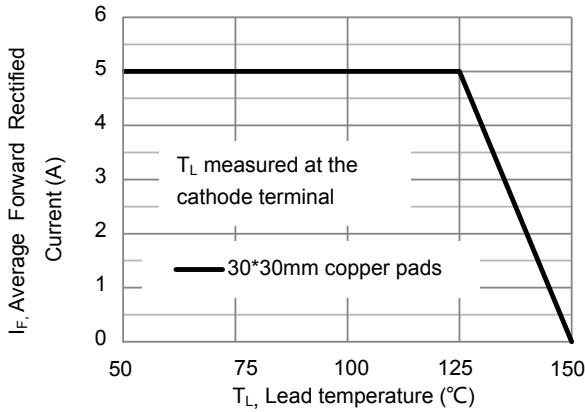


Figure 1. Forward Current Derating Curve

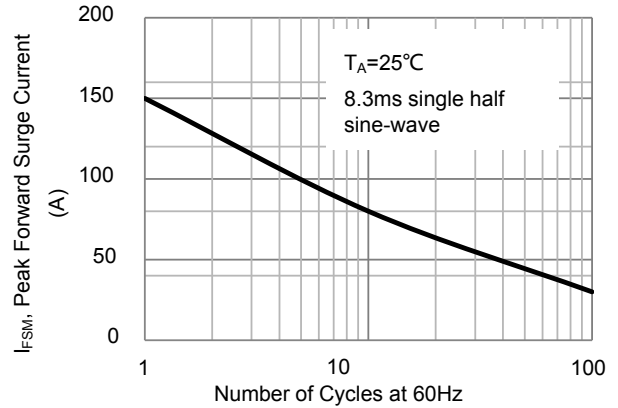


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

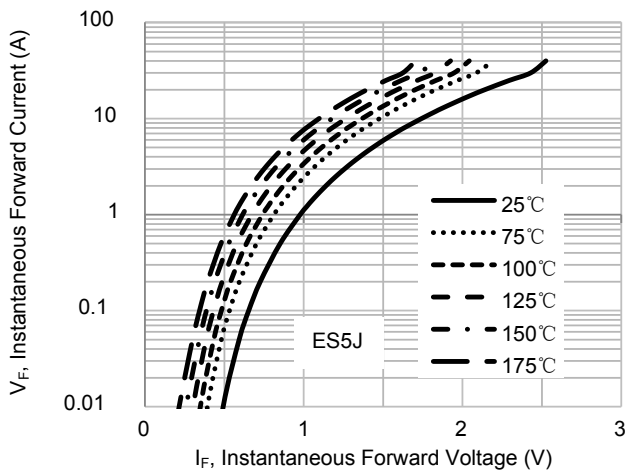


Figure 3. Typical Instantaneous Forward Characteristics

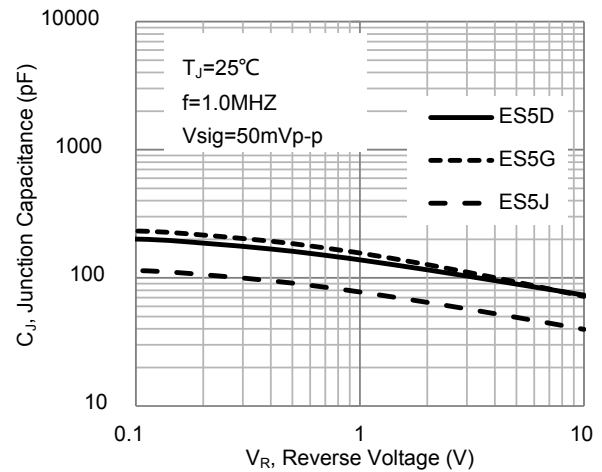


Figure 4. Typical Junction Capacitance

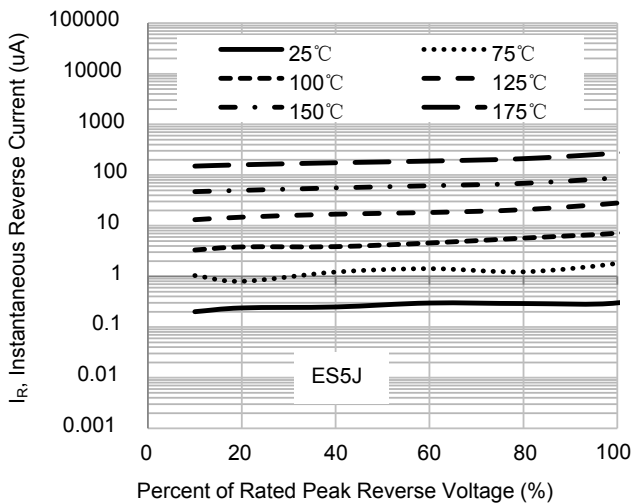


Figure 5. Typical Reverse Characteristics

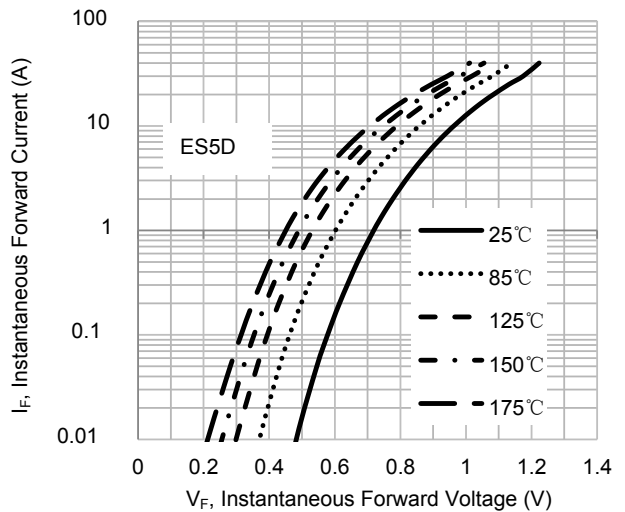
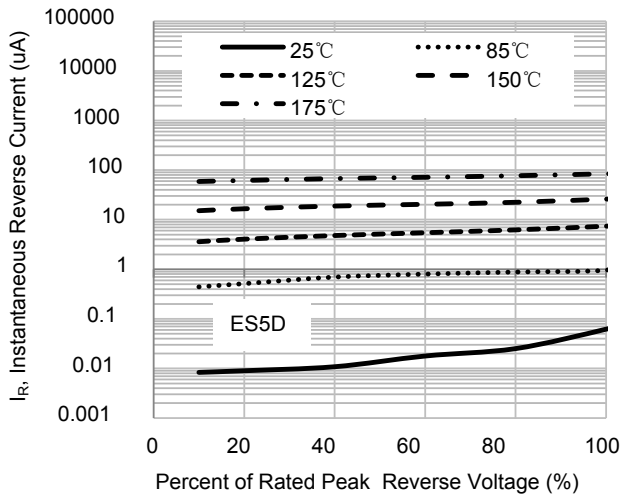


Figure 6. Typical Instantaneous Forward Characteristics

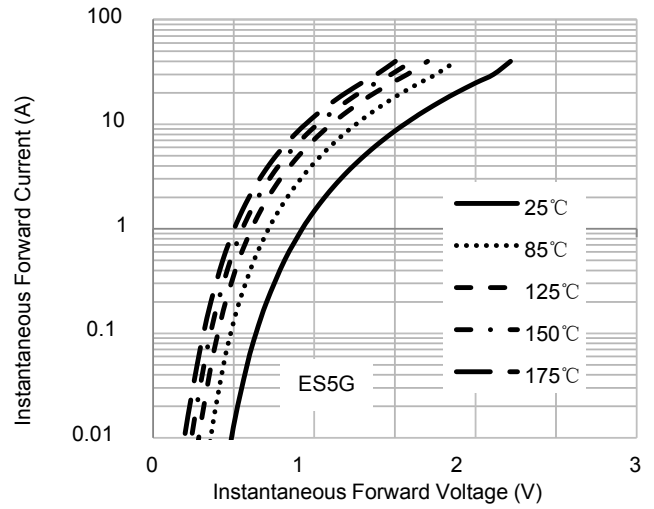
# ES5A thru ES5J

Super Fast Recovery Rectifiers

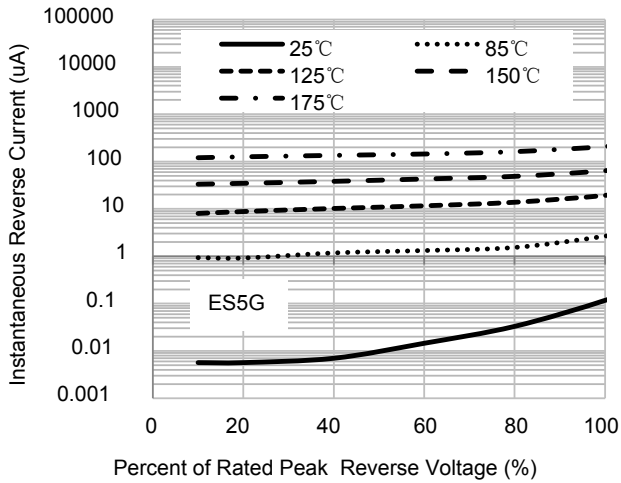
Reverse Voltage 50V-600V Forward Current 5A



**Figure 7. Typical Reverse Characteristics**

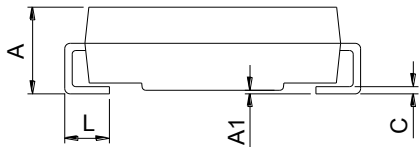
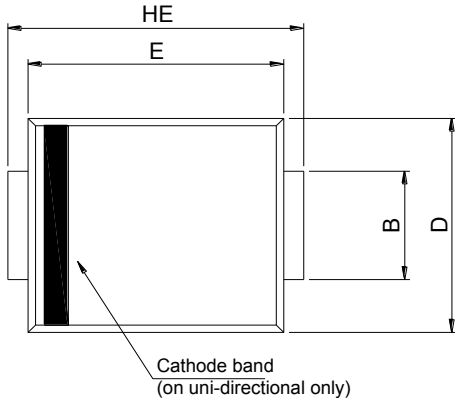


**Figure 8. Typical Instantaneous Forward Characteristics**



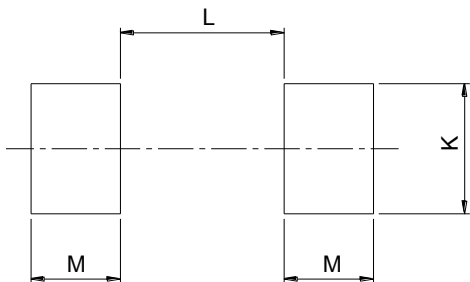
**Figure 9. Typical Reverse Characteristics**

## 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	-