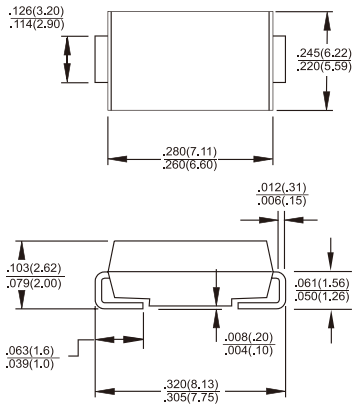
TAIWAN SEMICONDUCTOR

ES3A - ES3J

3.0 AMPS. Surface Mount Super Fast Rectifiers

SMC/DO-214AB

Pb RoHS COMPLIANCE



Dimensions in inches and (millimeters)

Features

- ✧ UL Recognized File # E-326243
- ✧ Glass passivated junction chip
- ✧ For surface mounted application
- ✧ Low-Profile Package
- ✧ Built-in strain relief, Ideal for automated placement
- ✧ Easy Pick and place
- ✧ Esuper fast recovery time for high efficiency
- ✧ High temperature soldering guaranteed: 260°C/10 seconds at terminals.
- ✧ Plastic material used carriers underwritters Laboratory classification 94V-0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.
- ✧ High reliability grade (AEC Q101 specified)

Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Epoxy: UL 94V-O rate flame retardant
- ✧ Terminal : Pure tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- ✧ Polarity: Color band denotes cathode.
- ✧ Weight: 0.21 grams
- ✧ Packing : 16mm tape per EIA STD RS481

Marking Diagram

ES3X = Specific Device Code
G = Green Compound
Y = Year
M = Work Month

Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%

Type Number	Symbol	ES 3A	ES 3B	ES 3C	ES 3D	ES 3F	ES 3G	ES 3H	ES 3J	Units
Maximum Recurrent Peak Reverse Voltage	VRRM	50	100	150	200	300	400	500	600	V
Maximum RMS Voltage	VRMS	35	70	105	140	210	280	350	420	V
Maximum DC Blocking Voltage	VDC	50	100	150	200	300	400	500	600	V
Maximum Average Forward Rectified see fig.1	$I_{F(AV)}$	3.0								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	IFSM	100								A
Maximum Instantaneous Forward Voltage @ 3.0A	VF	0.95				1,3		1.7		V
Maximum DC Reverse Current @ T_A=25°C at Rated DC Blocking Voltage @ T_A=100°C (Note 1)	IR	10 500								uA
Typical Junction Capacitance (Note 2)	Cj	45				30				pF
Typical Reverse Recovery Time (Note 3)	Trr	35								nS
Typical Thermal Resistance (Note 4)	RθJA RθJL	47 12								°C/W
Operating Temperature Range	TJ	-55 to +150								°C
Storage Temperature Range	TSTG	-55 to +150								°C

Notes: 1. Pulse Test with PW=300 usec,1% Duty Cycle
2. Measured at 1 MHz and Applied Reverse Voltage of 4.0 V D.C
3. Reverse Recovery Time Condition : IF=0.5A, IR=1.0A, IRR=0.25A
4. Mount on P.C. Board with 0.6" x 0.6" (16mm x16mm) Copper pad areas.

RATINGS AND CHARACTERISTIC CURVES (ES3A THRU ES3J)

FIG 1 Maximum Forward Current Derating Curve

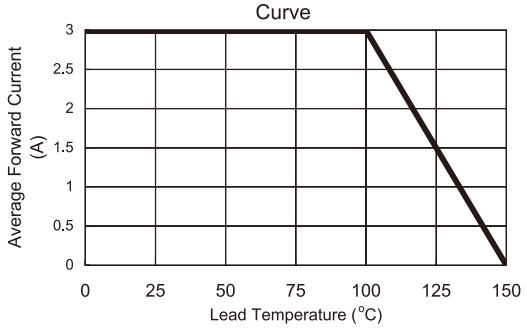


FIG 2 Maximum Non-Repetitive Forward Surge Current

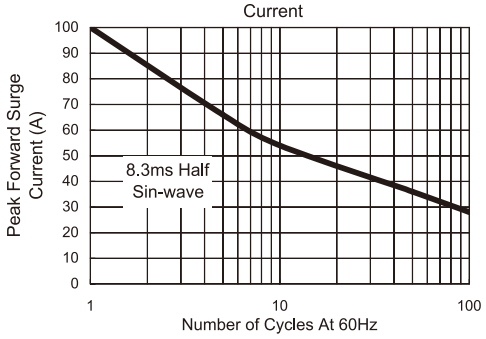


FIG 3 Typical Forward Characteristics

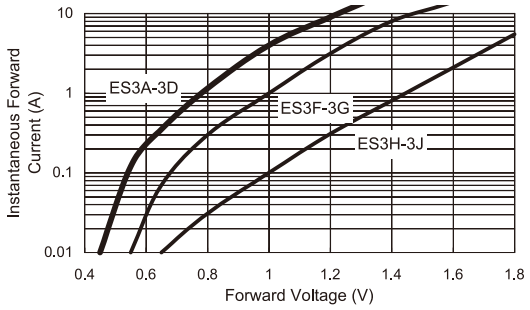


FIG 4 Typical Rebverse Characteristics

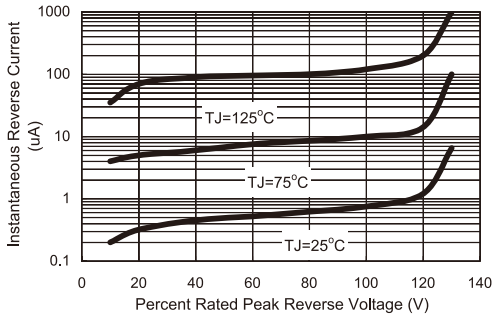


Fig 5 Typical Junction Capacitance

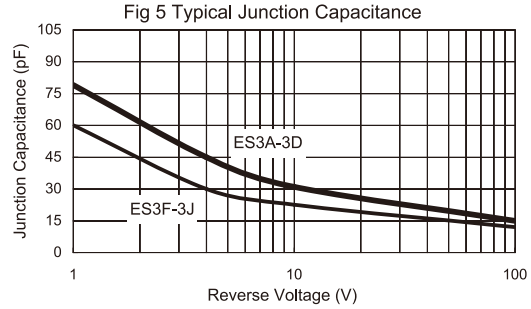


Fig.6 Typical Transient Thermal Impedance

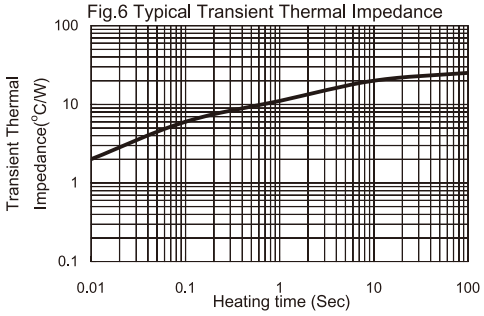


FIG.7- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM