

## Surface Mount Super Fast Rectifiers

### FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Super fast recovery time for high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



**DO-214AB (SMC)**

### MECHANICAL DATA

**Case:** DO-214AB (SMC)

Molding compound, UL flammability classification rating 94V-0

Base P/N with suffix "G" on packing code - green compound (halogen-free)

Base P/N with prefix "H" on packing code - AEC-Q101 qualified

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test

with prefix "H" on packing code meet JESD 201 class 2 whisker test

**Polarity:** Indicated by cathode band

**Weight:** 0.21 g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)										
PARAMETER	SYMBOL	ES 3A	ES 3B	ES 3C	ES 3D	ES 3F	ES 3G	ES 3H	ES 3J	Unit
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	150	200	300	400	500	600	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	105	140	210	280	350	420	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	150	200	300	400	500	600	V
Maximum average forward rectified current	I <sub>F(AV)</sub>	3								A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100								A
Maximum instantaneous forward voltage (Note 1) I <sub>F</sub> = 3 A	V <sub>F</sub>	0.95			1.3		1.7			V
Maximum reverse current @ rated VR T <sub>J</sub> =25 °C T <sub>J</sub> =100 °C	I <sub>R</sub>	10 500								μA
Maximum reverse recovery time (Note 2)	T <sub>rr</sub>	35								ns
Typical junction capacitance (Note 3)	C <sub>j</sub>	45				30				pF
Typical thermal resistance	R <sub>θJL</sub> R <sub>θJA</sub>	12 47								°C/W
Operating junction temperature range	T <sub>J</sub>	- 55 to +150								°C
Storage temperature range	T <sub>STG</sub>	- 55 to +150								°C

Note 1: Pulse test with PW=300μs, 1% duty cycle

Note 2: Reverse Recovery Test Conditions: I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

Note 3: Measured at 1 MHz and Applied Reverse Voltage of 4.0V D.C.

ORDERING INFORMATION					
PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
ES3x (Note 1)	Prefix "H"	R7	Suffix "G"	SMC	850 / 7" Plastic reel
		R6		SMC	3,000 / 13" Paper reel
		M6		SMC	3,000 / 13" Plastic reel

Note 1: "xx" defines voltage from 50V (ES3A) to 600V (ES3J)

EXAMPLE					
PREFERRED P/N	PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
ES3J R7	ES3J		R7		
ES3J R7G	ES3J		R7	G	Green compound
ES3JHR7	ES3J	H	R7		AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

(TA=25°C unless otherwise noted)

FIG. 1 MAXIMUM FORWARD CURRENT DERATING CURVE

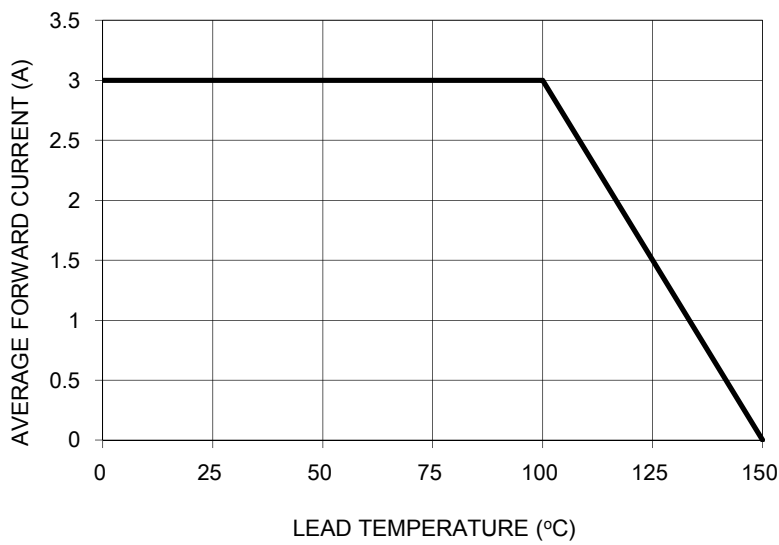


FIG. 2 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

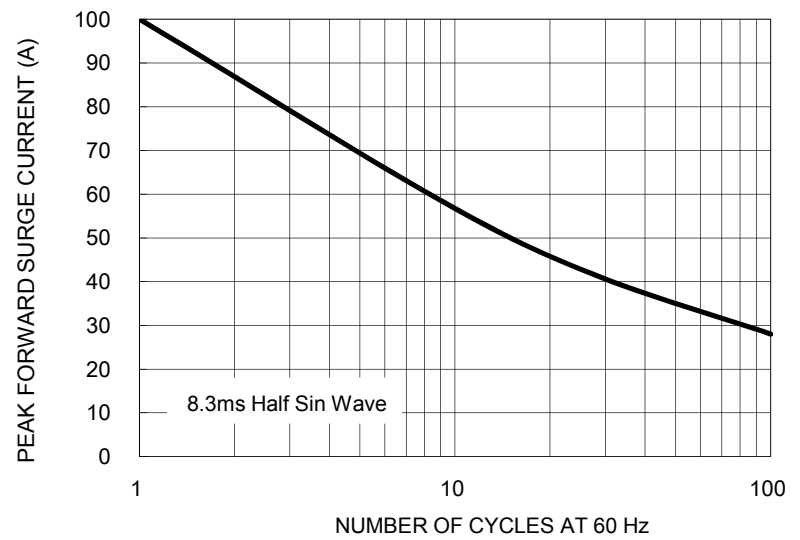


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

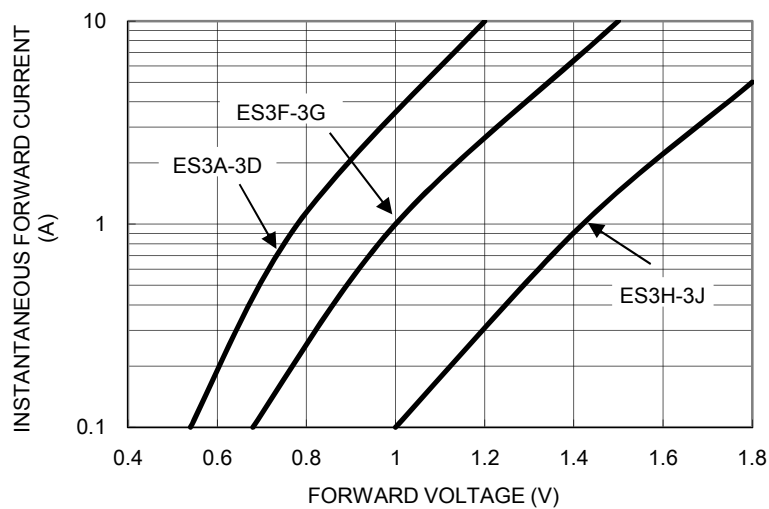


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

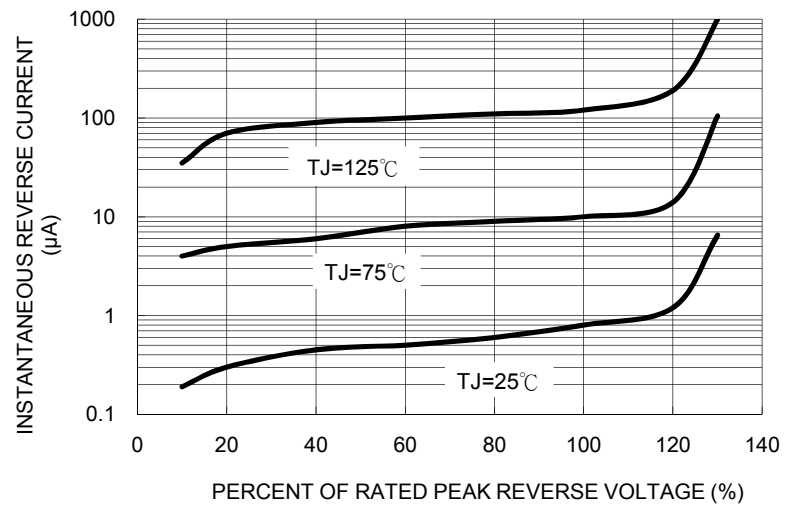


FIG. 5 TYPICAL JUNCTION CAPACITANCE

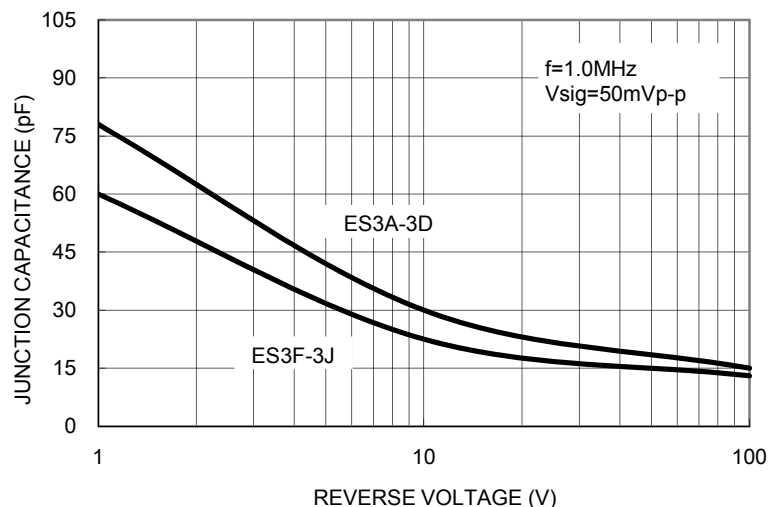


FIG. 6 TYPICAL TRANSIENT THERMAL IMPEDANCE

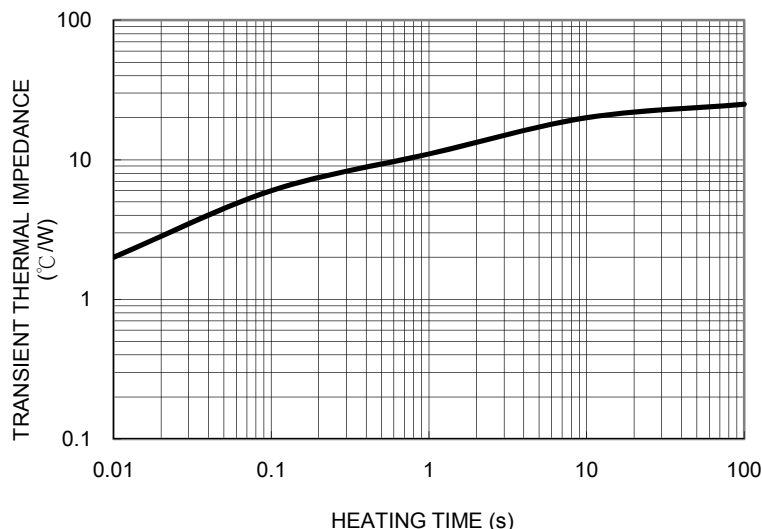
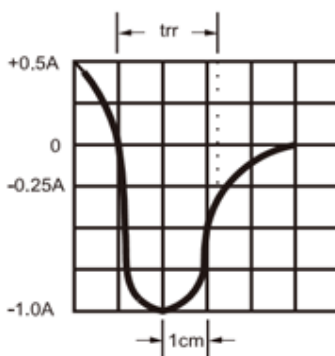
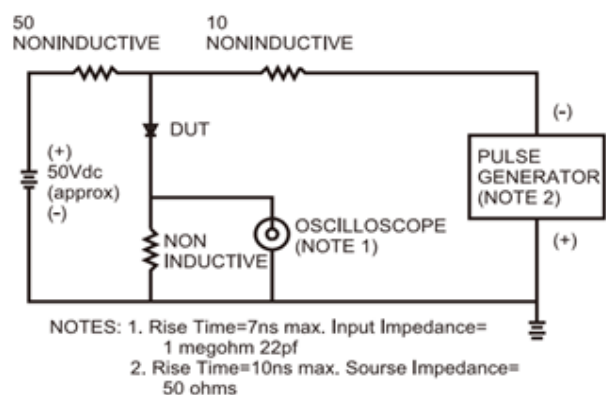
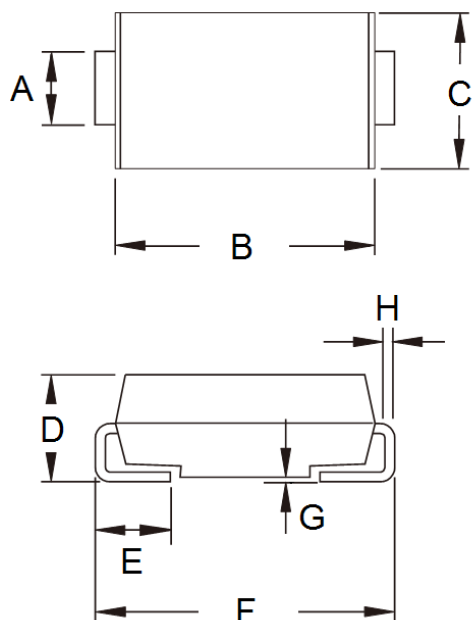


FIG.7- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

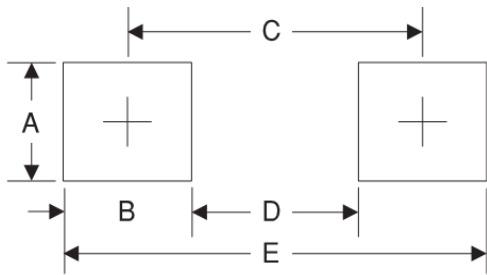


PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.00	2.62	0.079	0.103
E	1.00	1.60	0.039	0.063
F	7.75	8.13	0.305	0.320
G	0.10	0.20	0.004	0.008
H	0.15	0.31	0.006	0.012

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.3	0.130
B	2.5	0.098
C	6.8	0.268
D	4.4	0.173
E	9.4	0.370

MARKING DIAGRAM



- P/N = Specific Device Code
- G = Green Compound
- YW = Date Code
- F = Factory Code

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