Surface Mount Super Fast Rectifiers

FEATURES

- Glass passivated junction chip
- Ideal for automated placement
- Super fast recovery time for high efficiency
- Built-in strain rellef
- 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-214AC (SMA)

Pb-Free

RoHS COMPLIANT

MECHANICAL DATA

Case: DO-214AC (SMA)
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: 0.06 g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERSTICS (T_A=25℃ unless otherwise noted)

PARAMETER	SYMBOL	ES 1A	ES 1B	ES 1C	ES 1D	ES 1F	ES 1G	ES 1H	ES 1J	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	500	600	V
Maximum average forward rectified current	$I_{F(AV)}$	1								A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30								A
Maximum instantaneous forward voltage (Note 1) @ 1 A	V_F	0.95				1.3		1.7		V
Maximum reverse current @ rated VR T_J=25 ℃ T_J=100℃	I_R	5 100								μA
Maximum reverse recovery time (Note 2)	Trr	35								ns
Typical junction capacitance (Note 3)	Cj	16				18				pF
Typical thermal resistance	$R_{\theta JL}$ $R_{\theta JA}$	35 85								^{O}C/W
Operating junction temperature range	T_J	- 55 to +150								^{O}C
Storage temperature range	T_{STG}	- 55 to +150								^{O}C

Note 1: Pulse test with PW=300μs, 1% duty cycle
Note 2: Reverse Recovery Test Conditions: I_F=0.5A, I_R=1.0A, I_{RR}=0.25A
Note 3: Measured at 1 MHz and Applied V_R=4.0 Volts

ORDERING INFORMATION

PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	PACKAGE	PACKING
ES1x (Note 1)	Prefix "H"	R3	Suffix "G"	SMA	1,800 / 7" Plastic reel
		R2		SMA	7,500 / 13" Paper reel
		M2		SMA	7,500 / 13" Plastic reel
		F3		Folded SMA	1,800 / 7" Plastic reel
		F2		Folded SMA	7,500 / 13" Paper reel
		F4		Folded SMA	7,500 / 13" Plastic reel
	N/A	E3		Clip SMA	1,800 / 7" Plastic reel
		E2		Clip SMA	7,500 / 13" Plastic reel

Note 1: "x" defines voltage from 50V (ES1A) to 600V (ES1J)

EXAMPLE

PREFERRED P/N	PART NO.	AEC-Q101 QUALIFIED	PACKING CODE	GREEN COMPOUND CODE	DESCRIPTION
ES1J R3	ES1J		R3		
ES1J R3G	ES1J		R3	G	Green compound
ES1JHR3	ES1J	H	R3		AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(TA=25℃ unless otherwise noted)

FIG.1 MAXIMUM FORWARD CURRENT DERATING CURVE

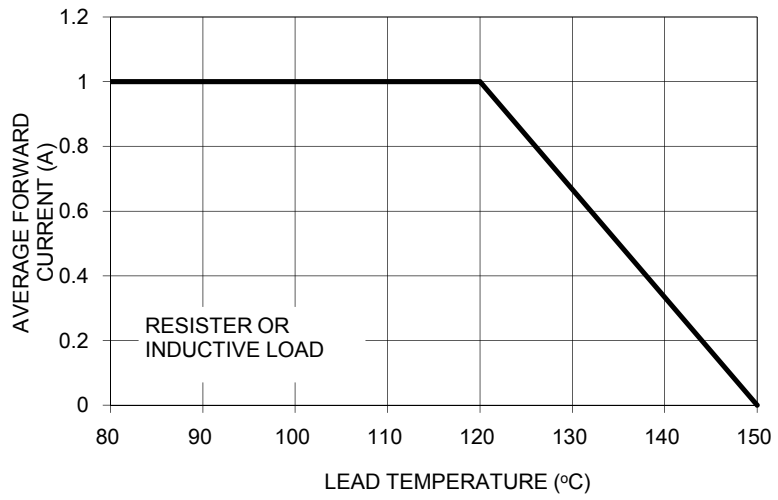


FIG. 2 TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

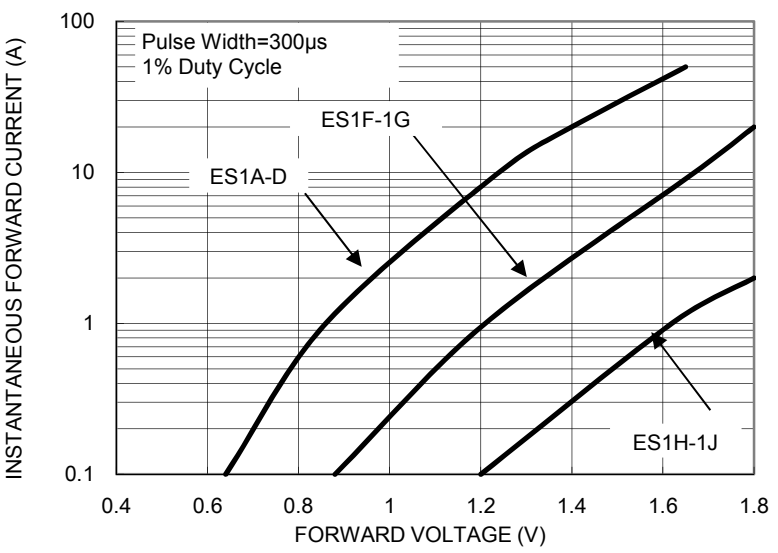


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD PEAK SURGE CURRENT

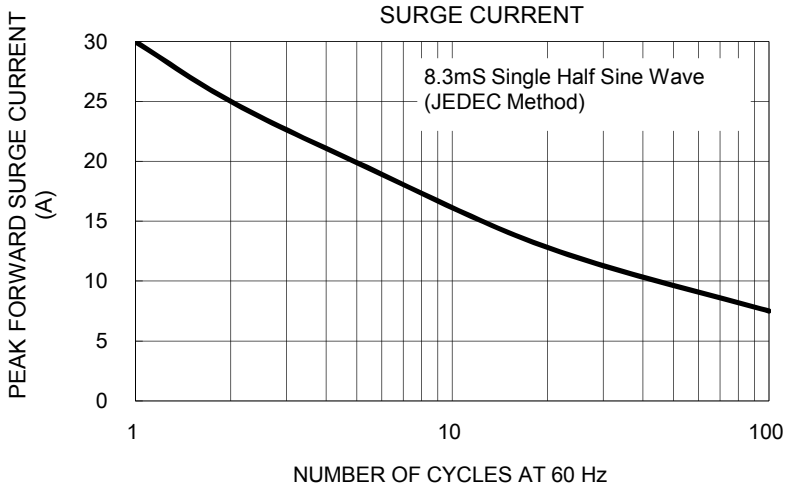


FIG. 4 TYPICAL REVERSE CHARACTERISTICS

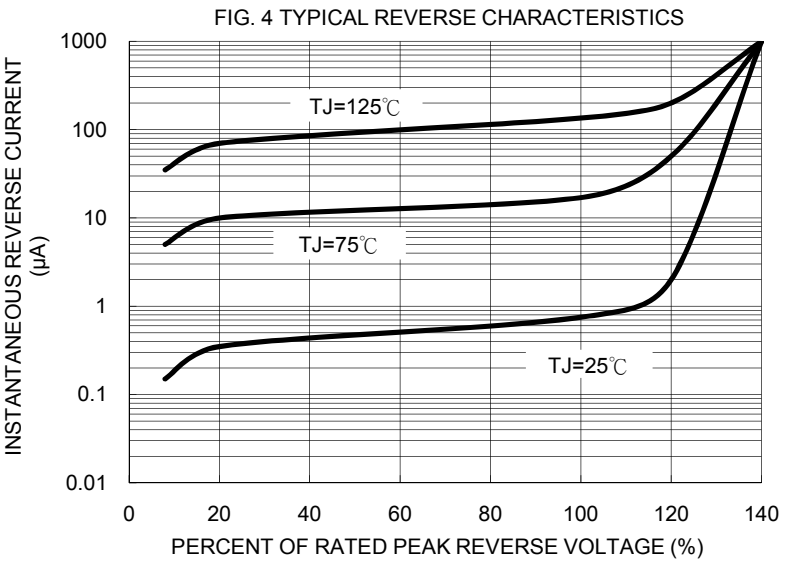


FIG. 5 TYPICAL JUNCTION CAPACITANCE

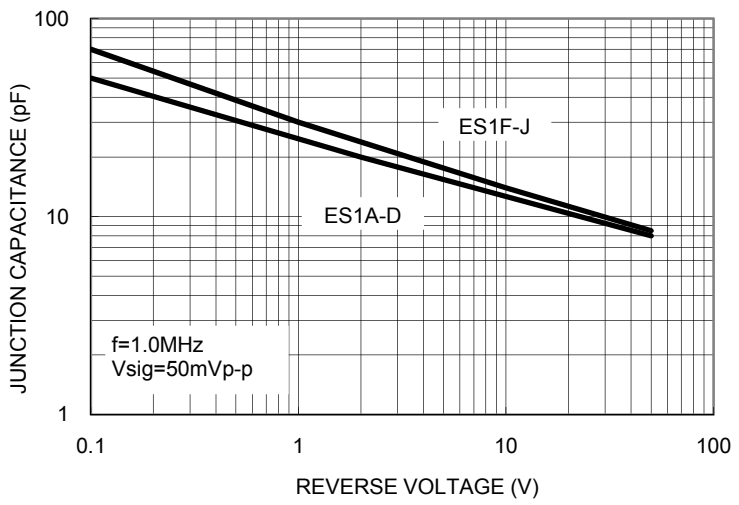
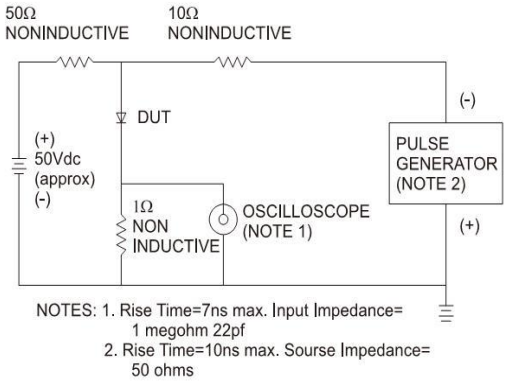
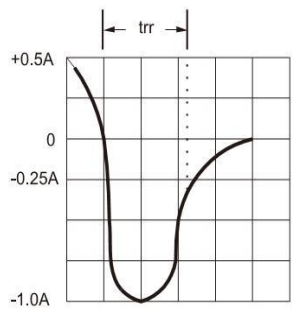
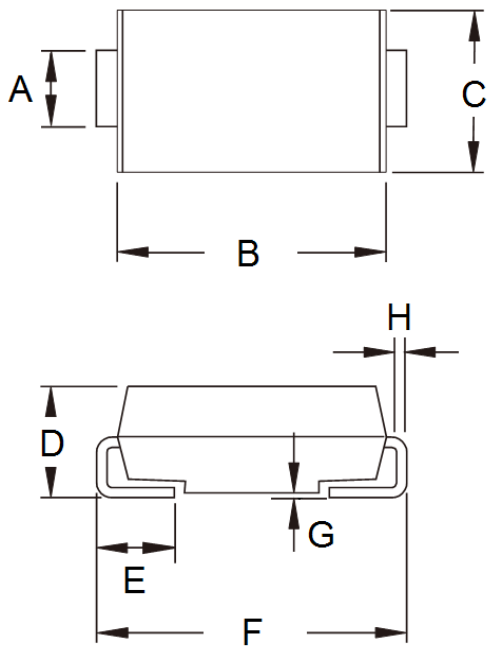


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM



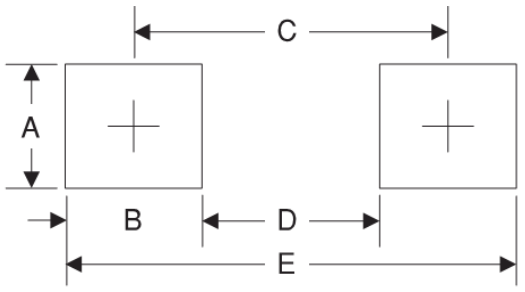


PACKAGE OUTLINE DIMENSIONS



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.27	1.58	0.050	0.062
B	4.06	4.60	0.160	0.181
C	2.29	2.83	0.090	0.111
D	1.99	2.50	0.078	0.098
E	0.90	1.41	0.035	0.056
F	4.95	5.33	0.195	0.210
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	1.68	0.066
B	1.52	0.060
C	3.93	0.155
D	2.41	0.095
E	5.45	0.215

MARKING DIAGRAM

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

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