1A, 50V - 600V Super Fast Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Low profile Package
- Low power loss, high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	1	A
V_{RRM}	50 - 600	V
I_{FSM}	30	A
$T_{J\ MAX}$	150	°C
Package	Sub SMA	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

Sub SMA

APPLICATIONS

- DC to DC converter
- Automotive application
- Car lighting
- Snubber
- Freewheeling application

MECHANICAL DATA

- Case: Sub SMA
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: Indicated by cathode band
- Weight: 0.019g (approximately)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

PARAMETER	SYMBOL	ES 1ALH	ES 1BLH	ES 1CLH	ES 1DLH	ES 1FLH	ES 1GLH	ES 1HLH	ES 1JLH	UNIT
Marking code on the device		EAL	EBL	ECL	EDL	EFL	EGL	EHL	EJL	
Repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Reverse voltage, total rms value	$V_{R(RMS)}$	35	70	105	140	210	280	350	420	V
Forward current	I_F	1								A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	30								A
Junction temperature	T_J	- 55 to +150								°C
Storage temperature	T_{STG}	- 55 to +150								°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	35	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	85	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage[1]	ES1ALH ES1BLH ES1CLH ES1DLH	I_F = 1A, T_J = 25°C	V_F	-	0.95	V
	ES1FLH ES1GLH			-	1.30	V
	ES1HLH ES1JLH			-	1.70	V
Reverse current @ rated V_R[2]		T_J = 25°C	I_R	-	5	μA
		T_J = 125°C		-	100	μA
Junction capacitance	ES1ALH ES1BLH ES1CLH ES1DLH	1MHz, V_R = 4.0V	C_J	10	-	pF
	ES1FLH ES1GLH ES1HLH ES1JLH			8	-	pF
Reverse recovery time		I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	-	35	ns

Notes:

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

ORDERING INFORMATION

ORDERING CODE[1]	PACKAGE	PACKING
ES1xLH	Sub SMA	10,000 / Tape & Reel

Notes:

1. "x" defines voltage from 50V(ES1ALH) to 600V(ES1JLH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

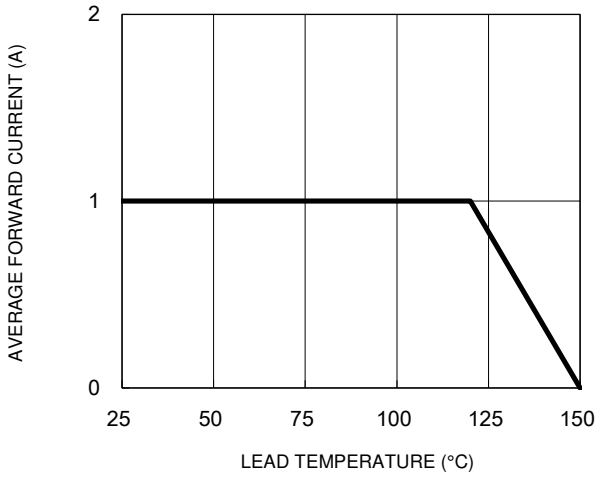


Fig.2 Typical Junction Capacitance

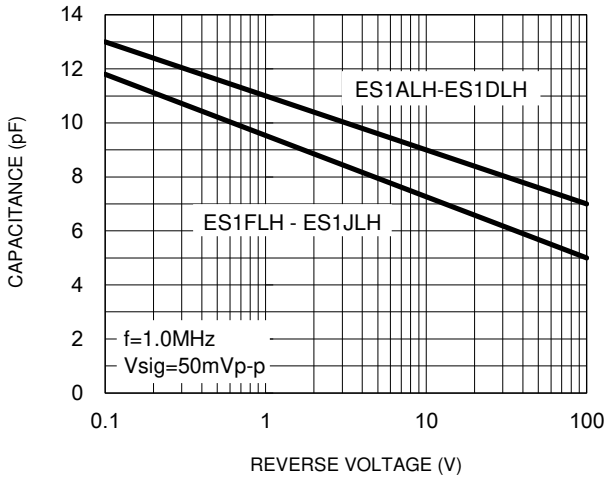


Fig.3 Typical Reverse Characteristics

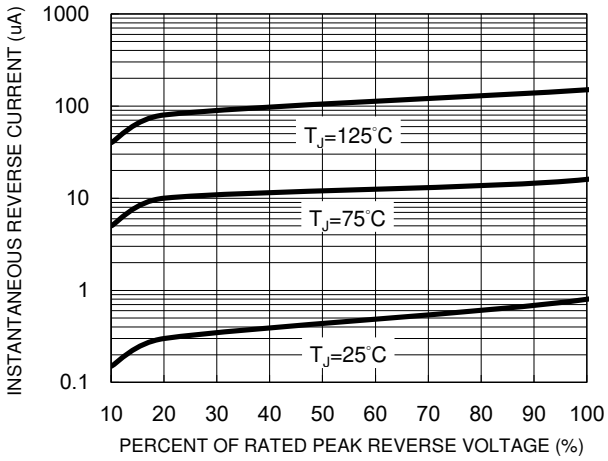


Fig.4 Typical Forward Characteristics

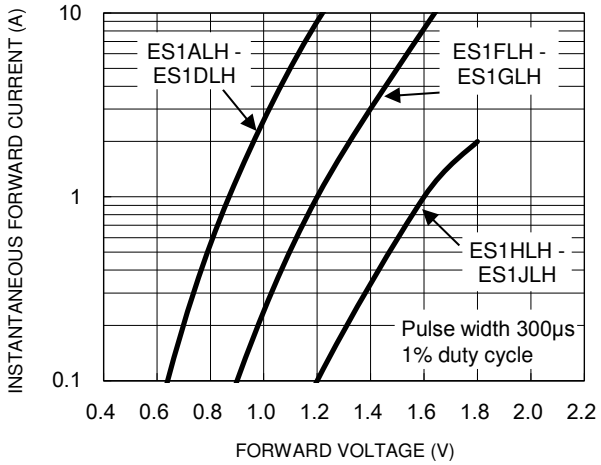
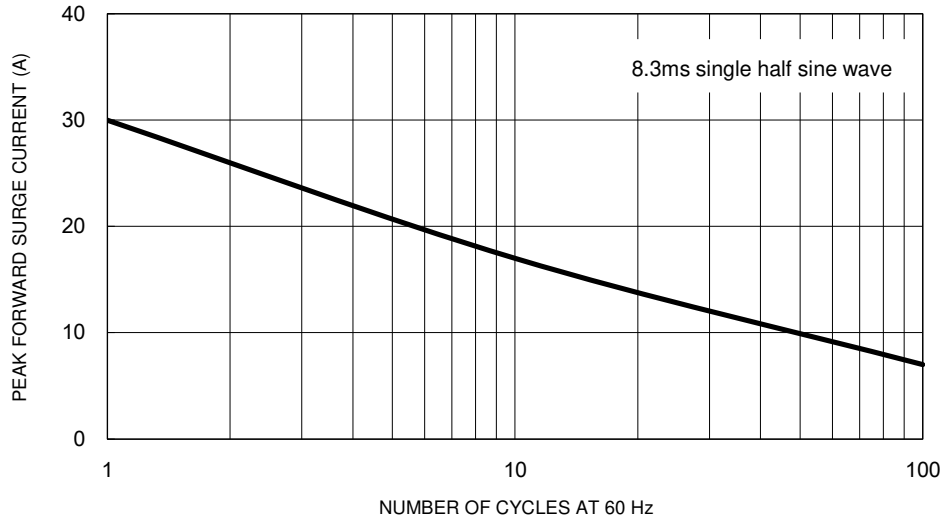


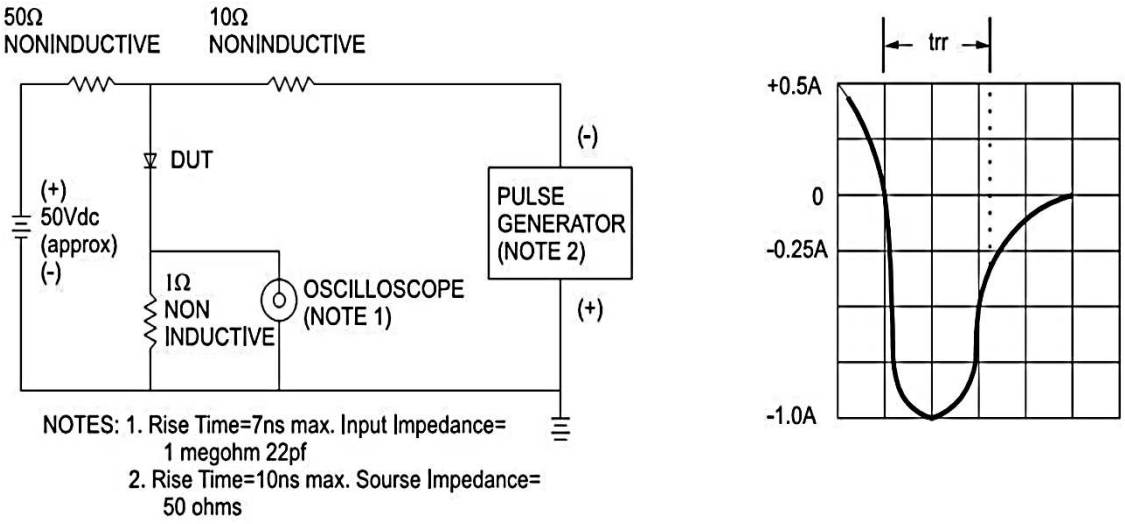
Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

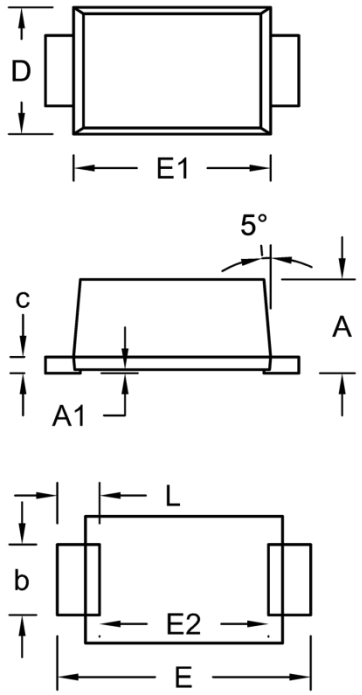
(T_A = 25°C unless otherwise noted)

Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram



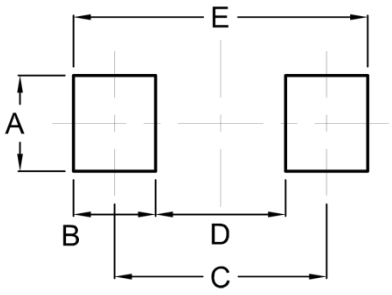
PACKAGE OUTLINE DIMENSIONS

Sub SMA



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	1.23	1.43	0.048	0.056
A1	0.00	0.10	0.000	0.004
b	0.80	1.20	0.031	0.047
c	0.16	0.30	0.006	0.012
D	1.70	1.90	0.067	0.075
E	3.40	3.80	0.134	0.150
E1	2.70	2.90	0.106	0.114
E2	2.45	2.60	0.096	0.102
L	0.35	0.85	0.014	0.033

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	1.40	0.055
B	1.20	0.047
C	3.10	0.122
D	1.90	0.075
E	4.30	0.169

MARKING DIAGRAM

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

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