3A, 50V - 600V Super Fast Surface Mount Rectifier

FEATURES

- AEC-Q101 qualified
- Glass passivated chip junction
- Ideal for automated placement
- Super fast recovery time for high efficiency
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

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

MECHANICAL DATA

- Case: DO-214AB (SMC)
- 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: 0.210g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
I_F	3	A
V_{RRM}	50 - 600	V
I_{FSM}	100	A
$T_{J\ MAX}$	150	°C
Package	DO-214AB (SMC)	
Configuration	Single die	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-214AB (SMC)

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

PARAMETER	SYMBOL	ES 3AH	ES 3BH	ES 3CH	ES 3DH	ES 3FH	ES 3GH	ES 3HH	ES 3JH	UNIT
Marking code on the device		ES3A	ES3B	ES3C	ES3D	ES3F	ES3G	ES3H	ES3J	
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	3								A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	100								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	$R_{\Theta JL}$	12	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	47	°C/W

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

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage(1)	ES3AH ES3BH ES3CH ES3DH	I_F = 3A, T_J = 25°C	V_F	-	0.95	V
	ES3FH ES3GH			-	1.30	V
	ES3HH ES3JH			-	1.70	V
Reverse current @ rated V_R(2)		T_J = 25°C	I_R	-	10	μA
		T_J = 100°C		-	500	μA
Junction capacitance	ES3AH ES3BH ES3CH ES3DH	1MHz, V_R = 4.0V	C_J	45	-	pF
	ES3FH ES3GH ES3HH ES3JH			30	-	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
ES3xH	DO-214AB (SMC)	3,000 / Tape & Reel

Notes:

1. “x” defines voltage from 50V(ES3AH) to 600V(ES3JH)

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Forward Current Derating Curve

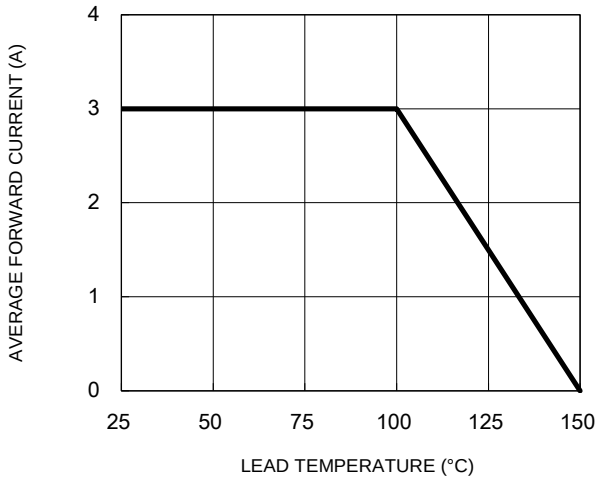


Fig.2 Typical Junction Capacitance

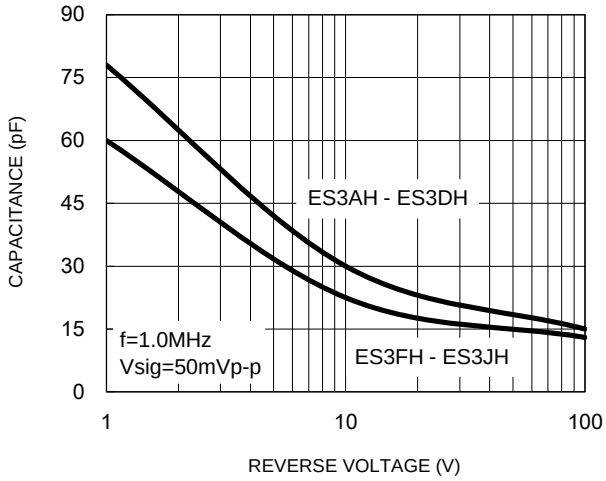


Fig.3 Typical Reverse Characteristics

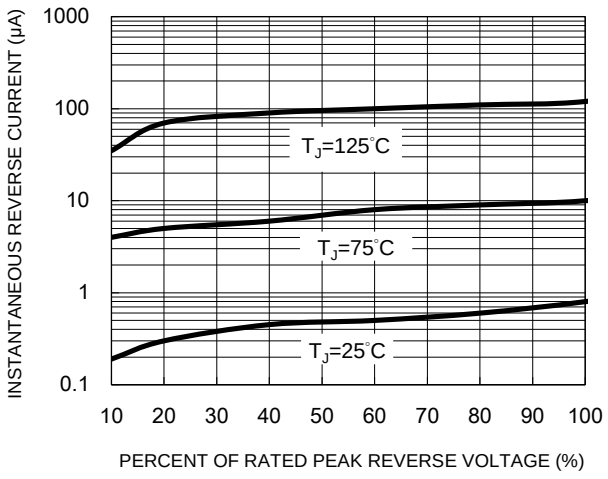


Fig.4 Typical Forward Characteristics

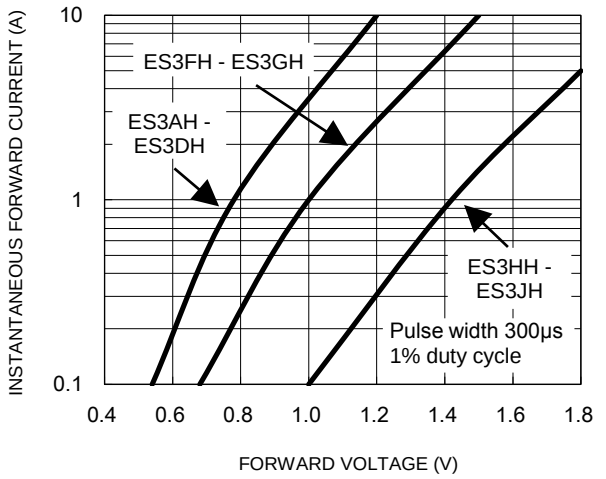
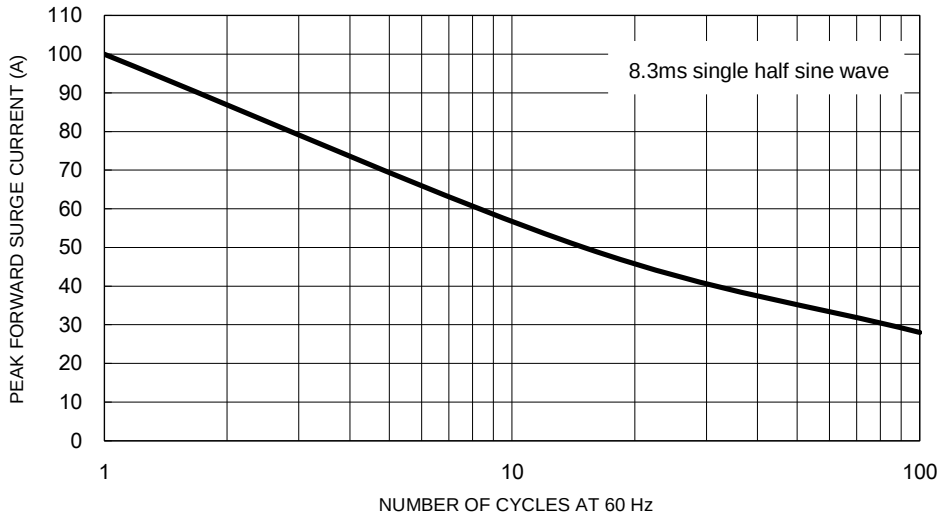


Fig.5 Maximum Non-Repetitive Forward Surge Current



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.6 Typical Transient Thermal Impedance

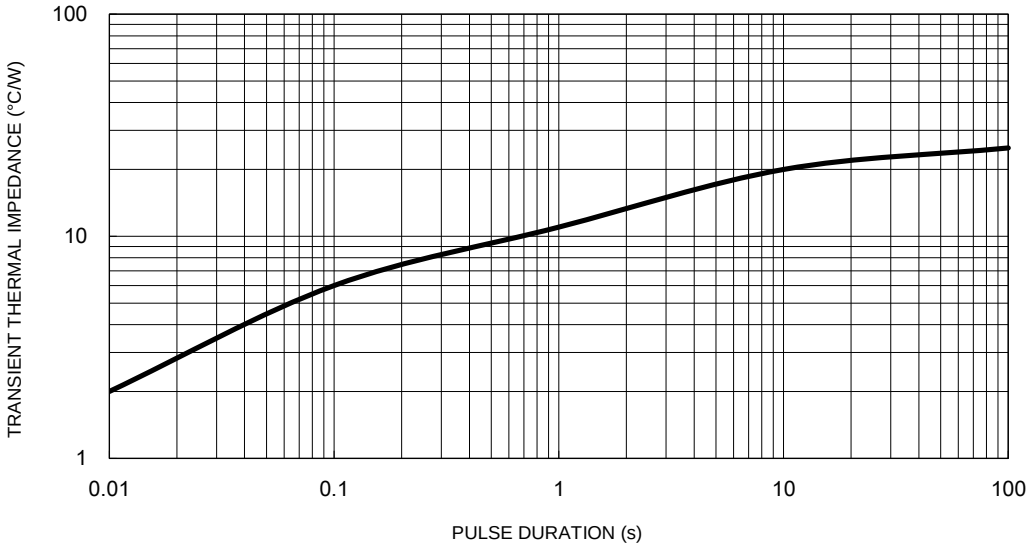
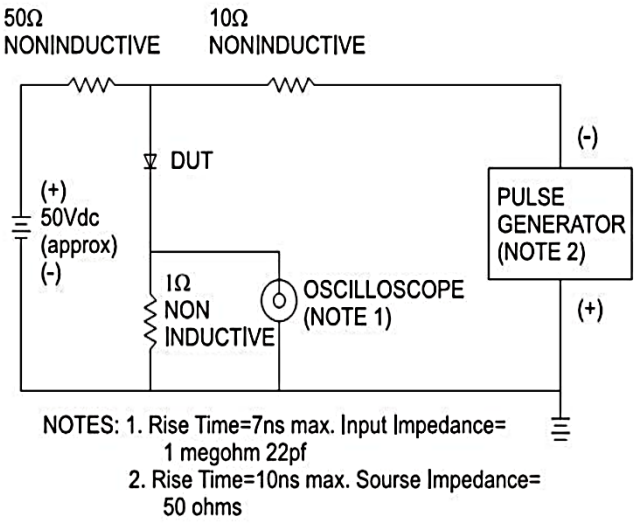
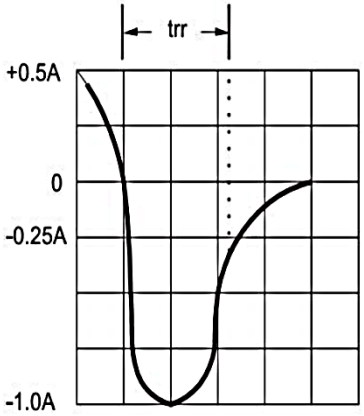


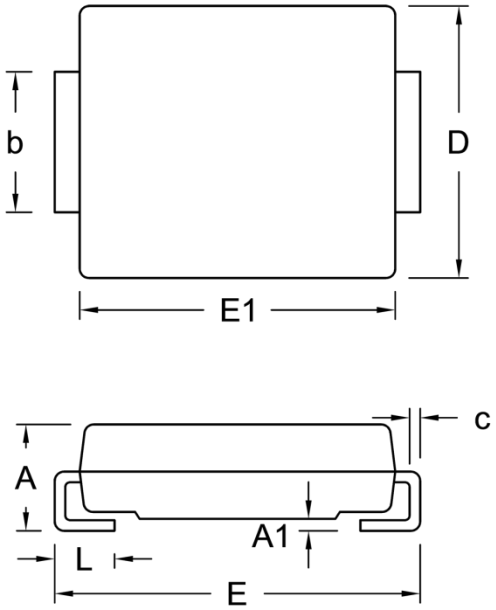
Fig.7 Reverse Recovery Time Characteristic and Test Circuit Diagram





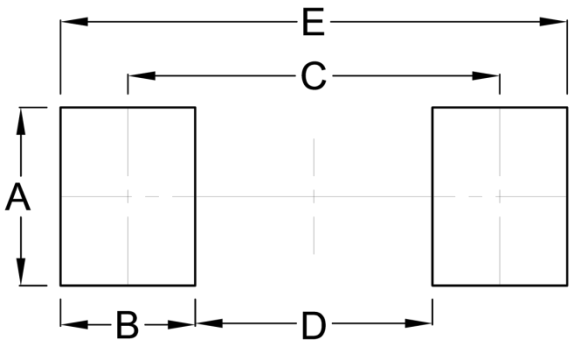
PACKAGE OUTLINE DIMENSIONS

DO-214AB (SMC)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	2.00	2.62	0.079	0.103
A1	0.10	0.20	0.004	0.008
b	2.90	3.20	0.114	0.126
c	0.15	0.31	0.006	0.012
D	5.59	6.22	0.220	0.245
E	7.75	8.13	0.305	0.320
E1	6.60	7.11	0.260	0.280
L	1.00	1.60	0.039	0.063

SUGGESTED PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	3.30	0.130
B	2.50	0.098
C	6.90	0.272
D	4.40	0.173
E	9.40	0.370

MARKING DIAGRAM

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

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