

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

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
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- High frequency rectification
- Freewheeling application
- Switching mode converters and inverters in computer, and telecommunication.

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	А		
V _{RRM}	50 - 600	V		
I _{FSM}	100	А		
T _{J MAX}	150	°C		
Package	DO-214AB (SMC)			
Configuration	Single die			





DO-214AB (SMC)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}C$ unless otherwise noted)										
PARAMETER	SYMBOL	ES3A	ES3B	ES3C	ES3D	ES3F	ES3G	ES3H	ES3J	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				Α				
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	I _{FSM} 100			А					
Junction temperature	T_{J}	- 55 to +150			°C					
Storage temperature	T _{STG}	- 55 to +150				°C				



THERMAL PERFORMANCE					
PARAMETER	SYMBOL	ТҮР	UNIT		
Junction-to-lead thermal resistance	R _{θJL}	12	°C/W		
Junction-to-ambient thermal resistance	R _{eja}	47	°C/W		

PARAMETER		CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward valtage ⁽¹⁾	ES3A ES3B ES3C ES3D	L 24 T 25°C	N N	-	0.95	V
Forward voltage ⁽¹⁾	ES3F ES3G	− I _F = 3A, T _J = 25°C	V _F	-	1.30	V
	ES3H ES3J			-	1.70	V
$\mathbf{D}_{\mathbf{r}}$		$T_J = 25^{\circ}C$	I	-	10	μA
Reverse current @ rated $V_R^{(2)}$		T _J = 100°C	I _R	-	500	μA
lunction consoitance	ES3A ES3B ES3C ES3D		C	45	-	pF
Junction capacitance	ES3F ES3G ES3H ES3J	1MHz, V _R = 4.0V	CJ	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		
ES3x	DO-214AB (SMC)	3,000 / Tape & Reel		

Notes:

1. "x" defines voltage from 50V(ES3A) to 600V(ES3J)



CHARACTERISTICS CURVES

 $(T_A = 25^{\circ}C \text{ unless otherwise noted})$

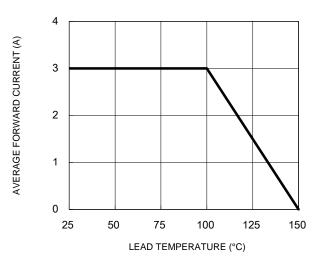


Fig.1 Forward Current Derating Curve

Fig.3 Typical Reverse Characteristics

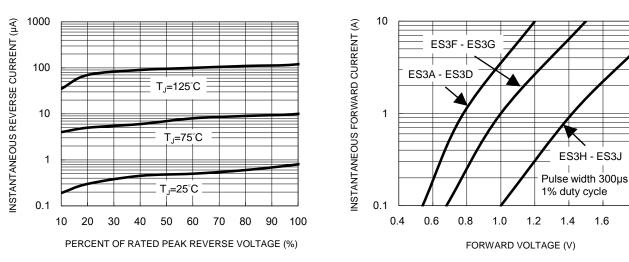


Fig.5 Maximum Non-Repetitive Forward Surge Current

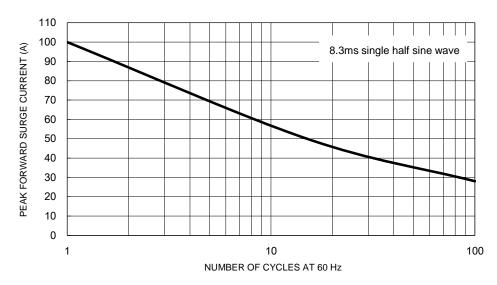


Fig.2 Typical Junction Capacitance

ES3A - ES3D

10

REVERSE VOLTAGE (V)

Fig.4 Typical Forward Characteristics

100

1.6

1.8

90

75

60

45

30

15

0

1

ES3F - ES3J

f=1.0MHz Vsig=50mVp-p

CAPACITANCE (pF)



CHARACTERISTICS CURVES

 $(T_A = 25^{\circ}C \text{ unless otherwise noted})$

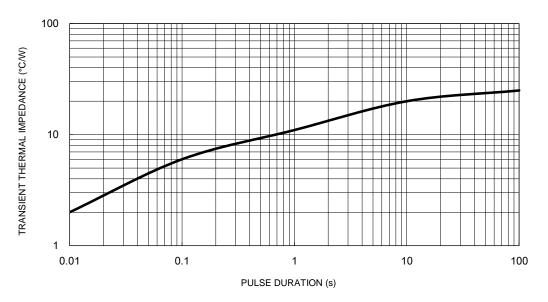
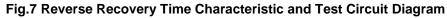
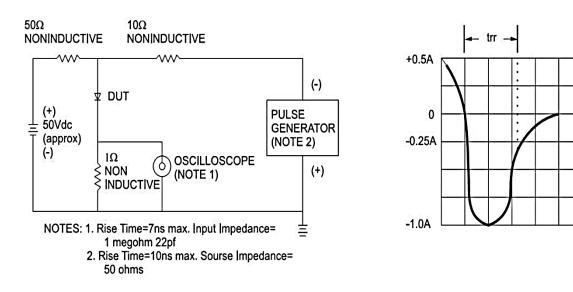


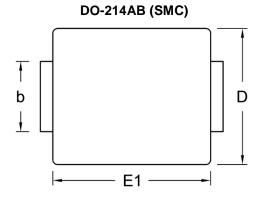
Fig.6 Typical Transient Thermal Impedance

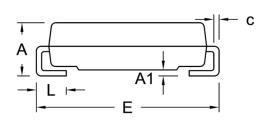






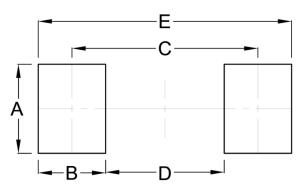
PACKAGE OUTLINE DIMENSIONS





DIM. Uni		(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
с	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
В	2.50	0.098
С	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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