

Surface Mount Ultrafast Plastic Rectifier

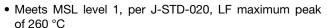


DO-214AB (SMC)

PRIMARY CHARACTERISTICS					
I _{F(AV)}	3.0 A				
V _{RRM}	300 V, 400 V				
I _{FSM}	100 A				
t _{rr}	35 ns				
V _F at I _F	1.1 V				
T _J max.	150 °C				
Package	DO-214AB (SMC)				
Diode variations Single die					

FEATURES

- Glass passivated pellet chip junction
- · Ideal for automated placement
- · Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability



- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

MECHANICAL DATA

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	ES3F	ES3G	UNIT	
Device marking code		EF	EG		
Maximum repetitive peak reverse voltage	V_{RRM}	300	400	V	
Working peak reverse voltage	V_{RWM}	225	300	V	
Maximum RMS voltage	V _{RMS}	210	280	V	
Maximum average forward rectified current at T _L = 110 °C	I _{F(AV)}	3.0		Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100		А	
Operating junction and storage temperature range	T _{J,} T _{STG}	-55 to +150		°C	



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	ES3F	ES3G	UNIT
Maximum instantaneous forward voltage	3.0 A		V _F ⁽¹⁾	1.1		V
Maximum DC reverse current at working		T _A = 25 °C	· · · · · · · · · · · · · · · · · · ·		0	
peak reverse voltage	ak reverse voltage $T_A = 100 ^{\circ}\text{C}$	'R	35	μΑ		
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	35		ns
Maximum reverse recovery time	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, \\ V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		t _{rr}	50		ns
Maximum reverse recovery current	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, \\ V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		I _{RM}	3.0		А
Maximum stored charge	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, \ V_R = 30 \text{ V}, I_{rr} = 0.1 I_{RM}$		Q _{rr}	50		nC
Typical junction capacitance	4.0 V, 1 MHz		CJ	30		pF

Note

 $^{^{(1)}}$ Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	L ES3F ES3G		UNIT	
Typical tharmal registance	R _{0JA} (1)	50		°C/W	
Typical thermal resistance		15		C/VV	

Note

 $^{^{(1)}}$ Units mounted on PCB 5.0 mm x 5.0 mm (0.013 mm thick) land areas

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ES3G-E3/57T	0.211	57T	850	7" diameter plastic tape and reel	
ES3G-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel	
ES3GHE3_A/H (1)	0.211	Н	850	7" diameter plastic tape and reel	
ES3GHE3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel	

Note

⁽¹⁾ AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

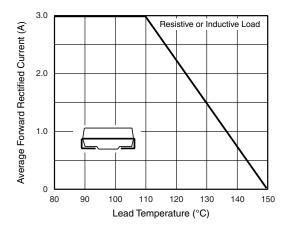


Fig. 1 - Maximum Forward Current Derating Curve

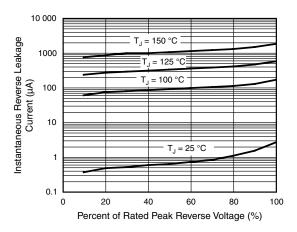


Fig. 4 - Typical Reverse Leakage Characteristics

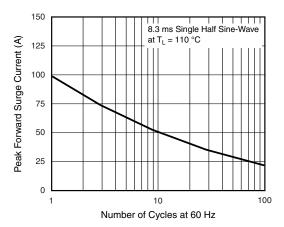


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

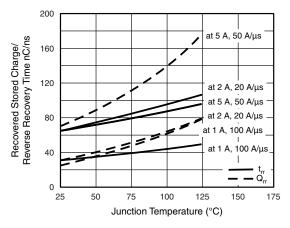


Fig. 5 - Reverse Switching Characteristics

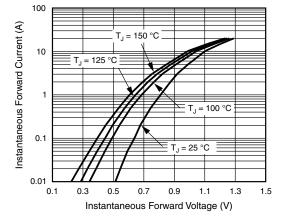


Fig. 3 - Typical Instantaneous Forward Characteristics

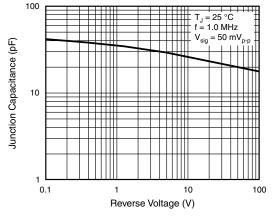


Fig. 6 - Typical Junction Capacitance



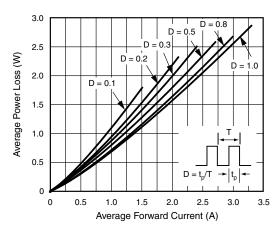
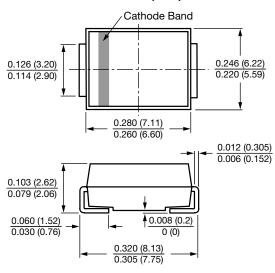


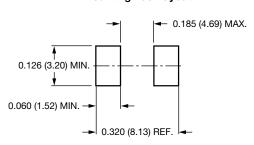
Fig. 7 - Forward Power Loss Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AB (SMC)



Mounting Pad Layout





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