Vishay General Semiconductor

# Surface Mount Ultrafast Plastic Rectifier



DO-214AB (SMC)

## **FEATURES**

- · Glass passivated chip junction
- · Ideal for automated placement
- Ultrafast recovery times for high efficiency
- Low forward voltage, low power losses
- High forward surge capability
- · Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- · Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

### **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)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	ES3A	ES3B	ES3C	ES3D	UNIT
Device marking code		EA	EB	EC	ED	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	150	200	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	105	140	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	150	200	V
Maximum average forward rectified current at $T_L = 100 ^\circ\text{C}$	I <sub>F(AV)</sub>	3.0				А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100			А	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150			°C	

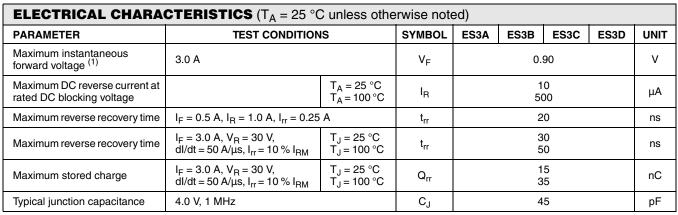
PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	3.0 A				
V <sub>RRM</sub>	۸ 50 V to 200 V				
I <sub>FSM</sub>	100 A				
t <sub>rr</sub>	20 ns				
V <sub>F</sub>	0.90 V				
T⊥max.	150 °C				





RoHS COMPLIANT

# Vishay General Semiconductor



#### Note:

(1) Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	ES3A	ES3B	ES3C	ES3D	UNIT
Typical thermal resistance <sup>(1)</sup>	${\sf R}_{ heta {\sf JA}} \ {\sf R}_{ heta {\sf JL}}$	47 12			°C/W	

#### Note:

(1) Units mounted on P.C.B. with 0.31 x 0.31" (8.0 x 8.0 mm) copper pad areas

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
ES3D-E3/57T	0.211	57T	850	7" diameter plastic tape and reel	
ES3D-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel	
ES3DHE3/57T <sup>(1)</sup>	0.211	57T	850	7" diameter plastic tape and reel	
ES3DHE3/9AT <sup>(1)</sup>	0.211	9AT	3500	13" diameter plastic tape and reel	

#### Note:

(1) Automotive grade AEC Q101 qualified

### **RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

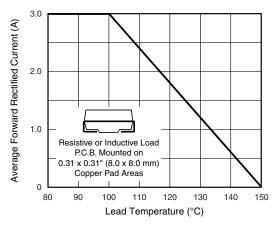


Figure 1. Maximum Forward Current Derating Curve

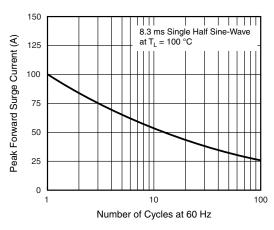


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



# ES3A thru ES3D

# Vishay General Semiconductor

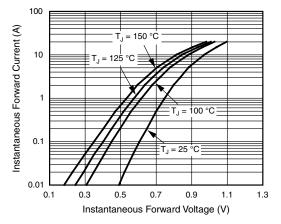


Figure 3. Typical Instantaneous Forward Characteristics

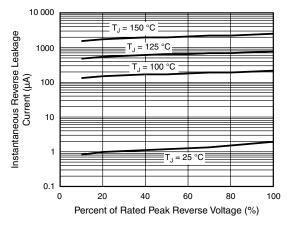
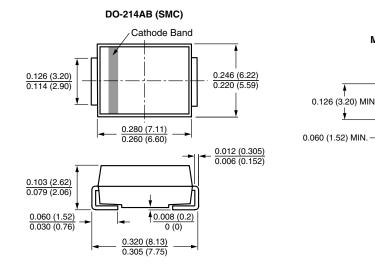


Figure 4. Typical Reverse Leakage Characteristics

### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



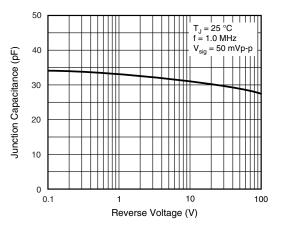


Figure 5. Typical Junction Capacitance

**Mounting Pad Layout** 

– 0.320 REF. -

ŧ

0.185 (4.69) MAX.

For technical questions within your region, please contact one of the following: PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com



Vishay

# Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.