### Vishay General Semiconductor

### **Surface Mount Glass Passivated Rectifier**



**DO-214AC (SMA)** 

PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	1.0 A					
V <sub>RRM</sub>	200 V, 400 V, 600 V, 800 V, 1000 V					
I <sub>FSM</sub>	30 A					
I <sub>R</sub>	5.0 μA					
$V_F$ at $I_F = 1.0$ A $(T_A = 125  ^{\circ}C)$	0.98 V					
T <sub>J</sub> max.	150 °C					
Package	DO-214AC (SMA)					
Diode variations	Single die					

#### **FEATURES**

- · Low profile package
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Low forward voltage drop
- · Low leakage current
- · High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

#### **TYPICAL APPLICATIONS**

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer and telecommunication.

#### **MECHANICAL DATA**

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix 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	CS1D	CS1G	CS1J	CS1K	CS1M	UNIT
Device marking code		D	G	J	K	М	
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	800	1000	V
Average forward rectified current	I <sub>F(AV)</sub> (1)	1.0			Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30			А		
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150				°C	

#### Note

<sup>(1)</sup> Free air, mounted on recommended copper pad area

# CS1D, CS1G, CS1J, CS1K, CS1M

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT		
Maximum instantaneous forward voltage	I <sub>F</sub> = 0.5 A	T - 25 °C	- V <sub>F</sub> <sup>(1)</sup>	0.93	-	V		
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 25 °C		1.0	1.1			
	I <sub>F</sub> = 0.5 A	T 105 %		0.82	-			
	I <sub>F</sub> = 1.0 A	T <sub>A</sub> = 125 °C		0.90	0.98			
Maximum DC reverse current at rated DC blocking voltage	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	1 (2)	-	5.0	μА		
	naieu v <sub>R</sub>	T <sub>A</sub> = 125 °C	I <sub>R</sub> <sup>(2)</sup>	-	300			
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	1.5	-	μs		
Typical junction capacitance	4.0 V, 1 MHz		CJ	6	-	pF		

#### Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq$  40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	CS1D	CS1G	CS1J	CS1K	CS1M	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	105					°C/W
Typical thermal resistance	R <sub>0JM</sub> (2)	16					C/VV

#### **Notes**

 $^{(1)}$  Free air, mounted on recommended copper pad area; thermal resistance  $R_{\theta JA}$  - junction to ambient

 $^{(2)}$  Mounted on 5 mm x 5 mm copper pad areas,  $R_{\theta JM}$  - junction to mount at the terminal

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
CS1J-E3/I	0.064	1	7500	13" diameter plastic tape and reel				

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### **RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)

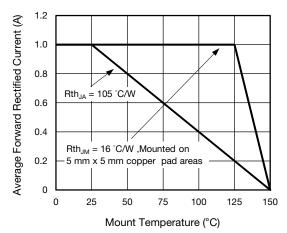


Fig. 1 - Maximum Forward Current Derating Curve

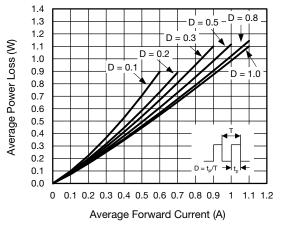


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

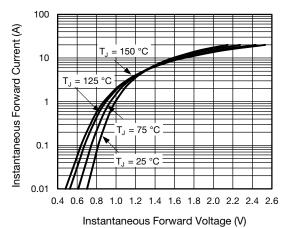


Fig. 3 - Typical Instantaneous Forward Characteristics

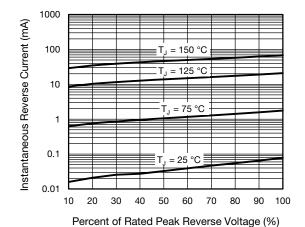


Fig. 4 - Typical Reverse Leakage Characteristics

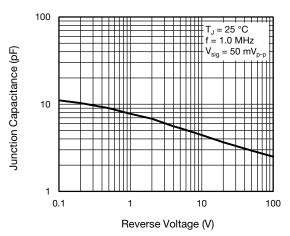


Fig. 5 - Typical Junction Capacitance

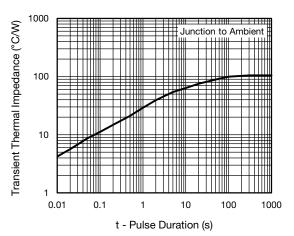


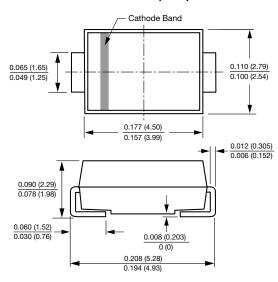
Fig. 6 - Typical Transient Thermal Impedance



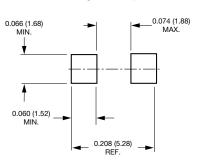
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#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

#### DO-214AC (SMA)



#### **Mounting Pad Layout**





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