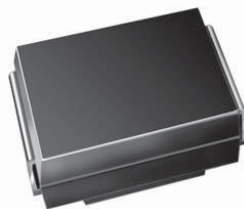


## Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

### FEATURES

- Oxide planar chip junction
- Ultrafast recovery time
- Low forward voltage, low power losses
- 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 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching power supplies, freewheeling diodes, DC/DC converters or polarity protection application.

### MECHANICAL DATA

**Case:** DO-214AA (SMB)

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 1A whisker test

**Polarity:** Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	100 V, 150 V, 200 V
$I_{FSM}$	50 A
$t_{rr}$	20 ns
$V_F$ at $I_F = 2.0$ A	0.76 V
$T_J$ max.	150 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	U2B	U2C	U2D	UNIT
Device marking code		U2B	U2C	U2D	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	150	200	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	2.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50			A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150			°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I <sub>F</sub> = 2 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.86	0.90	V
		T <sub>A</sub> = 100 °C		0.76	0.83	
Reverse current	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	10	μA
		T <sub>A</sub> = 100 °C		180	350	
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>A</sub> = 25 °C	t <sub>rr</sub>	-	20	ns
		T <sub>A</sub> = 25 °C		27	-	
		T <sub>A</sub> = 100 °C		35	-	
Storage charge	I <sub>F</sub> = 2.0 A, dI/dt = 50 A/μs, V <sub>R</sub> = 30 V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>	T <sub>A</sub> = 25 °C	Q <sub>rr</sub>	9	-	nC
		T <sub>A</sub> = 100 °C		19	-	
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	16	-	pF

**Notes**

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

(2) Pulse test: Pulse width  $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	U2B	U2C	U2D	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	105			°C/W
	R <sub>θJM</sub> <sup>(1)</sup>	18			

**Note**

(1) Free air, mounted on recommended copper pad area. Thermal resistance  $R_{\theta JA}$  - junction to ambient,  $R_{\theta JM}$  - junction to mount

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
U2D-E3/52T	0.099	52T	750	7" diameter plastic tape and reel
U2D-E3/5BT	0.099	5BT	3200	13" diameter plastic tape and reel

**RATINGS AND CHARACTERISTICS CURVES**

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

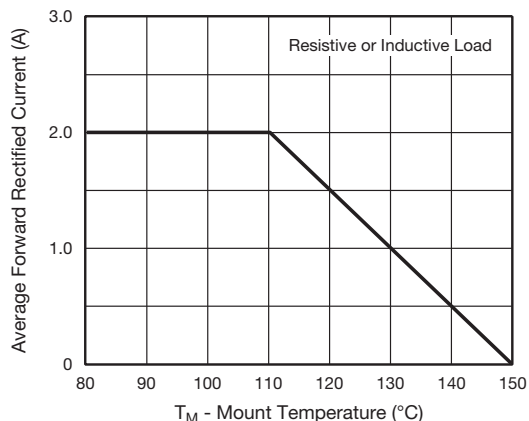


Fig. 1 - Maximum Forward Current Derating Curve

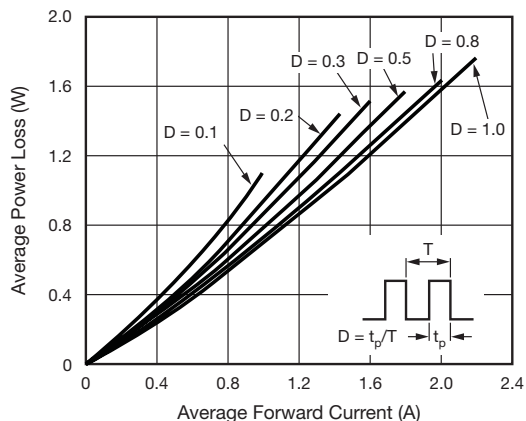


Fig. 2 - Forward Power Loss Characteristics

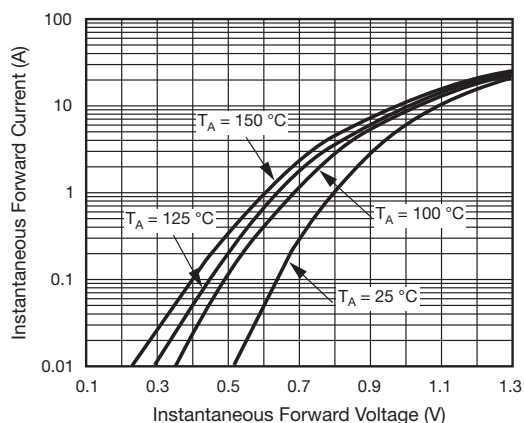


Fig. 3 - Typical Instantaneous Forward Characteristics

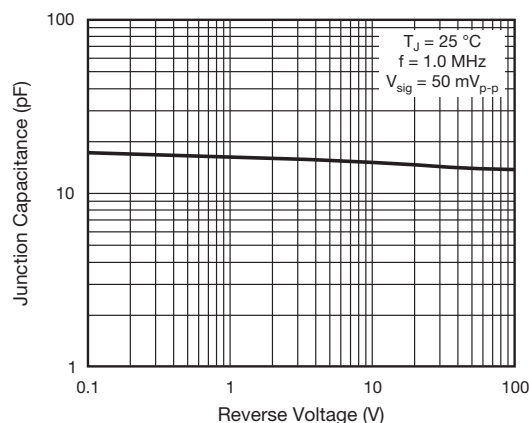


Fig. 5 - Typical Junction Capacitance

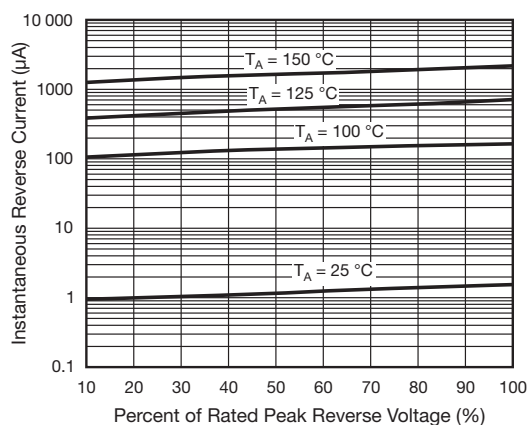


Fig. 4 - Typical Reverse Characteristics

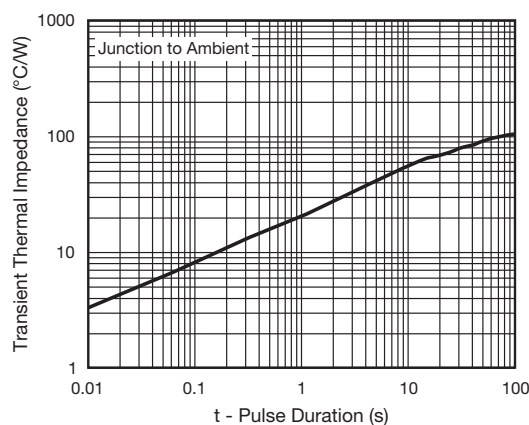
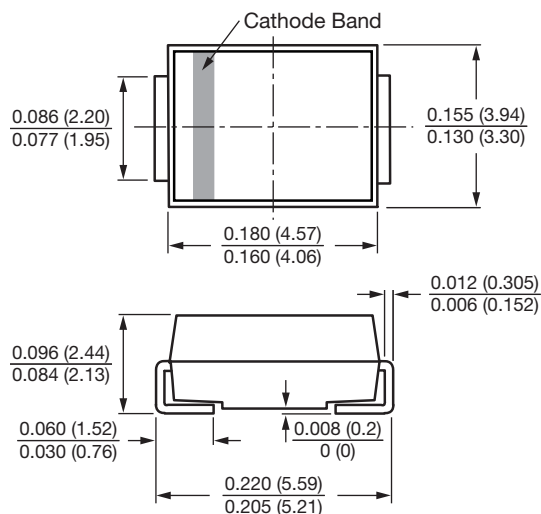


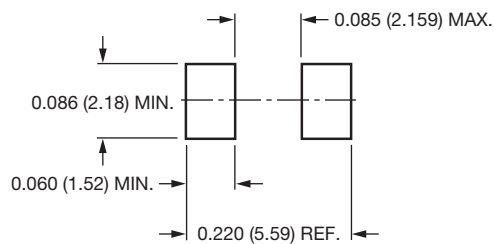
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214AA (SMB)



### Mounting Pad Layout





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