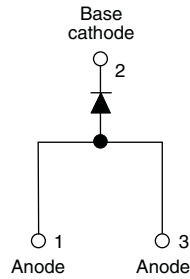


## High Voltage, Input Rectifier Diode, 80 A


**TO-247AC 3L**

**FEATURES**

- Very low forward voltage drop
- 150 °C max. operating junction temperature
- Glass passivated pellet chip junction
- Designed and qualified according to JEDEC®-JESD 47
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**  
 Available

**APPLICATIONS**

- Input rectification
- Vishay Semiconductors switches and output rectifiers which are available in identical package outlines

**DESCRIPTION**

High voltage rectifiers optimized for very low forward voltage drop with moderate leakage.

These devices are intended for use in main rectification (single or three phase bridge).

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	80 A
$V_R$	800 V to 1200 V
$V_F$ at $I_F$	1.17 V
$I_{FSM}$	1500 A
$T_J$ max.	150 °C
Package	TO-247AC 3L
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	80	A
$V_{RRM}$	Range	800/1200	V
$I_{FSM}$		1500	A
$V_F$	80 A, $T_J = 25$ °C	1.17	V
$T_J$		-40 to +150	°C

VOLTAGE RATINGS			
PART NUMBER	$V_{RRM}$ , MAXIMUM PEAK REVERSE VOLTAGE V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	$I_{RRM}$ AT 150 °C mA
VS-80APS08-M3	800	900	1.5
VS-80APS12-M3	1200	1300	

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 100$ °C, 180° conduction half sine wave	80	A
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	10 ms sine pulse, rated $V_{RRM}$ applied	1450	
		10 ms sine pulse, no voltage reapplied	1500	
Maximum $I^2t$ for fusing	$I^2t$	10 ms sine pulse, rated $V_{RRM}$ applied	10 500	A <sup>2</sup> s
		10 ms sine pulse, no voltage reapplied	14 000	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ ms to 10 ms, no voltage reapplied	140 000	A <sup>2</sup> √s



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}$	80 A, $T_J = 25\text{ }^\circ\text{C}$		1.17	V
Forward slope resistance	$r_f$	$T_J = 150\text{ }^\circ\text{C}$		3.17	$m\Omega$
Threshold voltage	$V_{F(TO)}$			0.73	V
Maximum reverse leakage current	$I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_{RRM}$	0.1	mA
		$T_J = 150\text{ }^\circ\text{C}$		1.5	

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	$T_J, T_{Stg}$		-40 to 150	$^\circ\text{C}$
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation	0.35	$^\circ\text{C/W}$
Maximum thermal resistance, junction to ambient	$R_{thJA}$		40	
Typical thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, flat, smooth and greased	0.2	
Approximate weight			6	g
			0.21	oz.
Mounting torque	minimum		6 (5)	$\text{kgf} \cdot \text{cm}$ $(\text{lb} \cdot \text{in})$
	maximum		12 (10)	
Marking device		Case style TO-247AC 3L	80APS08	
			80APS12	

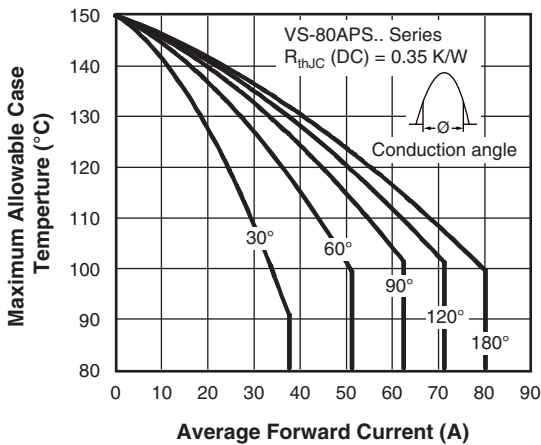


Fig. 1 - Current Rating Characteristics

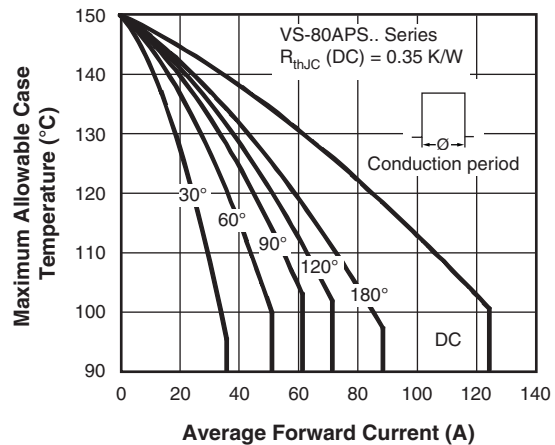


Fig. 2 - Current Rating Characteristics

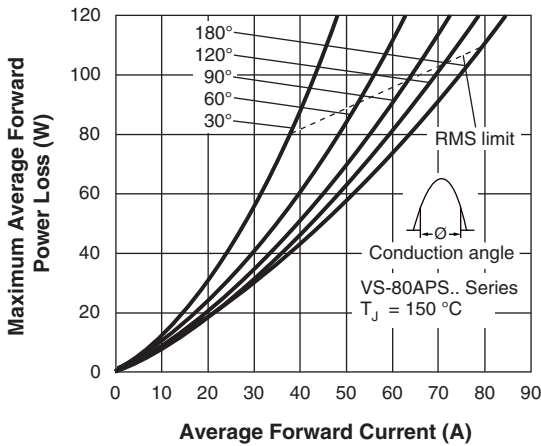


Fig. 3 - Forward Power Loss Characteristics

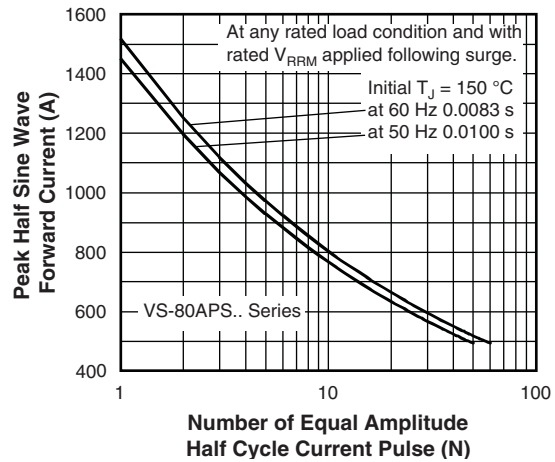


Fig. 5 - Maximum Non-Repetitive Surge Current

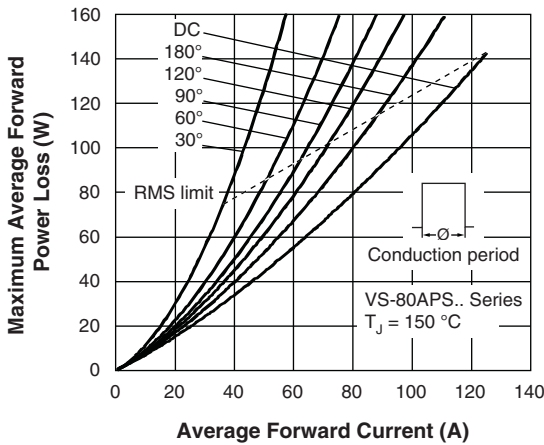


Fig. 4 - Forward Power Loss Characteristics

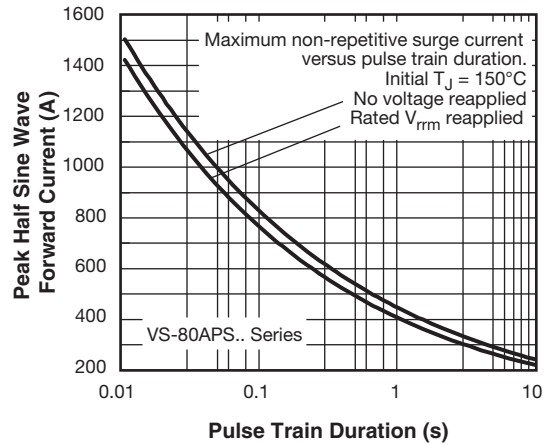


Fig. 6 - Maximum Non-Repetitive Surge Current

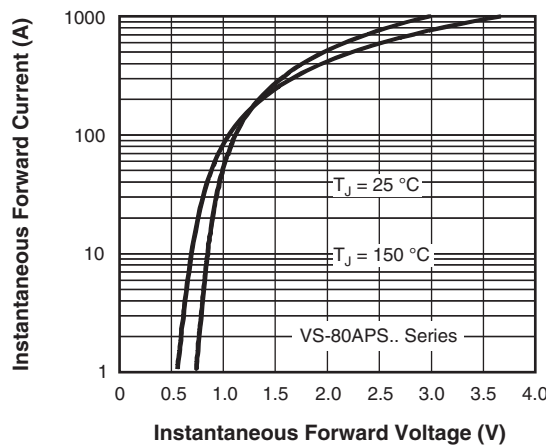
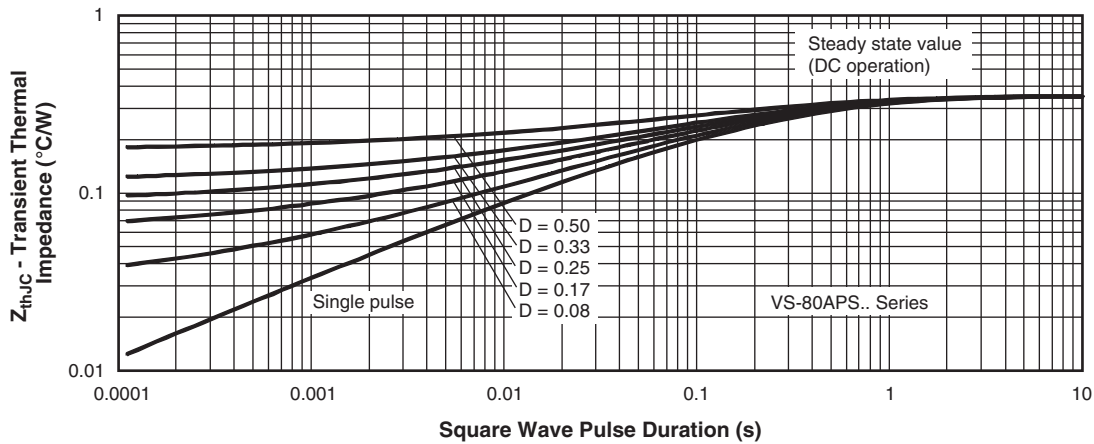


Fig. 7 - Forward Voltage Drop Characteristics


 Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics

**ORDERING INFORMATION TABLE**

Device code	<b>VS-</b>	<b>80</b>	<b>A</b>	<b>P</b>	<b>S</b>	<b>12</b>	<b>-M3</b>		
	①	②	③	④	⑤	⑥			
	<b>1</b>	-	Vishay Semiconductors product						
	<b>2</b>	-	Current rating (80 = 80 A)						
	<b>3</b>	-	Circuit configuration: A = single diode, 3 pins						
	<b>4</b>	-	Package: P = TO-247AC 3L						
	<b>5</b>	-	Type of silicon: S = standard recovery rectifier						
	<b>6</b>	-	Voltage ratings		<table border="1"> <tr> <td>08 = 800 V</td> </tr> <tr> <td>12 = 1200 V</td> </tr> </table>			08 = 800 V	12 = 1200 V
08 = 800 V									
12 = 1200 V									
	<b>7</b>	-	Environmental digit: -M3 = halogen-free, RoHS-compliant, and terminations lead (Pb)-free						

<b>ORDERING INFORMATION</b> (Example)			
PREFERRED P/N	QUANTITY PER T/R	MINIMUM ORDER QUANTITY	PACKAGING DESCRIPTION
VS-80APS08-M3	25	500	Antistatic plastic tubes
VS-80APS12-M3	25	500	Antistatic plastic tubes

<b>LINKS TO RELATED DOCUMENTS</b>	
Dimensions	<a href="http://www.vishay.com/doc?96138">www.vishay.com/doc?96138</a>
Part marking information	<a href="http://www.vishay.com/doc?95007">www.vishay.com/doc?95007</a>
SPIICE model	<a href="http://www.vishay.com/doc?95550">www.vishay.com/doc?95550</a>





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