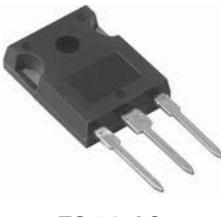
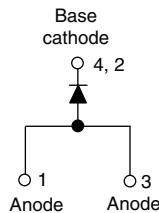


## High Voltage, Input Rectifier Diode, 80 A



TO-247AC



### FEATURES

- Very low forward voltage drop
- 150 °C max. operating junction temperature
- Designed and qualified according to JEDEC-JESD47
- 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).

PRODUCT SUMMARY	
Package	TO-247AC
$I_{F(AV)}$	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
Diode variation	Single die

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-80APS08PbF, VS-80APS08-M3	800	900	
VS-80APS12PbF, VS-80APS12-M3	1200	1300	1.5

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	
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	10 ms sine pulse, rated $V_{RRM}$ applied	1450	A
		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	$A^2s$
		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	$A^2\sqrt{s}$

**ELECTRICAL SPECIFICATIONS**

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

**THERMAL - MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum junction and storage temperature range	$T_J, T_{Stg}$			- 40 to 150	°C	
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation		0.35	°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)	kgf · cm (lbf · in)	
	maximum			12 (10)		
Marking device		Case style TO-247AC (JEDEC)		80APS08		
				80APS12		

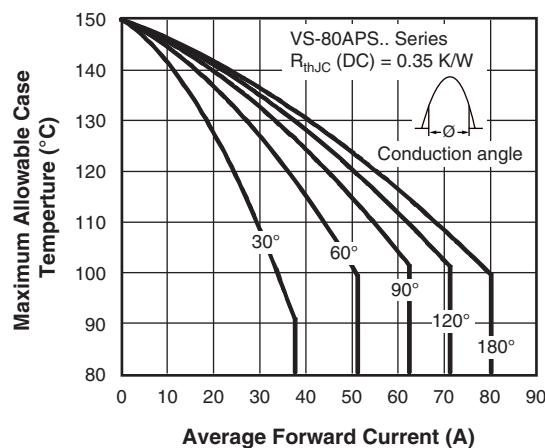


Fig. 1 - Current Rating Characteristics

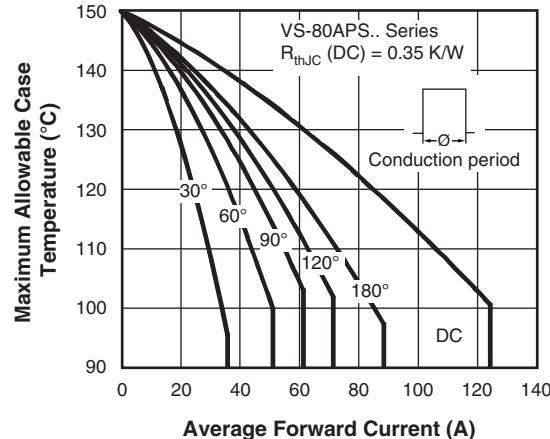


Fig. 2 - Current Rating Characteristics

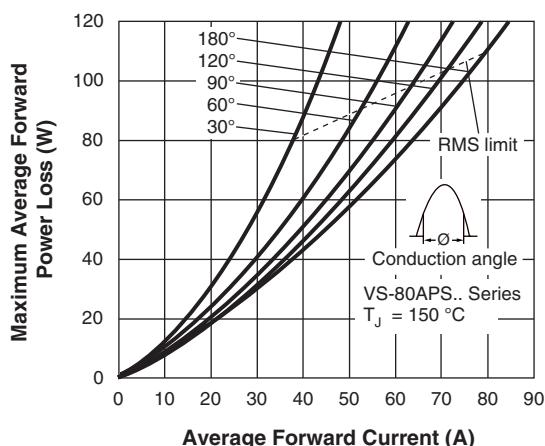


Fig. 3 - Forward Power Loss Characteristics

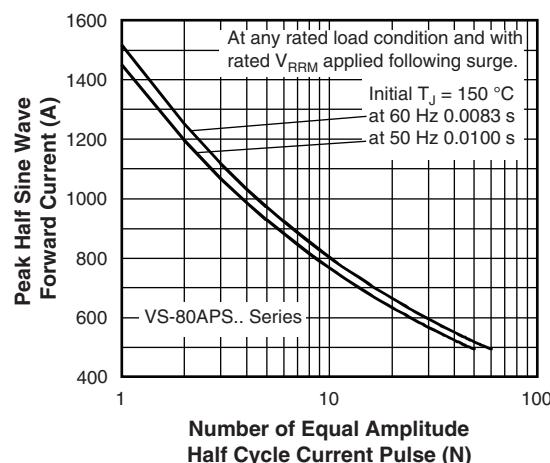


Fig. 5 - Maximum Non-Repetitive Surge Current

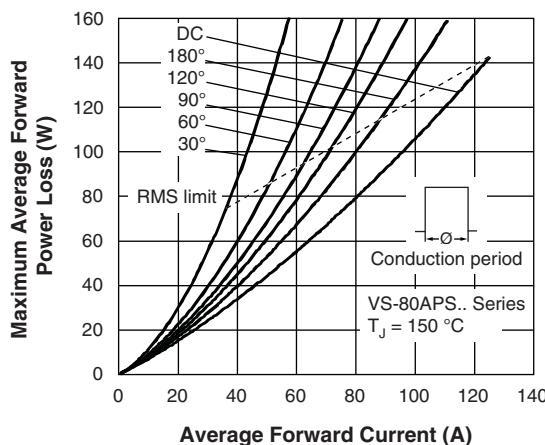


Fig. 4 - Forward Power Loss Characteristics

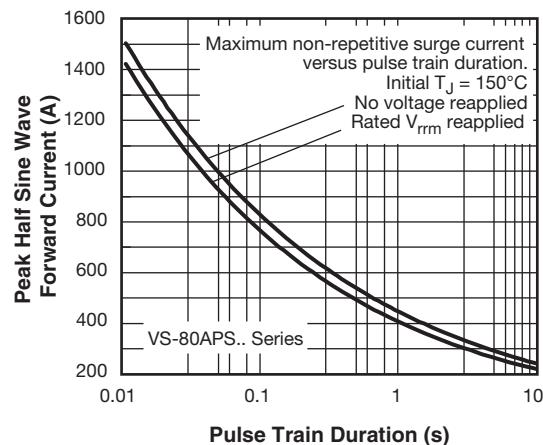


Fig. 6 - Maximum Non-Repetitive Surge Current

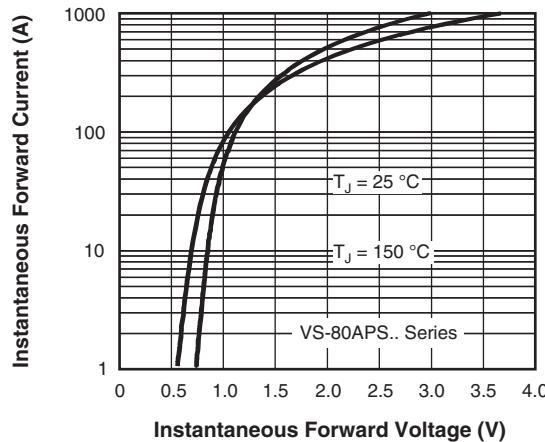


Fig. 7 - Forward Voltage Drop Characteristics

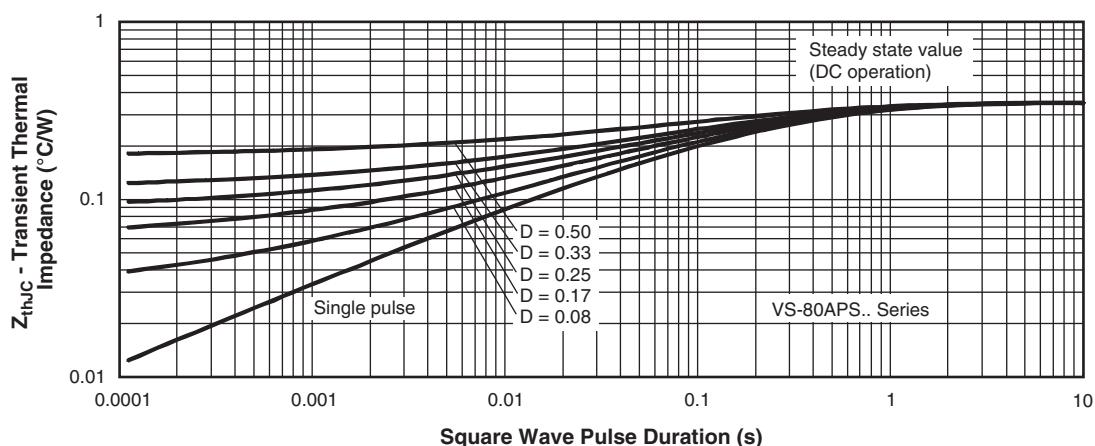


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics

### ORDERING INFORMATION TABLE

Device code	VS-	80	A	P	S	12	PbF
	1	2	3	4	5	6	

- 1** - Vishay Semiconductors product
- 2** - Current rating (80 = 80 A)
- 3** - Circuit configuration:  
A = Single diode, 3 pins
- 4** - Package:  
P = TO-247AC
- 5** - Type of silicon:  
S = Standard recovery rectifier
- 6** - Voltage ratings
  - 08 = 800 V
  - 12 = 1200 V
- 7** - Environmental digit:  
PbF = Lead (Pb)-free and RoHS compliant  
-M3 = Halogen-free, RoHS compliant and terminations lead (Pb)-free

ORDERING INFORMATION (Example)			
PREFERRED P/N	QUANTITY PER T/R	MINIMUM ORDER QUANTITY	PACKAGING DESCRIPTION
VS-80APS08PbF	25	500	Antistatic plastic tubes
VS-80APS08-M3	25	500	Antistatic plastic tubes
VS-80APS12PbF	25	500	Antistatic plastic tubes
VS-80APS12-M3	25	500	Antistatic plastic tubes

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95223">www.vishay.com/doc?95223</a>
Part marking information	<a href="http://www.vishay.com/doc?95226">www.vishay.com/doc?95226</a>
	<a href="http://www.vishay.com/doc?95007">www.vishay.com/doc?95007</a>
SPICE model	<a href="http://www.vishay.com/doc?95550">www.vishay.com/doc?95550</a>

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**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**