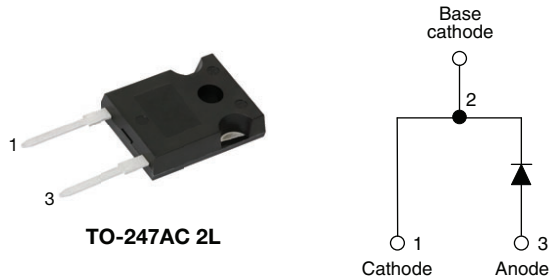


High Voltage Input Rectifier Diode, 60 A



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



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

$I_{F(AV)}$	60 A
V_R	1600 V
V_F at I_F	1.15 V
I_{FSM}	950 A
T_J max.	150 °C
Package	TO-247AC 2L
Circuit configuration	Single

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	60	A
V_{RRM}		1600	V
I_{FSM}		950	A
V_F	60 A, $T_J = 25$ °C	1.15	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-60EPS16-M3	1600	1700	1

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 118$ °C, 180° conduction half sine wave	60	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	10 ms sine pulse, rated V_{RRM} applied	800	
		10 ms sine pulse, no voltage reapplied	950	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied	3200	A ² s
		10 ms sine pulse, no voltage reapplied	4525	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ ms to 10 ms, no voltage reapplied	45 250	A ² √s



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM}	30 A, $T_J = 25\text{ }^\circ\text{C}$		1.0	V
		60 A, $T_J = 25\text{ }^\circ\text{C}$		1.15	
Forward slope resistance	r_t	$T_J = 150\text{ }^\circ\text{C}$		3.96	$\text{m}\Omega$
Threshold voltage	$V_{F(TO)}$			0.74	V
Maximum reverse leakage current	I_{RM}	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_{RRM}$	0.1	mA
		$T_J = 150\text{ }^\circ\text{C}$		1.0	

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	$^\circ\text{C}/\text{W}$	
Maximum thermal resistance, junction to ambient	R_{thJA}			40		
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased		0.2		
Approximate weight					6	g
					0.21	oz.
Mounting torque	minimum			6.0 (5)	$\text{kgf} \cdot \text{cm}$ $(\text{lb} \cdot \text{in})$	
	maximum			12 (10)		
Marking device			Case style TO-247AC 2L	60EPS16		

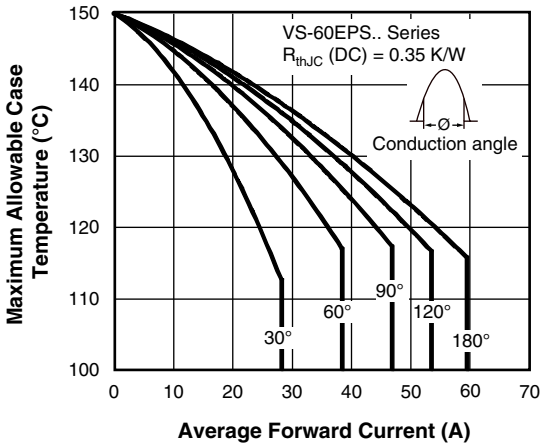


Fig. 1 - Current Rating Characteristics

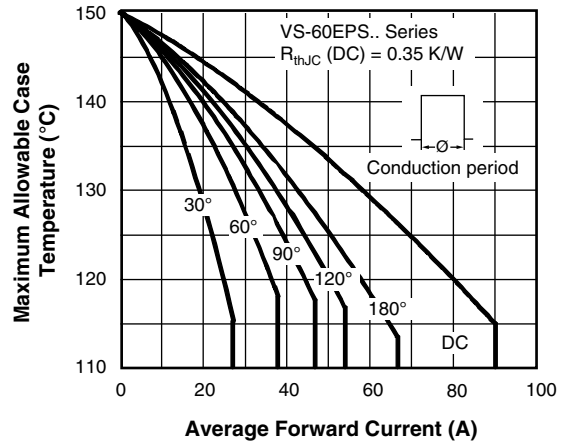


Fig. 2 - Current Rating Characteristics

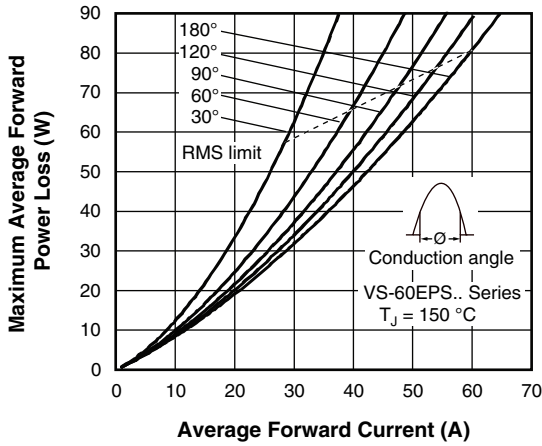


Fig. 3 - Forward Power Loss Characteristics

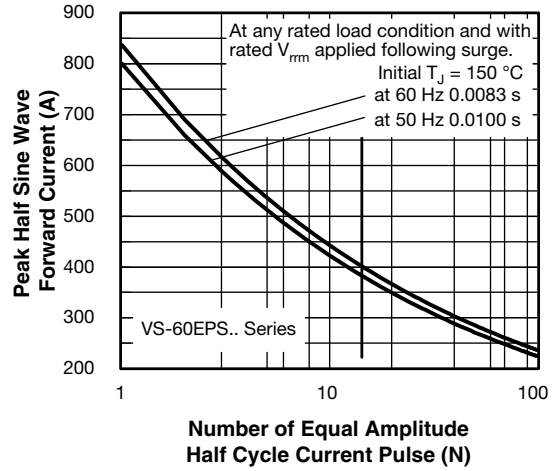


Fig. 5 - Maximum Non-Repetitive Surge Current

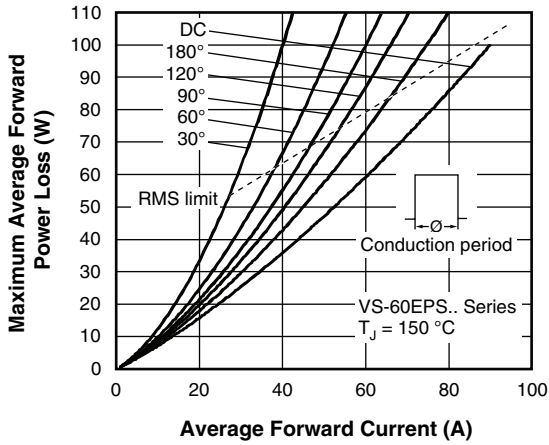


Fig. 4 - Forward Power Loss Characteristics

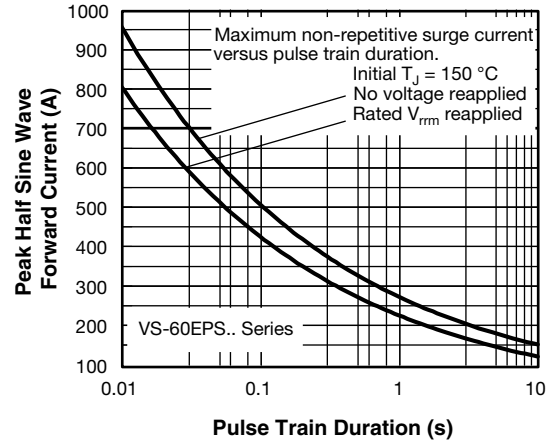


Fig. 6 - Maximum Non-Repetitive Surge Current

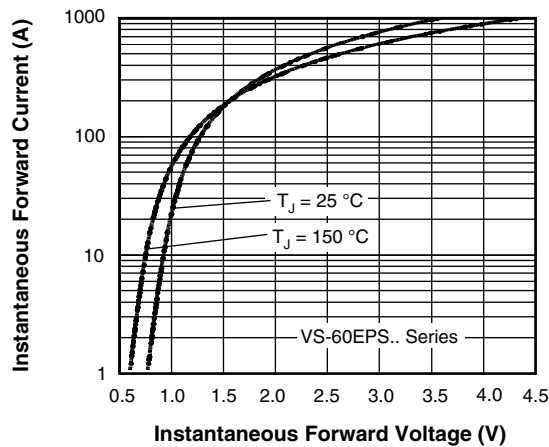
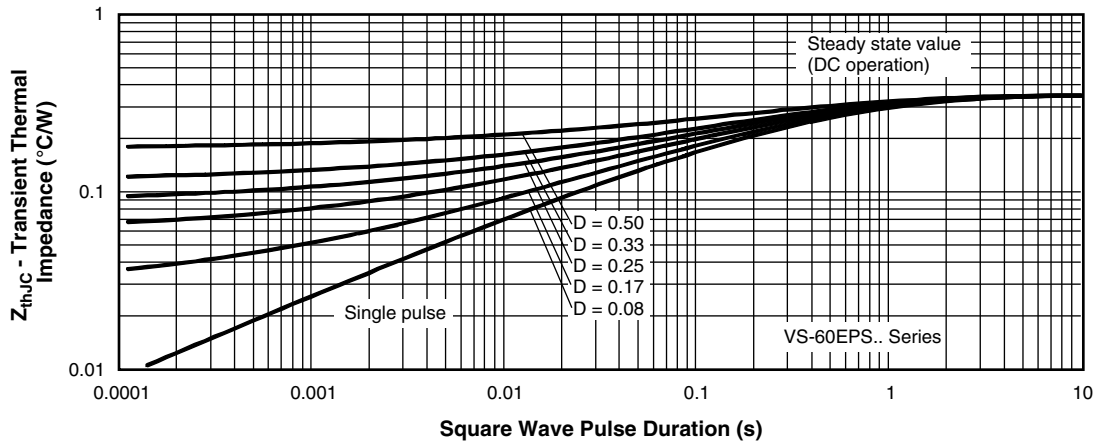


Fig. 7 - Forward Voltage Drop Characteristics


 Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code	VS-	60	E	P	S	16	-M3
	①	②	③	④	⑤	⑥	⑦

- 1** - Vishay Semiconductors product
- 2** - Current rating (60 = 60 A)
- 3** - Circuit configuration:
E = single diode
- 4** - Package:
P = TO-247AC 2L
- 5** - Type of silicon:
S = standard recovery rectifier
- 6** - Voltage rating (16 = 1600 V)
- 7** - Environmental digit:
-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-60EPS16-M3	25	500	Antistatic plastic tubes

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?96144
Part marking information	www.vishay.com/doc?95648



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