

**ELECTRICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	V <sub>FM</sub> <sup>(1)</sup>	8 A	T <sub>J</sub> = 25 °C	0.72	V
		16 A		0.88	
		8 A	T <sub>J</sub> = 125 °C	0.58	
		16 A		0.69	
Maximum reverse leakage current See fig. 2	I <sub>RM</sub> <sup>(1)</sup>	T <sub>J</sub> = 25 °C	V <sub>R</sub> = rated V <sub>R</sub>	0.55	mA
		T <sub>J</sub> = 125 °C		7	
Maximum junction capacitance	C <sub>T</sub>	V <sub>R</sub> = 5 V <sub>DC</sub> (test signal range 100 kHz to 1 MHz) 25 °C		500	pF
Typical series inductance	L <sub>S</sub>	Measured lead to lead 5 mm from package body		8	nH
Maximum voltage rate of change	dV/dt	Rated V <sub>R</sub>		10 000	V/μs

**Note**(1) Pulse width < 300  $\mu$ s, duty cycle < 2 %**THERMAL - MECHANICAL SPECIFICATIONS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		- 55 to 175	°C
Maximum thermal resistance, junction to case	R <sub>thJC</sub>	DC operation See fig. 4	2.0	°C/W
Typical thermal resistance, case to heatsink	R <sub>thCS</sub>	Mounting surface, smooth and greased	0.50	
Approximate weight			2	g
			0.07	oz.
Mounting torque			6 (5)	kgf · cm (lbf · in)
			12 (10)	
Marking device		Case style TO-220AC	8TQ060	
			8TQ080	
			8TQ100	

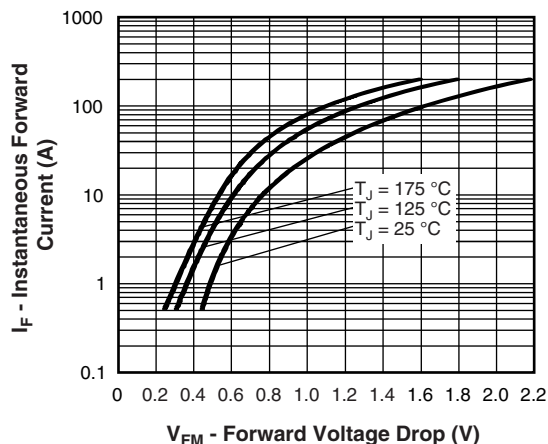


Fig. 1 - Maximum Forward Voltage Drop Characteristics

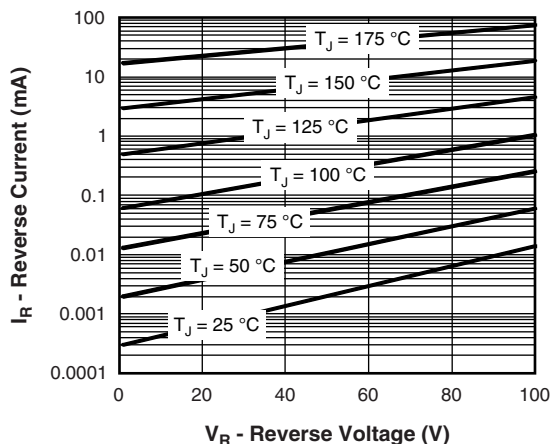


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

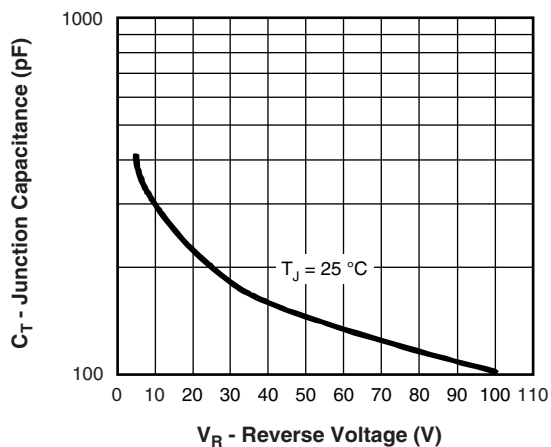
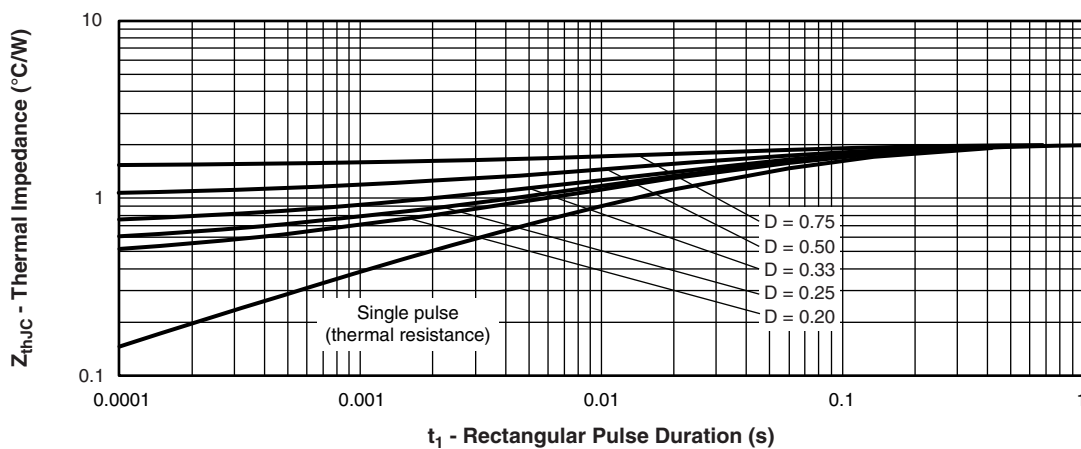


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

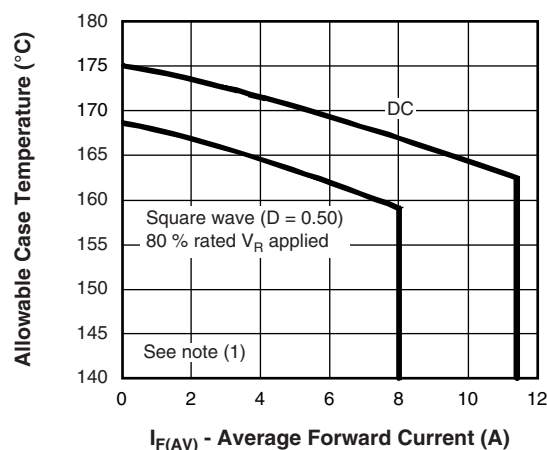


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

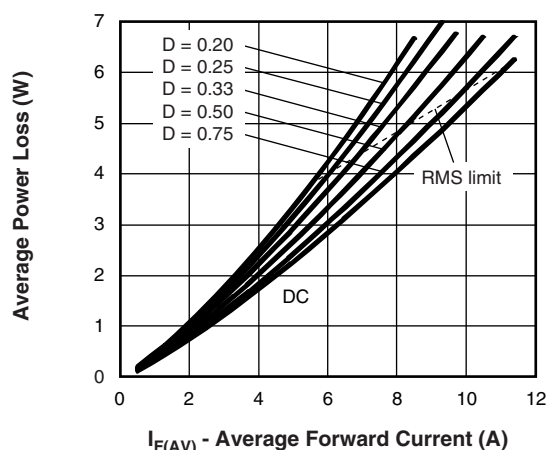


Fig. 6 - Forward Power Loss Characteristics

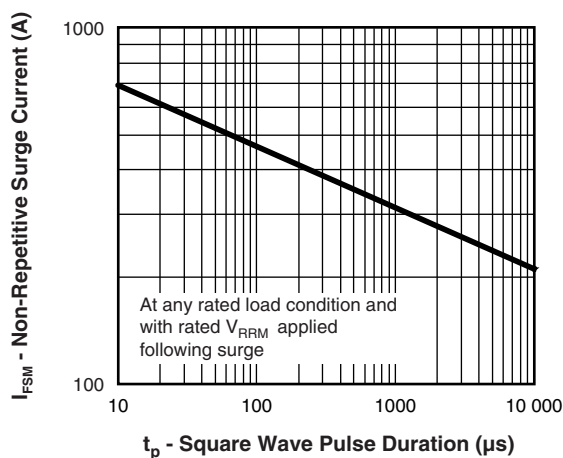


Fig. 7 - Maximum Non-Repetitive Surge Current

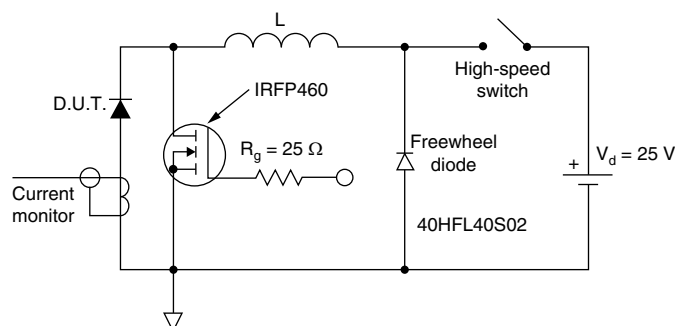


Fig. 8 - Unclamped Inductive Test Circuit

## Note

- (1) Formula used:  $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$ ;  
 $P_d$  = Forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);  
 $P_{dREV}$  = Inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 80\%$  rated  $V_R$

**ORDERING INFORMATION TABLE**

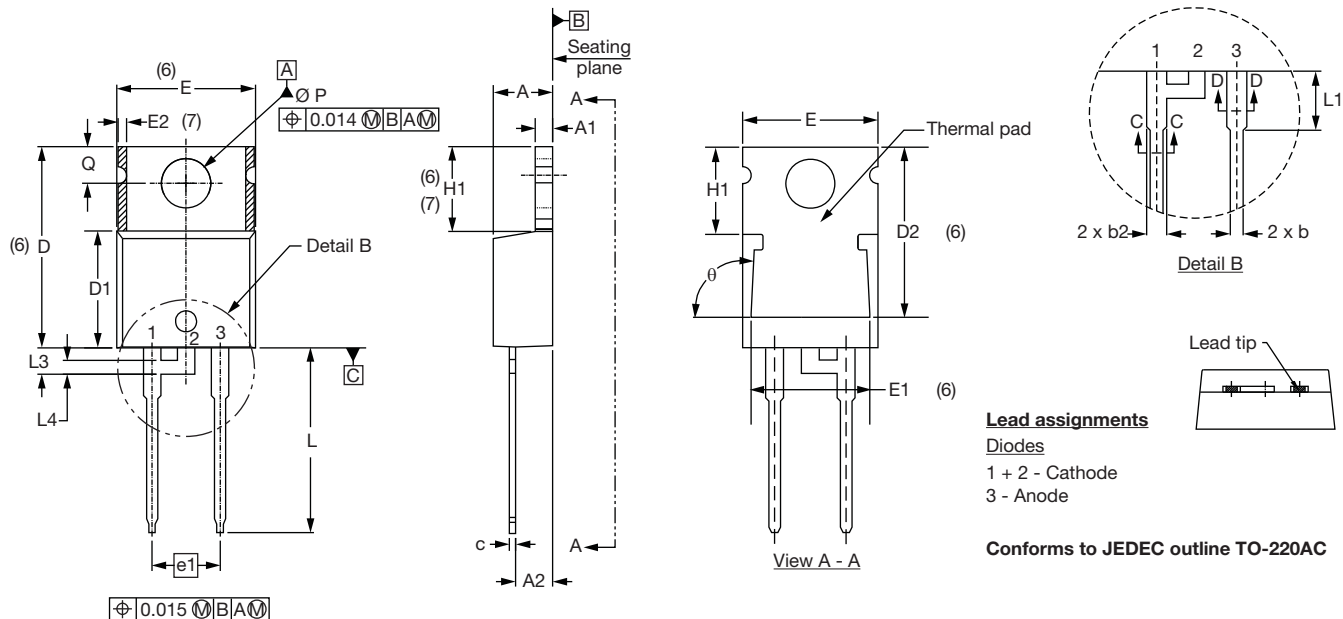
Device code	<b>VS-</b>	<b>8</b>	<b>T</b>	<b>Q</b>	<b>100</b>	<b>PbF</b>
	1	2	3	4	5	6
<b>1</b>	- Vishay Semiconductors product					
<b>2</b>	- Current rating (8 = 8 A)					
<b>3</b>	- Package: T = TO-220					
<b>4</b>	- Schottky "Q" series					
<b>5</b>	- Voltage ratings					
<b>6</b>	- Environmental digit					
						060 = 60 V 080 = 80 V 100 = 100 V
• PbF = Lead (Pb)-free and RoHS compliant						
• -N3 = Halogen-free, RoHS compliant, and totally lead (Pb)-free						

<b>ORDERING INFORMATION</b> (Example)			
PREFERRED P/N	QUANTITY PER T/R	MINIMUM ORDER QUANTITY	PACKAGING DESCRIPTION
VS-8TQ060PbF	50	1000	Antistatic plastic tube
VS-8TQ060-N3	50	1000	Antistatic plastic tube
VS-8TQ080PbF	50	1000	Antistatic plastic tube
VS-8TQ080-N3	50	1000	Antistatic plastic tube
VS-8TQ100PbF	50	1000	Antistatic plastic tube
VS-8TQ100-N3	50	1000	Antistatic plastic tube

<b>LINKS TO RELATED DOCUMENTS</b>		
Dimensions		<a href="http://www.vishay.com/doc?95221">www.vishay.com/doc?95221</a>
Part marking information	TO-220AC PbF	<a href="http://www.vishay.com/doc?95224">www.vishay.com/doc?95224</a>
	TO-220AC -N3	<a href="http://www.vishay.com/doc?95068">www.vishay.com/doc?95068</a>

### TO-220AC

**DIMENSIONS** in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.25	4.65	0.167	0.183	
A1	1.14	1.40	0.045	0.055	
A2	2.56	2.92	0.101	0.115	
b	0.69	1.01	0.027	0.040	
b1	0.38	0.97	0.015	0.038	4
b2	1.20	1.73	0.047	0.068	
b3	1.14	1.73	0.045	0.068	4
c	0.36	0.61	0.014	0.024	
c1	0.36	0.56	0.014	0.022	4
D	14.85	15.25	0.585	0.600	3
D1	8.38	9.02	0.330	0.355	
D2	11.68	12.88	0.460	0.507	6
E	10.11	10.51	0.398	0.414	3, 6

SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
E1	6.86	8.89	0.270	0.350	6
E2	-	0.76	-	0.030	7
e	2.41	2.67	0.095	0.105	
e1	4.88	5.28	0.192	0.208	
H1	6.09	6.48	0.240	0.255	6, 7
L	13.52	14.02	0.532	0.552	
L1	3.32	3.82	0.131	0.150	2
L3	1.78	2.13	0.070	0.084	
L4	0.76	1.27	0.030	0.050	2
Ø P	3.54	3.73	0.139	0.147	
Q	2.60	3.00	0.102	0.118	
θ	90° to 93°		90° to 93°		

#### Notes

- (1) Dimensioning and tolerancing as per ASME Y14.5M-1994
- (2) Lead dimension and finish uncontrolled in L1
- (3) Dimension D, D1 and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- (4) Dimension b1, b3 and c1 apply to base metal only
- (5) Controlling dimension: inches
- (6) Thermal pad contour optional within dimensions E, H1, D2 and E1
- (7) Dimension E2 x H1 define a zone where stamping and singulation irregularities are allowed
- (8) Outline conforms to JEDEC TO-220, D2 (minimum) where dimensions are derived from the actual package outline



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