



DYNAMIC RECOVERY CHARACTERISTICS (T _C = 25 °C unless otherwise specified)							
PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t _{rr}	I _F = 1.0 A, dI _F /dt = 200 A/μs, V _R = 30 V		-	-	35	ns
		T _J = 25 °C	I _F = 60 A dI _F /dt = 200 A/μs V _R = 160 V	-	28	-	
		T _J = 125 °C		-	50	-	
Peak recovery current	I _{RRM}	T _J = 25 °C		-	4	-	A
		T _J = 125 °C		-	8	-	
Reverse recovery charge	Q _{rr}	T _J = 25 °C		-	59	-	nC
		T _J = 125 °C	-	220	-		

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Thermal resistance, junction to case	R_{thJC}		-	-	0.70	K/W
Thermal resistance, case to heatsink	R_{thCS}	Mounting surface, flat, smooth and greased	-	0.2	-	
Weight			-	5.5	-	g
			-	0.2	-	oz.
Mounting torque			-	-	1.2	N · m
Marking device		Case style TO-247AC modified	60EPU02			
		Case style TO-247AC	60APU02			

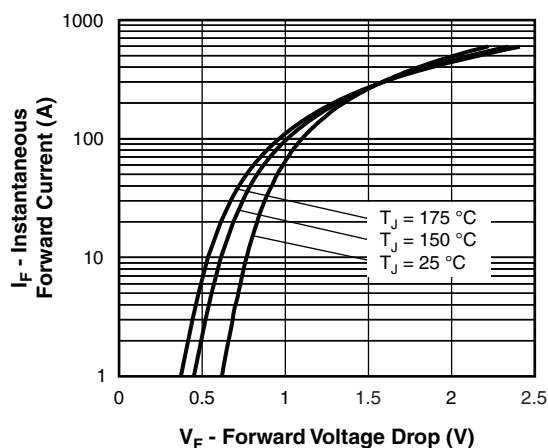


Fig. 1 - Typical Forward Voltage Drop Characteristics

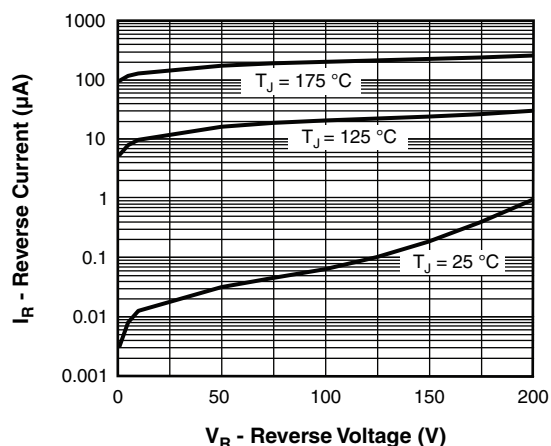


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

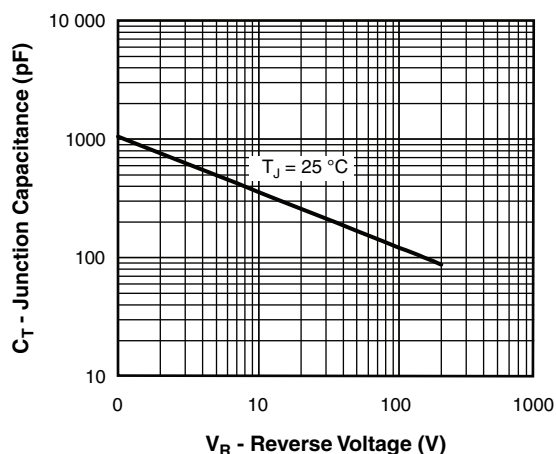


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

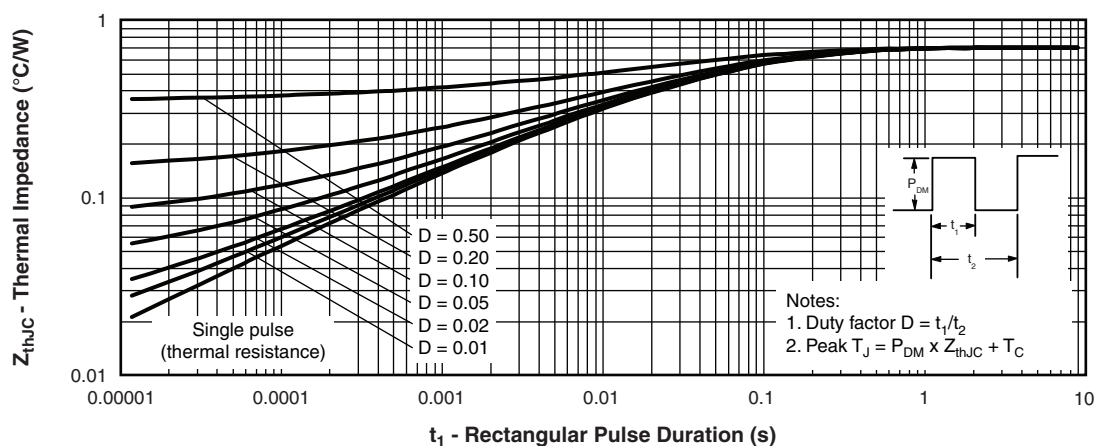


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

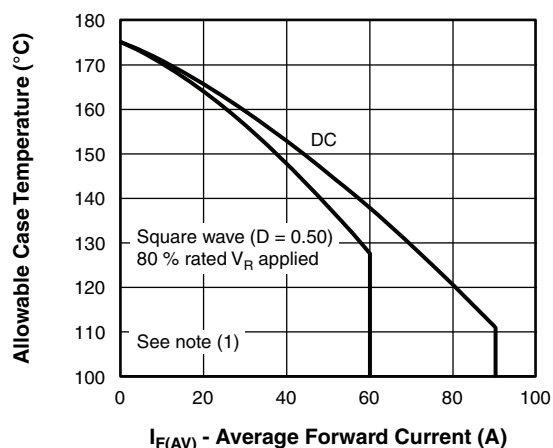


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

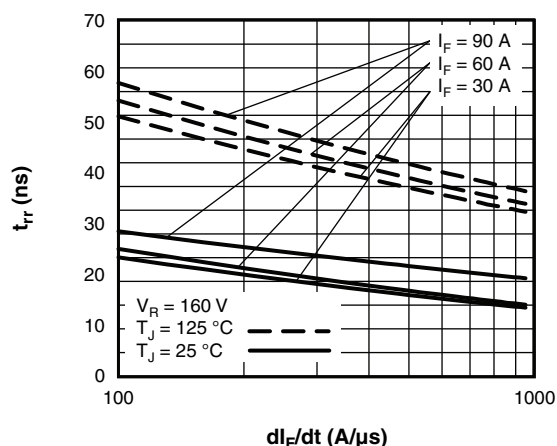


Fig. 7 - Typical Reverse Recovery Time vs. dI_F/dt

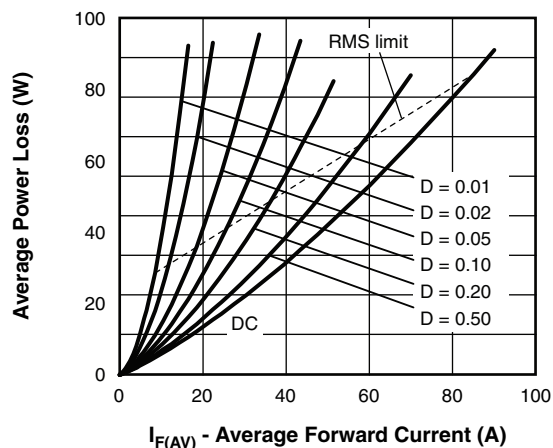


Fig. 6 - Forward Power Loss Characteristics

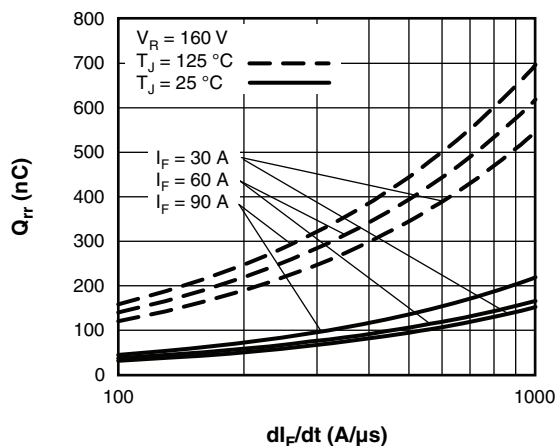


Fig. 8 - Typical Stored Charge vs. dI_F/dt

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

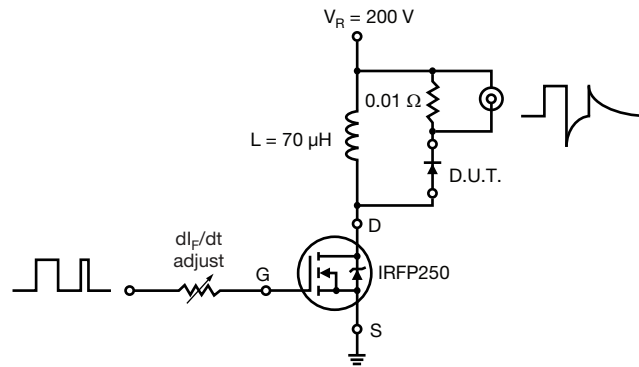
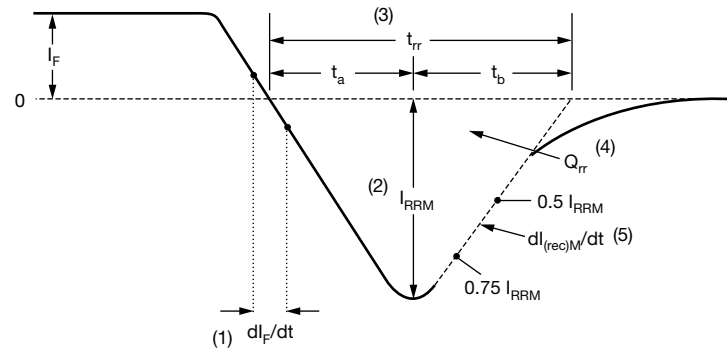


Fig. 9 - Reverse Recovery Parameter Test Circuit



- (1) dl_F/dt - rate of change of current through zero crossing
- (2) I_{RRM} - peak reverse recovery current
- (3) t_{rr} - reverse recovery time measured from zero crossing point of negative going I_F to point where a line passing through $0.75 I_{RRM}$ and $0.50 I_{RRM}$ extrapolated to zero current.
- (4) Q_{rr} - area under curve defined by t_{rr} and I_{RRM}
- (5) $dl_{(rec)M}/dt$ - peak rate of change of current during t_b portion of t_{rr}

$$Q_{rr} = \frac{t_{rr} \times I_{RRM}}{2}$$

Fig. 10 - Reverse Recovery Waveform and Definitions



ORDERING INFORMATION TABLE

Device code	VS-	60	E	P	U	02	PbF
	1	2	3	4	5	6	7

- 1** - Vishay Semiconductors product
- 2** - Current rating (60 = 60 A)
- 3** - Circuit configuration:
 - E = single diode
 - A = single diode, 3 pins
- 4** - Package:
 - P = TO-247AC (modified)
- 5** - Type of silicon:
 - U = ultrafast recovery
- 6** - Voltage rating (02 = 200 V)
- 7** - Environmental digit:
 - PbF = lead (Pb)-free and RoHS-compliant
 - N3 = halogen-free, RoHS-compliant and totally lead (Pb)-free

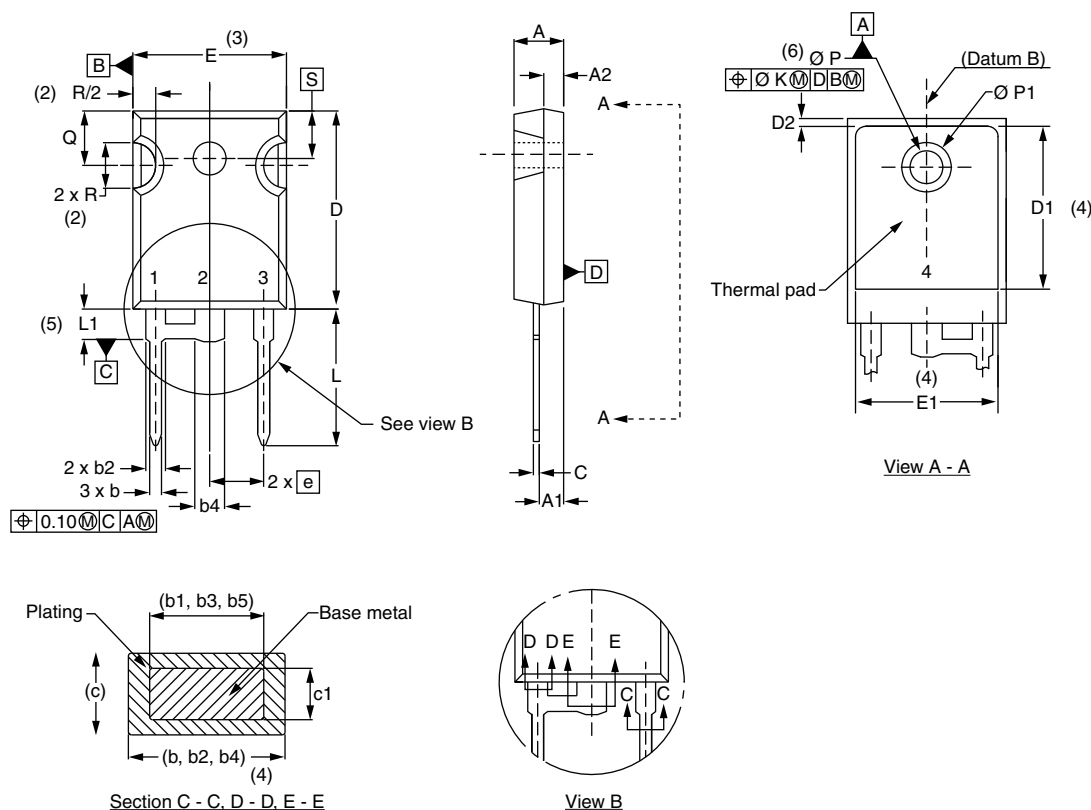
ORDERING INFORMATION (Example)			
PREFERRED P/N	QUANTITY PER T/R	MINIMUM ORDER QUANTITY	PACKAGING DESCRIPTION
VS-60EPU02PbF	25	500	Antistatic plastic tube
VS-60EPU02-N3	25	500	Antistatic plastic tube
VS-60APU02PbF	25	500	Antistatic plastic tube
VS-60APU02-N3	25	500	Antistatic plastic tube

LINKS TO RELATED DOCUMENTS		
Dimensions	TO-247AC modified	www.vishay.com/doc?95541
	TO-247AC	www.vishay.com/doc?95542
Part marking information	TO-247AC modified PbF	www.vishay.com/doc?95255
	TO-247AC modified -N3	www.vishay.com/doc?95442
	TO-247ACPbF	www.vishay.com/doc?95226
	TO-247AC-N3	www.vishay.com/doc?95007
SPIICE model		www.vishay.com/doc?96049



TO-247AC modified - 50 mils L/F

DIMENSIONS in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.65	5.31	0.183	0.209	
A1	2.21	2.59	0.087	0.102	
A2	1.17	1.37	0.046	0.054	
b	0.99	1.40	0.039	0.055	
b1	0.99	1.35	0.039	0.053	
b2	1.65	2.39	0.065	0.094	
b3	1.65	2.34	0.065	0.092	
b4	2.59	3.43	0.102	0.135	
b5	2.59	3.38	0.102	0.133	
c	0.38	0.89	0.015	0.035	
c1	0.38	0.84	0.015	0.033	
D	19.71	20.70	0.776	0.815	3
D1	13.08	-	0.515	-	4

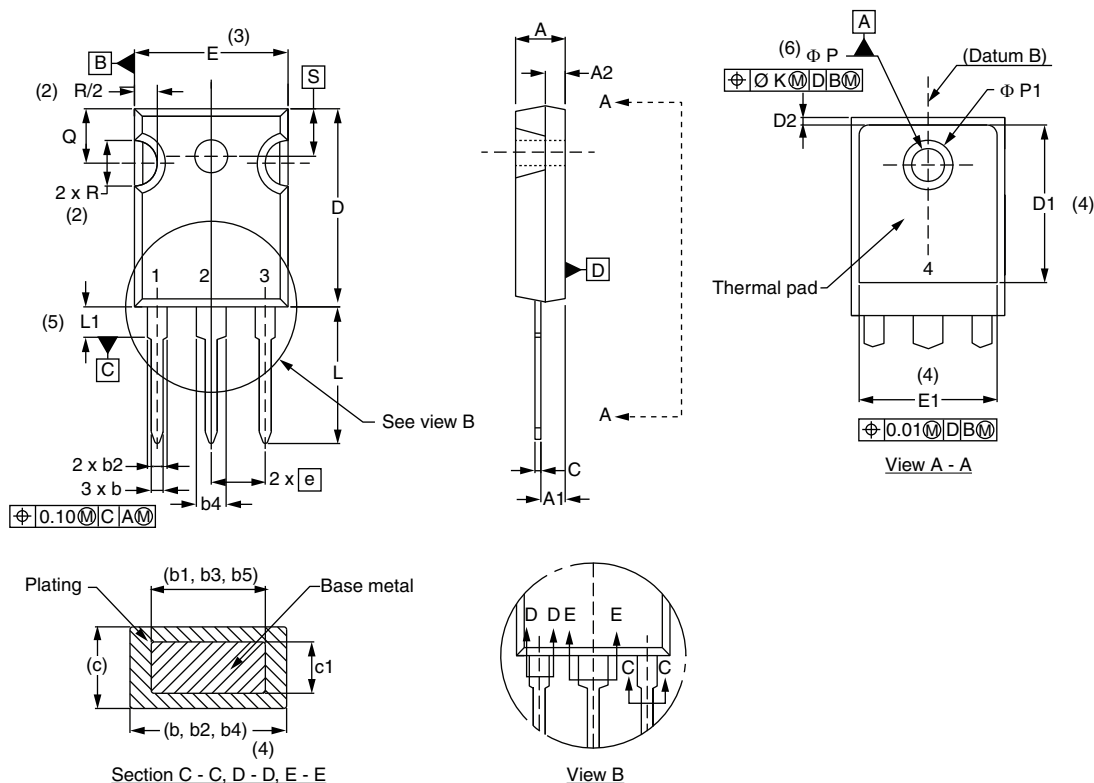
SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
D2	0.51	1.35	0.020	0.053	
E	15.29	15.87	0.602	0.625	3
E1	13.46	-	0.53	-	
e	5.46 BSC		0.215 BSC		
Ø K	0.254		0.010		
L	14.20	16.10	0.559	0.634	
L1	3.71	4.29	0.146	0.169	
Ø P	3.56	3.66	0.14	0.144	
Ø P1	-	7.39	-	0.291	
Q	5.31	5.69	0.209	0.224	
R	4.52	5.49	0.178	0.216	
S	5.51 BSC		0.217 BSC		

Notes

- Dimensioning and tolerance per ASME Y14.5M-1994
- Contour of slot optional
- Dimension D 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
- Thermal pad contour optional with dimensions D1 and E1
- Lead finish uncontrolled in L1
- Ø P to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154")
- Outline conforms to JEDEC® outline TO-247 with exception of dimension c and Q

TO-247AC - 50 mils L/F

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