ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop See fig. 1	V_{FM} (1)	6 A	T_J = 25 °C	0.60	V
		12 A		0.73	
		6 A	T_J = 125 °C	0.53	
		12 A		0.64	
Maximum reverse leakage current See fig. 2	I_{RM} (1)	T_J = 25 °C	V_R = Rated V_R	0.8	mA
		T_J = 125 °C		7	
Threshold voltage	$V_{F(TO)}$	T_J = T_J maximum		0.35	V
Forward slope resistance	r_t			18.23	mΩ
Maximum junction capacitance	C_T	V_R = 5 V_{DC} (test signal range 100 kHz to 1 MHz) 25 °C		400	pF
Typical series inductance	L_S	Measured lead to lead 5 mm from package body		8	nH
Maximum voltage rate of change	dV/dt	Rated V_R		10 000	V/µs

Note

(1) Pulse width < 300 µs, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER		SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range		T_J, T_{Stg}		- 55 to 175	°C
Maximum thermal resistance, junction to case		R_{thJC}	DC operation See fig. 4	2.2	°C/W
Typical thermal resistance, case to heatsink		R_{thCS}	Mounting surface, smooth and greased	0.50	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device			Case style TO-220AC	6TQ035	
				6TQ040	
				6TQ045	

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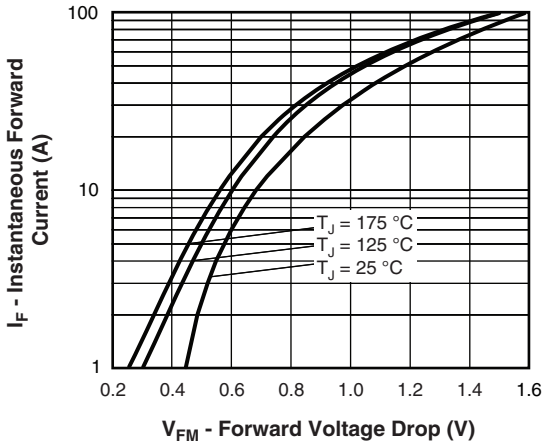

Fig. 1 - Maximum Forward Voltage Drop Characteristics

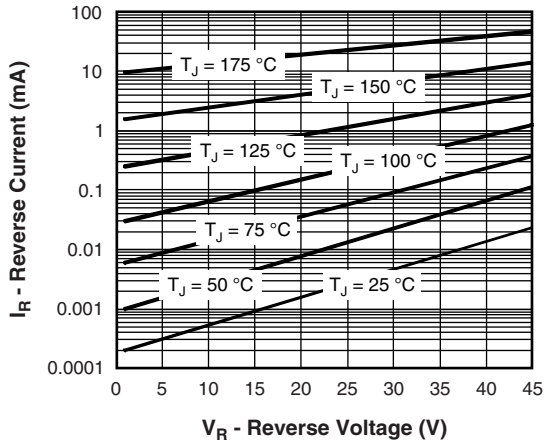

Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

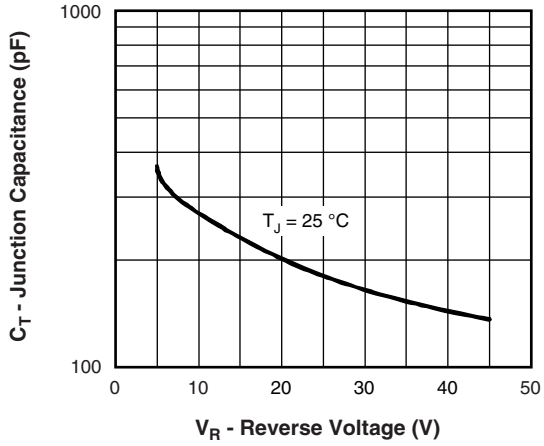

Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

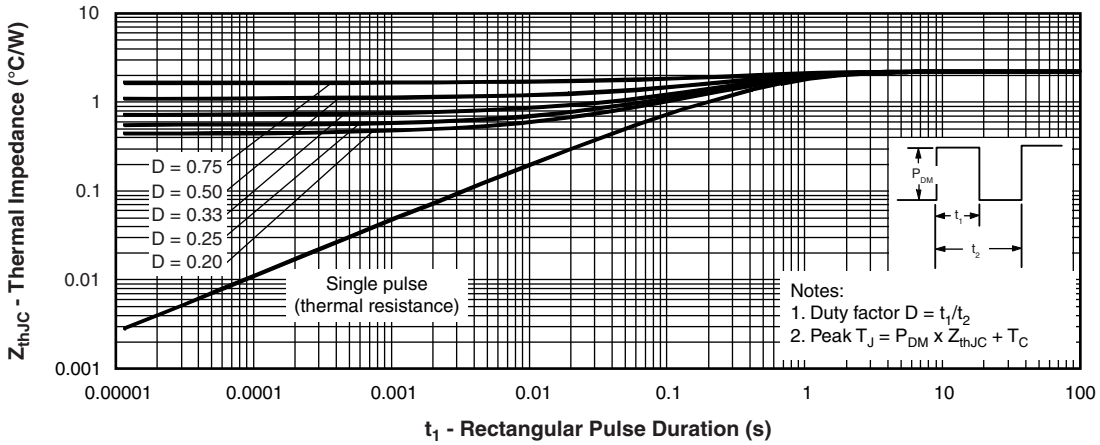

Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

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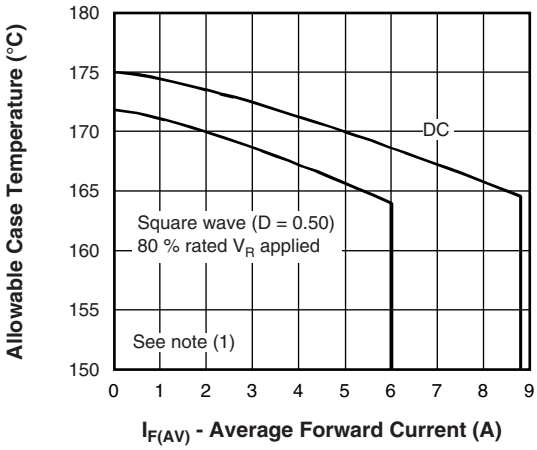

Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

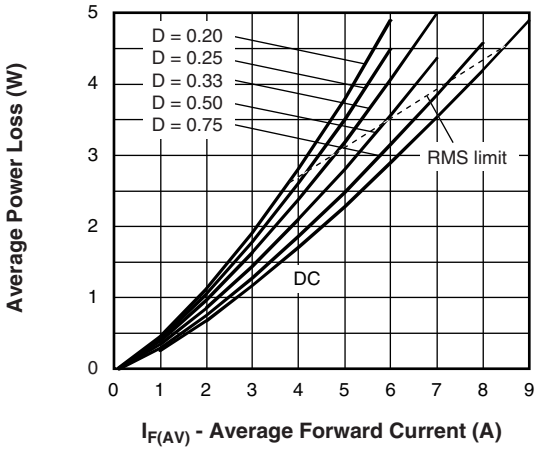

Fig. 6 - Forward Power Loss Characteristics

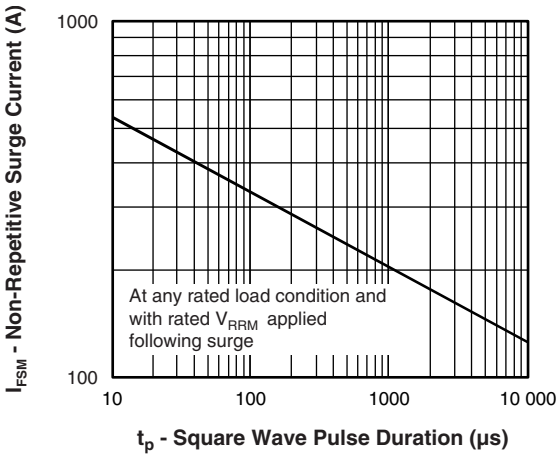

Fig. 7 - Maximum Non-Repetitive Surge Current

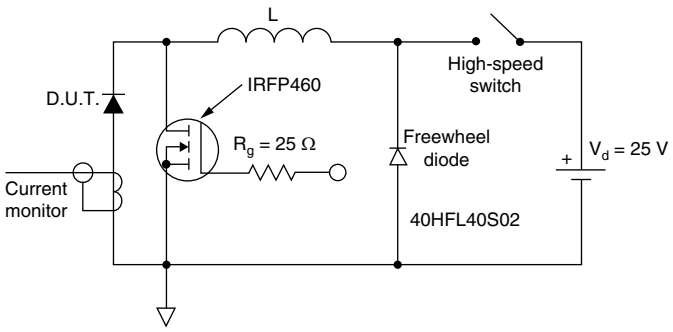

Fig. 8 - Unclamped Inductive Test Circuit

Note

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

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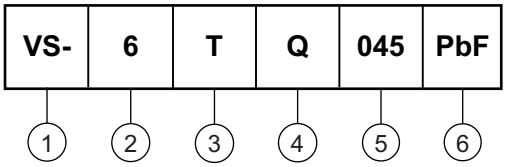
ORDERING INFORMATION TABLE

Device code



1 - Vishay Semiconductors product

2 - Current rating (6 = 6 A)

3 - Package:
T = TO-220

4 - Schottky "Q" series

5 - Voltage ratings
035 = 35 V
040 = 40 V
045 = 45 V

6 - 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-6TQ035PbF	50	1000	Antistatic plastic tube
VS-6TQ035-N3	50	1000	Antistatic plastic tube
VS-6TQ040PbF	50	1000	Antistatic plastic tube
VS-6TQ040-N3	50	1000	Antistatic plastic tube
VS-6TQ045PbF	50	1000	Antistatic plastic tube
VS-6TQ045-N3	50	1000	Antistatic plastic tube

LINKS TO RELATED DOCUMENTS		
Dimensions		www.vishay.com/doc?95221
Part marking information	TO-220AC PbF	www.vishay.com/doc?95224
	TO-220AC -N3	www.vishay.com/doc?95068

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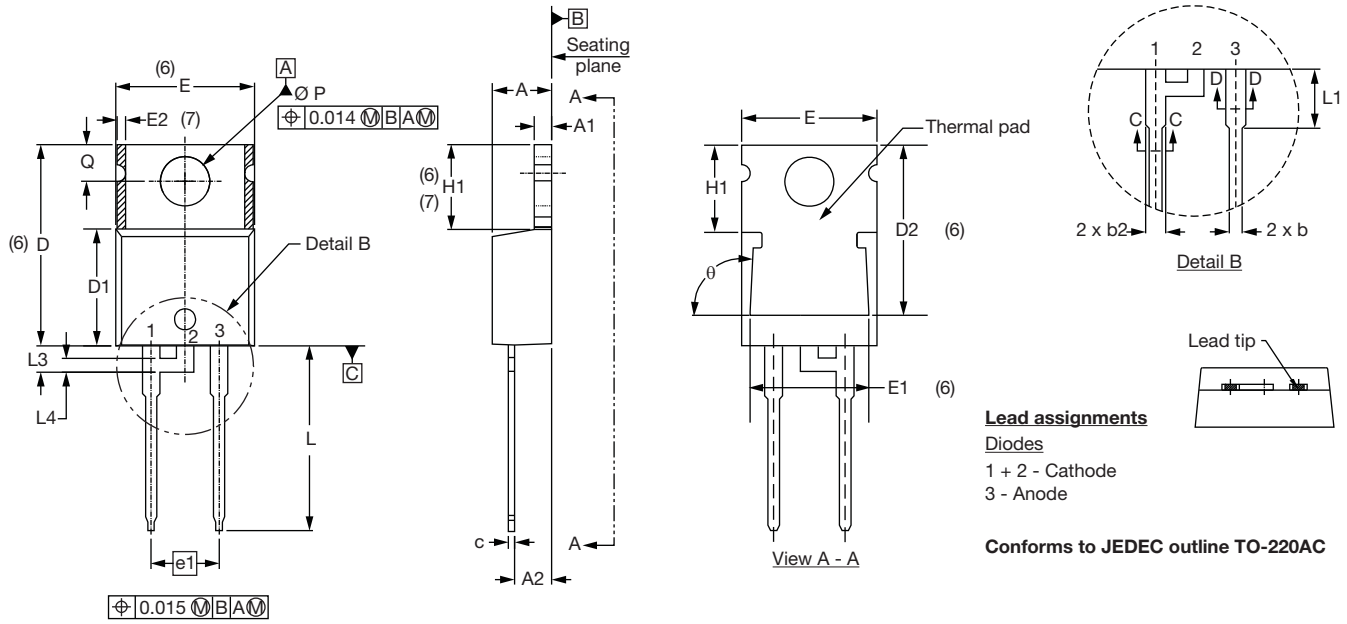
TO-220AC

DIMENSIONS in millimeters and inches



Lead assignments

Diodes

1 + 2 - Cathode

3 - Anode

Conforms to JEDEC outline TO-220AC

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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