

**DYNAMIC RECOVERY CHARACTERISTICS** ($T_J = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t_{rr}	$I_F = 1.0\text{ A}$, $di_F/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$	-	49	-	ns
		$T_J = 25\text{ }^{\circ}\text{C}$	-	220	-	
		$T_J = 125\text{ }^{\circ}\text{C}$	-	356	-	
Peak recovery current	I_{RRM}	$T_J = 25\text{ }^{\circ}\text{C}$	-	8.2	-	A
		$T_J = 125\text{ }^{\circ}\text{C}$	-	13.3	-	
Reverse recovery charge	Q_{rr}	$T_J = 25\text{ }^{\circ}\text{C}$	-	900	-	nC
		$T_J = 125\text{ }^{\circ}\text{C}$	-	2388	-	

THERMAL - MECHANICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Thermal resistance, junction to case	R_{thJC}		-	-	0.8	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction to ambient	R_{thJA}	Typical socket mount	-	-	54	
Thermal resistance, case to heatsink	R_{thCS}	Mounting surface, flat, smooth, and greased	-	-	0.4	
Weight			-	0.2	-	g
			-	0.07	-	oz.
Mounting torque			6.0 (5.0)	-	12 (10)	kgf · cm (lbf · in)
Maximum junction and storage temperature range	T_J, T_{Stg}		-55	-	175	$^{\circ}\text{C}$
Marking device		Case style: 2L TO-220AC	30ETU12T			

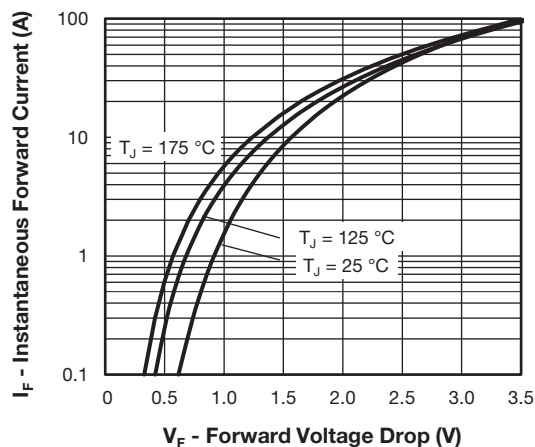


Fig. 1 - Typical Forward Voltage Drop Characteristics

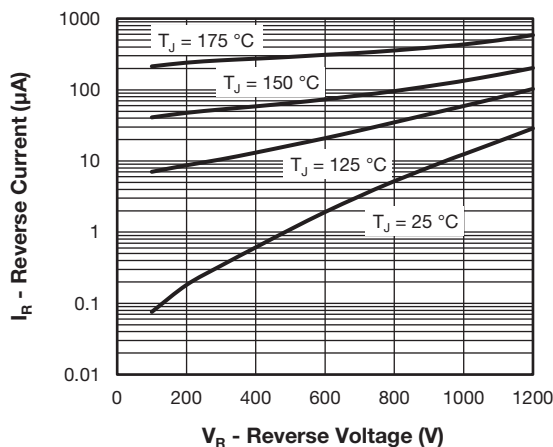


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

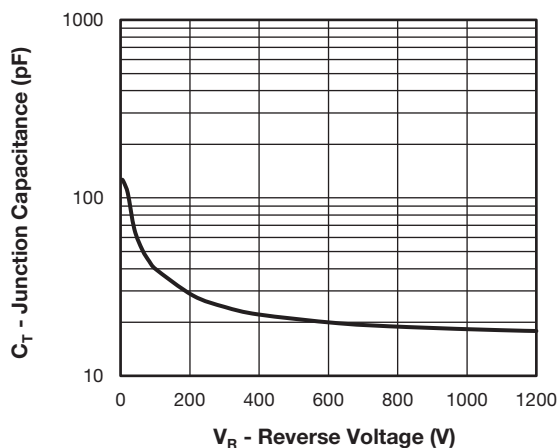


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage

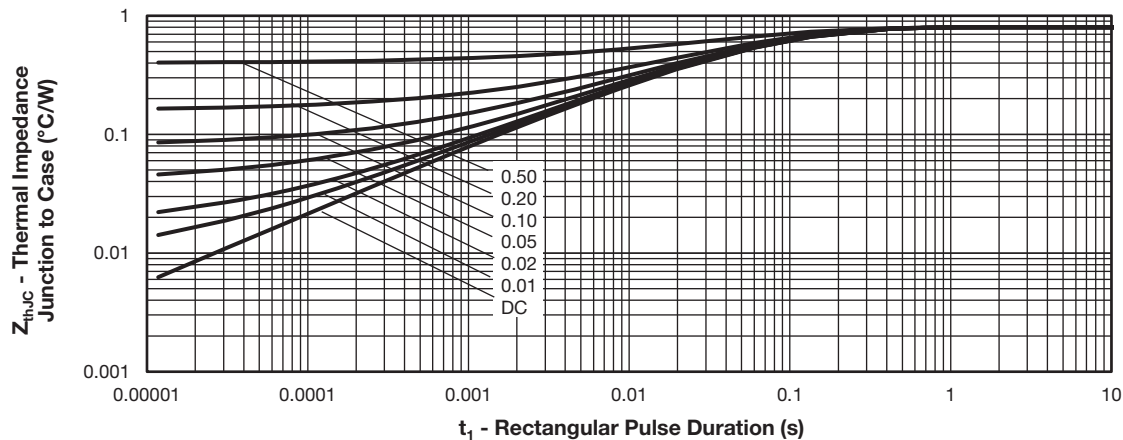


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

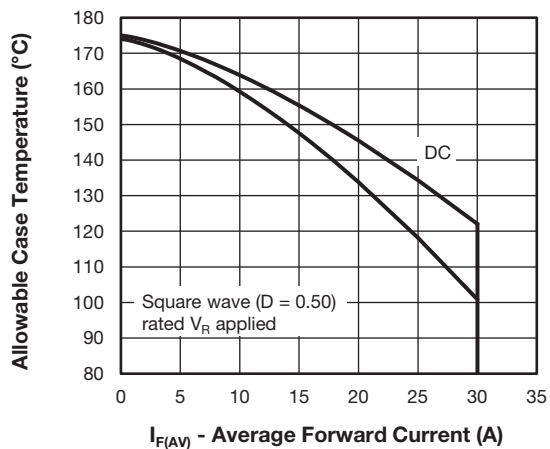


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current

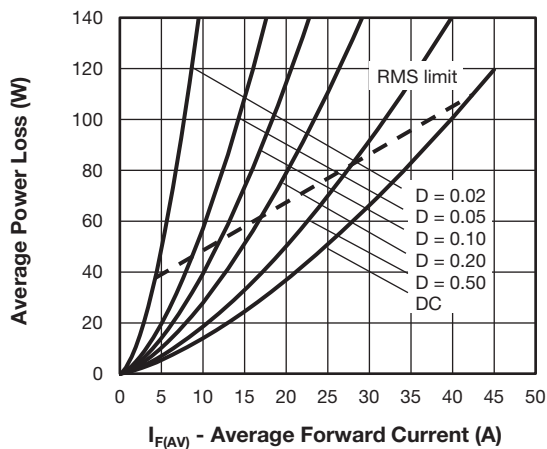
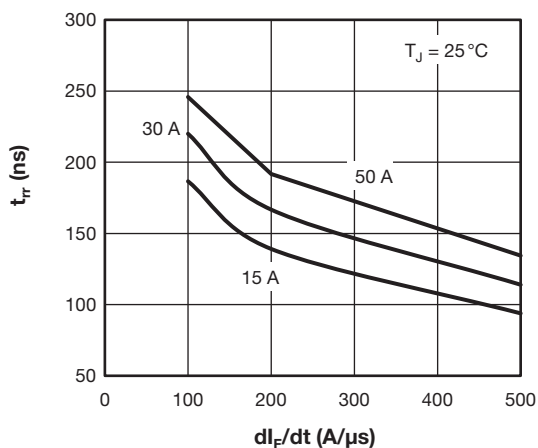
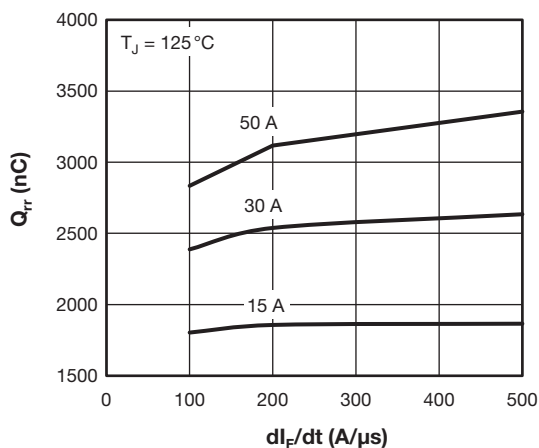
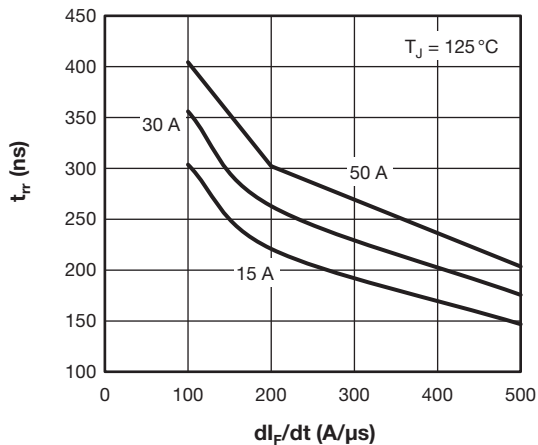
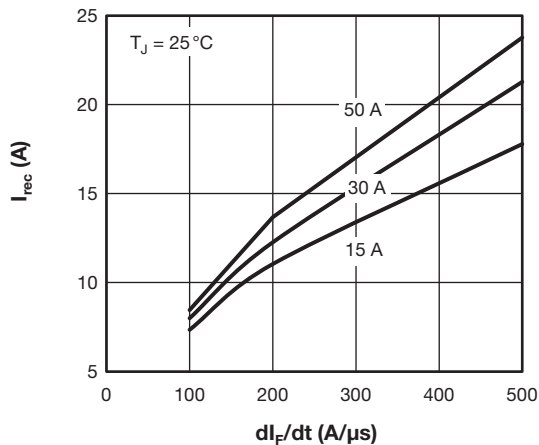
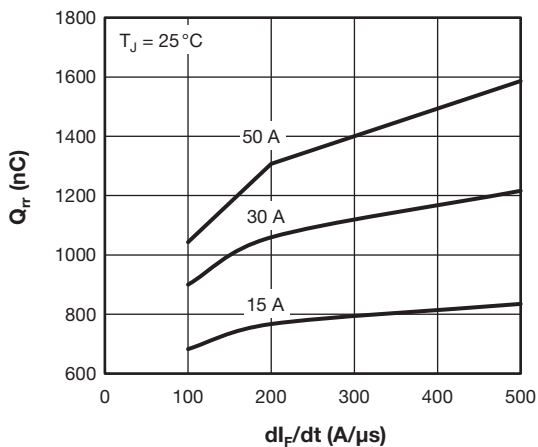
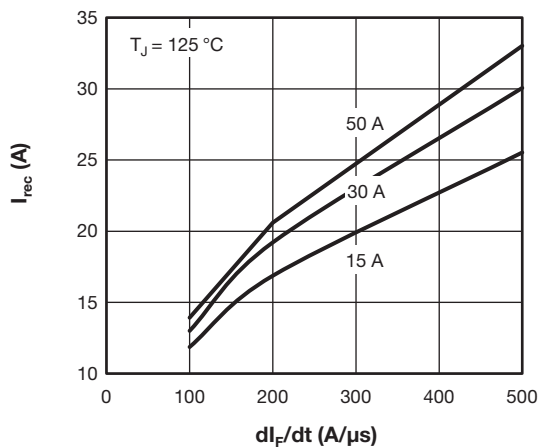


Fig. 6 - Forward Power Loss Characteristics


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

Fig. 10 - Typical Stored Charge vs. dI_F/dt

Fig. 8 - Typical Reverse Recovery Time vs. dI_F/dt

Fig. 11 - Typical Reverse Current vs. dI_F/dt

Fig. 9 - Typical Stored Charge vs. dI_F/dt

Fig. 12 - Typical Reverse Current vs. dI_F/dt

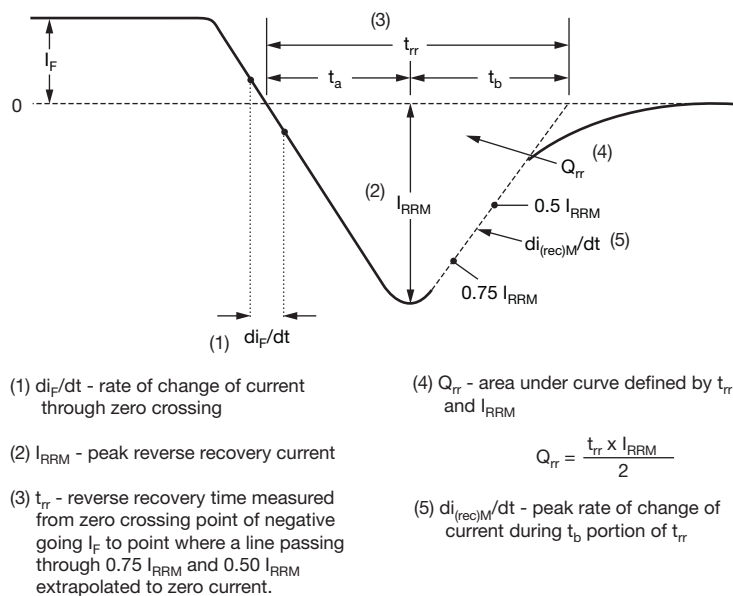


Fig. 13 - Reverse Recovery Waveform and Definitions

ORDERING INFORMATION TABLE

Device code	VS-	30	E	T	U	12	T	-N3
	1	2	3	4	5	6	7	8

- 1 - Vishay Semiconductors product
- 2 - Current rating 30 = 30 A
- 3 - E = single diode
- 4 - Package: T = TO-220AC
- 5 - U = ultrafast recovery
- 6 - Voltage rating (12 = 1200 V)
- 7 - T = True 2 pin TO-220
- 8 - Environmental digit:
-N3 = halogen-free, RoHS-compliant, and totally lead (Pb)-free

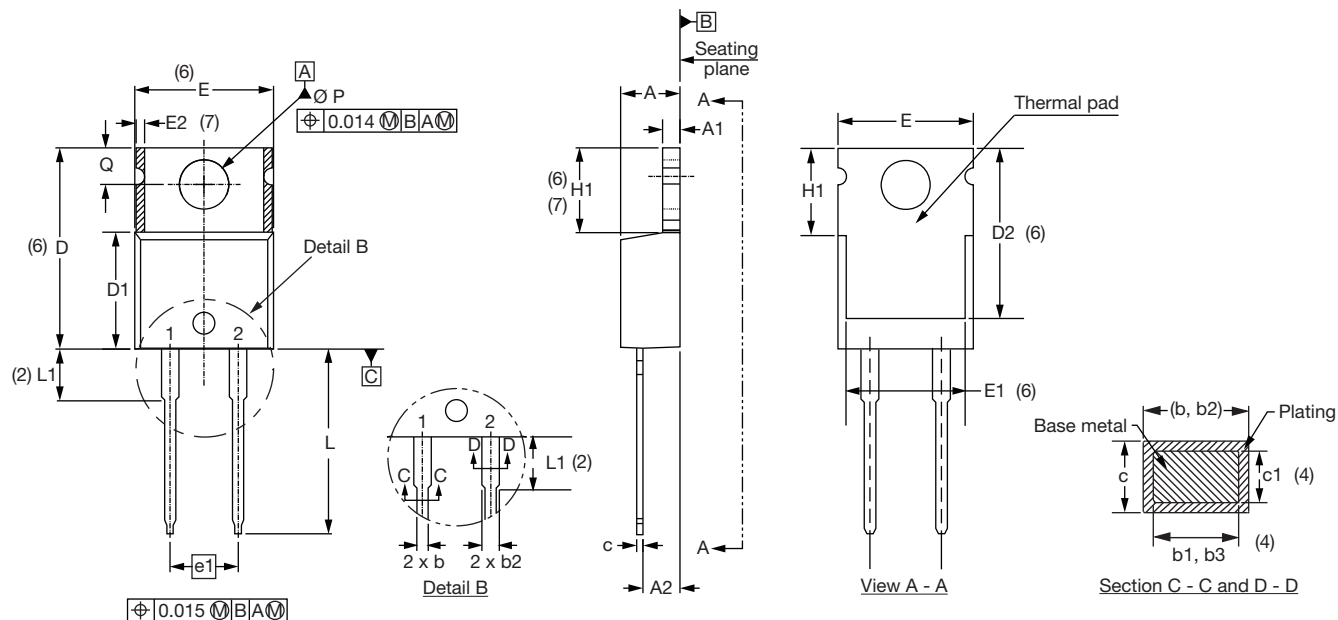
ORDERING INFORMATION (Example)			
PREFERRED P/N	QUANTITY PER TUBE	MINIMUM ORDER QUANTITY	PACKAGING DESCRIPTION
VS-30ETU12T-N3	50	1000	Antistatic plastic tube

LINKS TO RELATED DOCUMENTS		
Dimensions	2L TO-220AC	www.vishay.com/doc?96069
Part marking information	2L TO-220AC	www.vishay.com/doc?95391



2L 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
Ø P	3.54	3.73	0.139	0.147	
Q	2.60	3.00	0.102	0.118	

Notes

- Dimensioning and tolerancing as per ASME Y14.5M-1994
- Lead dimension and finish uncontrolled in L1
- 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
- Dimension b1, b3 and c1 apply to base metal only
- Controlling dimension: inches
- Thermal pad contour optional within dimensions E, H1, D2 and E1
- Dimension E2 x H1 define a zone where stamping and singulation irregularities are allowed
- Outline conforms to JEDEC® TO-220, except D2, where JEDEC® minimum is 0.480".



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