WESTCODE SEMICONDUCTORS

Technical Publication
1N3909-13
Issue 1
February 1981

Fast Recovery Stud-Base Diode Type 1N3909-13

30 amperes average: up to 400 volts V_{RRM}

RATINGS (Maximum values at Tj 150°C unless stated otherwise)

RATING	CONDITIONS	SYMBOL	
Average forward current	Half sine wave 117°C case temperature	$I_{F(AV)}$	30A
RMS current		$I_{F(RMS)}$	118A
DC forward current		I_F	118A
Peak one-cycle surge (non repetitive)	10ms sine pulse { 60% V_{RRM} re-applied max. $V_{RM} \leqslant$ 10 volts	I_{FSM} (1)	285A
		I_{FSM} (2)	340A
Maximum surge I^2t	10ms sine pulse { 60% V_{RRM} re-applied max. $V_{RM} \leqslant$ 10 volts	I^2t (1)	405A²s
		I^2t (2)	580A²s
	3ms sine pulse $V_{RM} \leqslant$ 10 volts	I^2t (3)	420A²s
Operating temperature range		T_{case}	-65,+150°C
Storage temperature range		T_{stg}	-65,+175°C

CHARACTERISTICS (Maximum values at Tj 150°C unless stated otherwise)

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 135A, I_{FM}	V_{FM}	1.56V
Forward conduction threshold voltage		V_0	1.15V
Forward conduction slope resistance		r	3.05mΩ
Peak reverse current	$V_{RM} = V_{RRM}$ (max.) T_j = 150°C	I_{RRM}	15mA
	T_j = 25°C	I_{RRM}	1mA
Thermal resistance	Junction to case	$R_{th\ (j-c)}$	0.8°C/W
	Case to heatsink	$R_{th(c-hs)}$	0.1°C/W
Reverse recovery time	I_{FM} = 1A, di/dt = 25 A/μs V_{RM} = 50V, T_j = 25°C	t_{rr}	0.2μs

VOLTAGE CODE	909	910	911	912	913	
Repetitive voltage V_{RRM}	50	100	200	300	400	
Non-repetitive voltage V_{RSM}	100	200	300	400	500	

ORDERING INFORMATION (Please quote device code as explained below – 6 or 7 digits)

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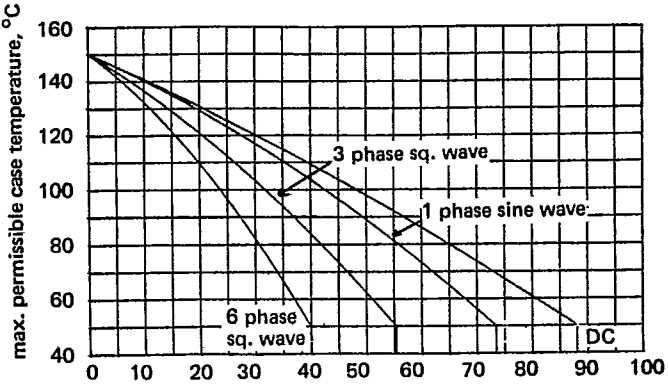
FIXED JEDEC CODE	FIXED CODE	VOLTAGE CODE (see above)	for reverse polarity add suffix R

Typical codes 1N3911 = 200V_{RRM} diode with base cathode 1N3911R = 200V_{RRM} diode with base anode



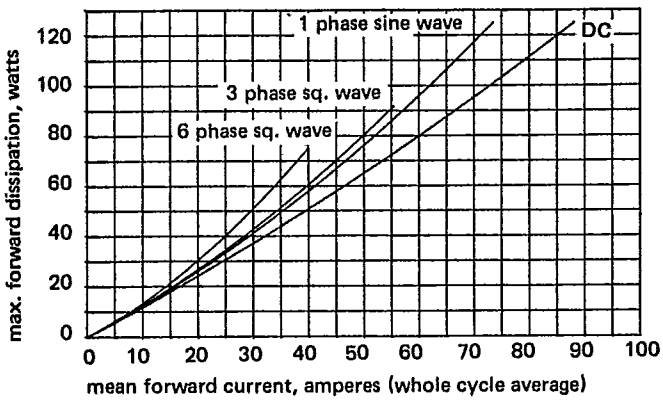


Figure 1 Dissipation and case temperature v. current 50Hz

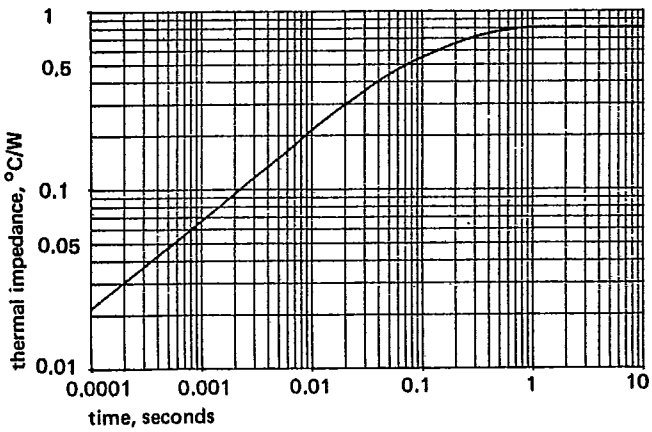


Figure 2 Junction to case transient thermal impedance

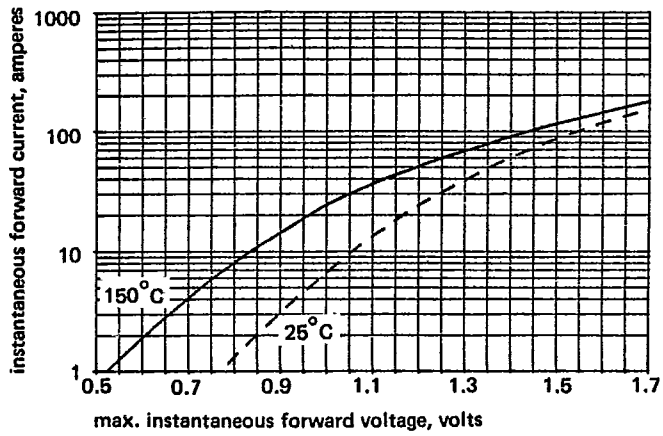


Figure 3 Forward voltage characteristic of limit diode

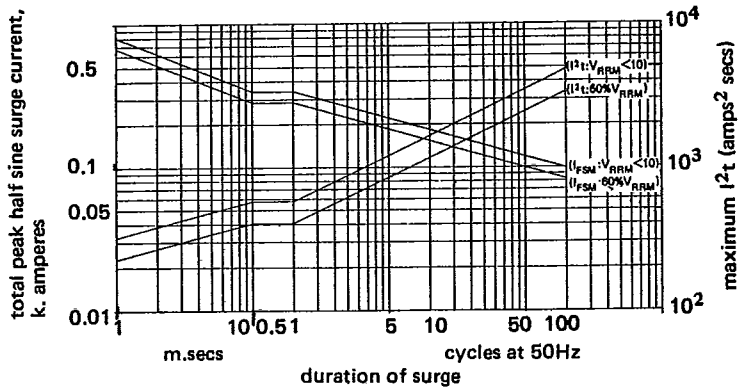
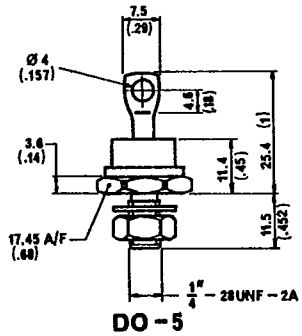


Figure 4 Max. non-repetitive surge current at initial junction temperature 150°C



DO-5

dimensions in m.m. (inches)
mounting torque:
4 – 4.7 Nm
(0.4 – 0.48kgf m)
threads must not be lubricated
weight: 20 grams

In the interest of product improvement, Westcode reserves the right to change specifications at any time without notice.

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