WESTCODE SEMICONDUCTORS

Technical Publication
1N3889-93
Issue 1
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Fast Recovery Stud-Base Diode Type 1N3889-93

12 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 100°C case temperature	$I_{F(AV)}$	12A
RMS current		$I_{F(RMS)}$	47A
DC forward current		I_F	47A
Peak one-cycle surge (non repetitive)	10ms sine pulse { 60% V_{RRM} re-applied max. $V_{RM} \leq$ 10 volts	I_{FSM} (1)	210A
		I_{FSM} (2)	240A
Maximum surge I^2t	10ms sine pulse { 60% V_{RRM} re-applied max. $V_{RM} \leq$ 10 volts	I^2t (1)	220A^{2}s
		I^2t (2)	290A^{2}s
	3ms sine pulse $V_{RM} \leq$ 10 volts	I^2t (3)	213A^{2}s
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 40A, I_{FM}	V_{FM}	1.5V
Forward conduction threshold voltage		V_o	1.21V
Forward conduction slope resistance		r	7.3mΩ
Peak reverse current	$V_{RM} = V_{RRM}$ (max.) T_j = 150°C	I_{RRM}	10mA
	T_j = 25°C	I_{RRM}	1mA
Thermal resistance	Junction to case	$R_{th(j-c)}$	1.3°C/W
	Case to heatsink	$R_{th(c-hs)}$	0.25°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	889	890	891	892	893	
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 1N3891 = 200V_{RRM} diode with base cathode 1N3891R = 200V_{RRM} diode with base anode

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