



# WESTCODE



# SEMICONDUCTORS

Technical  
Publication  
**1N3889-93**  
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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  $T_J$  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 $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_{RM} \leq 10 \text{ volts} \end{array} \right.$ max.	$I_{FSM(1)}$	210A
		$I_{FSM(2)}$	240A
Maximum surge $I^2t$	10ms sine pulse $\left\{ \begin{array}{l} 60\% V_{RRM} \text{ re-applied} \\ V_{RM} \leq 10 \text{ volts} \end{array} \right.$ max.	$I^2t(1)$	220A <sup>2</sup> s
		$I^2t(2)$	290A <sup>2</sup> s
		$I^2t(3)$	213A <sup>2</sup> s
Operating temperature range	3ms sine pulse $V_{RM} \leq 10 \text{ volts}$	$T_{case}$	-85,+150°C
Storage temperature range		$T_{stg}$	-85,+175°C

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

CHARACTERISTIC	CONDITIONS	SYMBOL	
Peak forward voltage drop	At 40A, $I_{FM}$	$V_{FM}$	1.5V
Forward conduction threshold voltage		$V_0$	1.21V
Forward conduction slope resistance		$r$	7.3mΩ
Peak reverse current	$V_{RM} = V_{RRM} \text{ (max.)}$ $T_J = 150^\circ\text{C}$ $T_J = 25^\circ\text{C}$	$I_{RRM}$	10mA
Thermal resistance	Junction to case	$I_{RRM}$	1mA
		$R_{th(j-c)}$	1.3°C/W
	Case to heatsink	$R_{th(c-hs)}$	0.25°C/W
Reverse recovery time	$I_{FM} = 1A, di/dt = 25 A/\mu s$ $V_{RM} = 50V, T_J = 25^\circ\text{C}$	$t_r$	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)

1	N	3	•	•	•	•
FIXED JEDEC CODE		FIXED CODE	VOLTAGE CODE (see above)			for reverse polarity add suffix R

Typical codes 1N3891 = 200V<sub>RRM</sub> diode with base cathode 1N3891R = 200V<sub>RRM</sub> diode with base anode