

1N3889 thru 1N3893

Designers' Data Sheet

STUD MOUNTED FAST RECOVERY POWER RECTIFIERS

... designed for special applications such as dc power supplies, inverters, converters, ultrasonic systems, choppers, low RF interference, sonar power supplies and free wheeling diodes. A complete line of fast recovery rectifiers having typical recovery time of 100 nanoseconds providing high efficiency at frequencies to 250 kHz.

Designer's Data for "Worst Case" Conditions

The Designers' Data sheets permit the design of most circuits entirely from the information presented. Limit curves — representing boundaries on device characteristics — are given to facilitate "worst case" design.

FAST RECOVERY POWER RECTIFIERS

50-800 VOLTS
12 AMPERES



*MAXIMUM RATINGS

Rating	Symbol	1N3889	1N3890	1N3891	1N3892	1N3893	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	50	100	200	300	400	Volts
Working Peak Reverse Voltage	V_{RWM}						
DC Blocking Voltage	V_R						
Non-Repetitive Peak Reverse Voltage	V_{RSM}	75	150	250	350	450	Volts
RMS Reversal Voltage	$V_{R(RMS)}$	35	70	140	210	280	Volts
Average Rectified Forward Current (Single phase, resistive load, $T_C = 100^\circ\text{C}$)	I_O	12					Amps
Non-Repetitive Peak Surge Current (Surge applied at rated load conditions)	I_{FSM}	200 (one cycle)					Amp
Operating Junction Temperature Range	T_J	-65 to +150					$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +175					$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$

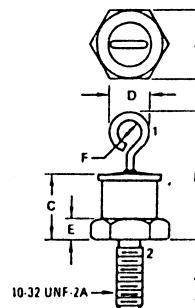
Materials guarantees the listed value, although parts having higher values of thermal resistance will meet the current rating. Thermal resistance is not required by the JEDEC registration.

*ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Forward Voltage ($I_F = 36 \text{ Amp}$, $T_J = 150^\circ\text{C}$)	V_F	—	1.2	1.5	Volts
Forward Voltage ($I_F = 12 \text{ Amp}$, $T_C = 25^\circ\text{C}$)	V_F	—	1.0	1.4	Volts
Reverse Current (rated dc voltage)	I_R	—	10	15	μA
			0.5	1.0	mA

*REVERSE RECOVERY CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Recovery Time ($I_F = 1.0 \text{ Amp}$ to $V_R = 30 \text{ Vdc}$, Figure 16)	t_{rr}	—	100	200	ns
($I_{FM} = 36 \text{ Amp}$, $dI/dt = 25 \text{ A}/\mu\text{s}$, Figure 17)		—	200	400	
Reverse Recovery Current ($I_F = 1.0 \text{ Amp}$ to $V_R = 30 \text{ Vdc}$, Figure 16)	$I_{RM(REC)}$	—	—	2.0	Amp



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.77	11.10	0.424	0.437
C	—	10.29	—	0.405
D	—	6.35	—	0.250
E	1.91	4.45	0.075	0.175
F	1.52	—	0.060	—
J	10.72	11.51	0.422	0.453
K	—	20.32	—	0.800

(DO-4)

MECHANICAL CHARACTERISTICS

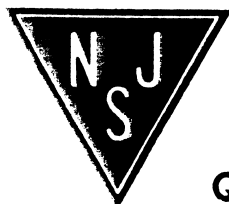
Case: Welded, hermetically sealed

Finish: All external surface corrosion resistant and terminal leads are readily solderable

Polarity: Cathode to Case

Mounting Positions: Any

Stud Torque: 15 in./lb. Max



Quality Semi-Conductors