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NTE5810 & NTE5811, NTE5870 thru NTE5891 Silicon Power Rectifier Diode, 12 Amp, DO4

Description:

The NTE5810, NTE5811, and NTE5870 through NTE5891 are low power general purpose rectifier diodes in a DO4 type package designed for battery chargers, converters, power supplies, and machine tool controls.

Features:

- High Surge Current Capability
- High Voltage Available
- Designed for a Wide Range of Applications
- Available in Anode–to–Case or Cathode–to–Case Style

Ratings and Characteristics:

Average Forward Current (T_C = +144°C Max), $I_{F(AV)}$ 12A
Maximum Forward Surge Current, I_{FSM}
50Hz 230A
60Hz 240A
Fusing Current, I^2t
50Hz . . . . . 260A^2s
60Hz . . . . . 240A^2s
Fusing Current, $I^2\sqrt{t}$ . . . . . 3580$A^2\sqrt{s}$
Maximum Reverse Recovery Voltage Range, V_{RRM} . . . . . 50 to 1200V

Voltage Ratings: (T_J = +175°C, Note 1)

NTE Type Number		V_{RRM}–Max Repetitive Peak Reverse Volt. (V)	V_{RSM}–Max Non–Repetitive Peak Reverse Voltage (V)	V_R–Max. Direct Reverse Voltage (V)	$V_{R(SR)}$ Minimum Avalanche Voltage (V)	I_{RM}–Max Reverse Current Rated V_{RRM} (mA)
Cathode to Case	Anode to Case					
5870	5871	50	75	50	–	12
5872	5873	100	150	100	–	12
5874	5875	200	275	200	–	12
5876	5877	300	385	300	–	12
5878	5879	400	500	400	500	12
5880	5881	500	613	500	626	12
5882	5883	600	725	600	750	12
5886	5887	800	950	800	950	12
5890	5891	1000	1200	1000	1150	12
5810	5811	1200	1400	1200	1350	12

Electrical Specifications:

Parameter	Symbol	Test Conditions		Rating	Unit
Maximum Average Forward Current	$I_{F\ (AV)}$	180° sinusoidal condition, T_C = +144°C Max		12	A
Maximum RMS Forward Current	$I_{F(RMS)}$			19	A
Maximum Peak One−Cycle Non−Repetitive Surge Current	I_{FSM}	t = 10ms	Sinusoidal Half Wave, No voltage reapplied	225	A
		t = 8.3ms		235	A
		t = 10ms	100% rated voltage reapplied, T_J = +175°C	265	A
		t = 8.3ms		280	A
Maximum I^2t for Individual Device Fusing	I^2t	t = 10ms	100% rated voltage reapplied, Initial T_J = +175°C	351	A^2s
		t = 8.3ms		320	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	t = 0.1 to 10ms, No voltage reapplied, Note 1		3511	$A^2\sqrt{t}$
Maximum Peak Forward Voltage	V_{FM}	I_{FM} = 38A, T_J = +25°C		1.26	V
Maximum Value of Threshold Voltage	$V_{M\ (TO)}$	T_J = +175°C		0.68	V
Maximum Value of Forward Slope Resistance	r_t	T_J = +175°C		13.51	mΩ

Note 1. I^2t for time $t_x = I^2\sqrt{t} \bullet \sqrt{t_x}$

Thermal−Mechanical Specifications:

Parameter	Symbol	Test Conditions	Rating	Unit
Maximum Operation Junction Temperature	T_J		−65 to + 175	°C
Maximum Storage Temperature	T_{stg}		−65 to + 200	°C
Maximum Internal Thermal Resistance Junction−to−Case	R_{thJC}	DC operation	2.0	K/W
Thermal Resistance, Case−to−Sink	R_{thCS}	Mounting surface flat, smooth and greased	0.5	K/W
Mounting Torque	T	Non−lubricated threads	1.2 − 1.5 (10.5 − 13.5)	m•N (in•lb)
Approximate Weight	wt		11 (0.25)	g (oz)