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NTE5844 & NTE5845,
NTE5912 thru NTE5933
Silicon Power Rectifier Diode, 20 Amp

Description and Features:

The NTE5844, NTE5845, and NTE5912 through NTE5933 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 = +140°C Max), $I_{F(AV)}$ 20A
Maximum Forward Surge Current (60Hz), I_{FSM} 400A
Fusing Current (60Hz), I^2t . . . . . 493A^2s
Fusing Current, $I^2\sqrt{t}$ . . . . . 7640$A^2\sqrt{s}$
Maximum Reverse Recovery Voltage Range, V_{RRM} . . . . . 50 to 1200V

Voltage Ratings: (T_J = +175°C)

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					
5912	5913	50	75	50	–	12
5914	5915	100	150	100	–	12
5916	5917	200	275	200	–	12
5918	5919	300	385	300	–	12
5920	5921	400	500	400	500	12
5922	5923	500	613	50	613	12
5924	5925	600	725	600	725	12
5928	5929	800	950	800	950	12
5932	5933	1000	1200	1000	1200	12
5844	5845	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 = +150°C Max		20	A
Maximum Peak One–Cycle Non–Repetitive Surge Current	I_{FSM}	t = 10ms	Sinusoidal Half Wave, No voltage reapplied	400	A
		t = 8.3ms		425	A
		t = 10ms	100% rated voltage reapplied, T_J = +175°C	437	A
		t = 8.3ms		462	A
Maximum I^2t for Fusing	I^2t	t = 10ms	No voltage reapplied, Initial T_J = +175°C	540	A^2s
		t = 8.3ms		493	A^2s
Maximum I^2t for Individual Device Fusing		t = 10ms	100% rated voltage reapplied	765	A^2s
		t = 8.3ms		700	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	t = 0.1 to 10ms, No voltage reapplied, Note 1		7640	$A^2\sqrt{t}$
Maximum Peak Forward Voltage	V_{FM}	I_{FM} = 63A, T_J = +25°C		1.23	V
Maximum Value of Threshold Voltage	$V_{M\ (TO)}$	T_J = +175°C		0.78	V
Maximum Value of Forward Slope Resistance	r_t	T_J = +175°C		7.55	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	1.6	K/W
Thermal Resistance, Case–to–Sink	R_{thCS}	Mounting surface flat, smooth and greased	0.25	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)