NTE ELECTRONICS, INC.
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NTE5850 thru NTE5869
Silicon Power Rectifier Diode, 6 Amp

Description and Features:

The NTE5850 through NTE5869 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 = +158°C Max), $I_{F(AV)}$ 6A
Maximum Forward Surge Current, I_{FSM}
50Hz 134A
60Hz 141A
Fusing Current, I^2t
50Hz . . . . . $90A^2s$
60Hz . . . . . $141A^2s$
Fusing Current, $I^2\sqrt{t}$ . . . . . $1270A^2\sqrt{s}$
Maximum Reverse Recovery Voltage Range, V_{RRM} . . . . . 50 to 1000V

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					
5850	5851	50	75	50	–	12
5852	5853	100	150	100	–	12
5854	5855	200	275	200	–	12
5856	5857	300	385	300	–	12
5858	5859	400	500	400	500	12
5860	5861	500	613	50	613	12
5862	5863	600	725	600	725	12
5866	5867	800	950	800	950	12
5868	5869	1000	1200	1000	1200	12

Electrical Specifications:

Parameter	Symbol	Test Conditions		Rating	Unit
Maximum Average Forward Current	$I_{F\ (AV)}$	180° sinusoidal condition, T_C = +158°C Max		6	A
Maximum RMS Forward Current	$I_{F(RMS)}$			9.5	A
Maximum Peak One–Cycle Non–Repetitive Surge Current	I_{FSM}	t = 10ms	Sinusoidal Half Wave, No voltage reapplied	134	A
		t = 8.3ms		141	A
		t = 10ms	100% rated voltage reapplied, T_J = +175°C	159	A
		t = 8.3ms		167	A
Maximum I^2t for Individual Device Fusing	I^2t	t = 10ms	100% rated voltage reapplied, Initial T_J = +175°C	127	A^2s
		t = 8.3ms		116	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	t = 0.1 to 10ms, No voltage reapplied, Note 1		1270	$A^2\sqrt{t}$
Maximum Peak Forward Voltage	V_{FM}	I_{FM} = 19A, T_J = +25°C		1.10	V
Maximum Value of Threshold Voltage	$V_{M\ (TO)}$	T_J = +175°C		0.60	V
Maximum Value of Forward Slope Resistance	r_t	T_J = +175°C		17.2	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	2.5	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)