



**ELECTRONICS, INC.**  
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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 ( $T_C = +140^\circ\text{C Max}$ ),  $I_{F(AV)}$  ..... 20A  
 Maximum Forward Surge Current (60Hz),  $I_{FSM}$  ..... 400A  
 Fusing Current (60Hz),  $I^2t$  ..... 493A<sup>2</sup>s  
 Fusing Current,  $I^2\sqrt{t}$  ..... 7640A<sup>2</sup> $\sqrt{s}$   
 Maximum Reverse Recovery Voltage Range,  $V_{RRM}$  ..... 50 to 1200V

### Voltage Ratings: ( $T_J = +175^\circ\text{C}$ )

NTE Type Number		$V_{RRM}$ -Max Repetitive Peak Reverse Volt. (V)	$V_{RSM}$ -Max Non-Repertitive 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, $T_C = +150^\circ\text{C}$ Max	20	A	
Maximum Peak One-Cycle Non-Repetitive Surge Current	$I_{FSM}$	$t = 10\text{ms}$	Sinusoidal Half Wave, No voltage reapplied	400	A
		$t = 8.3\text{ms}$		425	A
		$t = 10\text{ms}$	100% rated voltage reapplied, $T_J = +175^\circ\text{C}$	437	A
		$t = 8.3\text{ms}$		462	A
Maximum $I^2t$ for Fusing	$I^2t$	$t = 10\text{ms}$	No voltage reapplied, Initial $T_J = +175^\circ\text{C}$	540	$\text{A}^2\text{s}$
		$t = 8.3\text{ms}$		493	$\text{A}^2\text{s}$
Maximum $I^2t$ for Individual Device Fusing	$I^2t$	$t = 10\text{ms}$	100% rated voltage reapplied	765	$\text{A}^2\text{s}$
		$t = 8.3\text{ms}$		700	$\text{A}^2\text{s}$
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	$t = 0.1$ to $10\text{ms}$ , No voltage reapplied, Note 1	7640	$\text{A}^2\sqrt{\text{t}}$	
Maximum Peak Forward Voltage	$V_{FM}$	$I_{FM} = 63\text{A}$ , $T_J = +25^\circ\text{C}$	1.23	V	
Maximum Value of Threshold Voltage	$V_M (TO)$	$T_J = +175^\circ\text{C}$	0.78	V	
Maximum Value of Forward Slope Resistance	$r_t$	$T_J = +175^\circ\text{C}$	7.55	$\text{m}\Omega$	

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

### Thermal-Mechanical Specifications:

Parameter	Symbol	Test Conditions	Rating	Unit
Maximum Operation Junction Temperature	$T_J$		-65 to + 175	$^\circ\text{C}$
Maximum Storage Temperature	$T_{stg}$		-65 to + 200	$^\circ\text{C}$
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)	$\text{m}\cdot\text{N}$ ( $\text{in}\cdot\text{lb}$ )
Approximate Weight	wt		11 (0.25)	g (oz)

