



ELECTRONICS, INC.
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NTE5940 thru NTE5953 Silicon Power Rectifier Diode, 15 Amp

Description and Features:

- Low Thermal Impedance
- High Case Temperature
- Excellent Reliability
- Available in Anode-to-Case or Cathode-to-Case Style

Ratings and Characteristics:

Average Forward Current ($T_C = +150^\circ\text{C Max}$), $I_{F(AV)}$	15A
Maximum Forward Surge Current, I_{FSM}	
50Hz	239A
60Hz	250A
Fusing Current, I^2t	
50Hz	286A ² s
60Hz	260A ² s
Fusing Current, $I^2\sqrt{t}$	3870A ² \sqrt{s}

Voltage Ratings: ($T_J = -65^\circ\text{C to } +175^\circ\text{C}$)

Maximum Repetitive Peak Reverse Voltage, V_{RRM}	
NTE5940, NTE5941*	50V
NTE5942, NTE5943*	100V
NTE5944, NTE5945*	200V
NTE5946, NTE5947*	300V
NTE5948, NTE5949*	400V
NTE5950, NTE5951*	500V
NTE5952, NTE5953*	600V
Maximum Direct Reverse Voltage, V_R	
NTE5940, NTE5941*	50V
NTE5942, NTE5943*	100V
NTE5944, NTE5945*	200V
NTE5946, NTE5947*	300V
NTE5948, NTE5949*	400V
NTE5950, NTE5951*	500V
NTE5952, NTE5953*	600V

Note 1. Cathode to case is standard polarity, * indicates anode to case polarity.

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	15	A	
Maximum Peak One-Cycle Non-Repetitive Surge Current	I_{FSM}	Half cycle 50Hz sine wave or 6ms rectangular pulse	Following any rated load condition and with rated V_{RRM} applied	239	A
		Half cycle 60Hz sine wave at 5ms rectangular pulse		250	A
		Half cycle 50Hz sine wave or 6ms rectangular pulse	Following any rated load condition and with V_{RRM} applied following surge = 0	284	A
		Half cycle 60Hz sine wave at 5ms rectangular pulse		297	A
Maximum I^2t for Fusing	I^2t	$t = 10\text{ms}$	With rated V_{RRM} applied following surge, initial $T_J = +150^\circ\text{C}$	286	A^2s
		$t = 8.3\text{ms}$		260	A^2s
Maximum I^2t for Individual Device Fusing	I^2t	$t = 10\text{ms}$	With $V_{RRM} = 0$ following surge, initial $T_J = +150^\circ\text{C}$	403	A^2s
		$t = 8.3\text{ms}$		368	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	$t = 0.1$ to 10ms , $V_{RRM} = 0$ following surge, Note 2	3870	$\text{A}^2\sqrt{t}$	
Maximum Peak Forward Voltage	V_{FM}	$I_{F(AV)} = 15\text{A}$ (47.1A peak), $T_C = +150^\circ\text{C}$	1.5	V	
Maximum Average Reverse Current	$I_{R(AV)}$	Maximum rated $I_{F(AV)}$ and $T_C = +150^\circ\text{C}$	10	mA	

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

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 + 175	$^\circ\text{C}$
Maximum Internal Thermal Resistance Junction-to-Case	R_{thJC}	DC operation	0.65	$^\circ\text{C}/\text{W}$
Thermal Resistance, Case-to-Sink	R_{thCS}	Mounting surface flat, smooth and greased	0.25	$^\circ\text{C}/\text{W}$
Mounting Torque	T	Non-lubricated threads	2.3 – 3.5 (20 – 30)	m•N (in•lb)
Approximate Weight	wt		28.5 (1)	g (oz)

