



NTE5906, NTE5907, NTE5980 thru NTE6005 Silicon Power Rectifier Diode, 40 Amp

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 ($T_C = +140^\circ\text{C Max}$), $I_{F(AV)}$	40A
Maximum Forward Surge Current, I_{FSM}	
50Hz	480A
60Hz	500A
Fusing Current, I^2t	
50Hz	1150A ² s
60Hz	1050A ² s
Fusing Current, $I^2\sqrt{t}$	16000A ² $\sqrt{s}$
Maximum Reverse Recovery Voltage Range, V_{RRM}	50 to 1600V

Voltage Ratings:

NTE Type Number		V_{RRM} -Max Repetitive Peak Reverse Volt. (V)	V_{RSM} -Max Non-Replicative Peak Reverse Voltage (V) $t_p < 5\text{ms}$	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	$T_J = -65^\circ \text{ to } +150^\circ\text{C}$	$T_J = +25^\circ \text{ to } +150^\circ\text{C}$	$T_J = -65^\circ \text{ to } +150^\circ\text{C}$	$T_J = +25^\circ\text{C}$	$T_J = +150^\circ\text{C}$
5980	5981	50	100	50	—	15
5982	5983	100	200	100	—	15
5986	5987	200	300	200	—	15
5988	5989	300	450	300	—	15
5990	5991	400	500	400	500	15
5992	5993	500	600	500	600	9
5994	5995	600	720	600	725	9
5998	5999	800	960	800	960	9
6002	6003	1000	1200	1000	1150	9
5906	5907	1200	1400	1200	1350	9
6004	6005	1600	1700	1600	1700	9

Electrical Specifications:

Parameter	Symbol	Test Conditions	Rating	Unit
Maximum Average Forward Current	$I_F (AV)$	180° sinusoidal condition, $T_C = +140^\circ C$ Max	40	A
Maximum Peak One-Cycle Non-Repetitive Surge Current	I_{FSM}	Half cycle 50Hz sine wave or 8ms rectangular pulse	480	A
		Half cycle 60Hz sine wave at 5ms rectangular pulse	500	A
		Half cycle 50Hz sine wave or 6ms rectangular pulse	570	A
		Half cycle 60Hz sine wave at 3ms rectangular pulse	586	A
Maximum I^2t for Fusing	I^2t	$t = 10ms$	1150	A^2s
		$t = 8.3ms$	1050	A^2s
Maximum I^2t for Individual Device Fusing	I^2t	$t = 10ms$	1600	A^2s
		$t = 8.3ms$	1450	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	$t = 0.1$ to $10ms$, $V_{RRM} = 0$ following surge	16000	$A^2\sqrt{t}$
Maximum Peak Forward Voltage	V_{FM}	$I_F (AV) = 40A$ (125 peak), $T_J = +25^\circ C$	1.30	V
Maximum Value of Threshold Voltage	$V_M (TO)$	$T_J = +100^\circ C$	0.69	V
Maximum Value of Forward Slope Resistance	r_t	$T_J = +100^\circ C$	3.79	$m\Omega$

Thermal-Mechanical Specifications:

Parameter	Symbol	Test Conditions	Rating	Unit
Maximum Operation Junction Temperature	T_J		-65 to + 190	$^\circ C$
Maximum Storage Temperature	T_{stg}		-65 to + 190	$^\circ C$
Maximum Internal Thermal Resistance Junction-to-Case	R_{thJC}	DC operation	1.00	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	2.3 – 3.4 (20 – 30)	$m\bullet N$ ($in\bullet lb$)
Approximate Weight	wt		17 (0.8)	g (oz)

