

NTE6046 & NTE6047 Silicon Power Rectifier Diode, 85 Amp

Features:

- Short Reverse Recovery Time
- Low Stored Charge
- Available in Cathode-to-Case (NTE6046) or Anode-to-Case (NTE6047) Style

Ratings and Characteristics:

Average Forward Current ($T_C = +75^\circ\text{C}$ Max), $I_{F(AV)}$	85A
Maximum Repetitive Peak Reverse Voltage ($T_J = -40^\circ$ to $+125^\circ\text{C}$), V_{RRM}	1000V
Maximum Non-Repetitive Peak Reverse Voltage ($T_J = +25^\circ$ to $+125^\circ\text{C}$, $t_p \leq 5\text{ms}$), V_{RSM} ..	1100V
Maximum Reverse Current (At Rated V_R), I_R	
$T_J = +25^\circ\text{C}$	0.1mA
$T_J = +125^\circ\text{C}$	20mA
Maximum Forward Surge Current, I_{FSM}	
50Hz	1100A
60Hz	1151A
Fusing Current, I^2t	
50Hz	6050A ² s
60Hz	5523A ² s
Fusing Current, $I^2\sqrt{t}$	85560A ² \sqrt{s}
Operating Junction Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case (DC Operation), R_{thJC}	0.30°C/W
Thermal Resistance, Case-to-Sink (Surface flat, smooth, and greased), R_{thCS}	0.25°C/W
Maximum Mounting Torque (Non-lubricated threads), T	22 (2.5) in•lb (m•N)

Electrical Specifications:

Parameter	Symbol	Test Conditions		Rating	Unit
Maximum Average Forward Current	I_F (AV)	180° sinusoidal condition, $T_C = +75^{\circ}\text{C}$ Max		85	A
Maximum Peak One–Cycle Non–Repetitive Surge Current	I_{FSM}	$t = 10\text{ms}$	Half sinewave current, rated V_{RRM} reapplied, initial $T_J = +125^{\circ}\text{C}$	1100	A
		$t = 8.3\text{ms}$		1151	A
		$t = 10\text{ms}$	Half sinewave current, no voltage reapplied, initial $T_J = +125^{\circ}\text{C}$	1308	A
		$t = 8.3\text{ms}$		1369	A
Maximum I^2t for Fusing	I^2t	$t = 10\text{ms}$	Rated V_{RRM} reapplied, initial $T_J = +125^{\circ}\text{C}$	6050	A^2s
		$t = 8.3\text{ms}$		5523	A^2s
Maximum I^2t for Individual Device Fusing		$t = 10\text{ms}$	No voltage reapplied, initial $T_J = +125^{\circ}\text{C}$	8556	A^2s
		$t = 8.3\text{ms}$		7810	A^2s
Maximum $I^2\sqrt{t}$	$I^2\sqrt{t}$	$t = 0.1$ to 10ms , no voltage reapplied, Note 1		85560	$\text{A}^2\sqrt{t}$
Maximum Peak Forward Voltage	V_{FM}	$T_J = +25^{\circ}\text{C}$, $I_{\text{FM}} = 267\text{A}$		1.75	V
Maximum Reverse Recovery Time	t_{rr}	$T_J = +25^{\circ}\text{C}$, $I_F = 1\text{A}$ to $V_R = 30\text{V}$, $-dI_F/dt = 100\text{A}/\mu\text{s}$		270	ns
		$T_J = +25^{\circ}\text{C}$, $I_F = 267\text{A}$, $-dI_F/dt = 25\text{A}/\mu\text{s}$		1000	ns
Maximum Reverse Recovery Charge	Q_{RR}	$T_J = +25^{\circ}\text{C}$, $I_F = 1\text{A}$ to $V_R = 30\text{V}$, $-dI_F/dt = 100\text{A}/\mu\text{s}$		1350	nC
		$T_J = +25^{\circ}\text{C}$, $I_F = 267\text{A}$, $-dI_F/dt = 25\text{A}/\mu\text{s}$		6000	nC

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

