



ELECTRONICS, INC.  
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## NTE6111 & NTE6114 Silicon Power Rectifier Diode, 1100 Amp

**Features:**

- Wide Current Range
- High Voltage Rating
- High Surge Current Capabilities

**Applications:**

- Converters
- Power Supplies
- Machine Tool Controls
- High Power Drives
- Medium Traction Applications

**Absolute Maximum Ratings:**

Maximum Repetitive Peak Reverse Voltage, $V_{RRM}$	
NTE6111 .....	600V
NTE6114 .....	1600V
Maximum Non-Repetitive Peak Reverse Voltage, $V_{RSM}$	
NTE6111 .....	700V
NTE6114 .....	1700V
Maximum Reverse Current ( $T_J = +180^{\circ}C$ ), $I_{RRM}$ .....	
15mA	
Operating Junction Temperature Range, $T_J$ .....	
-40° to +180°C	
Storage Temperature Range, $T_{stg}$ .....	
-55° to +200°C	
Maximum Thermal Resistance, Junction-to-Heatsink (DC Operation), $R_{th(j-hs)}$	
Single Side Cooled .....	0.076°C/W
Double Side Cooled .....	0.038°C/W
Maximum Mounting Force ( $\pm 10\%$ ), F .....	
9800 (1000) N (Kg)	

**Electrical Specifications:**

Parameter	Symbol	Test Conditions	Rating	Unit
Maximum Average Forward Current	$I_F (AV)$	180° condition, Half sine wave	1400	A
		Double side cooled, $T_C = +55^{\circ}C$	795	A
		Single side cooled, $T_C = +85^{\circ}C$		

**Electrical Specifications (Cont'd):**

Parameter	Symbol	Test Conditions	Rating	Unit	
Maximum RMS Forward Current	$I_{F(RMS)}$	@ +25°C heatsink temperature double side cooled	2500	A	
Maximum Peak One-Cycle Forward Non-Repetitive Surge Current	$I_{FSM}$	t = 10ms	Sinusoidal Halfwave, 100% $V_{RRM}$ Reapplied, Initial $T_J = +180^\circ\text{C}$	10930	A
		t = 8.3ms		11450	A
		t = 10ms	Sinusoidal Halfwave, No Voltage Reapplied, Initial $T_J = +180^\circ\text{C}$	13000	A
		t = 8.3ms		13600	A
Maximum $I^2t$ for Fusing	$I^2t$	t = 10ms	Sinusoidal Halfwave, 100% $V_{RRM}$ Reapplied, Initial $T_J = +180^\circ\text{C}$	598	$\text{A}^2\text{s}$
		t = 8.3ms		546	$\text{A}^2\text{s}$
		t = 10ms	Sinusoidal Halfwave, No Voltage Reapplied, Initial $T_J = +180^\circ\text{C}$	846	$\text{A}^2\text{s}$
		t = 8.3ms		772	$\text{A}^2\text{s}$
Maximum $I^2\sqrt{t}$ for Fusing	$I^2\sqrt{t}$	t = 0.1 to 10ms, no voltage reapplied	8460	$\text{A}^2\sqrt{\text{t}}$	
Threshold Voltage, Low Level	$V_{F(TO)1}$	$T_J = +180^\circ\text{C}$ , $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$	0.78	V	
Threshold Voltage, High Level	$V_{F(TO)2}$	$T_J = +180^\circ\text{C}$ , $(I > \pi \times I_{F(AV)})$	0.94	V	
Forward Slope Resistance, Low Level	$r_{f1}$	$T_J = +180^\circ\text{C}$ , $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$	0.35	$\text{m}\Omega$	
Forward Slope Resistance, High Level	$r_{f2}$	$T_J = +180^\circ\text{C}$ , $(I > \pi \times I_{F(AV)})$	0.26	$\text{m}\Omega$	
Maximum Forward Voltage Drop	$V_{FM}$	$T_J = +180^\circ\text{C}$ , $I_{pk} = 1500\text{A}$ , $t_p = 10\text{ms}$	1.31	V	

