



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 ($T_J = +180^\circ\text{C}$), 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, $T_C = +55^\circ\text{C}$	795	A
		Single side cooled, $T_C = +85^\circ\text{C}$		

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	A^2s
		t = 8.3ms		546	A^2s
		t = 10ms	Sinusoidal Halfwave, No Voltage Reapplied, Initial $T_J = +180^\circ\text{C}$	846	A^2s
		t = 8.3ms		772	A^2s
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	

