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## NTE6234 Powerblock Module

### Features:

- International Standard Package
- Direct Copper Bonded Al<sub>2</sub>O<sub>3</sub> Ceramic Base Plate
- Planar Passivated Chips
- 3600V<sub>RMS</sub> Isolating Voltage
- Space and Weight Savings
- Simple Mounting
- Improved Temperature and Power Cycling
- Reduced Protection Circuits

### Applications:

- Supplies for DC Power Equipment
- DC Supply for PWM Inverter
- Field Supply for DC Motors
- Battery DC Power Supplies

### Ratings and Characteristics:

Average Forward Current ( $T_C = +100^\circ\text{C}$ , 180° Sine), $I_{F(AV)}$ .....	190A
Maximum RMS Forward Current ( $T_J = +150^\circ\text{C}$ ), $I_{T(RMS)}$ .....	300A
Maximum Repetitive Peak Reverse Voltage, $V_{RRM}$ .....	1600V
Maximum Non-Repetitive Peak Reverse Voltage, $V_{RSM}$ .....	1700V
Maximum Peak Reverse Current ( $I_F = 300\text{A}$ , $-di/dt = 50\text{A}/\mu\text{s}$ , $T_J = +150^\circ\text{C}$ ), $I_{RM}$ .....	235A
RMS Isolation Voltage (50/60Hz, $I_{ISOL} \leq 1\text{mA}$ ), $V_{ISO}$	
t = 1min .....	3000V
t = 1s .....	3600V
Operating Junction Temperature Range, $T_J$ .....	-40° to +150°C
Storage Temperature Range, $T_{stg}$ .....	-40° to +125°C
Thermal Resistance, Junction-to-Case (DC Current), $R_{thJC}$	
Per Diode .....	0.21K/W
Per Module .....	0.105K/W
Thermal Resistance, Case-to-Sink (DC Current), $R_{thCS}$	
Per Diode .....	0.31K/W
Per Module .....	0.155K/W

### Electrical Specifications:

Parameter	Symbol	Test Conditions	Rating	Unit	
Maximum Peak One-Cycle Non-Repetitive Surge Current	$I_{FSM}$	$V_R = 0,$ $T_J = +45^\circ\text{C}$	t = 10ms (50Hz), Sine	6600	A
			t = 8.3ms (60Hz), Sine	7290	A
		$V_R = 0,$ $T_J = +150^\circ\text{C}$	t = 10ms (50Hz), Sine	5600	A
			t = 8.3ms (60Hz), Sine	6200	A

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

Parameter	Symbol	Test Conditions	Rating	Unit	
Maximum $I^2t$ for Fusing	$I^2t$	$V_R = 0,$ $T_J = +45^\circ\text{C}$	$t = 10\text{ms (50Hz), Sine}$	218	$\text{kA}^2\text{s}$
			$t = 8.3\text{ms (60Hz), Sine}$	221	$\text{kA}^2\text{s}$
		$V_R = 0,$ $T_J = +150^\circ\text{C}$	$t = 10\text{ms (50Hz), Sine}$	157	$\text{kA}^2\text{s}$
			$t = 8.3\text{ms (60Hz), Sine}$	160	$\text{kA}^2\text{s}$
Reverse Current	$I_R$	$V_R = 1600\text{V}, T_J = +150^\circ\text{C}$	20	mA	
Threshold Voltage	$V_{F(TO)}$	$T_J = +150^\circ\text{C},$ For power-loss calculations only	0.8	V	
Forward Slope Resistance	$r_{f1}$	$T_J = +150^\circ\text{C},$ For power-loss calculations only	0.8	$\text{m}\Omega$	
Maximum Forward Voltage Drop	$V_F$	$T_J = +25^\circ\text{C}, I_F = 300\text{A}$	1.15	V	

**Circuit Diagram**

