ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

# NTE6236
# Powerblock Module

**Description:**
The NTE6236 uses 2 high voltage power diodes in series and the semiconductors are electrically isolated from the metal base, allowing common heatsinks and compact assemblies to be built. This device is intended for general purpose applications such as battery chargers, welders and plating equipment and where high voltage and high current are required.

**Features:**
- High Voltage
- Electrically Isolated Base Plate
- 3000$V_{RMS}$ Isolating Voltage
- High Surge Capability
- Large Creepage Distances

**Ratings and Characteristics:**
Average Forward Current ($T_C$ = +100°C, 180° Conduction, Half Sine Wave), $I_{F(AV)}$ . . . . . 250A
Maximum RMS Forward Current (As AC Switch), $I_{T(RMS)}$ . . . . . 393A
Maximum Repetitive Peak Reverse Voltage, $V_{RRM}$ . . . . . 1600V
Maximum Non–Repetitive Peak Reverse Voltage, $V_{RSM}$ . . . . . 1700V
Maximum Peak Reverse Current ($T_J$ = +150°C), $I_{RRM}$ . . . . . 50mA
RMS Isolation Voltage (50Hz, Circuit to Base, All Terminals Shorted, t = 1s), $V_{ISO}$ . . . . . 3000V
Operating Junction Temperature Range, $T_J$ . . . . . –40° to +150°C
Storage Temperature Range, $T_{stg}$ . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Case (Per Module, DC Operation), $R_{thJC}$ . . . . . 0.16°C/W
Thermal Resistance, Case–to–Sink (Per Module, Note 1), $R_{thCS}$ . . . . . 0.02°C/W

Note 1. Mounting surface flat, smooth and greased.

**Electrical Specifications:**

| Parameter | Symbol | Test Conditions | | Rating | Unit |
|---|---|---|---|---|---|
| Maximum Peak One–Cycle Non–Repetitive Surge Current | $I_{FSM}$ | t = 10ms | Sinusoidal Half Wave, 100% $V_{RRM}$ Reapplied, Initial $T_J$ = +150°C | 5900 | A |
| | | t = 8.3ms | | 6180 | A |
| | | t = 10ms | Sinusoidal Half Wave, No Voltage Reapplied, Initial $T_J$ = +150°C | 7015 | A |
| | | t = 8.3ms | | 7345 | A |

## Electrical Specifications (Cont'd):

| Parameter | Symbol | Test Conditions | | Rating | Unit |
|---|---|---|---|---|---|
| Maximum $I^2t$ for Fusing | $I^2t$ | t = 10ms | Sinusoidal Half Wave, 100% $V_{RRM}$ Reapplied, Initial $T_J$ = +150°C | 174 | $kA^2s$ |
| | | t = 8.3ms | | 159 | $kA^2s$ |
| | | t = 10ms | Sinusoidal Half Wave, No Voltage Reapplied, Initial $T_J$ = +150°C | 246 | $kA^2s$ |
| | | t = 8.3ms | | 225 | $kA^2s$ |
| Maximum $I^2\sqrt{t}$ | $I^2\sqrt{t}$ | t = 0.1 to 10ms, no voltage reapplied | | 2460 | $kA^2\sqrt{t}$ |
| Threshold Voltage, Low level | $V_{F(TO)1}$ | $T_J$ = +150°C, (16.7% x π x $I_{T(AV)}$ < I < π x $I_{T(AV)}$) | | 0.79 | V |
| Threshold Voltage, High level | $V_{F(TO)2}$ | $T_J$ = +150°C, (π x $I_{T(AV)}$ < I < 20 x π x $I_{T(AV)}$) | | 0.92 | V |
| Forward Slope Resistance, Low Level | $r_{f1}$ | $T_J$ = +150°C, (16.7% x π x $I_{T(AV)}$ < I < π x $I_{T(AV)}$) | | 0.63 | mΩ |
| Forward Slope Resistance, High Level | $r_{f2}$ | $T_J$ = +150°C, (π x $I_{T(AV)}$ < I < 20 x π x $I_{T(AV)}$) | | 0.49 | mΩ |
| Maximum Forward Voltage Drop | $V_{FM}$ | $T_J$ = +25°C, $I_{FM}$ = π x $I_{F(AV)}$, Av. Power = $V_{F(TO)}$ x $I_{T(AV)}$ + $r_f$ x $(I_{F(RMS)})^2$ | | 1.29 | V |

**Circuit Diagram**