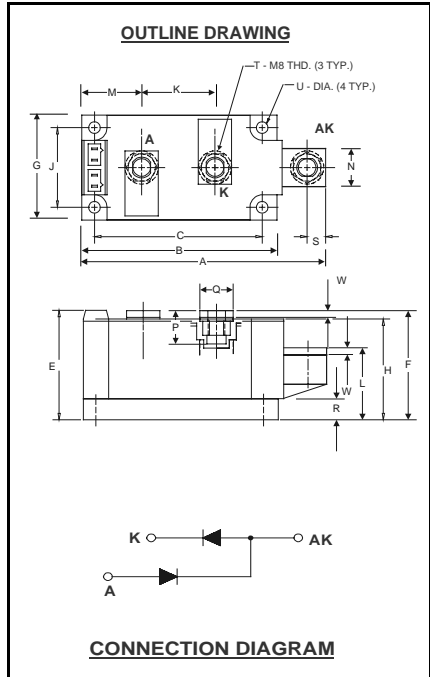


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (724) 925-7272

POW-R-BLOK™ Dual Diode Isolated Module 260 Amperes / Up to 2000 Volts



ND41 26
Dual Diode Isolated
POW-R-BLOK™ Module
260 Amperes/600-2000 Volts

Description:

Powerex Dual Diode Modules are designed for use in applications requiring rectification and isolated packaging. The modules are isolated for easy mounting with other components on a common heatsink. POW-R-BLOK™ has been tested and recognized by the Underwriters Laboratories.

Features:

- Electrically Isolated Heatsinking
- Aluminum Nitride Isolator
- Compression Bonded Elements
- Metal Baseplate
- Low Thermal Impedance for Improved Current Capability
- UL Recognized

Benefits:

- No Additional Insulation Components Required
- Easy Installation
- No Clamping Components Required
- Reduce Engineering Time

Applications:

- Bridge Circuits
- AC & DC Motor Drives
- Battery Supplies
- Power Supplies
- Large IGBT Circuit Front Ends

ND41 Outline Dimensions

| Dimension | Inches | Millimeters |
|-----------|-----------|-------------|
| A | 4.57 | 116 |
| B | 3.66 | 93 |
| C | 3.15 | 80.0 |
| E | 2.06 | 52.3 |
| F | 2.05 | 52.0 |
| G | 1.97 | 50.0 |
| H | 1.90 | 48.3 |
| J | 1.50 | 38.1 |
| K | 1.38 | 35.0 |
| L | 1.35 | 34.3 |
| M | 1.122 | 28.5 |
| N | .71 | 18.0 |
| P | .57 | 14.5 |
| Q | .625 | 15.9 |
| R | .394 | 10.00 |
| S | .350 | 8.9 |
| T | M8 Metric | M8 |
| U | .22 Dia. | 5.6 Dia. |
| W | .12 | 3.0 |

Note: Dimensions are for reference only.

Ordering Information:

Example: Select the complete eight digit module part number from the table below.

Example: ND412026 is a 2000Volt, 260 Ampere Dual Diode Isolated POW-R-BLOK™ Module

| Type | Voltage Volts (x100) | Current Amperes (x10) |
|------|----------------------|-----------------------|
| ND41 | 06 | 26 |
| | 08 | |
| | 10 | |
| | 12 | |
| | 14 | |
| | 16 | |
| | 18 | |
| | 20 | |

Absolute Maximum Ratings

| Characteristics | Conditions | Symbol | Units | |
|-----------------------------------------------------------------|------------------------------------------|--------------|-----------------|-------------------------|
| Repetitive Peak Reverse Blocking Voltage | | V_{RRM} | up to 2000 | V |
| Non-Repetitive Peak Reverse Blocking Voltage ($t < 5$ msec) | | V_{RSM} | $V_{RRM} + 200$ | V |
| RMS Forward Current | | $I_{F(RMS)}$ | 408 | A |
| Average Forward Current | 180° Conduction, $T_C=107^\circ\text{C}$ | $I_{F(AV)}$ | 260 | A |
| Peak One Cycle Surge Current, Non-Repetitive | 60 Hz, 100% V_{RRM} reapplied | I_{FSM} | 8000 | A |
| Peak Three Cycle Surge Current, Non-Repetitive | 60 Hz, 100% V_{RRM} reapplied | I_{FSM} | 5750 | A |
| Peak Ten Cycle Surge Current, Non-Repetitive | 60 Hz, 100% V_{RRM} reapplied | I_{FSM} | 4975 | A |
| I^2t for Fusing for One Cycle, 8.3 milliseconds | | I^2t | 266,000 | $\text{A}^2 \text{sec}$ |
| Operating Temperature | | T_J | -40 to +150 | $^\circ\text{C}$ |
| Storage Temperature | | T_{stg} | -40 to +150 | $^\circ\text{C}$ |
| Max. Mounting Torque, M6 Mounting Screw | | | 45 5 | in.-Lb. Nm |
| Max. Mounting Torque, M8 Terminal Screw | | | 95 11 | in.-Lb. Nm |
| Module Weight, Typical | | | 840 1.85 | g lb. |
| V Isolation @ 25C | | V_{rms} | 2500 | V |

Electrical Characteristics, T_J=25°C unless otherwise specified

| Characteristics | Symbol | Test Conditions | Min. | Max. | Units |
|------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------|-------|
| Repetitive Peak Reverse Leakage Current | I _{RRM} | Up to 2000V, T _J =150°C | | 50 | mA |
| Peak On-State Voltage | V _{FM} | I _{FM} =1500A | | 1.60 | V |
| Threshold Voltage, Low-level | V _{(TO)1} | T _J = 150°C, I = 15%I _{F(AV)} to ∓I _{F(AV)} | | 0.814 | V |
| Slope Resistance, Low-level | r _{T1} | | | 0.444 | mΩ |
| Threshold Voltage, High-level | V _{(TO)2} | T _J = 150°C, I = ∓I _{F(AV)} to I _{FSM} | | 1.089 | V |
| Slope Resistance, High-level | r _{T2} | | | 0.337 | mΩ |
| V _{TM} Coefficients, Full Range | | T _J = 150°C, I = 15%I _{F(AV)} to I _{FSM} V _{FM} = A + B Ln I + C I + D Sqrt I | A = B = C = D = | 0.6848 0.0213 3.64E-4 3.34E-3 | |
| Diode Reverse Recovery Time (Typical) | t _{rr} | I _{fm} = 1500A, T _p = 190 ms di/dt = -25A/ms | | 10 | ms |

Thermal Characteristics

| Characteristics | Symbol | | Max. | Units |
|---------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Thermal Resistance, Junction to Case | R _{θJ-C} | Per Module, both conducting Per Junction both conducting | 0.07 0.14 | °C/W °C/W |
| Thermal Impedance Coefficients | Z _{θJ-C} | Z _{θJ-C} = K ₁ (1-exp(-t/t ₁)) + K ₂ (1-exp(-t/t ₂)) + K ₃ (1-exp(-t/t ₃)) + K ₄ (1-exp(-t/t ₄)) | K ₁ = 5.27E-3 K ₂ = 1.17E-2 K ₃ = 5.26E-2 K ₄ = 6.97E-2 | t ₁ = 1.69E-4 t ₂ = 2.07E-2 t ₃ = 2.37E-1 t ₄ = 2.46 |
| Thermal Resistance, Case to Sink Lubricated | R _{θC-S} | Per Module | 0.03 | °C/W |