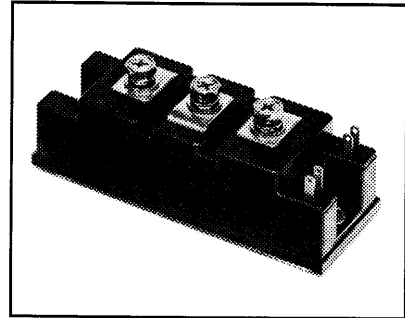
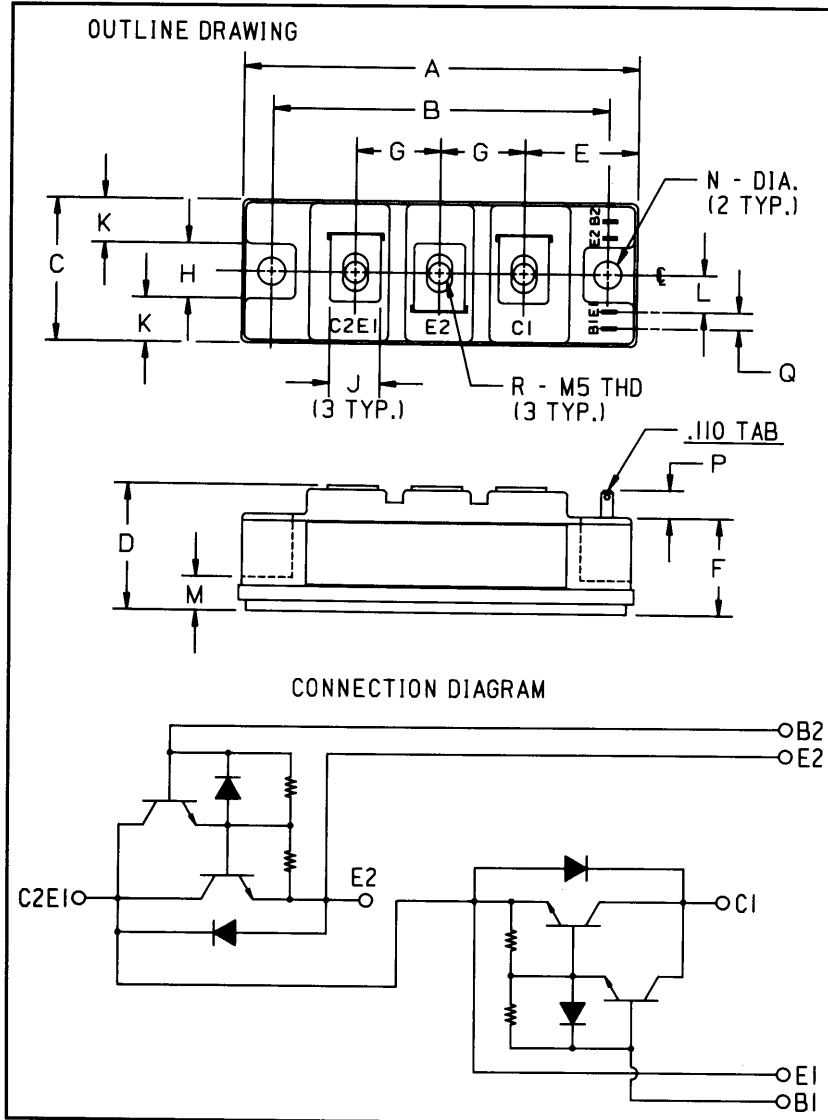


### Dual Darlington Transistor Module 75 Amperes/600 Volts



#### Description:

The Powerex Dual Darlington Transistor Modules are high power devices designed for use in switching applications. The modules are isolated, consisting of two Darlington Transistors with each transistor having a reverse parallel connected high-speed diode.

#### Features:

- Isolated Mounting
- Planar Chips
- Discrete Fast Recovery Feedback Diode
- High Gain ( $h_{FE}$ )
- Quick Connect Base-Emitter Signal Terminals
- Base-Emitter Speed-up Diodes

#### Applications:

- AC Motor Control
- DC Motor Control
- Switching Power Supplies
- Inverters

#### Ordering Information:

Example: Select the complete eight digit module part number you desire from the table - i.e. KD224575 is a 450  $V_{CEO(sus)}$  (600  $V_{CEV}$ ), 75 Ampere Dual Darlington Module.

Outline Drawing

| Dimensions | Inches        | Millimeters |
|------------|---------------|-------------|
| A          | 3.701 Max.    | 94 Max.     |
| B          | 3.150 ± 0.010 | 80 ± 0.25   |
| C          | 1.339 Max.    | 34 Max.     |
| D          | 1.181 Max.    | 30 Max.     |
| E          | 1.063         | 27          |
| F          | 0.906         | 23          |
| G          | 0.787         | 20          |
| H          | 0.512         | 13          |

| Dimensions | Inches     | Millimeters |
|------------|------------|-------------|
| J          | 0.472      | 12          |
| K          | 0.413      | 10.5        |
| L          | 0.344      | 8.75        |
| M          | 0.315      | 8           |
| N          | 0.256 Dia. | 6.5 Dia.    |
| P          | 0.256 Min. | 6.5 Min.    |
| Q          | 0.157      | 4           |
| R          | M5 Metric  | M5          |

| Type | $V_{CEO(sus)}$<br>Volts (X 10) | Current Rating<br>Amperes (75) |
|------|--------------------------------|--------------------------------|
| KD22 | 45                             | 75                             |

**KD224575**  
**Dual Darlington Transistor Module**  
 75 Amperes/600 Volts

### Absolute Maximum Ratings, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

| Ratings   | Symbol         | KD224575   | Units            |
|---|----------------|------------|------------------|
| Junction Temperature  | $T_j$          | -40 to 150 | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$      | -40 to 125 | $^\circ\text{C}$ |
| Collector-Emitter Sustaining Voltage                        | $V_{CEO(sus)}$ | 450        | Volts            |
| Collector-Emitter Sustaining Voltage, $V_{BE} = -2\text{V}$ | $V_{CEV(sus)}$ | 600        | Volts            |
| Collector-Base Voltage                                      | $V_{CBO}$      | 600        | Volts            |
| Emitter-Base Voltage  | $V_{EBO}$      | 7          | Volts            |
| Collector-Emitter Voltage, $V_{BE} = -2\text{V}$            | $V_{CEV}$      | 600        | Volts            |
| Continuous Collector Current                                | $I_C$          | 75         | Amperes          |
| Diode Forward Current                                       | $I_{FM}$       | 75         | Amperes          |
| Continuous Base Current                                     | $I_B$          | 4.5        | Amperes          |
| Diode Surge Current   | $I_{FSM}$      | 750        | Amperes          |
| Power Dissipation (Each Transistor)                         | $P_t$          | 350        | Watts            |
| Max. Mounting Torque M5 Terminal Screws                     | —              | 17         | in.-lb.          |
| Max. Mounting Torque M6 Mounting Screws                     | —              | 26         | in.-lb.          |
| Module Weight (Typical)                                     | —              | 210        | Grams            |
| V Isolation   | $V_{RMS}$      | 2000       | Volts            |

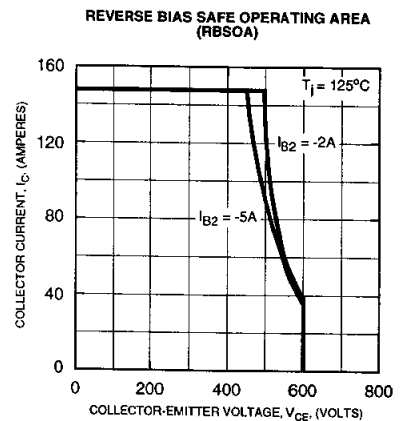
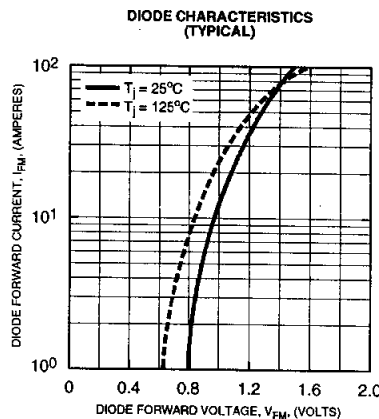
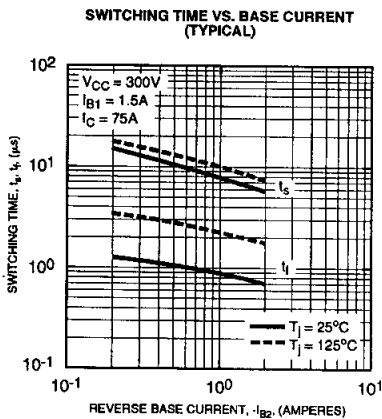
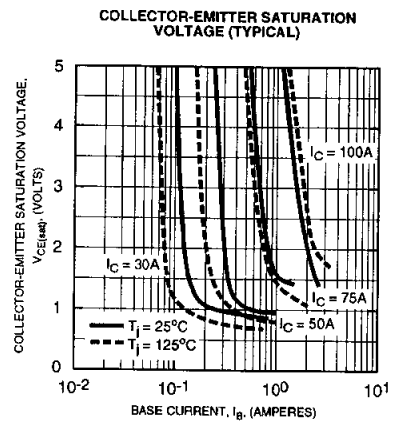
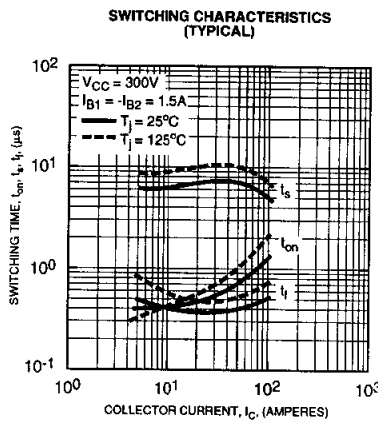
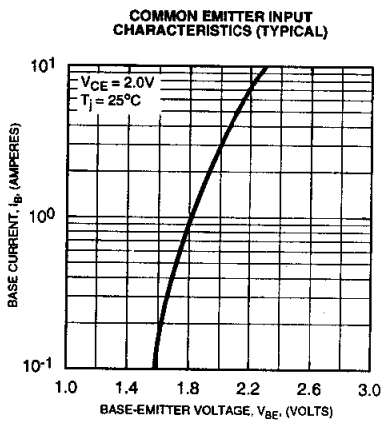
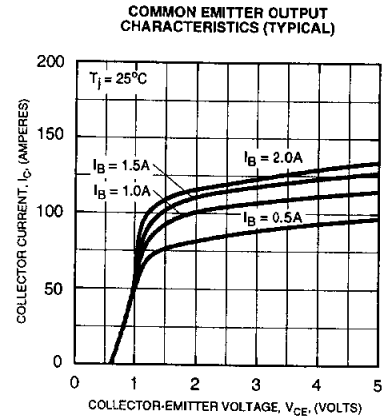
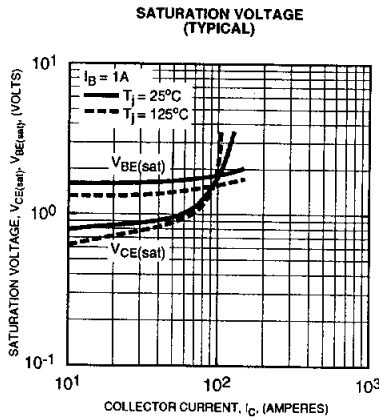
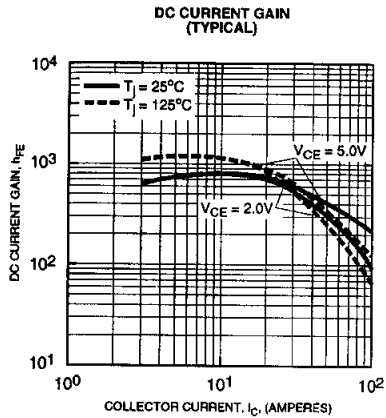
### Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

| Characteristics                      | Symbol        | Test Conditions  | Min.  | Typ. | Max. | Units |               |
|--------------------------------------|---------------|--|---|------|------|-------|---------------|
| Collector Cutoff Current             | $I_{CEV}$     | $V_{CE} = 600\text{V}, V_{BE} = -2\text{V}$                          | —   | —    | 1    | mA    |               |
|                                      |               | $V_{CE} = 600\text{V}, V_{BE} = -2\text{V}, T_C = 125^\circ\text{C}$ | —   | —    | 5    | mA    |               |
| Emitter Cutoff Current               | $I_{EBO}$     | $V_{EB} = 7\text{V}$   | —   | —    | 200  | mA    |               |
| DC Current Gain                      | $h_{FE}$      | $I_C = 75\text{A}, V_{CE} = 2\text{V}$                               | 75  | —    | —    | —     |               |
|                                      |               | $I_C = 75\text{A}, V_{CE} = 5\text{V}$                               | 100   | —    | —    | —     |               |
| Diode Forward Voltage                | $V_{FM}$      | $I_{FM} = 75\text{A}$  | —   | —    | 1.85 | Volts |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 75\text{A}, I_B = 1\text{A}$                                  | —   | —    | 2.0  | Volts |               |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = 75\text{A}, I_B = 1\text{A}$                                  | —   | —    | 2.5  | Volts |               |
| Resistive                            | Turn-on       | $t_{on}$   | $V_{CC} = 300\text{V}$                        | —    | —    | 2.5   | $\mu\text{s}$ |
| Load                                 | Storage Time  | $t_s$  | $I_C = 75\text{A}$                            | —    | —    | 12    | $\mu\text{s}$ |
| Switch Times                         | Fall Time     | $t_f$  | $I_{B1} = 1.5\text{A}, I_{B2} = -1.5\text{A}$ | —    | —    | 3.0   | $\mu\text{s}$ |

### Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

| Characteristics                      | Symbol            | Test Conditions | Min. | Typ. | Max. | Units              |
|--------------------------------------|-------------------|-----------------|------|------|------|--------------------|
| Thermal Resistance, Case-to-Sink     | $R_{\theta(c-s)}$ | Per 1/2 Module  | —    | —    | 0.15 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Case | $R_{\theta(j-c)}$ | Transistor Part | —    | —    | 0.35 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Case | $R_{\theta(j-c)}$ | Diode Part      | —    | —    | 1.3  | $^\circ\text{C/W}$ |

**KD224575**  
**Dual Darlington Transistor Module**  
**75 Amperes/600 Volts**



**KD224575**  
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 75 Amperes/600 Volts

