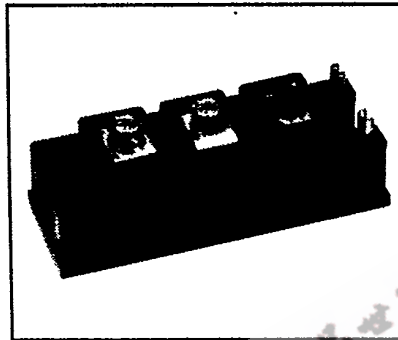
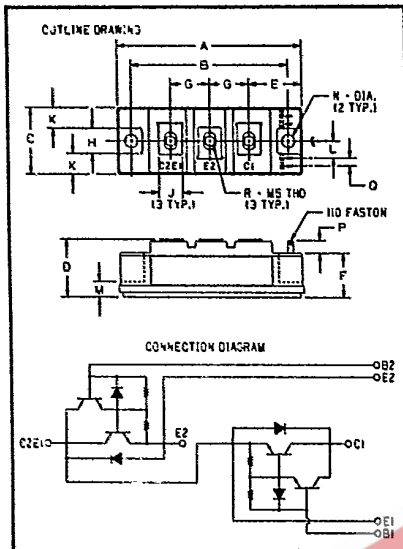




**KD221A10 Tentative**

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

**Fast Switching  
Dual Darlington  
Transistor Module  
100 Amperes/125 Volts**



**KD221A10**  
Fast Switching Dual Darlington  
Transistor Module  
100 Amperes/125 Volts

**Description**

Powerex Fast Switching Dual Darlington Transistor Modules are designed for use in Low Voltage switching applications. The modules are isolated for easy mounting of multiple units.

**Features:**

- Isolated Mounting
- Planar Chips
- Low  $V_{CE(SAT)}$
- Fast Switching

**Applications:**

- 20 Kilohertz Inverters
- AC & DC Motor Control
- Switching Power Supplies

**Ordering Information**

Example: Select the complete eight digit module part number for the rating you desire from the table - i.e. KD221A10 is a 125 Volt, 100 Ampere Fast Switching Dual Darlington Module.

**125 Volt KD221A10  
Outline Drawing**

| Dimension | Inches       | Millimeters |
|-----------|--------------|-------------|
| A         | 3.701 Max.   | 94 Max.     |
| B         | 3.150 ± .010 | 80 ± 0.25   |
| C         | 1.339 Max.   | 34 Max.     |
| D         | 1.181 Max.   | 30 Max.     |
| E         | 1.063        | 27          |
| F         | .906         | 23          |
| G         | .787         | 20          |
| H         | .512         | 13          |
| J         | .472         | 12          |
| K         | .413         | 10.5        |
| L         | .344         | 8.75        |
| M         | .315         | 8           |
| N         | .256 Dia.    | 6.5 Dia.    |
| P         | .256 Min.    | 6.5 Min.    |
| Q         | .157         | 4           |
| R         | M5 Metric    | M5          |

| Type | $V_{CE0(SUS)}$<br>Volts (125) | Current Rating<br>Amperes (x10) |
|------|-------------------------------|---------------------------------|
| KD22 | 1A                            | 10                              |



Tentative

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**KD221A10**  
**Fast Switching Dual Darlington Transistor Module**  
**100 Amperes/125 Volts**

**Maximum Ratings  $T_J = 25^\circ\text{C}$  unless otherwise specified**

|   | Symbol        | KD221A10   | 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            | $V_{CE(SUS)}$ | 125        | Volts            |
| Collector-Base Voltage                          | $V_{CBO}$     | 150        | Volts            |
| Emitter-Base Voltage                            | $V_{EBO}$     | 7          | Volts            |
| Collector-Emitter Voltage $V_{BE} = -2\text{V}$ | $V_{CEV}$     | 150        | Volts            |
| Continuous Collector Current                    | $I_C$         | 100        | Amperes          |
| Diode Forward Current                           | $I_{FM}$      | 100        | Amperes          |
| Continuous Base Current                         | $I_B$         | 10         | Amperes          |
| Diode Surge Current                             | $I_{FSM}$     | 1000       | Amperes          |
| Power Dissipation                               | $P_T$         | 400        | Watts            |
| Max. Mounting Torque M5 Terminal Screws         | —             | 17         | in.-lb.          |
| Max. Mounting Torque M6 Mounting Screws         | —             | 26         | in.-lb.          |
| Module Weight                                   | —             | 210        | Grams            |
| V isolation                                     | $V_{RMS}$     | 1500       | Volts            |

**Electrical and Mechanical Characteristics  $T_J = 25^\circ\text{C}$  unless otherwise specified**

| Characteristics                                    | Symbol          | Test Conditions  | KD221A10 |      |      | Units              |
|--|-----------------|--|----------|------|------|--------------------|
|  |                 |  | Min.     | Typ. | Max. |                    |
| Collector Cutoff Current                           | $I_{CEV}$       | $V_{CE} = 150\text{V}, V_{BE} = -2\text{V}$                              | —        | —    | 1    | $\text{mA}$        |
| Collector Cutoff Current                           | $I_{CEV}$       | $V_{CE} = 150\text{V}, V_{BE} = -2\text{V}$<br>$T_C = 125^\circ\text{C}$ | —        | —    | 3    | $\text{mA}$        |
| Emitter Cutoff Current                             | $I_{EBO}$       | $V_{EB} = 7\text{V}$   | —        | —    | 100  | $\text{mA}$        |
| DC Current Gain                                    | $h_{FE}$        | $I_C = 100\text{A}, V_{CE} = 2.0\text{V}$                                | 200      | —    | —    | —                  |
| Diode Forward Voltage                              | $V_{FM}$        | $I_{FM} = 100\text{A}$   | —        | —    | 1.60 | $\text{V}$         |
| Collector-Emitter Saturation Voltage               | $V_{CE(SAT)}$   | $I_C = 100\text{A}, I_B = 1.0\text{A}$                                   | —        | —    | 1.25 | $\text{V}$         |
| Base-Emitter Saturation Voltage                    | $V_{BE(SAT)}$   | $I_C = 100\text{A}, I_B = 1.0\text{A}$                                   | —        | —    | 2.0  | $\text{V}$         |
| Resistive  | Turn On         | $V_{CC} = 75\text{V}$  | —        | —    | 2.0  | $\mu\text{s}$      |
| Load   | Storage Time    | $I_C = 100\text{A}$  | —        | —    | 4.0  | $\mu\text{s}$      |
| Switch Times                                       | Fall Time       | $I_{B1} = -I_{B2} = 1.0\text{A}$   | —        | —    | 2.0  | $\mu\text{s}$      |
| Thermal Resistance, Junction to Sink<br>Lubricated | $R_{\theta CS}$ | Per Half Module  | —        | —    | 0.15 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case               | $R_{\theta JC}$ | Transistor Part  | —        | —    | .31  | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case               | $R_{\theta JC}$ | Diode Part   | —        | —    | .8   | $^\circ\text{C/W}$ |

This specification is tentative;  
 therefore, performance curves are not  
 included. Please contact the Powerex  
 sales representative nearest you for  
 further information.