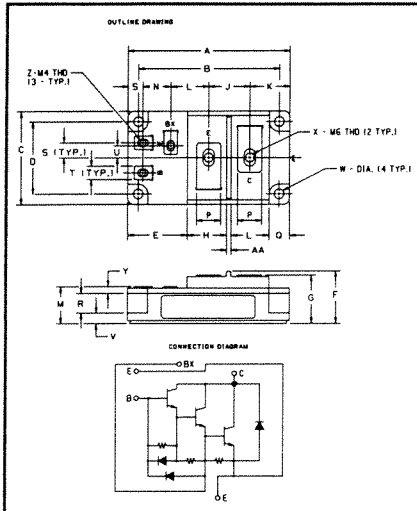
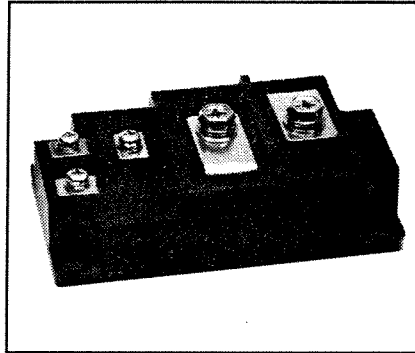


### High-Beta Single Darlington Transistor Module 400 Amperes/600 Volts



**600 Volt KS624540  
Outline Drawing**

| Dimension | Inches       | Millimeters |
|-----------|--------------|-------------|
| A         | 4.212        | 107         |
| B         | 3.661        | 93          |
| C         | 2.441        | 62          |
| D         | 1.890 ± .010 | 48 ± 0.25   |
| E         | 1.476        | 37.5        |
| F         | 1.378 Max.   | 35 Max.     |
| G         | 1.268        | 32.2        |
| H         | 1.102        | 28          |
| J         | 1.063        | 27          |
| K         | 1.043        | 26.5        |
| L         | .984         | 25          |
| M         | .964         | 24.5        |
| N         | .728         | 18.5        |
| P         | .630         | 16          |
| Q         | .531         | 13.5        |
| R         | .512         | 13          |
| S         | .394         | 10          |
| T         | .354         | 9           |
| U         | .315         | 8           |
| V         | .276         | 7           |
| W         | .256 Dia.    | 6.5 Dia.    |
| X         | M6 Metric    | M6          |
| Y         | .177         | 4.5         |
| Z         | M4 Metric    | M4          |
| AA        | .118         | 3           |



**KS624540  
High-Beta Single Darlington  
Transistor Module  
400 Amperes/600 Volts**

#### Description

Powerex High Beta Darlington Transistor Modules are designed for use in switching applications. The modules are isolated, consisting of one Darlington Transistor with a reverse parallel connected high-speed diode and base emitter speed up diodes.

#### Features:

- ☐ Isolated Mounting
- ☐ Planar Chips
- ☐ Discrete Fast Recovery Feed-Back Diode
- ☐ High Gain ( $h_{FE}$ )
- ☐ Base Emitter Speed Up Diodes

#### Applications:

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

#### Ordering Information

Example: Select the complete eight digit module part number you desire from the table — i.e. KS624540 is a 450  $V_{CEQ(SUS)}$  (600  $V_{CEV}$ ), 400 Ampere High Beta Single Darlington Module.

| Type | $V_{CEQ(SUS)}$<br>Volts (x100) | Current Rating<br>Amperes (25) |
|------|--------------------------------|--------------------------------|
| KS62 | 45                             | 40                             |



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**KS624540**  
**High-Beta Single Darlington Transistor Module**  
400 Amperes/600 Volts

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

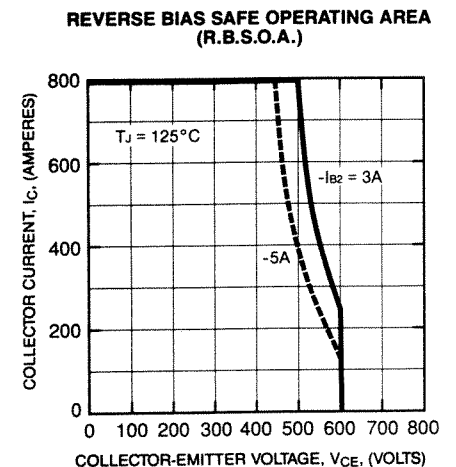
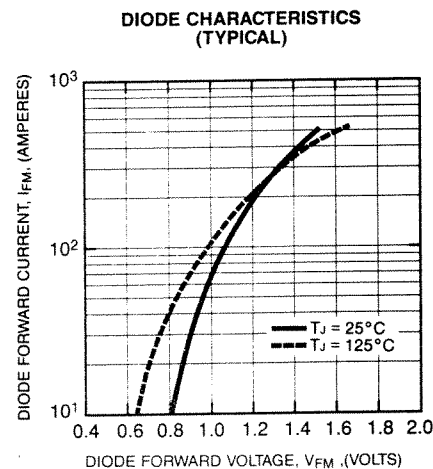
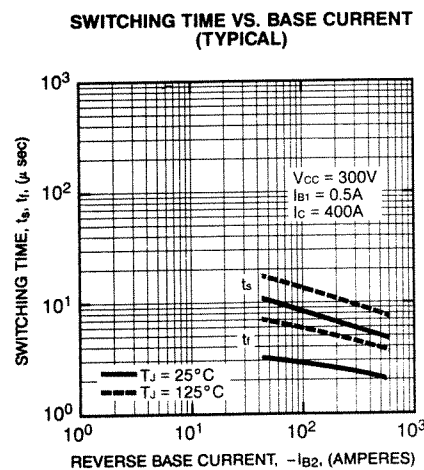
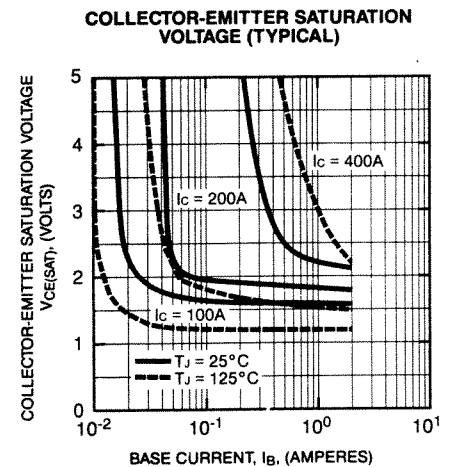
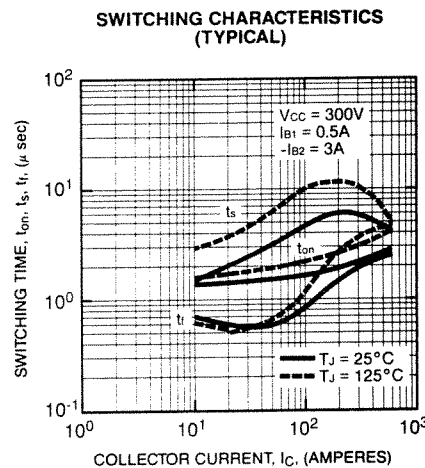
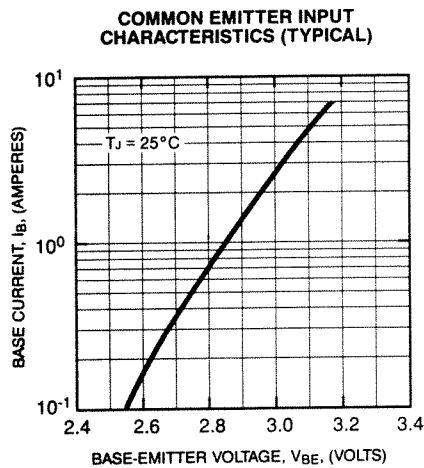
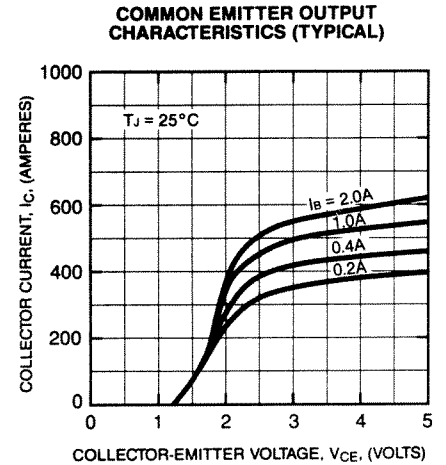
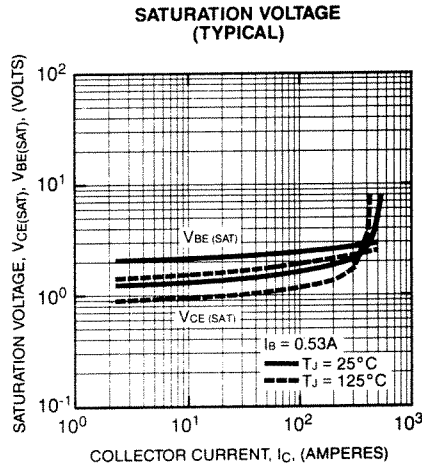
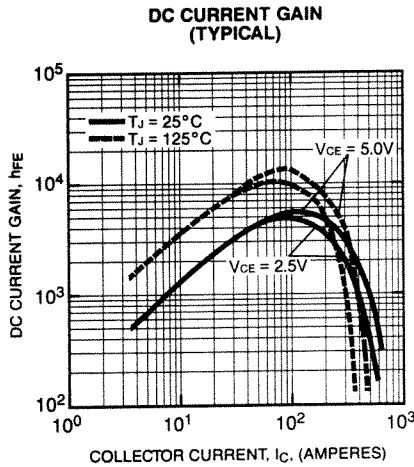
|                                                            | Symbol         | KS624540    | Units            |
|------------------------------------------------------------|----------------|-------------|------------------|
| Junction Temperature                                       | $T_J$          | - 40 to 150 | $^\circ\text{C}$ |
| Storage Temperature                                        | $T_{STG}$      | - 40 to 125 | $^\circ\text{C}$ |
| Collector-Emitter Sustaining Voltage                       | $V_{CEQ(SUS)}$ | 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                                  | $V_{CEV}$      | 600         | Volts            |
| Continuous Collector Current                               | $I_C$          | 400         | Amperes          |
| Diode Forward Current                                      | $I_{FM}$       | 400         | Amperes          |
| Continuous Base Current                                    | $I_B$          | 10          | Amperes          |
| Diode Surge Current                                        | $I_{FSM}$      | 4000        | Amperes          |
| Power Dissipation                                          | $P_T$          | 1500        | Watts            |
| Max. Mounting Torque M6 Terminal Screws (E,C)              | —              | 26          | in.-lb.          |
| Max. Mounting Torque M4 Terminal Screws (B,Bx,E)           | —              | 12          | in.-lb.          |
| Max. Mounting Torque M6 Mounting Screws                    | —              | 26          | in.-lb.          |
| Module Weight                                              | —              | 640         | Grams            |
| V isolation                                                | $V_{RMS}$      | 2500        | Volts            |

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

| Characteristics                                | Symbol          | Test Conditions                             | Min. | KS624540<br>Typ. | Max.  | Units              |
|------------------------------------------------|-----------------|---------------------------------------------|------|------------------|-------|--------------------|
| Collector Cutoff Current                       | $I_{CEV}$       | $V_{CE} = 600\text{V}, V_{BE} = -2\text{V}$ | —    | —                | 5     | mA                 |
| Emitter Cutoff Current                         | $I_{EBO}$       | $V_{EB} = 7\text{V}$                        | —    | —                | 400   | mA                 |
| DC Current Gain                                | $h_{FE}$        | $I_C = 400, V_{CE} = 2.5\text{V}$           | 750  | —                | —     | —                  |
| Diode Forward Voltage                          | $V_{FM}$        | $I_{FM} = 400\text{A}$                      | —    | —                | 1.8   | V                  |
| Collector-Emitter Saturation Voltage           | $V_{CE(SAT)}$   | $I_C = 400\text{A}, I_B = 0.53\text{A}$     | —    | —                | 2.5   | V                  |
| Base-Emitter Saturation Voltage                | $V_{BE(SAT)}$   | $I_C = 400\text{A}, I_B = 0.53\text{A}$     | —    | —                | 3.5   | V                  |
| Resistive Turn On                              | $t_{on}$        | $V_{CC} = 300\text{V}$                      | —    | —                | 3.0   | $\mu\text{s}$      |
| Load Storage Time                              | $t_s$           | $I_C = 400\text{A}$                         | —    | —                | 10    | $\mu\text{s}$      |
| Switch Times Fall Time                         | $t_f$           | $I_{B1} = 0.8\text{A}, I_{B2} = -3\text{A}$ | —    | —                | 3.5   | $\mu\text{s}$      |
| Thermal Resistance, Case to Sink<br>Lubricated | $R_{\theta CS}$ | —                                           | —    | —                | 0.04  | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case           | $R_{\theta JC}$ | Transistor Part                             | —    | —                | 0.083 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case           | $R_{\theta JC}$ | Diode Part                                  | —    | —                | .25   | $^\circ\text{C/W}$ |

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