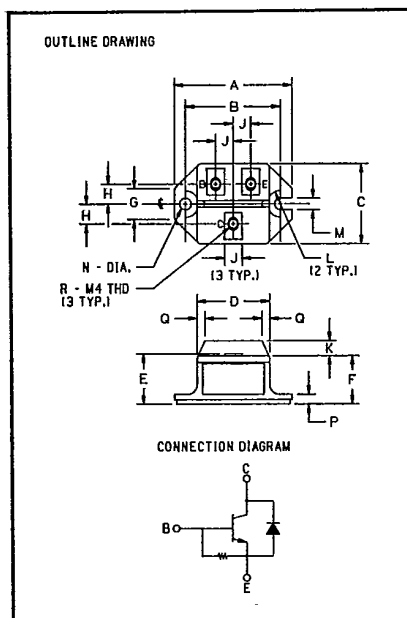


**KS534505**

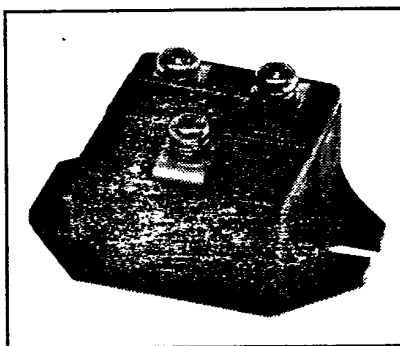
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

## Single Bipolar Transistor Module 50 Amperes/600 Volts



**600 Volt KS534505  
Outline Drawing**

| Dimension | Inches       | Millimeters |
|-----------|--------------|-------------|
| A         | 2.106        | 53.5        |
| B         | 1.705 ± .008 | 43.3 ± 0.2  |
| C         | 1.437        | 36.5        |
| D         | 1.299        | 33          |
| E         | .925         | 23.5        |
| F         | .866         | 22          |
| G         | .551         | 14          |
| H         | .354         | 9           |
| J         | .315         | 8           |
| K         | .276         | 7           |
| L         | .472 R       | R6          |
| M         | .209         | 5.3         |
| N         | .209 Dia.    | 5.3 Dia.    |
| P         | .177         | 4.5         |
| Q         | .138         | 3.5         |
| R         | M4 Metric    | M4          |



**KS534505  
Single Bipolar  
Transistor Module  
50 Amperes/600 Volts**

### Description

Powerex Single Bipolar Transistor Modules are designed for use in switching applications. The modules are isolated, consisting of one Bipolar Transistor having a reverse parallel connected high-speed diode.

### Features:

- ☐ Isolated Mounting
- ☐ Planar Chips
- ☐ Discrete Fast Recovery Feed-Back Diode
- ☐ Low  $V_{CE(SAT)}$
- ☐ Fast Switching

### Applications:

- ☐ High Frequency Inverters
- ☐ AC & DC Motor Control
- ☐ Switching Power Supplies

### Ordering Information

Example: Select the complete eight digit module part number you desire from the table - i.e. KS534505 is a 450  $V_{CEQ(SUS)}$  (600  $V_{CEV}$ ), 50 Ampere Single Bipolar Module.

| Type | $V_{CEQ(SUS)}$<br>Volts ( $\times 10$ ) | Current Rating<br>Amperes ( $\times 10$ ) |
|------|-----------------------------------------|-------------------------------------------|
| KS53 | 45                                      | 05                                        |



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

**KS534505**

**Single Bipolar Transistor Module**

**50 Amperes/450 Volts**

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

|                                                            | Symbol         | KS534505    | 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 $V_{BE} = -2\text{V}$            | $V_{CEV}$      | 600         | Volts            |
| Continuous Collector Current                               | $I_C$          | 50          | Amperes          |
| Diode Forward Current                                      | $I_{FM}$       | 50          | Amperes          |
| Continuous Base Current                                    | $I_B$          | 15          | Amperes          |
| Diode Surge Current                                        | $I_{FSM}$      | 500         | Amperes          |
| Power Dissipation                                          | $P_T$          | 310         | Watts            |
| Max. Mounting Torque M4 Terminal Screws                    | —              | 12          | in.-lb.          |
| Max. Mounting Torque M5 Mounting Screws                    | —              | 17          | in.-lb.          |
| Module Weight                                              | —              | 90          | Grams            |
| V Isolation                                                | $V_{RMS}$      | 2000        | Volts            |



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

### KS534505

Single Bipolar Transistor Module

50 Amperes/600 Volts

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

| Characteristics                                |              | Symbol          | Test Conditions               | Min. | KS534505<br>Typ. | Max. | Units              |
|------------------------------------------------|--------------|-----------------|-------------------------------|------|------------------|------|--------------------|
| Collector Cutoff Current                       |              | $I_{CEV}$       | $V_{CE} = 600V, V_{BE} = -2V$ | —    | —                | 1    | mA                 |
| Emitter Cutoff Current                         |              | $I_{EBO}$       | $V_{EB} = 7V$                 | —    | —                | 300  | mA                 |
| DC Current Gain                                |              | $h_{FE}$        | $I_C = 40A, V_{CE} = 5.0V$    | 8    | —                | —    | —                  |
| DC Current Gain                                |              | $h_{FE}$        | $I_C = 50A, V_{CE} = 2.0V$    | —    | 12               | —    | —                  |
| Diode Forward Voltage                          |              | $V_{FM}$        | $I_{FM} = 50A$                | —    | —                | 1.75 | V                  |
| Collector-Emitter Saturation Voltage           |              | $V_{CE(SAT)}$   | $I_C = 50A, I_B = 10A$        | —    | —                | 1.0  | V                  |
| Base-Emitter Saturation Voltage                |              | $V_{BE(SAT)}$   | $I_C = 50A, I_B = 10A$        | —    | —                | 1.5  | V                  |
| Resistive<br>Load                              | Turn On      | $t_{on}$        | $V_{CC} = 300V$               | —    | —                | 2.0  | $\mu s$            |
|                                                | Storage Time | $t_s$           | $I_C = 40A$                   | —    | —                | 7    | $\mu s$            |
| Switch Times                                   | Fall Time    | $t_f$           | $I_{B1} = -I_{B2} = 8.0A$     | —    | —                | 1.0  | $\mu s$            |
| Thermal Resistance, Case to Sink<br>Lubricated |              | $R_{\theta CS}$ | —                             | —    | —                | .15  | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case           |              | $R_{\theta JC}$ | Transistor Part               | —    | —                | 0.4  | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case           |              | $R_{\theta JC}$ | Diode Part                    | —    | —                | 1.3  | $^\circ\text{C/W}$ |



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

**KS534505**  
**Single Bipolar Transistor Module**  
**50 Amperes/600 Volts**

