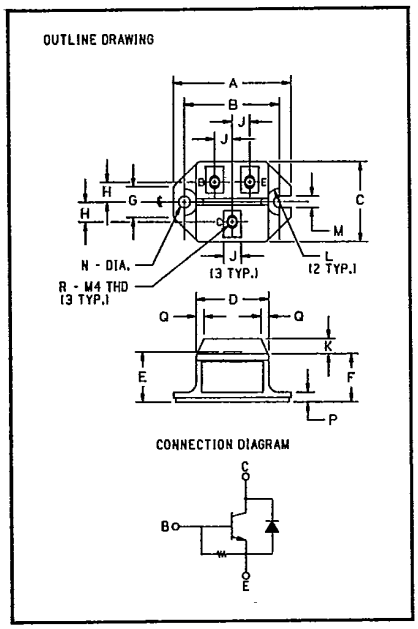
KS534505

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

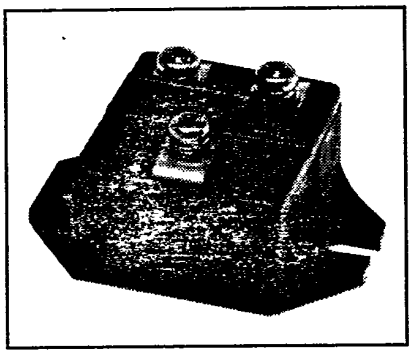
Single Bipolar Transistor Module

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



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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 $V_{CEO(SUS)}$ (600 V_{CEV}), 50 Ampere Single Bipolar Module.

Type	$V_{CEO(SUS)}$ Volts (×10)	Current Rating Amperes (×10)
KS53	45	05

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50 Amperes/450 Volts

Maximum Ratings T_J =25°C unless otherwise specified

	Symbol	KS534505	Units
Junction Temperature	T_J	−40 to 150	°C
Storage Temperature	T_{STG}	−40 to 125	°C
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	450	Volts
Collector-Emitter Sustaining Voltage V_{BE} = −2V	$V_{CEV(SUS)}$	600	Volts
Collector-Base Voltage	V_{CBO}	600	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage V_{BE} = −2V	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

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Single Bipolar Transistor Module
50 Amperes/600 Volts

Electrical and Mechanical Characteristics T_j =25°C unless otherwise specified

Characteristics		Symbol	Test Conditions	Min.	KS534505 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 Load Switch Times	Turn On	t_{on}	V_{CC} =300V	—	—	2.0	μs
	Storage Time	t_s	I_C =40A	—	—	7	μs
	Fall Time	t_f	I_{B1} =−I_{B2} =8.0A	—	—	1.0	μs
Thermal Resistance, Case to Sink Lubricated		$R_{\theta CS}$	—	—	—	.15	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	Transistor Part	—	—	0.4	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	Diode Part	—	—	1.3	°C/W

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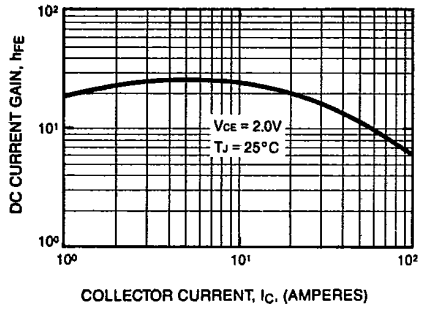
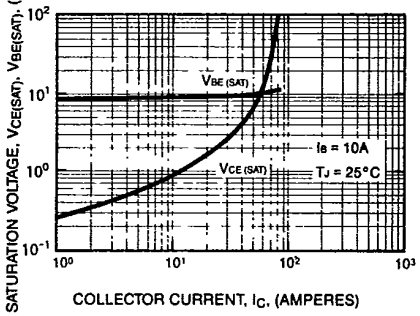
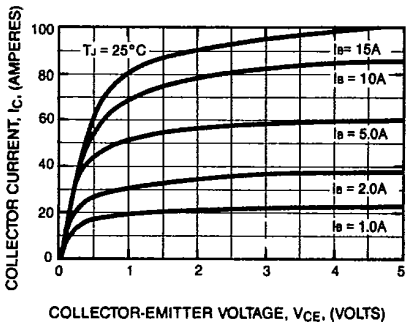
DC CURRENT GAIN (TYPICAL)



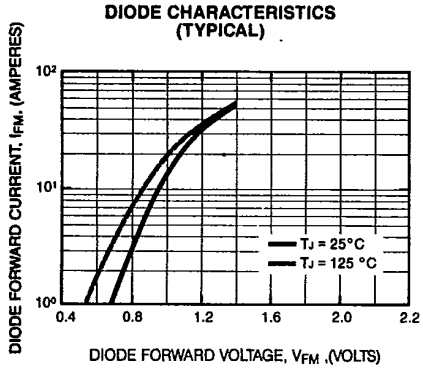
SATURATION VOLTAGE (TYPICAL)



COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



DIODE CHARACTERISTICS (TYPICAL)



REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)