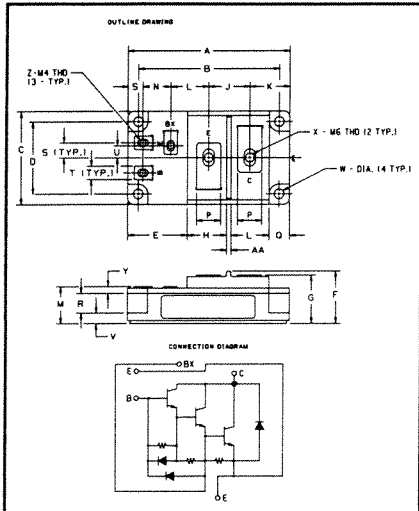
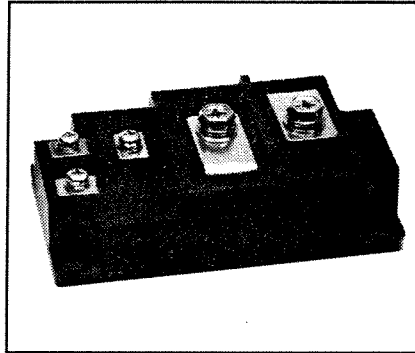


High-Beta Single Darlington Transistor Module 400 Amperes/600 Volts



**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 $V_{CEO(SUS)}$ (600 V_{CEV}), 400 Ampere High Beta Single Darlington Module.

Type	$V_{CEO(SUS)}$ Volts (x100)	Current Rating Amperes (25)
KS62	45	40



Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

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

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

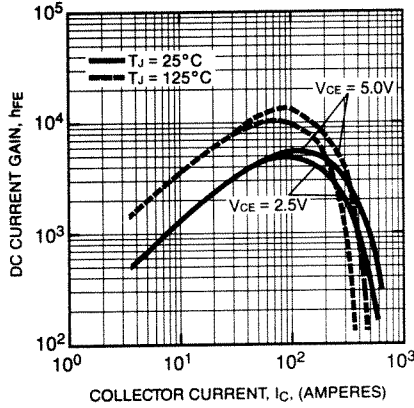
	Symbol	KS624540	Units
Junction Temperature	T_J	- 40 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	- 40 to 125	$^\circ\text{C}$
Collector-Emitter Sustaining Voltage	$V_{CE(SUS)}$	450	Volts
Collector-Emitter Sustaining Voltage $V_{BE} = -2\text{V}$	$V_{CEV(SUS)}$	600	Volts
Collector-Base Voltage	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

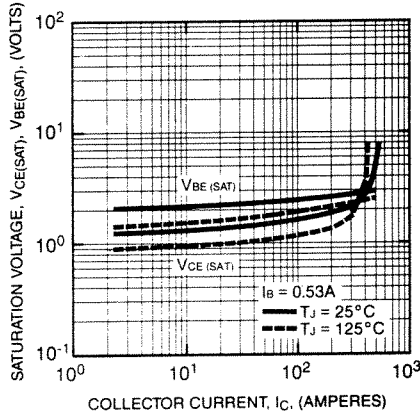
Characteristics	Symbol	Test Conditions	KS624540			Units
			Min.	Typ.	Max.	
Collector Cutoff Current	I_{CEV}	$V_{CE} = 600\text{V}, V_{BE} = -2\text{V}$	—	—	5	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 7\text{V}$	—	—	400	mA
DC Current Gain	h_{FE}	$I_C = 400, V_{CE} = 2.5\text{V}$	750	—	—	—
Diode Forward 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 Load	Turn On	$V_{CC} = 300\text{V}$	—	—	3.0	μs
	Storage Time	$I_C = 400\text{A}$	—	—	10	μs
Switch Times	Fall Time	$I_{B1} = 0.8\text{A}, I_{B2} = -3\text{A}$	—	—	3.5	μs
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	—	—	—	0.04	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	0.083	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	.25	$^\circ\text{C}/\text{W}$

KS624540
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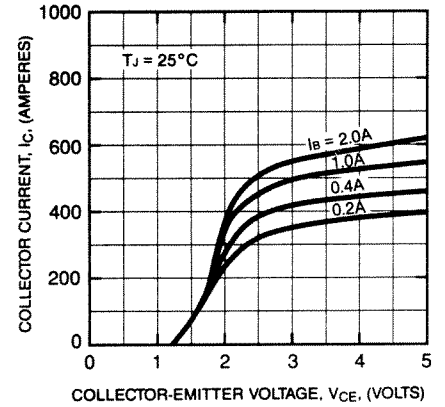
DC CURRENT GAIN (TYPICAL)



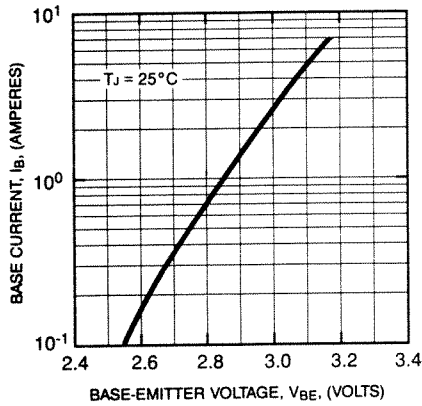
SATURATION VOLTAGE (TYPICAL)



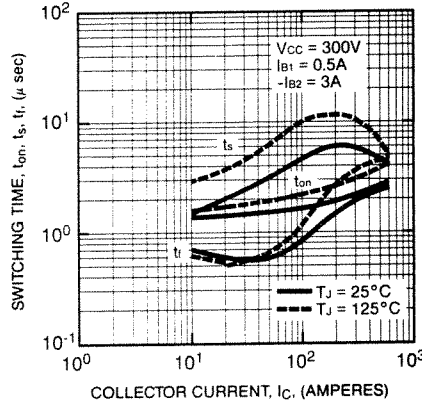
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



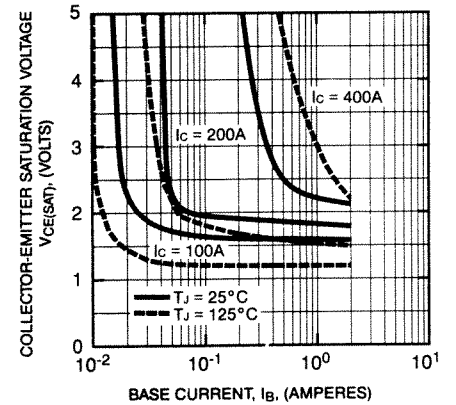
COMMON EMITTER INPUT CHARACTERISTICS (TYPICAL)



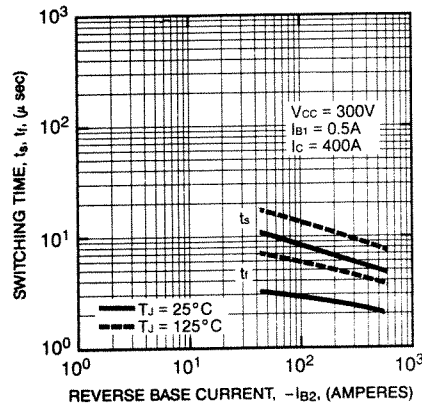
SWITCHING CHARACTERISTICS (TYPICAL)



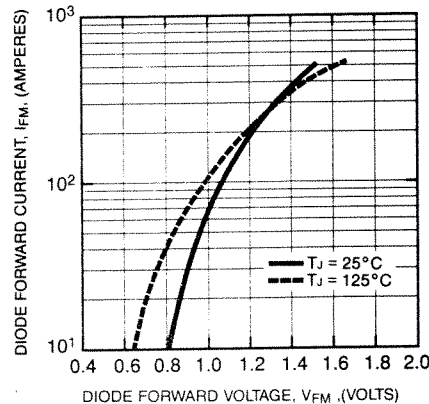
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



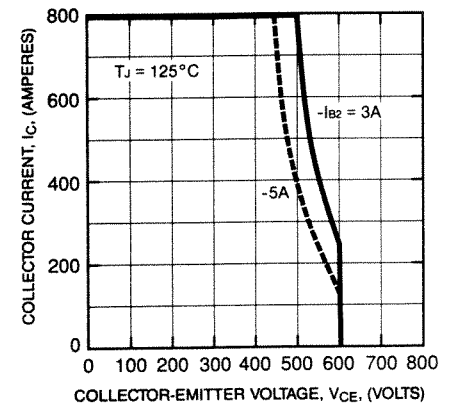
SWITCHING TIME VS. BASE CURRENT (TYPICAL)



DIODE CHARACTERISTICS (TYPICAL)



REVERSE BIAS SAFE OPERATING AREA (R.B.S.O.A.)



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