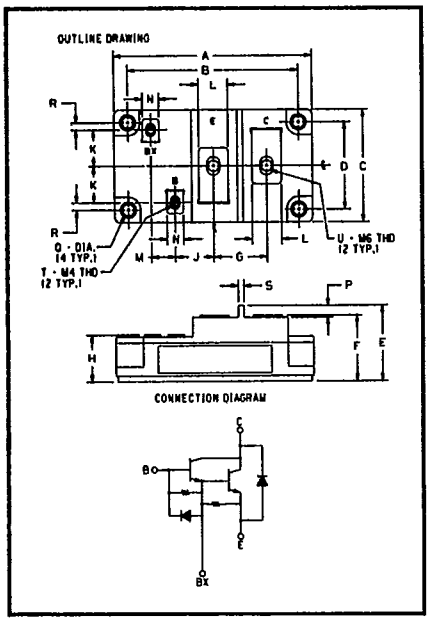
T-33-35

KS624540A41

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

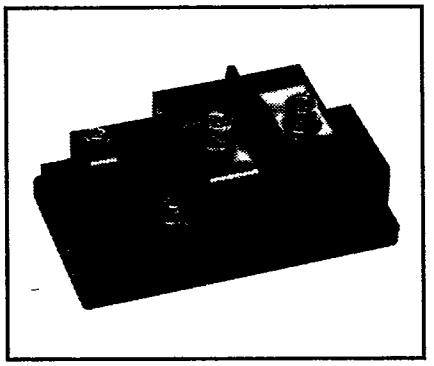
Single Darlington Transistor Module

400 Amperes/600 Volts



600 Volts, KS624540A41
Outline Drawing

Dimension	Inches	Millimeters
A	4.252 Max.	108 Max.
B	3.661 ± .012	93 ± 0.3
C	2.441 Max.	62 Max.
D	1.890 ± .012	48 ± 0.3
E	1.634 Max.	41.5 Max.
F	1.417 Max.	36 Max.
G	1.142	29
H	1.004	25.5 Max.
J	.827	21
K	.787	20
L	.630	16
M	.512	13
N	.354	9
P	.256	6.5
Q	.256 Dia.	6.5 Dia.
R	.157	4
S	.118	3
T	M4 Metric	M4
U	M6 Metric	M6



KS624540A41
Single Darlington Transistor Module
400 Amperes/600 Volts

Description
Powerex Single 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 a base emitter speed up diode.

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

Applications:
- ☐ Inverters
- ☐ DC Motor Control
- ☐ Switching Power Supplies
- ☐ AC Motor Control
- ☐ Welders

Ordering Information
Example: Select the complete eleven digit module part number you desire from the table — i.e. KS624540A41 is a 450 $V_{CEO(SUS)}$ (600 V_{CEV}), 400 Ampere Single Darlington Module.

Type	$V_{CEO(SUS)}$ Volts (x10)	Current Rating Amperes (x10)
KS62	45	40

POWEREX

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Single Darlington Transistor Module
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Maximum Ratings, T_C=25°C unless otherwise specified

	Symbol	KS624540A41	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	400	Amperes
Diode Forward Current	I_{FM}	400	Amperes
Continuous Base Current	I_B	18	Amperes
Diode Surge Current	I_{FSM}	4000	Amperes
Power Dissipation	P_T	1380	Watts
Maximum Mounting Torque M6 Terminal Screws (E, C)	—	26	in.-lb.
Maximum Mounting Torque M4 Terminal Screws (B, Bx)	—	12	in.-lb.
Maximum Mounting Torque M6 Mounting Screws	—	26	in.-lb.
Module Weight	—	470	Grams
V Isolation	V_{RMS}	2500	Volts

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KS624540A41
Single Darlington Transistor Module
400 Amperes/600 Volts

Electrical and Mechanical Characteristics, T_C=25°C unless otherwise specified

Characteristics		Symbol	Test Conditions	KS624540A41 Min.	Typ.	Max.	Units
Collector Cutoff Current		I_{CEV}	V_{CE}=600V, V_{BE}=-2V	—	—	4	mA
Emitter Cutoff Current		I_{EBO}	V_{EB}=7V	—	—	700	mA
DC Current Gain		h_{FE}	I_C=400A, V_{CE}=5.0V	70	—	—	—
Diode Forward Voltage		V_{FM}	I_{FM}=400A	—	—	1.85	Volts
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	I_C=400A, I_B=8A	—	—	2.0	Volts
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	I_C=400A, I_B=8A	—	—	2.5	Volts
Resistive	Turn On	t_{on}	V_{CC}=300V	—	—	3.0	μs
Load	Storage Time	t_s	I_C=400A	—	—	12	μs
Switch Times	Fall Time	t_f	I_{B1}=-I_{B2}=8.0A	—	—	3.0	μs
Thermal Resistance, Case to Sink Lubricated		$R_{\theta CS}$	—	—	—	.04	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	Transistor Part	—	—	.09	°C/W
Thermal Resistance, Junction to Case		$R_{\theta JC}$	Diode Part	—	—	.3	°C/W

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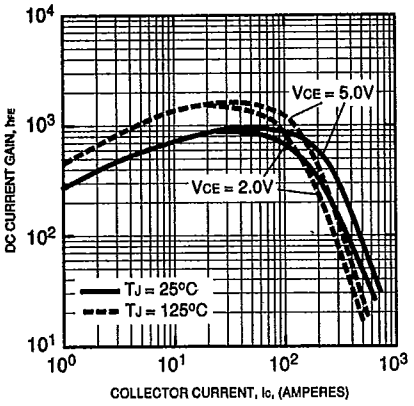
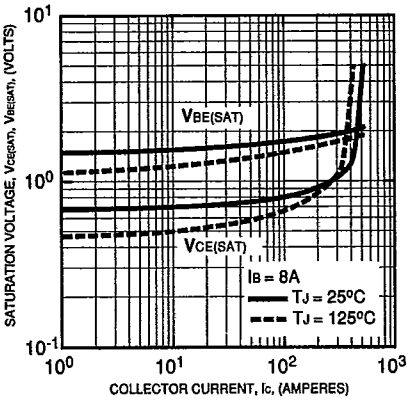
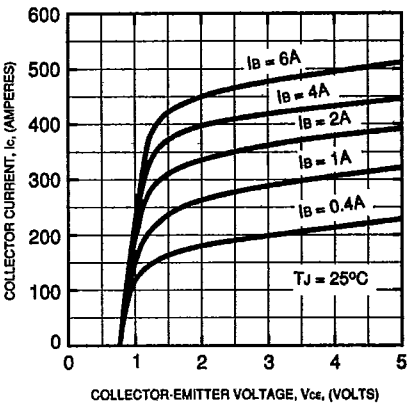
DC CURRENT GAIN (TYPICAL)



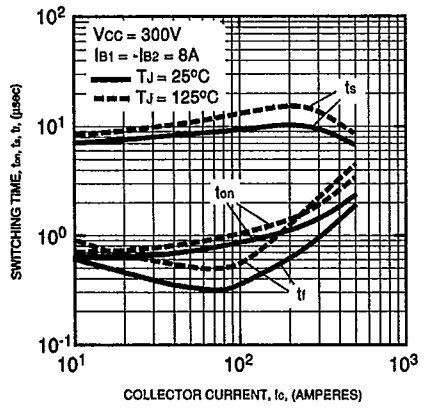
SATURATION VOLTAGE (TYPICAL)



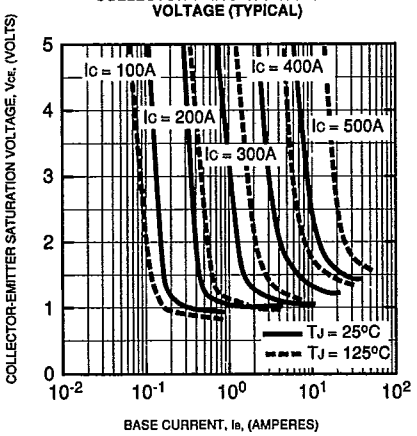
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



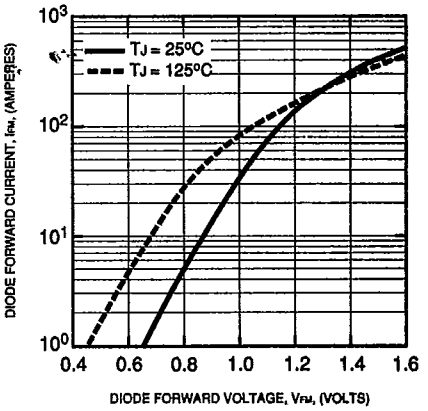
SWITCHING CHARACTERISTICS (TYPICAL)



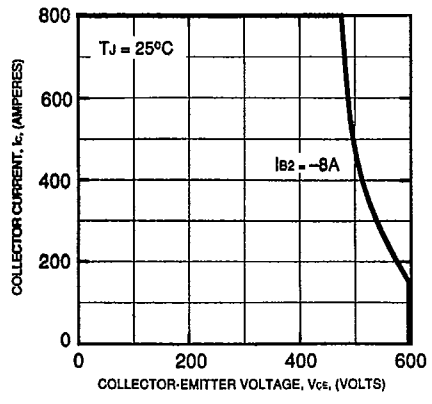
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



DIODE CHARACTERISTICS (TYPICAL)



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



DERATING FACTOR OF S.O.A.