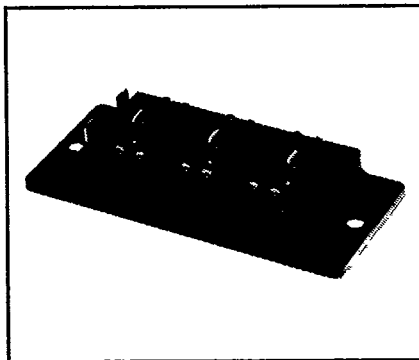
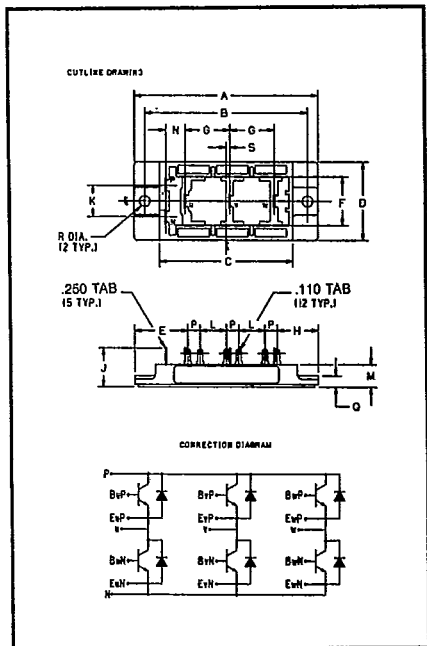


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Six-Darlington Transistor Module 20 Amperes/600 Volts



KED24502
Six-Darlington
Transistor Module
 20 Amperes/600 Volts

DataSheet4U.com

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600 Volt KED24502 Outline Drawing

Dimension	Inches	Millimeters
A	4.134	105
B	3.661 ± .008	93 ± 0.2
C	2.992	76
D	1.772	45
E	1.201	30.5
F	1.102	28
G	1.004	25.5
H	.925	23.5
J	.884	22.45
K	.709	18
L	.591	15
M	.512	13
N	.433	11
P	.276	7
Q	.256	6.5
R	.216 ± .004 Dia.	5.5 ± 0.1 Dia.
S	.079	2

Note: Each Transistor symbol represents a Darlington Transistor with base emitter resistors on each stage and a base emitter speed up diode on the input stage.

Description

Powerex Six-Darlington Transistor Modules are medium power devices which are designed for use in switching applications. The modules are isolated, consisting of six Darlington Transistors with each transistor having a reverse parallel connected high-speed diode. The transistors are connected in a three phase bridge configuration.

Features:

- Isolated Mounting
- Planar Chips
- Discrete Fast Recovery Feed-Back Diode
- High Gain (h_{FE})
- Quick Connect Terminals
- Base-Emitter Speed Up Diodes
- Fast On Connections

Applications:

- Inverters
- Switching Power Supplies
- AC Motor Control

Ordering Information

Example: Select the complete eight digit module part number you desire from the table - i.e. KED24502 is a 450 $V_{CE0(SUS)}$ (600 V_{CEV}), 20 Ampere Six-Darlington Module.

Type	$V_{CE0(SUS)}$ Volts ($\times 10$)	Current Rating Amperes ($\times 10$)
KED2	45	02

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Six-Darlington Transistor Module
 20 Amperes/600 Volts

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

	Symbol	KED24502	Units
Junction Temperature	T_J	-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 to 125	$^\circ\text{C}$
Collector-Emitter Voltage	$V_{CEO(SUS)}$	450	Volts
Collector-Emitter Voltage $V_{BE} = -2\text{V}$	V_{CEV}	600	Volts
Collector-Base Voltage	V_{CBO}	600	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Continuous Collector Current	I_C	20	Amperes
Diode Forward Current	I_{FM}	20	Amperes
Continuous Base Current	I_B	1	Amperes
Diode Surge Current	I_{FSM}	200	Amperes
Power Dissipation, Each Transistor	P_T	100	Watts
Mounting Torque M5 Mounting Screw	—	17	in.-lb.
Module Weight	—	90	Grams
V Isolation	V_{RMS}	2500	Volts

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

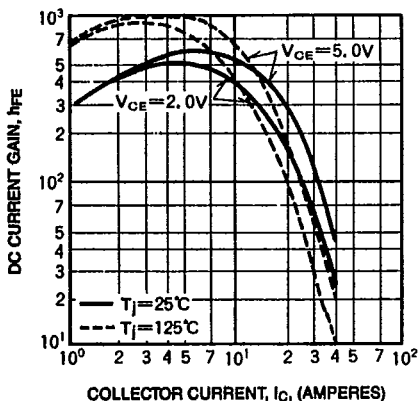
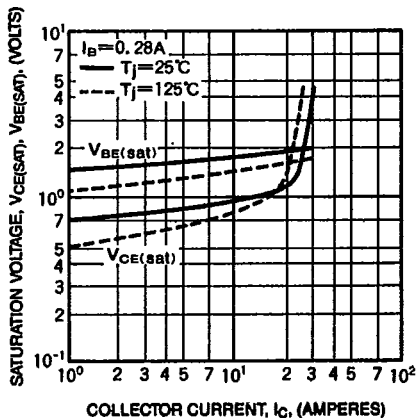
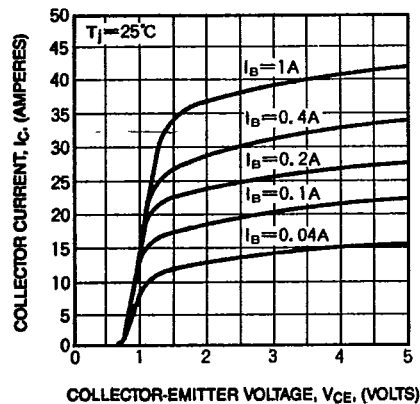
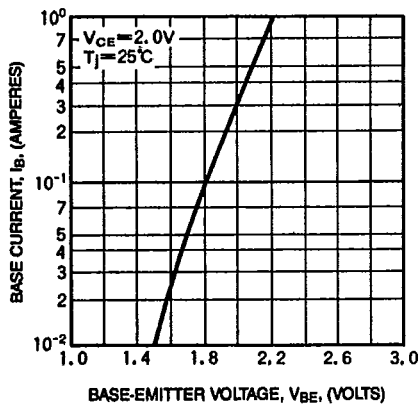
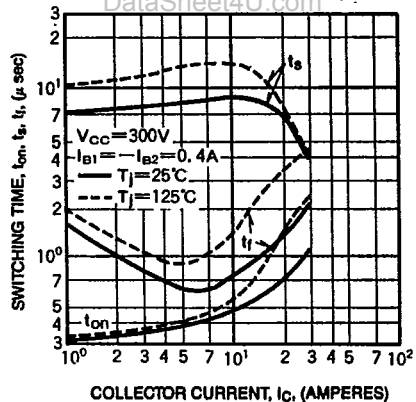
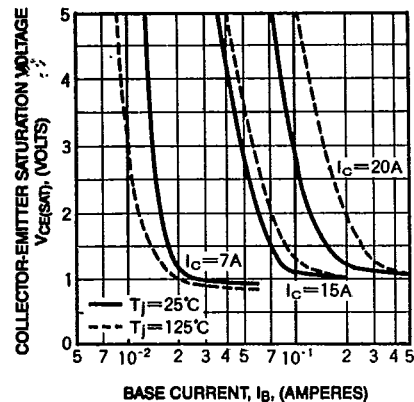
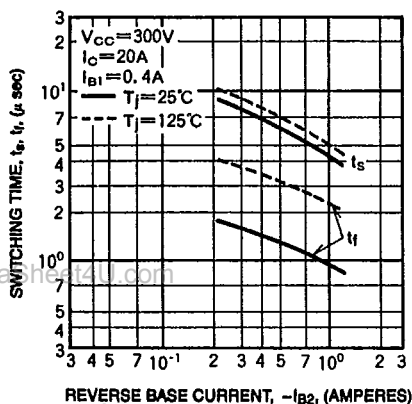
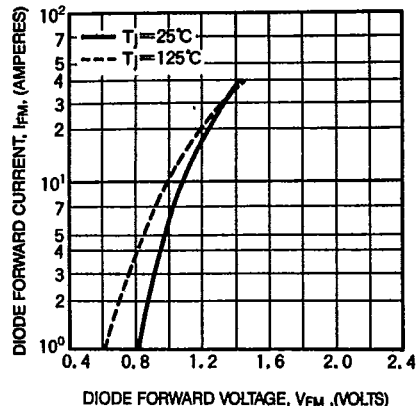
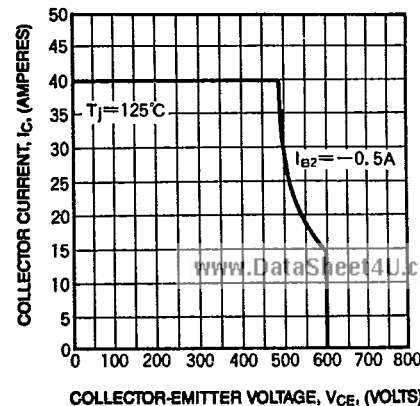
Characteristics	Symbol	Test Conditions	KED24502			Units
			Min.	Typ.	Max.	
Collector Cutoff Current	I_{CEV}	$V_{CE} = 600\text{V}, V_{BE} = -2\text{V}$	—	—	1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 7\text{V}$	—	—	150	mA
DC Current Gain	h_{FE}	$I_C = 20\text{A}, V_{CE} = 2\text{V}/5\text{V}$	75/100	—	—	—
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 20\text{A}, I_B = 0.28\text{A}$	—	—	2.0	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 20\text{A}, I_B = 0.28$	—	—	2.5	V
Diode Forward Voltage	V_{FM}	$I_{FM} = 20\text{A}$	—	—	2.0	V
Resistive Load Switch Times	Turn On	$V_{CC} = 300\text{V}$ $I_C = 20\text{A}$	—	—	1.5	μs
	Storage Time		—	—	12	μs
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	2.0	$^\circ\text{C/W}$
		Diode Part	—	—	1.2	$^\circ\text{C/W}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	—	—	—	0.35	$^\circ\text{C/W}$

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KED24502**Six-Darlington Transistor Module**

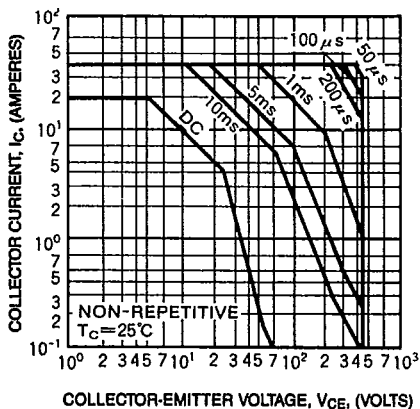
20 Amperes/600 Volts

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.)**

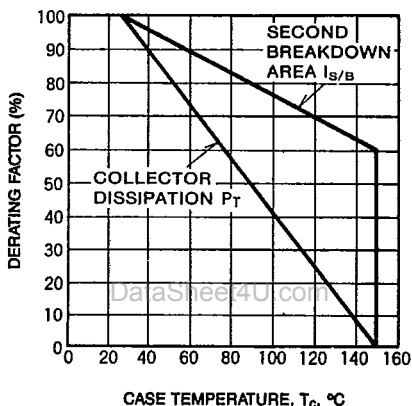
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KED24502
Six-Darlington Transistor Module
 20 Amperes/600 Volts

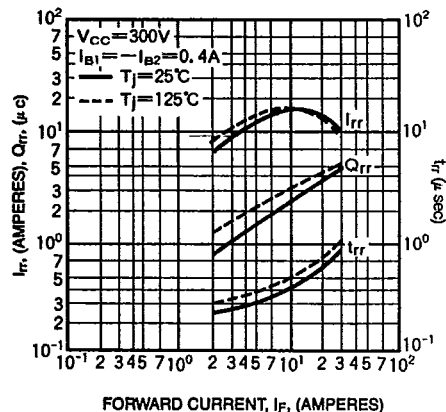
FORWARD BIAS SAFE OPERATING AREA (S.O.A.)



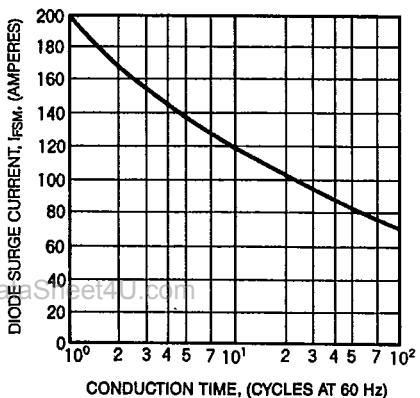
DERATING FACTOR OF SAFE OPERATING AREA (S.O.A.)



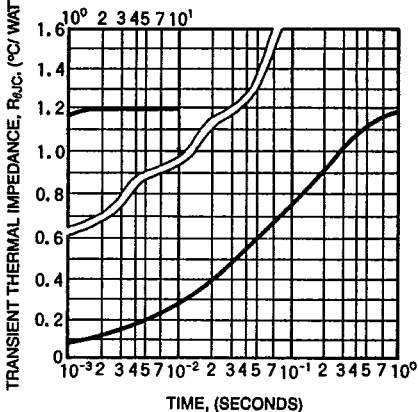
REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)



DIODE FORWARD SURGE CURRENT



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (DIODE)

