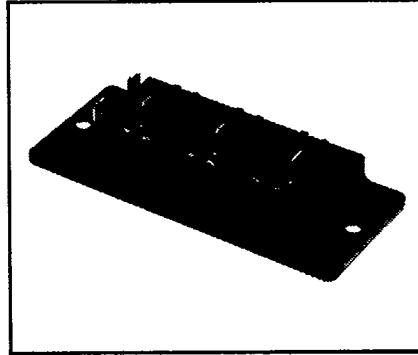
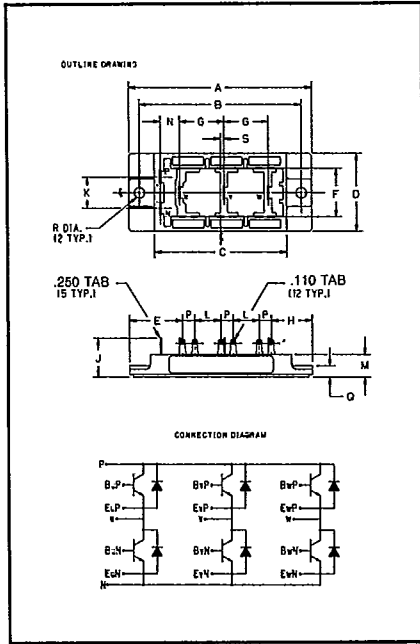


Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
 Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Six-Darlington Transistor Module 15 Amperes/600 Volts



KED245A1
Six-Darlington
Transistor Module
 15 Amperes/600 Volts

DataSheet4U.com

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600 Volt KED245A1 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})
- Base Emitter Speed Up Diodes
- Quick Connect Terminals

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. KED245A1 is a 450 $V_{CE0(SUS)}$ (600 V_{CEV}), 15 Ampere Six-Darlington Module.

Type	$V_{CE0(SUS)}$ Volts (x10)	Current Rating Amperes (15)
KED2	45	A1

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KED245A1
Six-Darlington Transistor Module
 15 Amperes/600 Volts

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

	Symbol	KED245A1	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 $V_{BE} = -2V$	$V_{CEV(SUS)}$	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	15	Amperes
Diode Forward Current	I_{FM}	15	Amperes
Continuous Base Current	I_B	1	Amperes
Diode Surge Current	I_{FSM}	150	Amperes
Power Dissipation, Each Transistor	P_T	100	Watts
Max. Mounting Torque M5 Mounting Screw	---	17	in.-lb.
Module Weight (typical)	---	90	Grams
V Isolation	V_{RMS}	2000	Volts

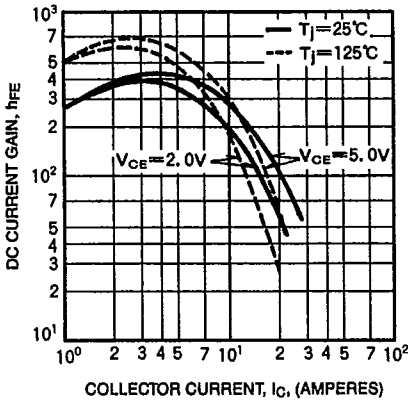
Electrical and Mechanical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	KED245A1			Units
			Min.	Typ.	Max.	
Collector Cutoff Current	I_{CEV}	$V_{CE} = 600V, V_{BE} = -2V$	---	---	1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 7V$	---	---	100	mA
DC Current Gain	h_{FE}	$I_C = 15A, V_{CE} = 5V$	100	---	---	---
Diode Forward Voltage	V_{FM}	$I_{FM} = 15A$	---	---	1.5	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 15A, I_B = 0.2A$	---	---	2.0	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 15A, I_B = 0.2A$	---	---	2.5	V
Resistive Load	Turn On	$V_{CC} = 300V$	---	---	1.5	μs
	Storage Time					
Switch Times	Fall Time	$I_{B1} = 0.3A, I_{B2} = -0.3A$	---	---	30	μs
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	---	---	---	.4	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	---	---	1.2	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	---	---	2.2	$^\circ\text{C/W}$

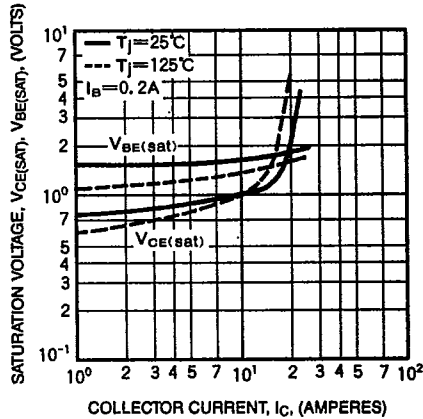
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KED245A1
Six-Darlington Transistor Module
15 Amperes/600

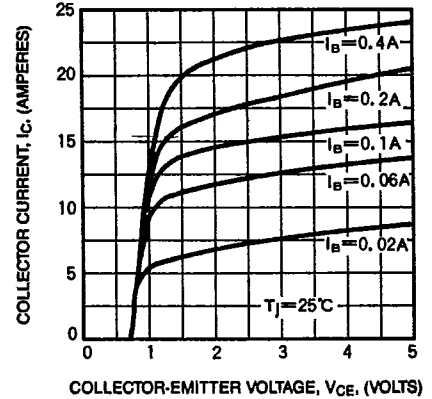
DC CURRENT GAIN (TYPICAL)



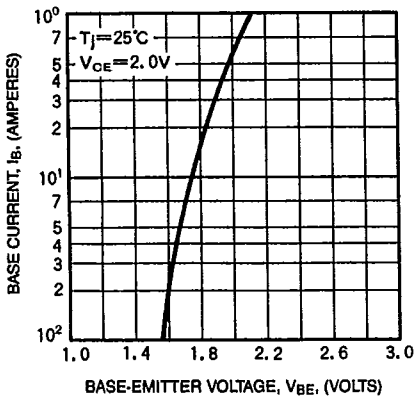
SATURATION VOLTAGE (TYPICAL)



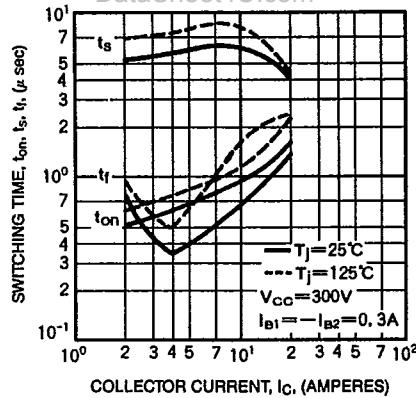
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



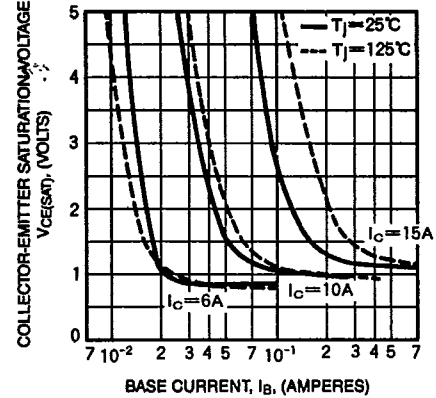
COMMON EMITTER INPUT CHARACTERISTICS (TYPICAL)



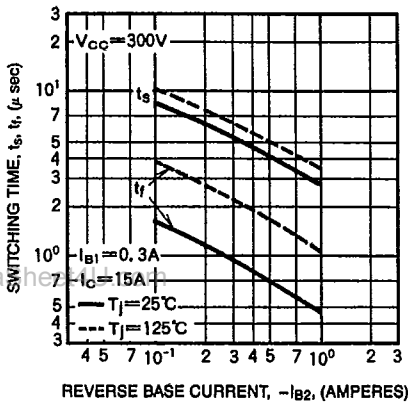
SWITCHING CHARACTERISTICS (TYPICAL)



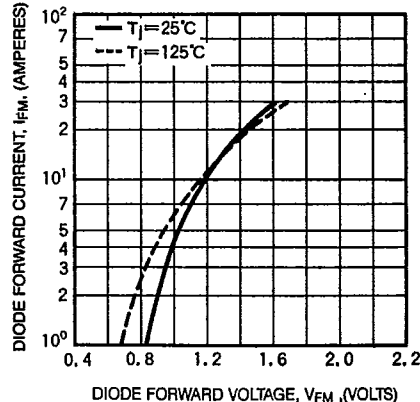
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



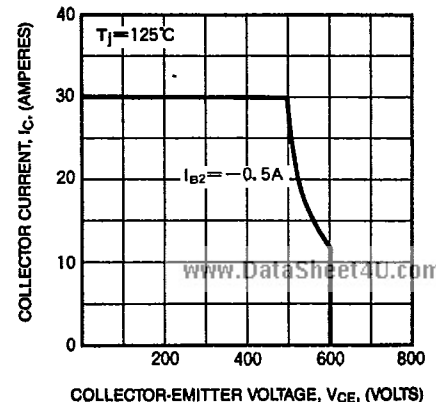
SWITCHING TIME VS. BASE CURRENT (TYPICAL)



DIODE CHARACTERISTICS (TYPICAL)



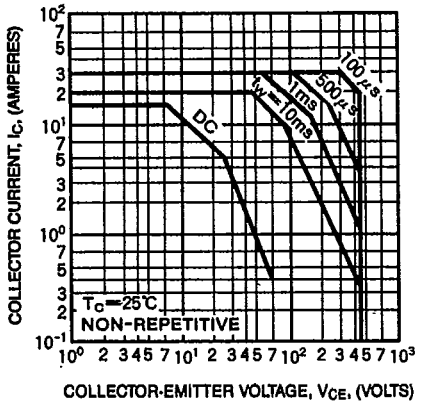
REVERSE BIAS SAFE OPERATING AREA (R.B.S.O.A.)



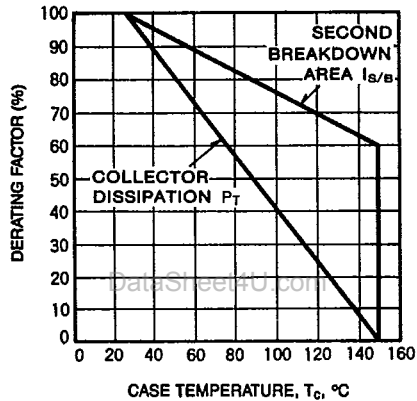
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KED245A1
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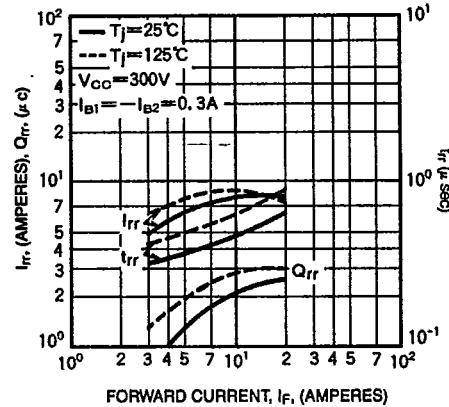
FORWARD BIAS SAFE OPERATING AREA (S.O.A.)



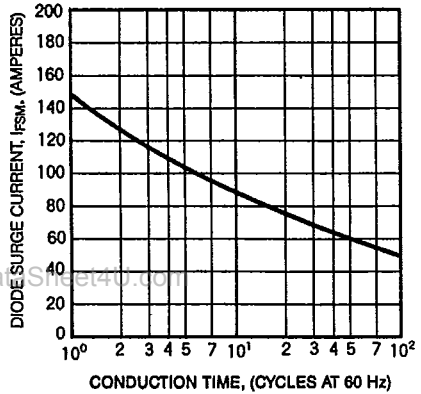
DERATING FACTOR OF SAFE OPERATING AREA (S.O.A.)



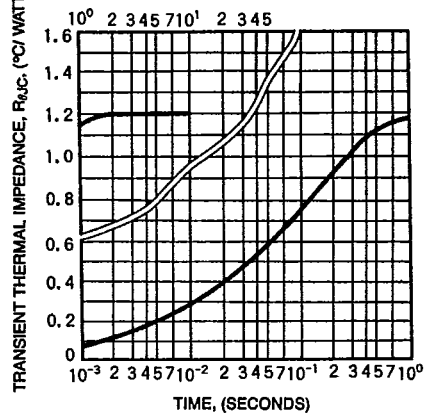
REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)



DIODE FORWARD SURGE CURRENT



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (DIODE)

