

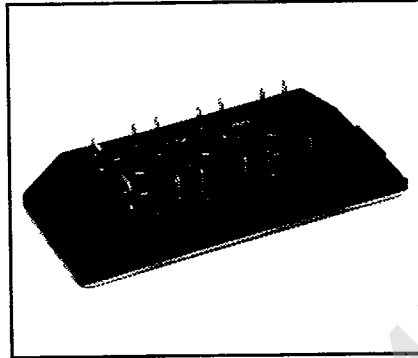
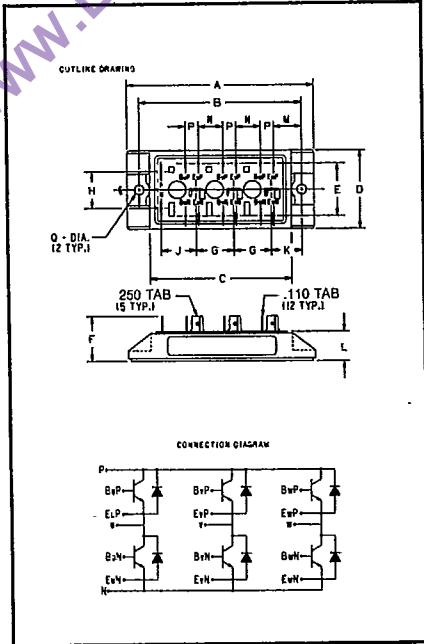


KE7212A1

T-33-35

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/1200 Volts**



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**Description**

Powerex Six-Darlington Transistor Modules 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 and base emitter speed up diodes. 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
- Switching Power Supplies
- AC Motor Control

**Ordering Information**

Example: Select the complete eight digit module part number you desire from the table - i.e. KE7212A1 is a 1200 Volt, 15 Ampere Six-Darlington Module.

Type	VCE(SUS) Volts (x100)	Current Rating Amperes (15)
KE72	12	A1

**1200 Volt KE7212A1**  
**Outline Drawing**

Dimension	Inches	Millimeters
A	4.212	107
B	3.661 ± .012	93 ± 0.3
C	3.189	81
D	1.772	45
E	1.181	30
F	1.024	26
G	.846	21.5
H	.827	21
J	.787	20
K	.689	17.5
L	.669 ± .020	17 ± 0.5
M	.630	16
N	.551	14
P	.295	7.5
Q	.216 Dia.	5.5 Dia.

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



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

	Symbol	KE7212A1	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	$V_{CEO(SUS)}$	950	Volts
Collector-Emitter Sustaining Voltage $V_{BE} = -2\text{V}$	$V_{CEV(SUS)}$	1200	Volts
Collector-Base Voltage	$V_{CBO}$	1200	Volts
Emitter-Base Voltage	$V_{EBO}$	7	Volts
Collector-Emitter Voltage $V_{BE} = -2\text{V}$	$V_{CEV}$	1200	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	$P_T$	155	Watts
Max. Mounting Torque M5 Mounting Screws	—	17	in-lbs
Module Weight	—	155	Grams
V isolation	$V_{RMS}$	2500	Volts

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

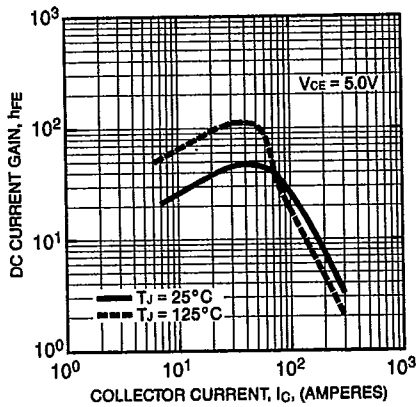
Characteristics	Symbol	Test Conditions	KE7212A1			Units
			Min.	Typ.	Max.	
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = 1200\text{V}, V_{BE} = -2\text{V}$	—	—	2	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 7\text{V}$	—	—	100	mA
DC Current Gain	$h_{FE}$	$I_C = 15\text{A}, V_{CE} = 5\text{V}$	75	—	—	—
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 15\text{A}$	—	—	1.5	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 15\text{A}, I_B = 0.3\text{A}$	—	—	3.0	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 15\text{A}, I_B = 0.3\text{A}$	—	—	3.5	V
Resistive Load	Turn On	$V_{CC} = 600\text{V}$	—	—	2.5	$\mu\text{s}$
	Storage Time		$t_s$	—	—	15
Switch Times	Fall Time	$I_{B1} = -I_{B2} = 0.3\text{A}$	—	—	3.0	$\mu\text{s}$
Thermal Resistance, Case to Sink, Lubricated	$R_{\theta CS}$	—	—	—	.25	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	0.8	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	1.2	$^\circ\text{C/W}$



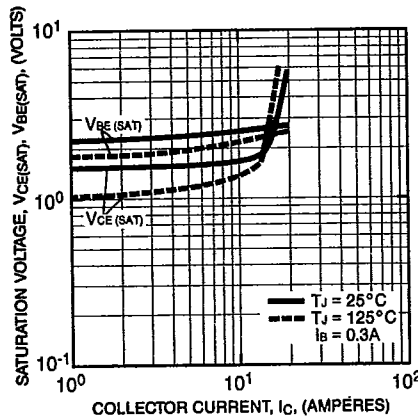
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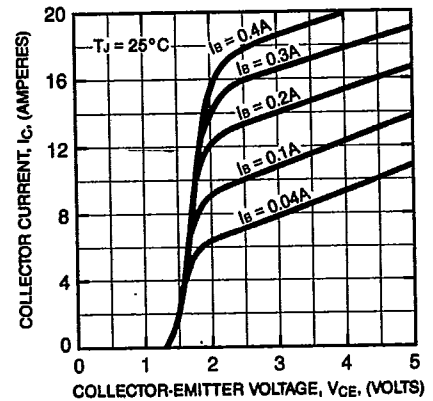
**DC CURRENT GAIN (TYPICAL)**



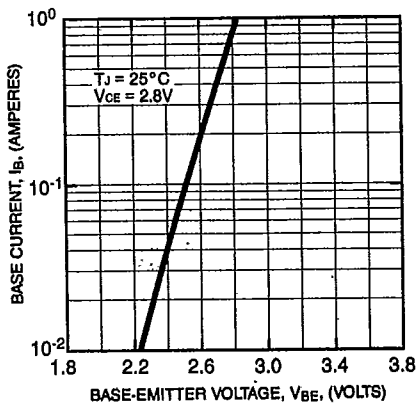
**SATURATION VOLTAGE (TYPICAL)**



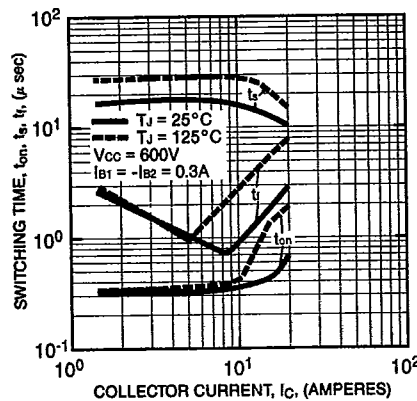
**COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)**



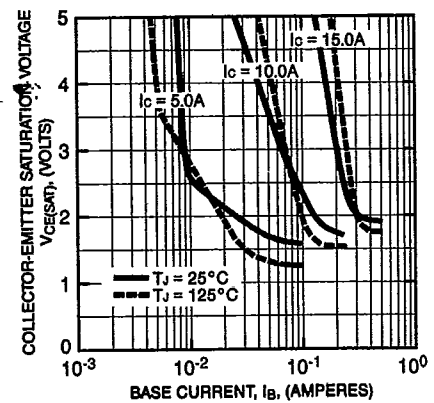
**COMMON EMITTER INPUT CHARACTERISTICS (TYPICAL)**



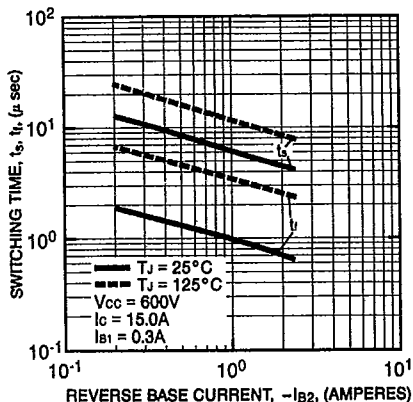
**SWITCHING CHARACTERISTICS (TYPICAL)**



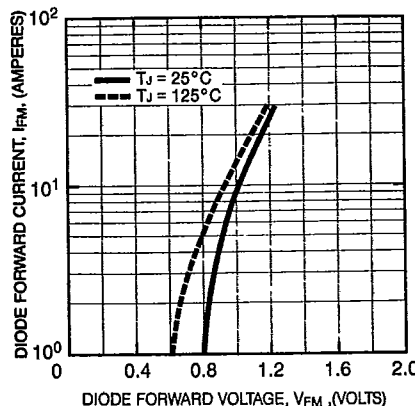
**COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)**



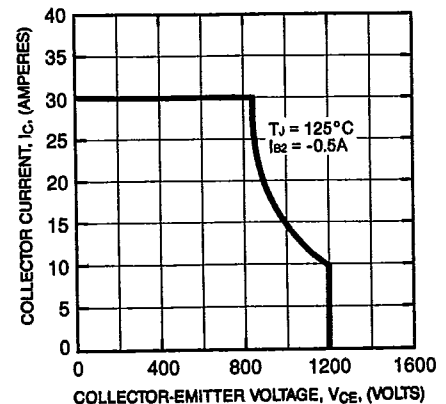
**SWITCHING TIME VS. BASE CURRENT (TYPICAL)**



**DIODE CHARACTERISTICS (TYPICAL)**



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



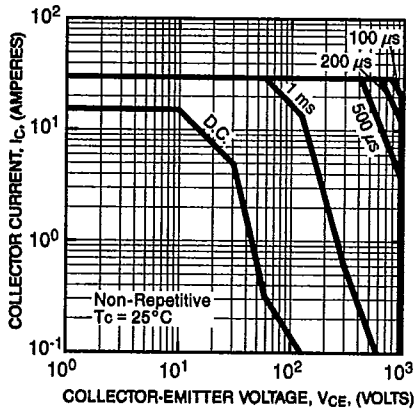


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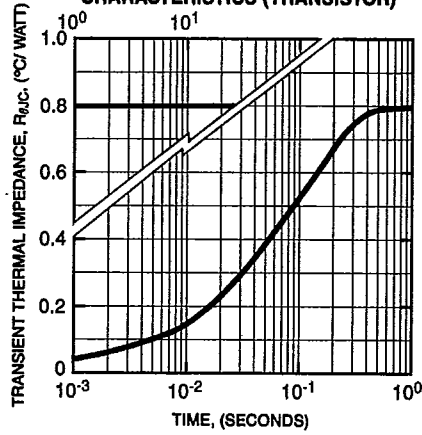
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**FORWARD BIAS SAFE OPERATING AREA (S.O.A.)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (DIODE)**

