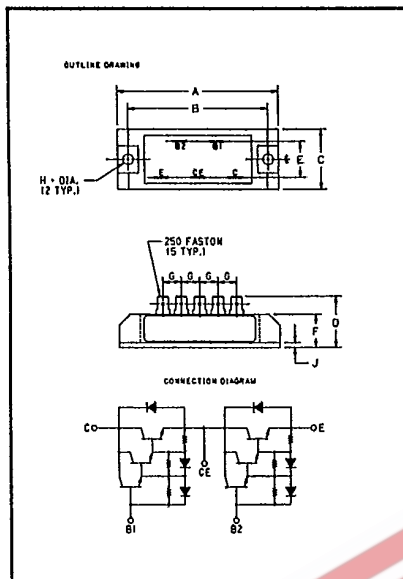
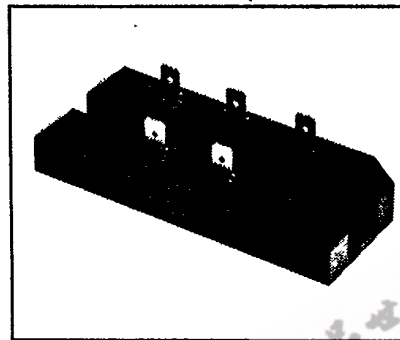


**POWEREX****KD721KA2**

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

**Dual Darlington Transistor Module**  
**25 Amperes/1000 Volts****1000 Volt KD721KA2  
Outline Drawing**

Dimension	Inches	Millimeters
A	3.622	92
B	3.150 ± .012	80 ± 0.3
C	1.378	35
D	1.181 Max.	30 Max.
E	.827	21
F	.768	19.5
G	.413	10.5
H	.216 Dia.	5.5 Dia.
J	.177	4.5

**KD721KA2  
Dual Darlington  
Transistor Module**  
25 Amperes/1000 Volts**Description**

Powerex Dual Darlington Transistor Modules are designed for use in switching applications. The modules are isolated, consisting of two Darlington Transistors with each transistor having a reverse parallel connected high-speed diode.

**Features:**

- Isolated Mounting
- Planar Chips
- Discrete Fast Recovery Feed-Back Diode
- High Gain (h<sub>FE</sub>)
- Fast On Connections
- 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. KD721KA2 is a 1000 Volt, 25 Ampere Dual Darlington Module.

Type	V <sub>CE(sus)</sub> Volts (1000)	Current Rating Amperes (25)
KD72	1K	A2

# POWEREX

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

**KD721KA2**

**Dual Darlington Transistor Module**

25 Amperes / 1000 Volts

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

	Symbol	KD721KA2	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	$V_{CE(SUS)}$	800	Volts
Collector-Emitter Sustaining Voltage $V_{BE} = -2\text{V}$	$V_{CE(SUS)}$	1000	Volts
Collector-Base Voltage	$V_{CBO}$	1000	Volts
Emitter-Base Voltage	$V_{EBO}$	7	Volts
Collector-Emitter Voltage $V_{BE} = -2\text{V}$	$V_{CEV}$	1000	Volts
Continuous Collector Current	$I_C$	25	Amperes
Diode Forward Current	$I_{FM}$	25	Amperes
Continuous Base Current	$I_B$	1.5	Amperes
Diode Surge Current	$I_{FSM}$	250	Amperes
Power Dissipation, Each Transistor	$P_T$	208	Watts
Max. Mounting Torque M5 Mounting Screws	—	17	in.-lb.
Module Weight	—	155	Grams
V isolation	$V_{RMS}$	2500	Volts

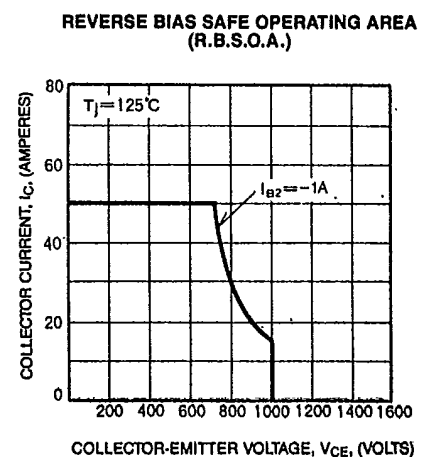
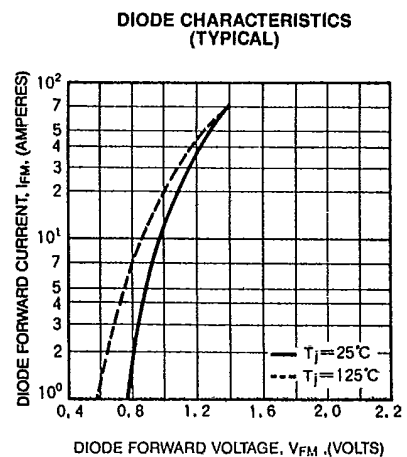
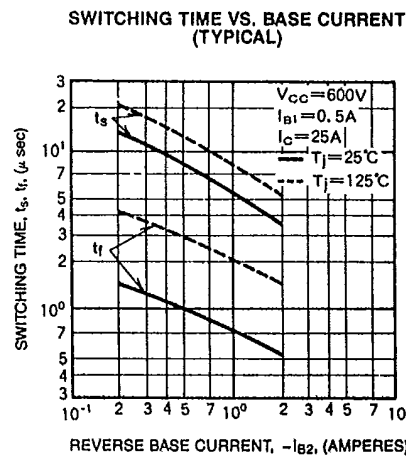
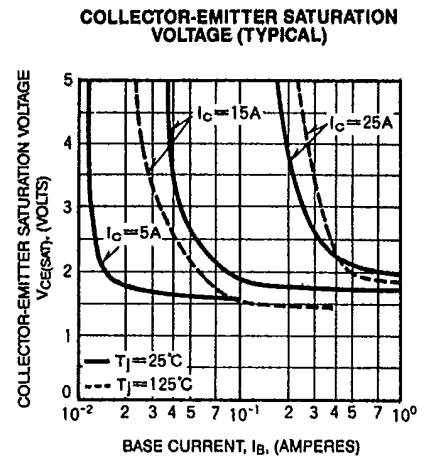
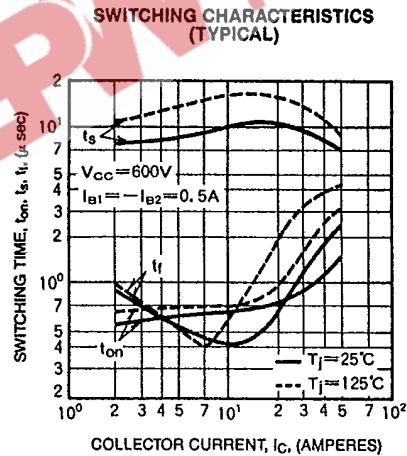
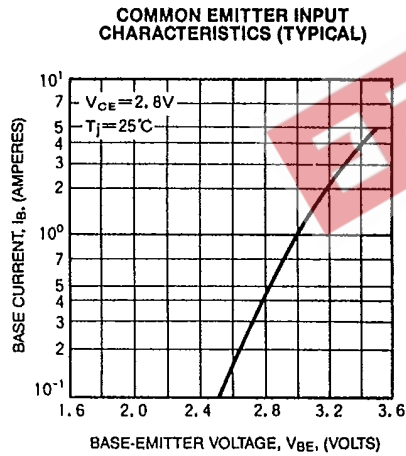
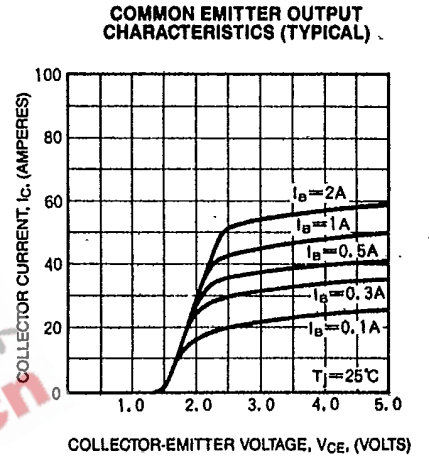
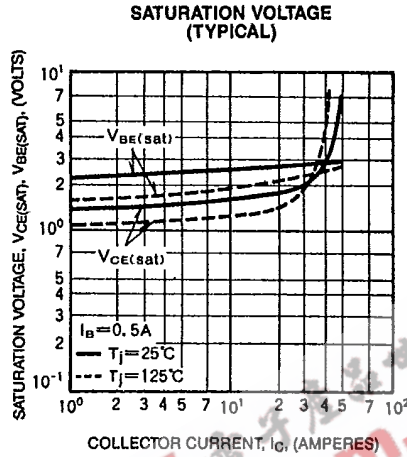
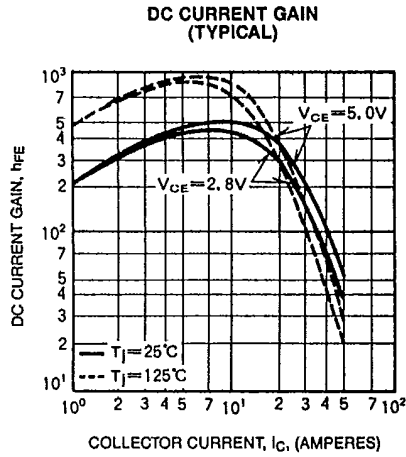
### Electrical and Mechanical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	KD721KA2 Typ.	Max.	Units
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = 1000\text{V}, V_{BE} = -2\text{V}$	—	—	1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 7\text{V}$	—	—	200	mA
DC Current Gain	$h_{FE}$	$I_C = 25\text{A}, V_{CE} = 2.8\text{V}$	75	—	—	—
DC Current Gain	$h_{FE}$	$I_C = 25\text{A}, V_{CE} = 5\text{V}$	100	—	—	—
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 25\text{A}$	—	—	1.8	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 25\text{A}, I_B = 0.5\text{A}$	—	—	2.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 25\text{A}, I_B = 0.5\text{A}$	—	—	3.5	V
Resistive Turn On	$t_{on}$	$V_{CC} = 600\text{V}$	—	—	2.5	$\mu\text{s}$
Load Storage Time	$t_s$	$I_C = 25\text{A}$	—	—	15	$\mu\text{s}$
Switch Times Fall Time	$t_f$	$I_{B1} = -I_{B2} = 0.5\text{A}$	—	—	3.0	$\mu\text{s}$
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	Per Half Module	—	—	0.15	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Transistor Part	—	—	0.6	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Diode Part	—	—	1.5	$^\circ\text{C/W}$



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**KD721KA2**  
Dual Darlington Transistor Module  
25 Amperes/1000 Volts

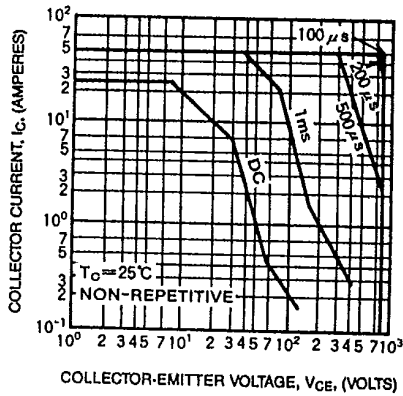




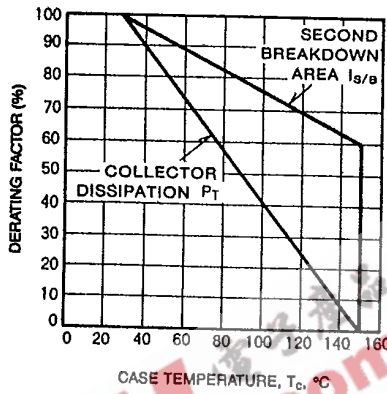
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

**KD721KA2**  
Dual Darlington Transistor Module  
25 Amperes/1000 Volts

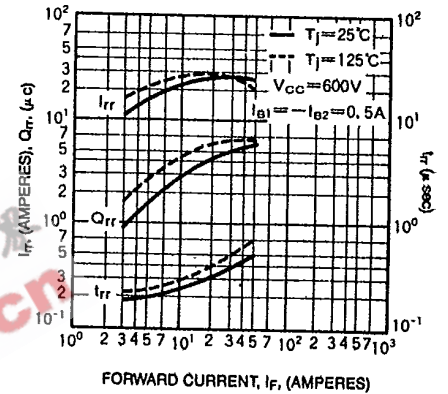
**FORWARD BIAS SAFE OPERATING AREA (S.O.A.)**



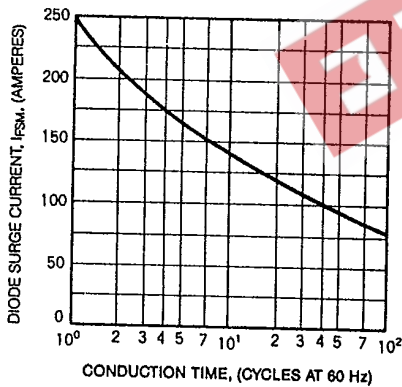
**DERATING FACTOR OF SAFE OPERATING AREA (S.O.A.)**



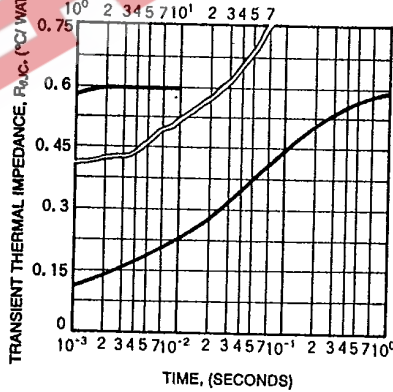
**REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)**



**DIODE FORWARD SURGE CURRENT**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (TRANSISTOR)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (DIODE)**

