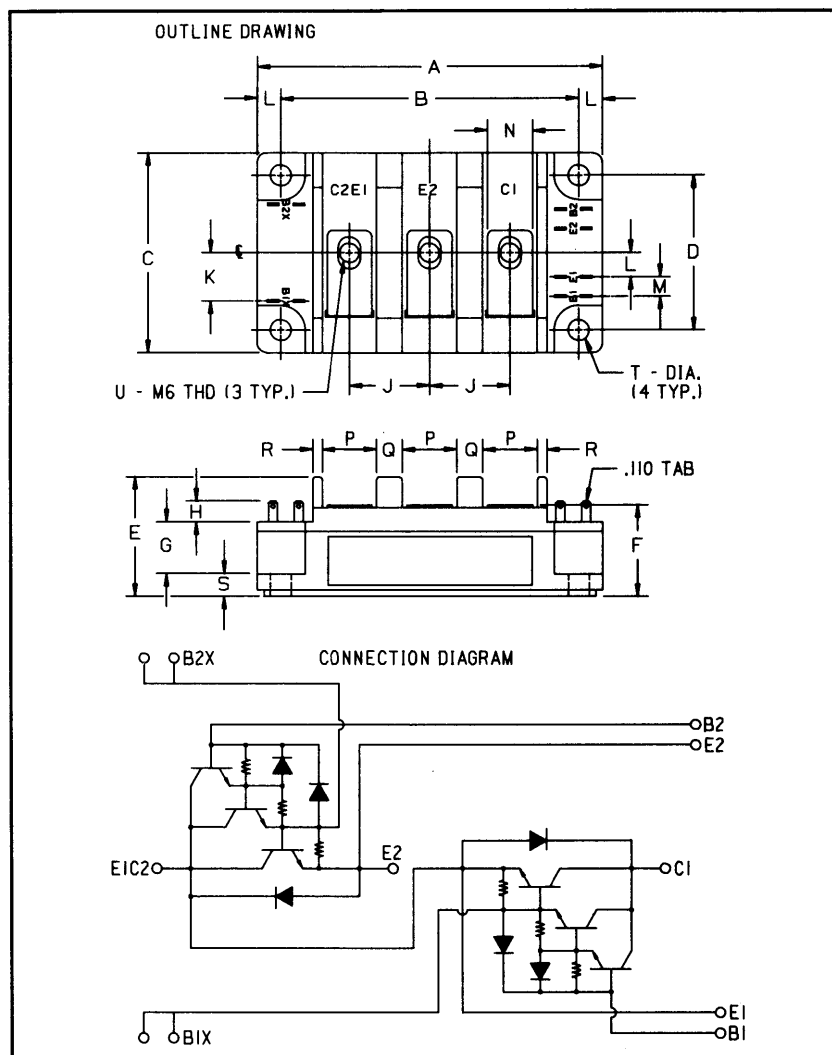


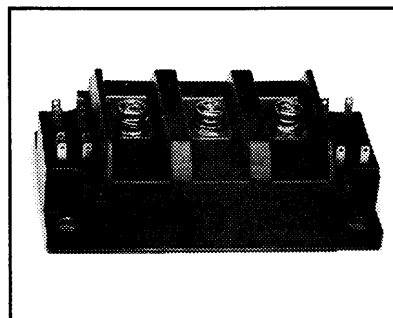
Dual Darlington Transistor Module 100 Amperes/1000 Volts



Outline Drawing

Dimensions	Inches	Millimeters
A	4.252 Max.	108 Max.
B	3.661 ± 0.012	93 ± 0.3
C	2.441 Max.	62 Max.
D	1.890 ± 0.012	48 ± 0.3
E	1.457	37
F	1.181 Max.	30 Max.
G	0.630	16
H	0.256 Min.	6.5 Min.
J	0.984	25
K	0.591	15

Dimensions	Inches	Millimeters
L	0.295	7.5
M	0.236	6
N	0.551	14
P	0.669	17
Q	0.315	8
R	0.118	3
S	0.276	7
T	0.256 Dia.	6.5 Dia.
U	M6 Metric	M6



Description:

The Powerex Dual Darlington Transistor Modules are high power devices 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 Feedback Diode
- ☐ High Gain (h_{FE})
- ☐ Quick Connect Base-Emitter Signal Terminals
- ☐ Base-Emitter Speed-up Diodes

Applications:

- ☐ AC Motor Control
- ☐ DC Motor Control
- ☐ Switching Power Supplies
- ☐ Inverters

Ordering Information:

Example: Select the complete eight digit module part number you desire from the table - i.e. KD421K10 is a 1000 Volt, 100 Ampere Dual Darlington Module.

Type	$V_{CE0(sus)}$ Volts (1000)	Current Rating Amperes (X 10)
KD42	1K	10



Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

KD421K10
Dual Darlington Transistor Module
 100 Amperes/1000 Volts

Absolute Maximum Ratings, $T_j = 25^\circ\text{C}$ unless otherwise specified

Ratings	Symbol	KD421K10	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, $V_{BE} = -2\text{V}$	$V_{CEV(\text{sus})}$	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	100	Amperes
Diode Forward Current	I_{FM}	100	Amperes
Continuous Base Current	I_B	5	Amperes
Diode Surge Current	I_{FSM}	1000	Amperes
Power Dissipation (Each Transistor)	P_t	800	Watts
Max. Mounting Torque M6 Terminal Screws	—	26	in.-lb.
Max. Mounting Torque M6 Mounting Screws	—	26	in.-lb.
Module Weight (Typical)	—	470	Grams
V Isolation	V_{RMS}	2500	Volts

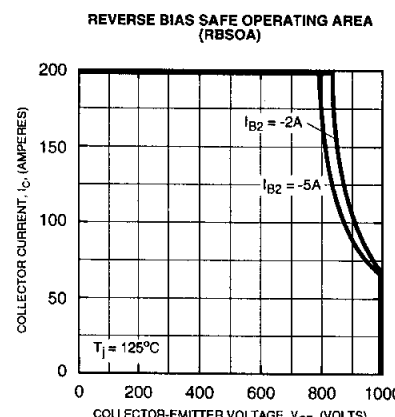
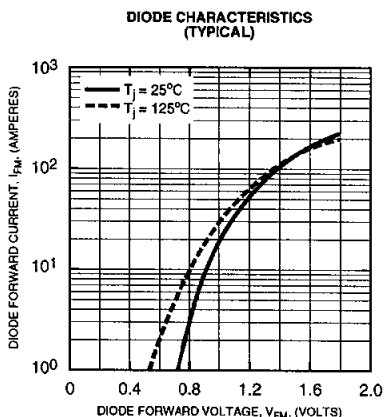
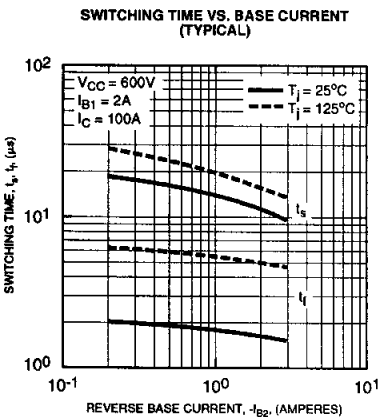
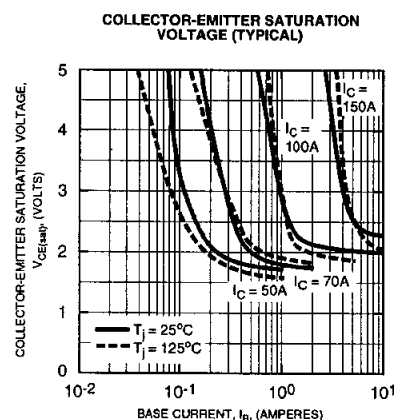
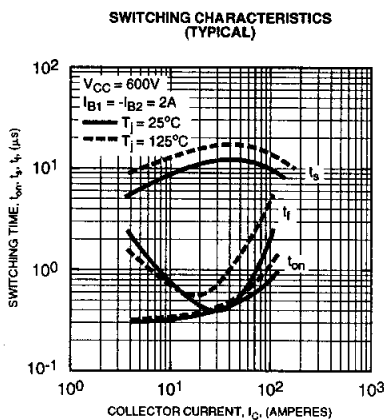
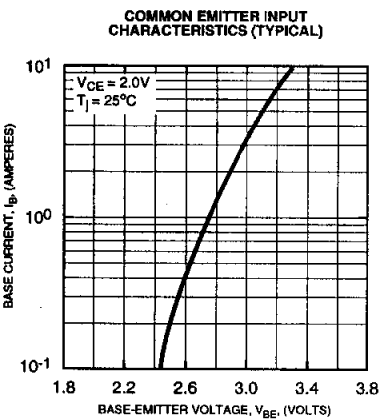
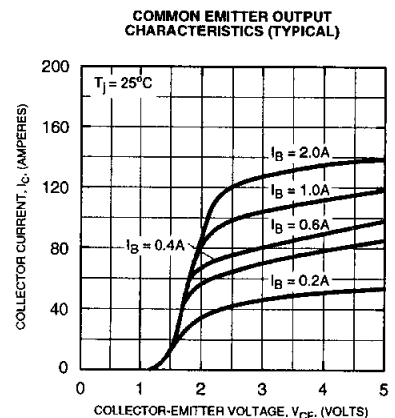
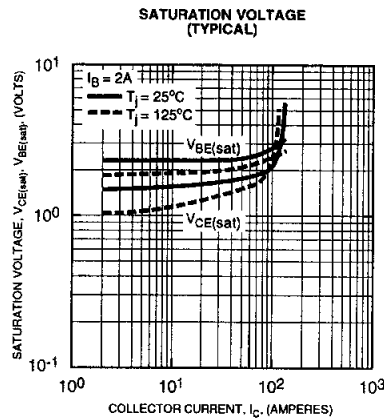
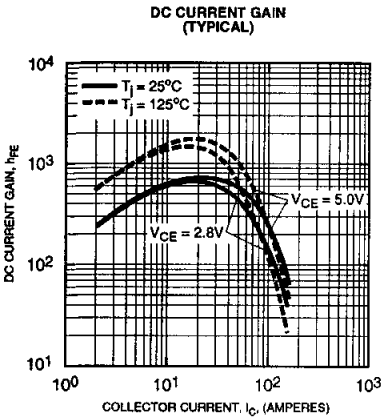
Electrical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics		Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current		I_{CEV}	$V_{CE} = 1000V, V_{BE} = -2V$	—	—	2	mA
			$V_{CE} = 1000V, V_{BE} = -2V, T_C = 125^{\circ}C$	—	—	20	mA
Emitter Cutoff Current		I_{EBO}	$V_{EB} = 7V$	—	—	400	mA
DC Current Gain		h_{FE}	$I_C = 100A, V_{CE} = 5V$	100	—	—	—
Diode Forward Voltage		V_{FM}	$I_{FM} = 100A$	—	—	1.8	Volts
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 100A, I_B = 2A$	—	—	2.5	Volts
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 100A, I_B = 2A$	—	—	3.5	Volts
Resistive Load	Turn-on	t_{on}	$V_{CC} = 600V$	—	—	3.0	μs
	Storage Time	t_s	$I_C = 100A$	—	—	15	μs
Switch Times	Fall Time	t_f	$I_{B1} = 2A, I_{B2} = -2A$	—	—	3.0	μs

Thermal and Mechanical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Case-to-Sink	$R_{\theta(c-s)}$	Per Half Module	—	—	0.075	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Transistor Part	—	—	0.155	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Diode Part	—	—	0.65	$^\circ\text{C/W}$

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