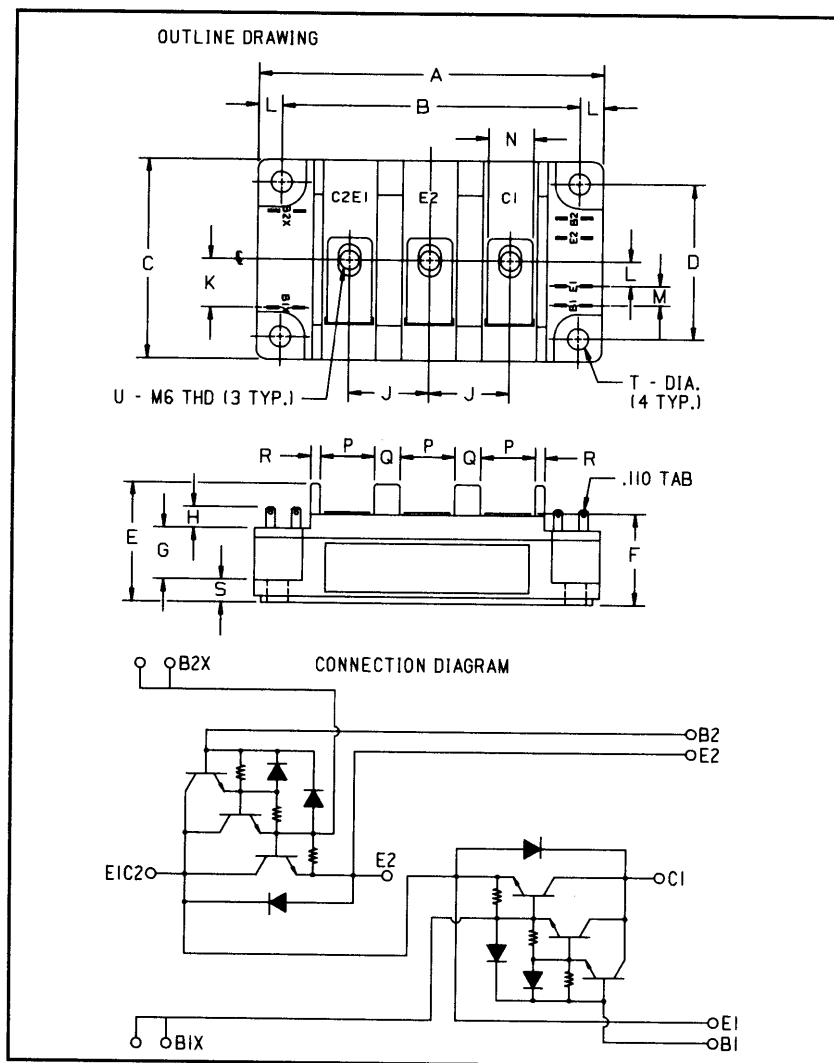


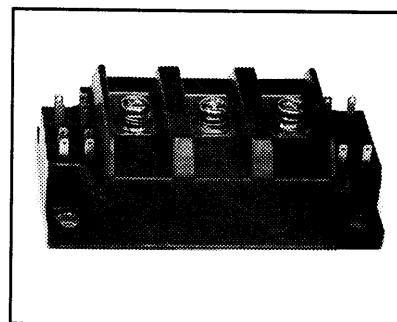
Dual Darlington Transistor Module 100 Amperes/1200 Volts



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 ten digit module part number you desire from the table - i.e. KD421210A7 is a 1200 Volt, 100 Ampere Dual Darlington Module with a gain of 100 at rated current (100 Amperes).

Type	V _{CEO(sus)} Volts (X 100)	Current Rating Amperes (X 10)
KD42	12	10



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

KD421210A7
Dual Darlington Transistor Module
100 Amperes/1200 Volts

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

Ratings	Symbol	KD421210A7	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, $V_{BE} = -2\text{V}$	$V_{CEV(\text{sus})}$	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	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

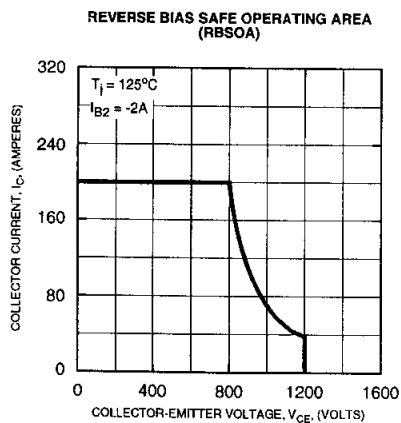
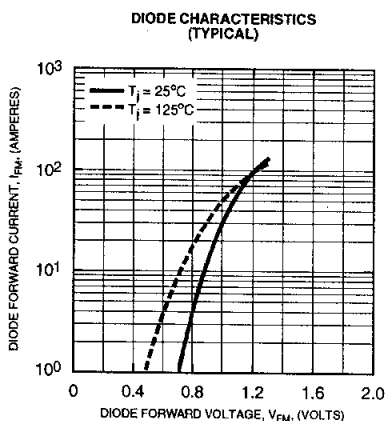
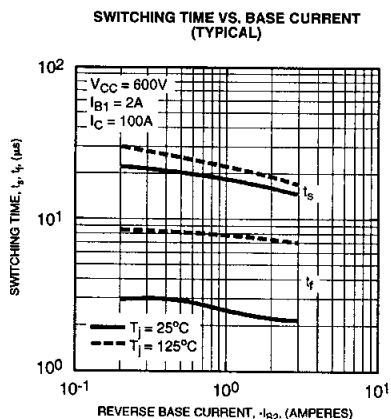
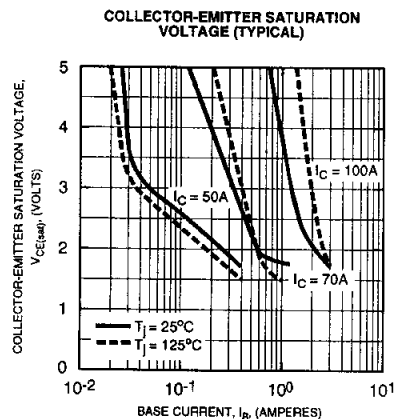
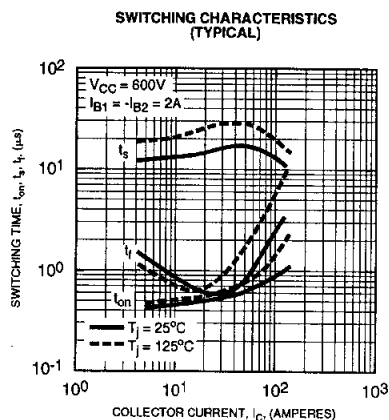
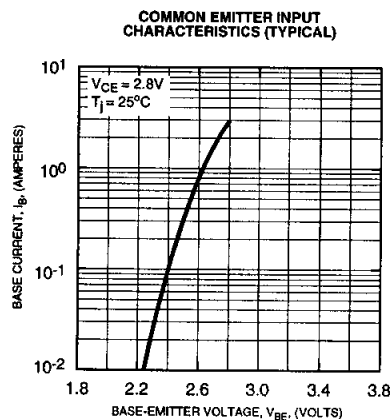
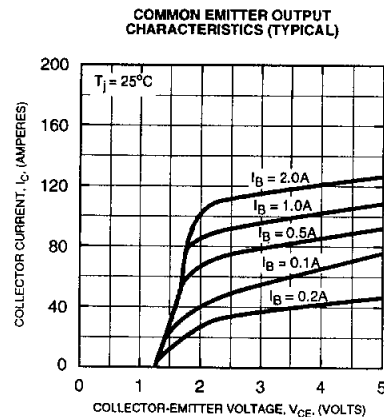
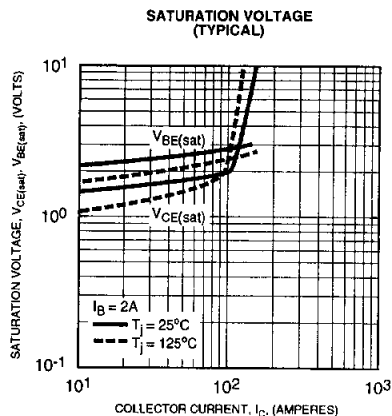
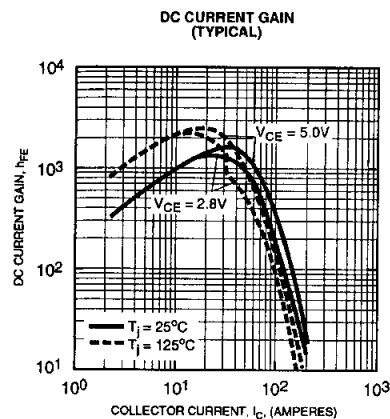
Electrical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics		Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current		I _{CEV}	V _{CE} = 1200V, V _{BE} = -2V	—	—	2	mA
Emitter Cutoff Current		I _{EBO}	V _{EB} = 7V	—	—	400	mA
DC Current Gain		h _{FE}	I _C = 100A, V _{CE} = 5V	75	—	—	—
Diode Forward Voltage		V _{FM}	I _{FM} = 100A	—	—	1.8	Volts
Collector-Emitter Saturation Voltage		V _{CE(sat)}	I _C = 100A, I _B = 2A	—	—	3.0	Volts
Base-Emitter Saturation Voltage		V _{BE(sat)}	I _C = 100A, I _B = 2A	—	—	3.5	Volts
Resistive	Turn-on	t _{on}	V _{CC} = 600V	—	—	3.0	μs
Load	Storage Time	t _s	I _C = 100A	—	—	15	μs
Switch Times	Fall Time	t _f	I _{B1} = -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	$R_{\theta(\text{c-s})}$	Per Half Module	—	—	0.075	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Transistor Part	—	—	0.155	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Diode Part	—	—	0.65	$^\circ\text{C/W}$

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