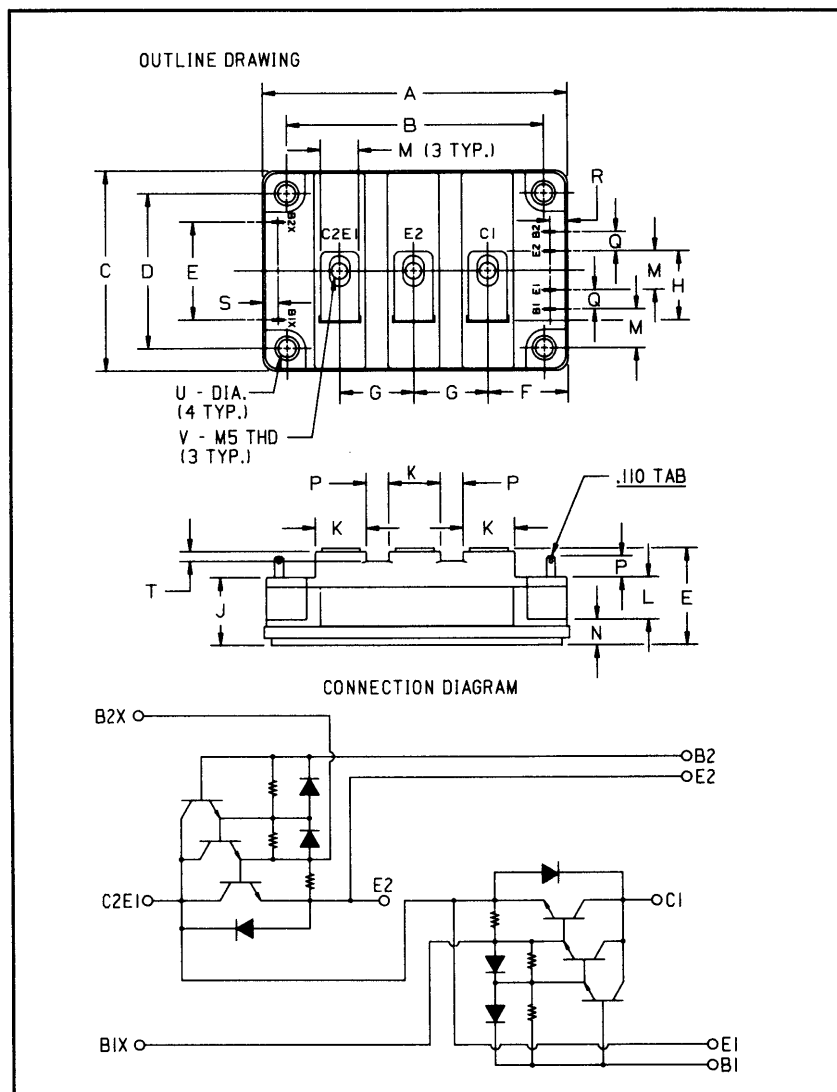


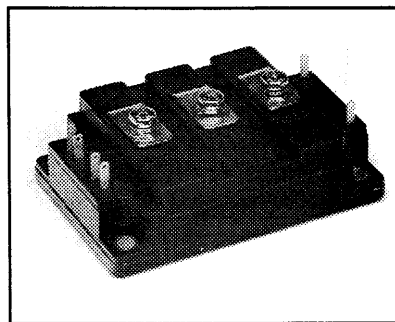
High-Beta Dual Darlington Transistor Module 100 Amperes/600 Volts



Outline Drawing

Dimensions	Inches	Millimeters
A	3.74	95
B	3.150 ± 0.01	80 ± 0.25
C	2.44	62
D	1.890 ± 0.01	48 ± 0.25
E	1.18	30
F	0.98	25
G	0.91	23
H	0.85	21.5
J	0.83	21

Dimensions	Inches	Millimeters
K	0.63	16
L	0.51	13
M	0.47	12
N	0.31	8
P	0.28	7
Q	0.24	6
R	0.12	3
S	0.216 ± 0.004 Dia. 5.5 ± 0.1 Dia.	
T	M5 Metric	M5



Description:

The Powerex High-Beta 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
- ☐ Very High Gain (h_{FE})
- ☐ Quick Connect 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. KD324510HB is a 450 $V_{CEO(sus)}$ (600 V_{CEV}), 100 Ampere High-Beta Dual Darlington Module with a gain of 750 at rated current (100 Amperes).

Type	$V_{CEO(sus)}$ Volts (X 10)	Current Rating Amperes (X 10)	High Beta
KD32	45	10	HB



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

KD324510HB
High-Beta Dual Darlington Transistor Module
100 Amperes/600 Volts

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

Ratings	Symbol	KD324510HB	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	$V_{\text{CEO(sus)}}$	450	Volts
Collector-Emitter Sustaining Voltage, $V_{\text{BE}} = -2\text{V}$	$V_{\text{CEV(sus)}}$	600	Volts
Collector-Base Voltage	V_{CBO}	600	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage, $V_{\text{BE}} = -2\text{V}$	V_{CEV}	600	Volts
Continuous Collector Current	I_C	100	Amperes
Diode Forward Current	I_{FM}	100	Amperes
Continuous Base Current	I_B	6	Amperes
Diode Surge Current	I_{FSM}	1000	Amperes
Power Dissipation (Each Transistor)	P_t	620	Watts
Max. Mounting Torque M5 Terminal Screws	—	17	in.-lb.
Max. Mounting Torque M5 Mounting Screws	—	17	in.-lb.
Module Weight (Typical)	—	400	Grams
V Isolation	V_{RMS}	2000	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}	$V_{\text{CE}} = 600\text{V}$, $V_{\text{BE}} = -2\text{V}$	—	—	2	mA
Emitter Cutoff Current		I_{EBO}	$V_{\text{EB}} = 7\text{V}$	—	—	150	mA
DC Current Gain		h_{FE}	$I_{\text{C}} = 100\text{A}$, $V_{\text{CE}} = 2.5\text{V}$	750	—	—	—
Diode Forward Voltage		V_{FM}	$I_{\text{FM}} = 100\text{A}$	—	—	1.8	Volts
Collector-Emitter Saturation Voltage		$V_{\text{CE(sat)}}$	$I_{\text{C}} = 100\text{A}$, $I_{\text{B}} = 130\text{mA}$	—	—	2.5	Volts
Base-Emitter Saturation Voltage		$V_{\text{BE(sat)}}$	$I_{\text{C}} = 100\text{A}$, $I_{\text{B}} = 130\text{mA}$	—	—	3.0	Volts
Resistive Load	Turn-on	t_{on}	$V_{\text{CC}} = 300\text{V}$	—	—	2.5	μs
	Storage Time	t_{s}	$I_{\text{C}} = 100\text{A}$	—	—	10	μs
Switch Times	Fall Time	t_{f}	$I_{\text{B1}} = 0.2\text{A}$, $I_{\text{B2}} = -2\text{A}$	—	—	2.0	μs

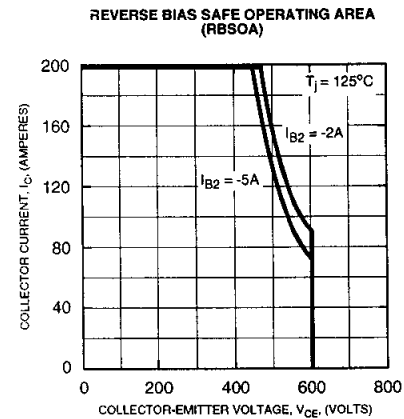
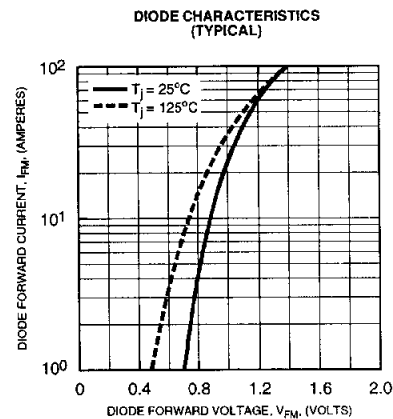
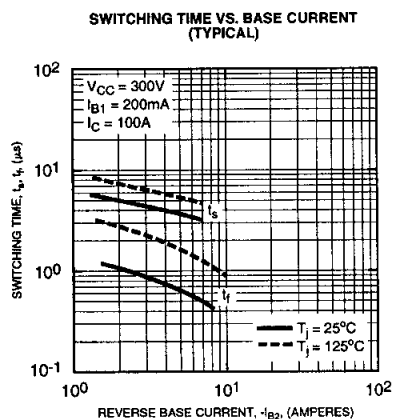
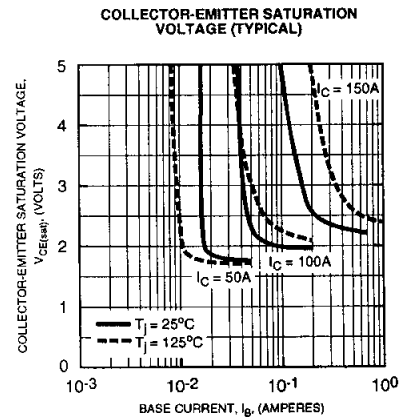
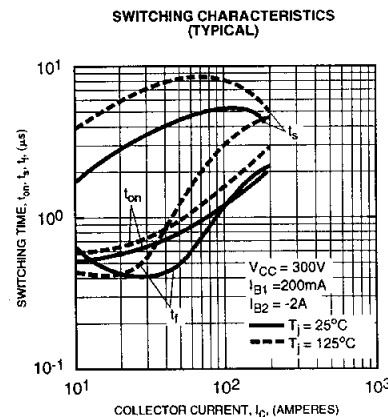
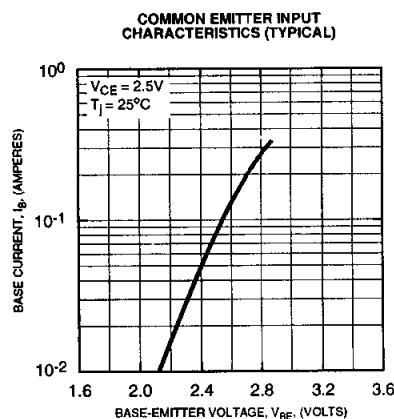
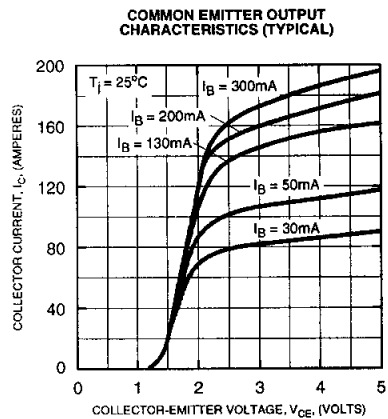
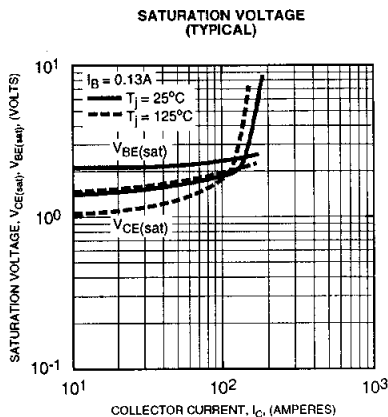
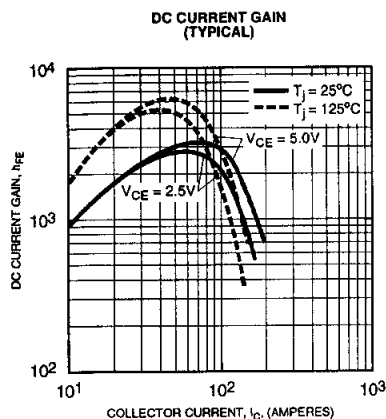
Thermal and Mechanical Characteristics, $T_j = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Case-to-Sink	$R_{\theta(\text{c-s})}$	Per 1/2 Module	—	—	0.1	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Transistor Part	—	—	0.2	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Diode Part	—	—	0.6	$^\circ\text{C/W}$



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