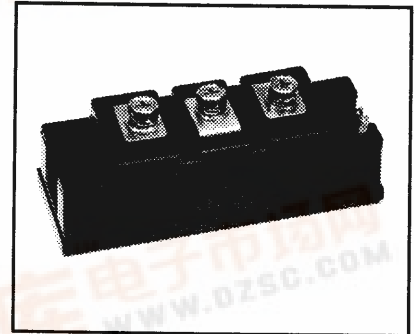
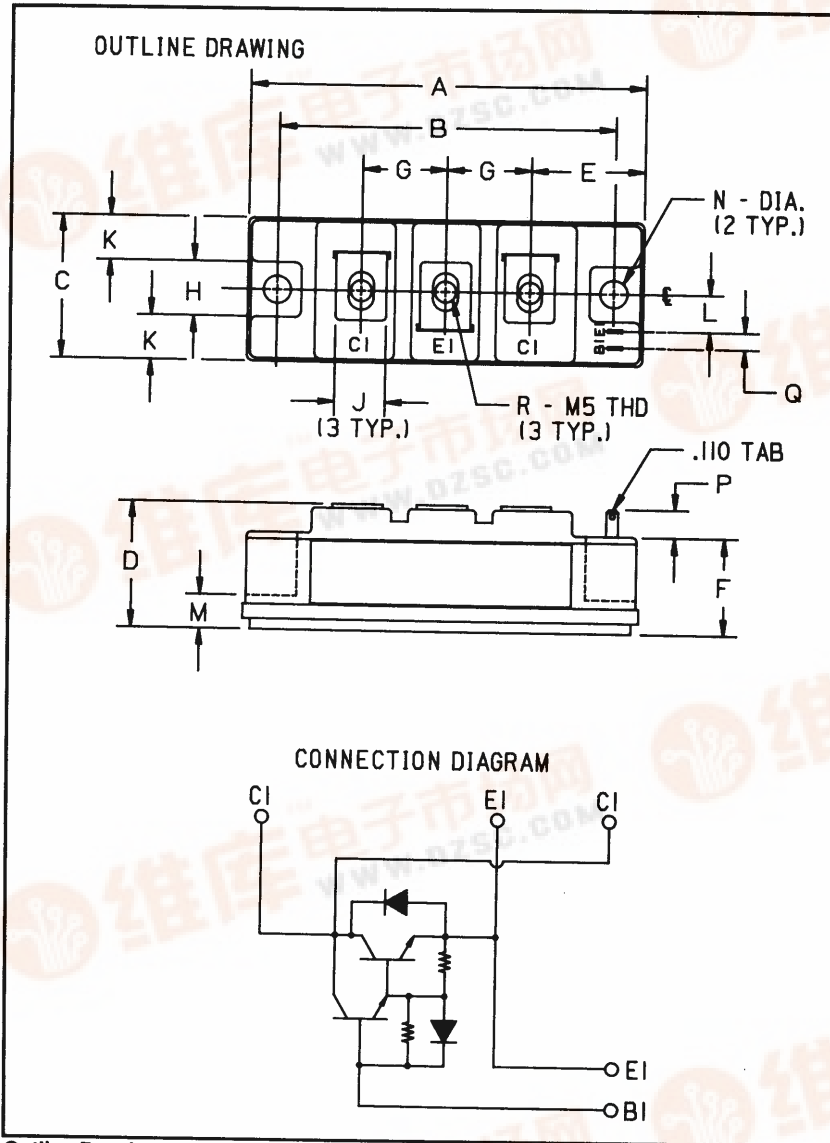




KS224515

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

Single Darlington Transistor Module 150 Amperes/600 Volts



Description:

The Powerex Single Darlington Transistor Modules are high power devices designed for use in switching applications. The modules are isolated, consisting of one Darlington Transistor with a reverse parallel connected high-speed diode and base-to-emitter speed-up diode.

Features:

- Isolated Mounting
- Planar Chips
- Discrete Fast Recovery Feedback Diode
- High Gain (h_{FE})
- TAB Quick-Connect Terminals
- Base-Emitter Speed-up Diode

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.

KS224515 is a 450 V_{CEO(sus)} (600 V_{CEV}), 150 Ampere Single Darlington Module.

Type	V _{CEO(sus)} Volts (X 10)	Current Rating Amperes (X 10)
KS22	45	15

Outline Drawing

Dimensions	Inches	Millimeters
A	3.701 Max.	94 Max.
B	3.150 ± 0.010	80 ± 0.25
C	1.339 Max.	34 Max.
D	1.181 Max.	30 Max.
E	1.063	27
F	0.906	23
G	0.787	20
H	0.512	13

Dimensions	Inches	Millimeters
J	0.472	12
K	0.413	10.5
L	0.344	8.75
M	0.315	8
N	0.256 Dia.	6.5 Dia.
P	0.256 Min.	6.5 Min.
Q	0.157	4
R	M5 Metric	M5





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

Ratings	Symbol	KS224515	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_{CEV}	600	Volts
Continuous Collector Current	I_C	150	Amperes
Diode Forward Current	I_{FM}	150	Amperes
Continuous Base Current	I_B	9	Amperes
Diode Surge Current	I_{FSM}	1500	Amperes
Power Dissipation	P_t	690	Watts
Max. Mounting Torque M5 Terminal Screws	–	17	in.-lb.
Max. Mounting Torque M6 Mounting Screws	–	26	in.-lb.
Module Weight (Typical)	–	200	Grams
V Isolation	V_{RMS}	2000	Volts

Electrical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ 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	
		$V_{\text{CE}} = 600\text{V}, V_{\text{BE}} = -2\text{V}, T_C = 125^\circ\text{C}$	–	–	15	mA	
Emitter Cutoff Current	I_{EBO}	$V_{\text{EB}} = 7\text{V}$	–	–	350	mA	
DC Current Gain	h_{FE}	$I_C = 150\text{A}, V_{\text{CE}} = 2\text{V}$	75	–	–	–	
		$I_C = 150\text{A}, V_{\text{CE}} = 5\text{V}$	100	–	–	–	
Diode Forward Voltage	V_{FM}	$I_{\text{FM}} = 150\text{A}$	–	–	1.85	Volts	
Collector-Emitter Saturation Voltage	$V_{\text{CE(sat)}}$	$I_C = 150\text{A}, I_B = 2\text{A}$	–	–	2.0	Volts	
Base-Emitter Saturation Voltage	$V_{\text{BE(sat)}}$	$I_C = 150\text{A}, I_B = 2\text{A}$	–	–	2.5	Volts	
Resistive	Turn-on	t_{on}	$V_{\text{CC}} = 300\text{V}$	–	–	2.5	μs
				–	–	12	μs
Load	Storage Time	t_s	$I_C = 150\text{A}$	–	–	12	μs
Switch Times	Fall Time	t_f	$I_{\text{B1}} = 2\text{A}, I_{\text{B2}} = -2\text{A}$	–	–	3.0	μs

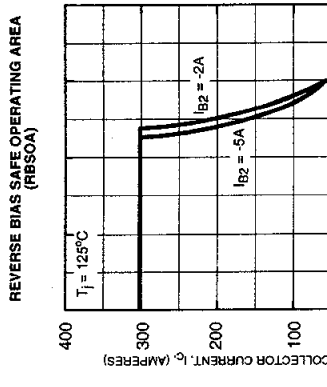
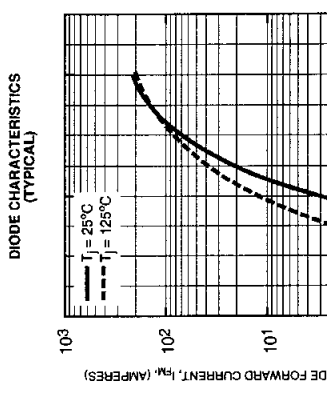
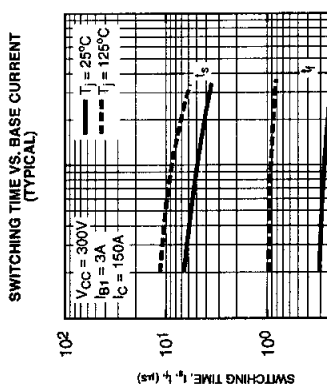
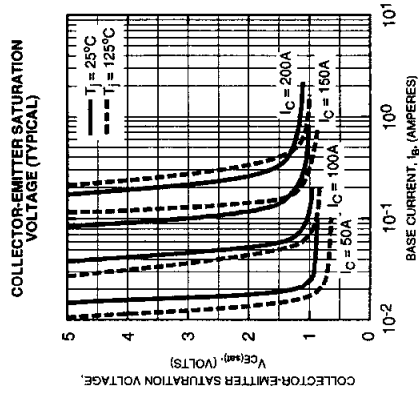
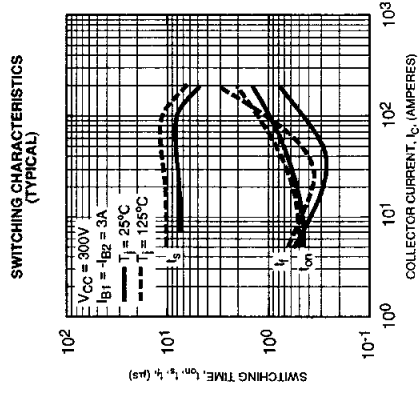
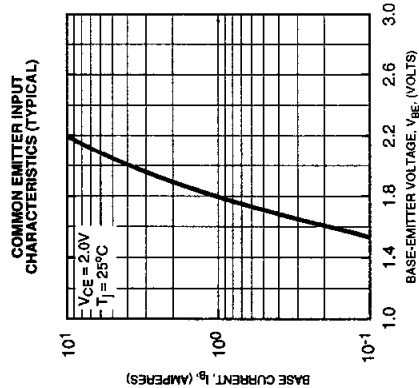
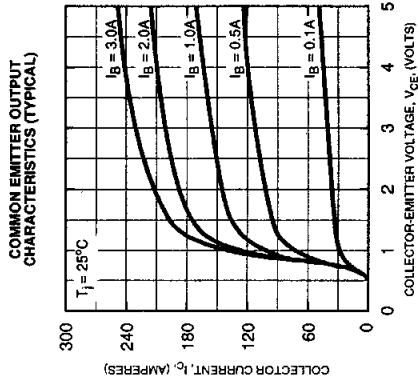
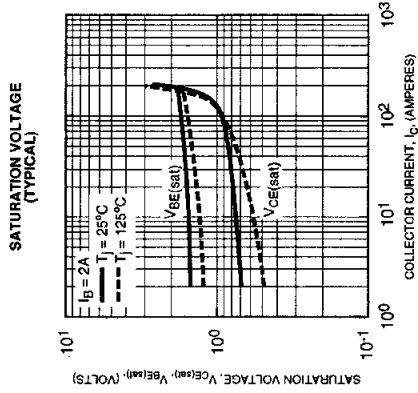
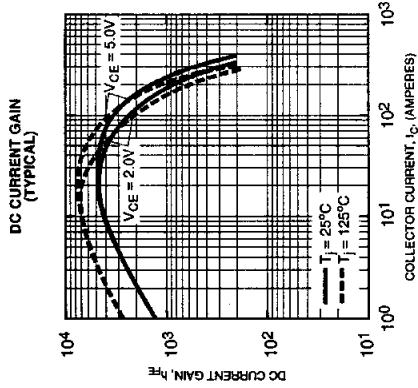
Thermal and Mechanical Characteristics, $T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Case-to-Sink	$R_{\theta(\text{c-s})}$	–	–	–	0.15	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Transistor Part	–	–	0.18	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(\text{j-c})}$	Diode Part	–	–	0.6	$^\circ\text{C/W}$



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