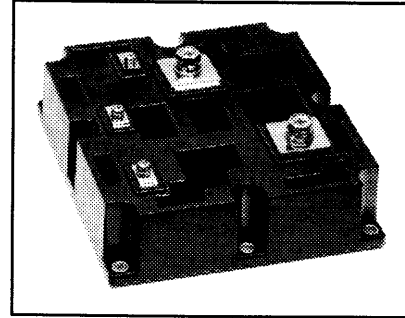
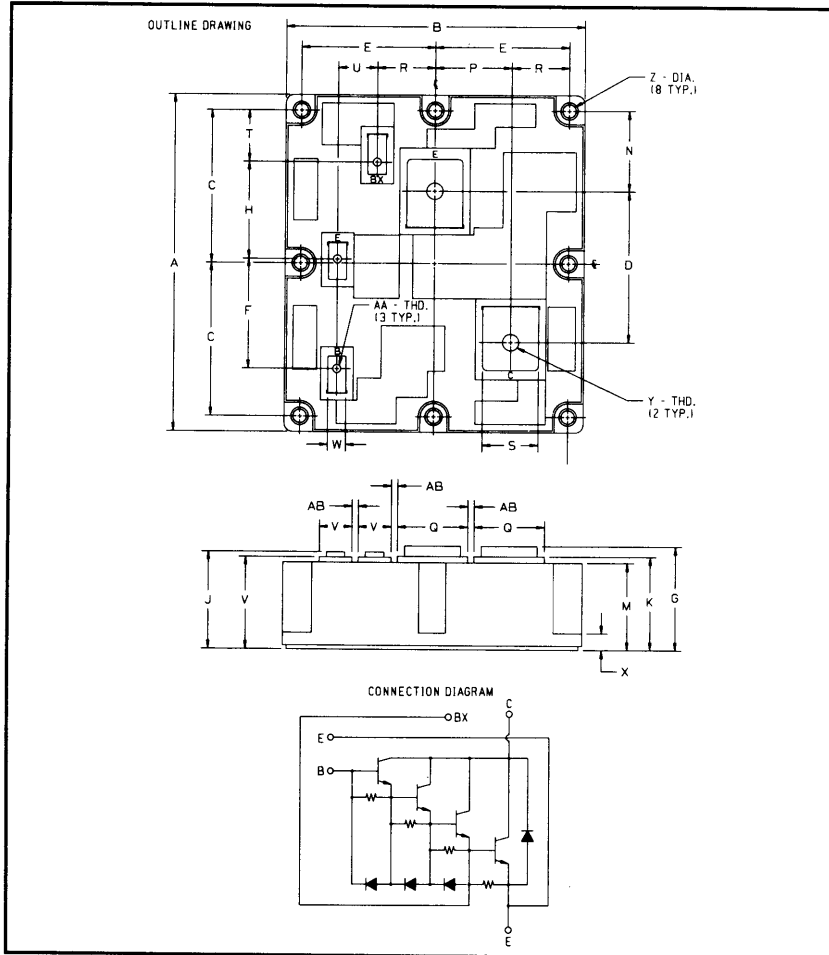


Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

### High-Beta Single Darlington Transistor Module 1000 Amperes/1200 Volts



**Description:**  
Powerex High-Beta Single Darlington Transistor Modules are designed for switching applications. The modules are isolated, consisting of one Darlington Transistor with a reverse parallel connected high-speed diode.

**Features:**

- Isolated Mounting
- Planar Chips
- Discrete Fast Recovery Feedback Diode
- Very High Gain ( $h_{FE}$ )
- Base-Emitter Speed-up Diodes

**Applications:**

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

**Ordering Information:**

Example: Select the complete ten digit module part number you desire from the table - i.e. KS62121KHB is a 950  $V_{CE0(sus)}$  (1200  $V_{CEV}$ ), 1000 Ampere High-Beta Single Darlington Module with a gain of 750 at rated current (1000 Amperes).

Outline Drawing

Dimensions	Inches	Millimeters
A	6.42 Max.	163 Max.
B	5.71 Max	145 Max.
C	2.913 ± 0.010	74.0 ± 0.25
D	2.559 ± 0.010	65.0 ± 0.25
E	2.01	51.0
F	2.87	73.0
G	1.85	47.0
H	1.54	39.0
J	1.97 Max.	50 Max.
K1	1.85 Max.	47 Max.
K2	1.75	44.5
L	0.98	25.0
M	1.34	34.0

Dimensions	Inches	Millimeters
N	1.10	28.0
P	0.75	19.0
Q	1.06	27.0
R	0.63	16.0
S	1.46	37.0
T	0.35	9.0
U	0.31	8.0
V	M8 Metric	M8
W	1.77	45.0
X	1.65	42.0
Y	0.12	3.0
Z	M6 Metric	M6

Type	$V_{CE0(sus)}$ Volts (X 100)	Current Rating Amperes (1000)	High Beta
KS62	12	1K	HB



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

Rating	Symbol	KS62121KHB	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	$V_{CEO(sus)}$	950	Volts
Collector-Emitter Sustaining Voltage, $V_{BE} = -2\text{V}$	$V_{CEV(sus)}$	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	$I_C$	1000	Amperes
Diode Forward Current	$I_{FM}$	1000	Amperes
Continuous Base Current	$I_B$	50	Amperes
Diode Surge Current	$I_{FSM}$	10000	Amperes
Power Dissipation (Each Transistor)	$P_t$	7000	Watts
Max. Mounting Torque M8 Terminal Screws, C, E	—	12	in.-lb.
Max. Mounting Torque M4 Terminal Screws, B(E), Bx	—	12	in.-lb.
Max. Mounting Torque M6 Mounting Screws	—	26	in.-lb.
Module Weight (Typical)	—	—	Grams
V Isolation	$V_{RMS}$	2500	Volts

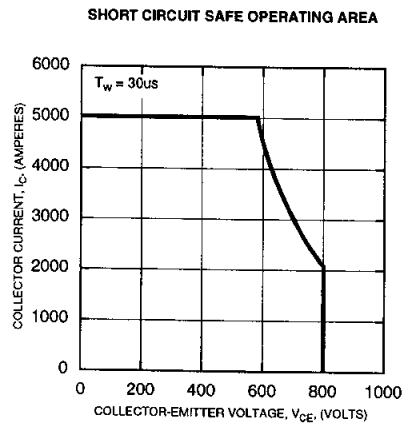
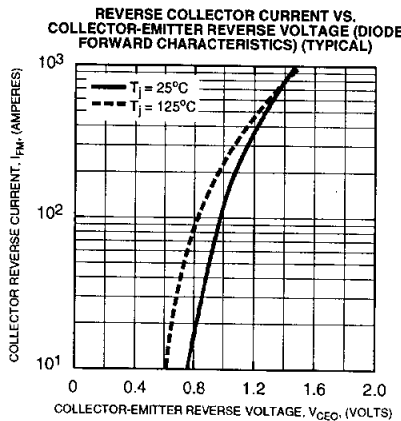
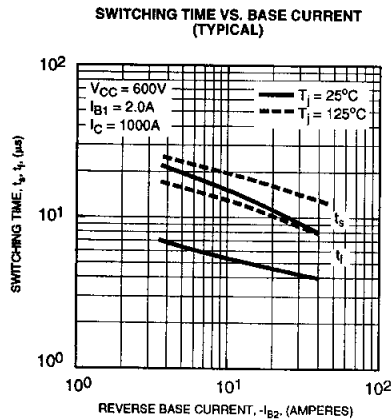
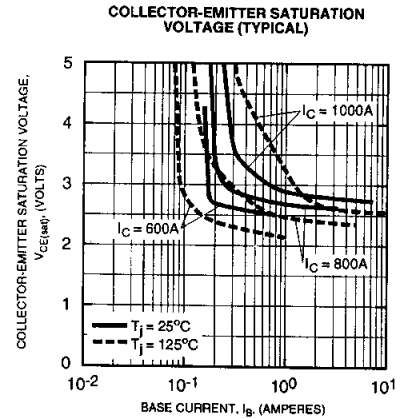
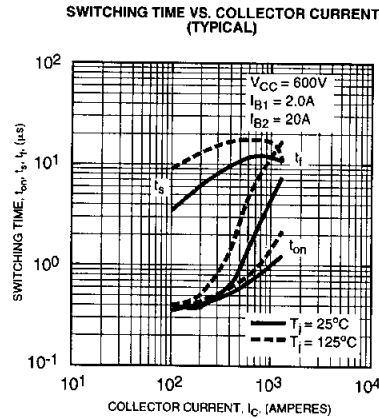
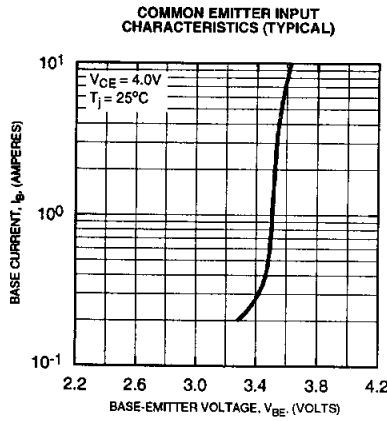
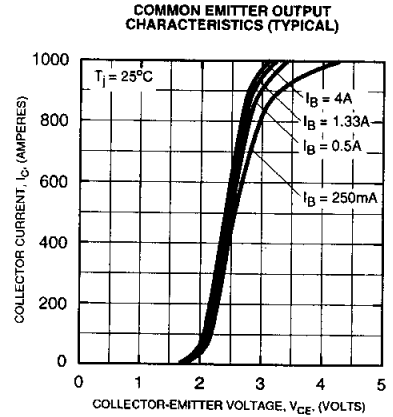
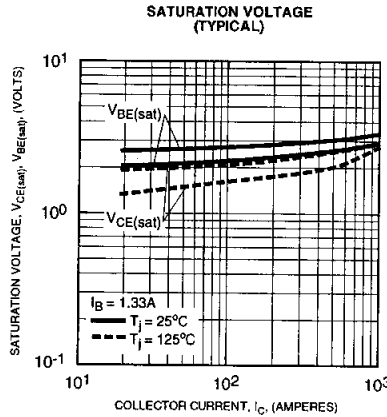
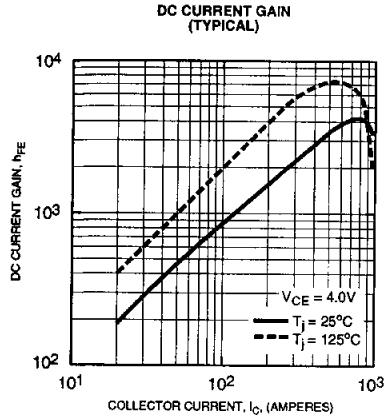
**Electrical Characteristics,  $T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = 1200\text{V}, V_{BE} = -2\text{V}$	—	—	8	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 7\text{V}$	—	—	800	mA
DC Current Gain	$h_{FE}$	$I_C = 1000\text{A}, V_{CE} = 4.0\text{V}$	750	—	—	—
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 1000\text{A}$	—	—	1.8	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1000\text{A}, I_B = 1.33\text{mA}$	—	—	4.0	Volts
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1000\text{A}, I_B = 1.33\text{mA}$	—	—	4.0	Volts
Resistive Turn-on	$t_{on}$	$V_{CC} = 600\text{V}$	—	—	2.5	$\mu\text{s}$
Load Storage Time	$t_s$	$I_C = 1000\text{A}$	—	—	15.0	$\mu\text{s}$
Switch Times Fall Time	$t_f$	$I_{B1} = 1.2\text{A}, I_{B2} = -20\text{A}$	—	—	3.0	$\mu\text{s}$

**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	$R_{\theta(c-s)}$	Per 1/2 Module	—	—	0.1	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Transistor Part	—	—	0.018	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-e)}$	Diode Part	—	—	0.07	$^\circ\text{C/W}$

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