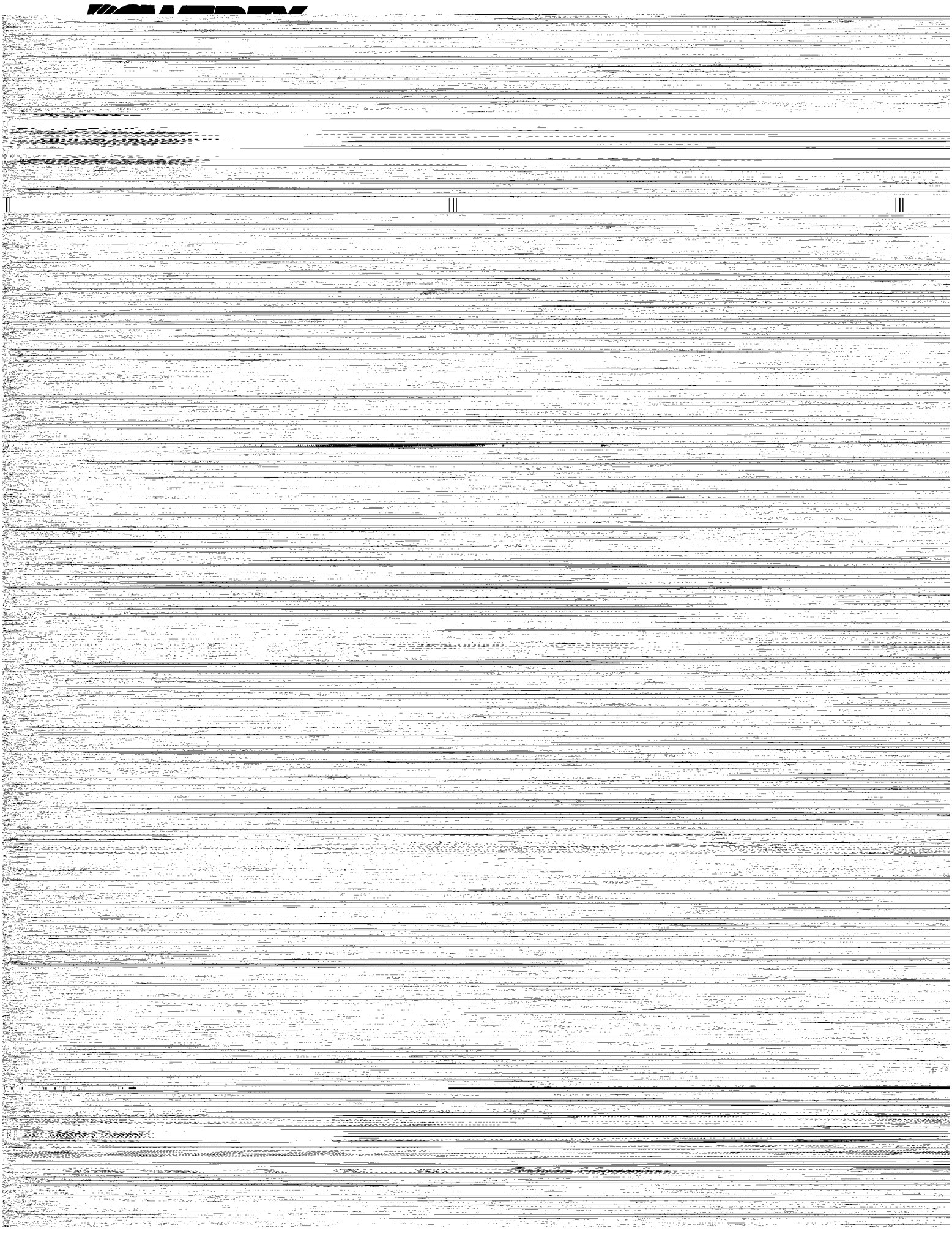

Powerex, Inc., 200 Hillis Street, Youngwood, Pennsylvania 15697-1800 (412) 925-7272

KD62121KHB
High-Beta Single Darlington Transistor Module
1000 Amperes/1200 Volts

Absolute Maximum Ratings, T_j = 25 °C unless otherwise specified

Ratings	Symbol	KS62121KHB	Units
Junction Temperature	T_j	-40 to 150	°C
Storage Temperature	T_{stg}	-40 to 125	°C
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	950	Volts
Collector-Emitter Sustaining Voltage, V_{BE} = -2V	$V_{CEV(sus)}$	1200	Volts
Collector-Base Voltage	V_{CBO}	1200	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage, V_{BE} = -2V	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 °C unless otherwise specified

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

Thermal and Mechanical Characteristics, T_j = 25 °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	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Transistor Part	–	–	0.018	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Diode Part	–	–	0.07	°C/W

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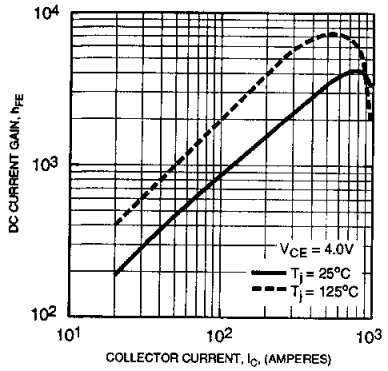
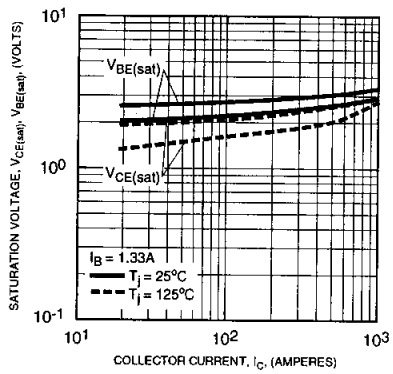
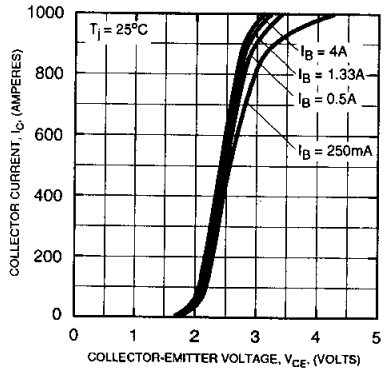
DC CURRENT GAIN (TYPICAL)



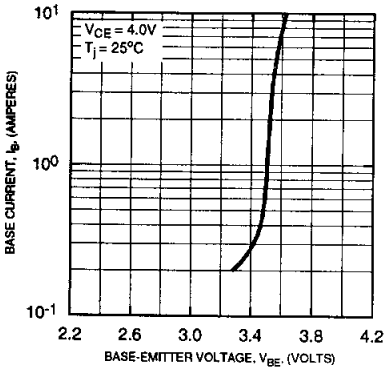
SATURATION VOLTAGE (TYPICAL)



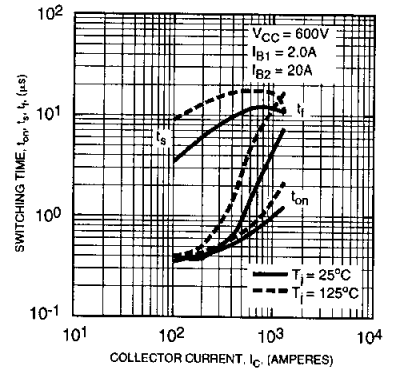
COMMON EMITTER OUTPUT CHARACTERISTICS (TYPICAL)



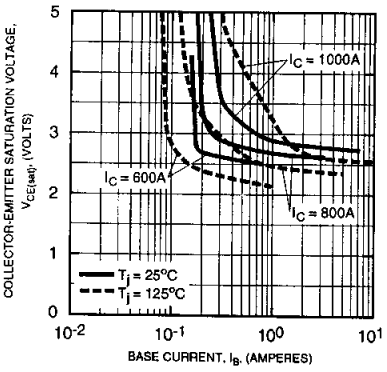
COMMON EMITTER INPUT CHARACTERISTICS (TYPICAL)



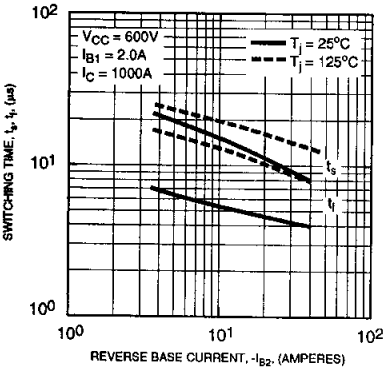
SWITCHING TIME VS. COLLECTOR CURRENT (TYPICAL)



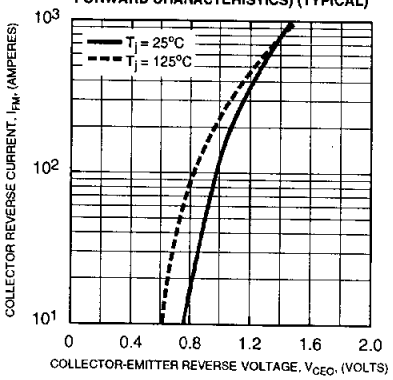
COLLECTOR-EMITTER SATURATION VOLTAGE (TYPICAL)



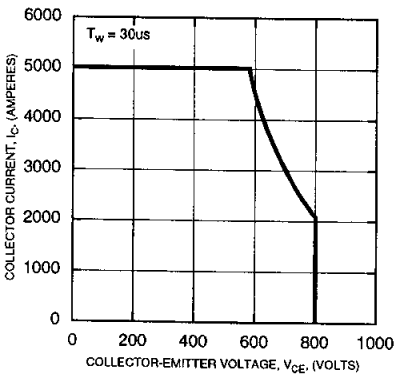
SWITCHING TIME VS. BASE CURRENT (TYPICAL)



REVERSE COLLECTOR CURRENT VS. COLLECTOR-EMITTER REVERSE VOLTAGE (DIODE FORWARD CHARACTERISTICS) (TYPICAL)



SHORT CIRCUIT SAFE OPERATING AREA



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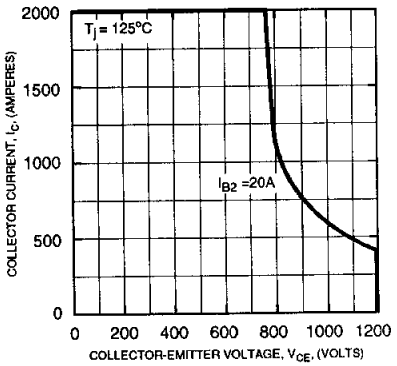
REVERSE BIAS SAFE OPERATING AREA (RBSOA)



REVERSE RECOVERY CHARACTERISTICS OF FREE-WHEEL DIODE (TYPICAL)