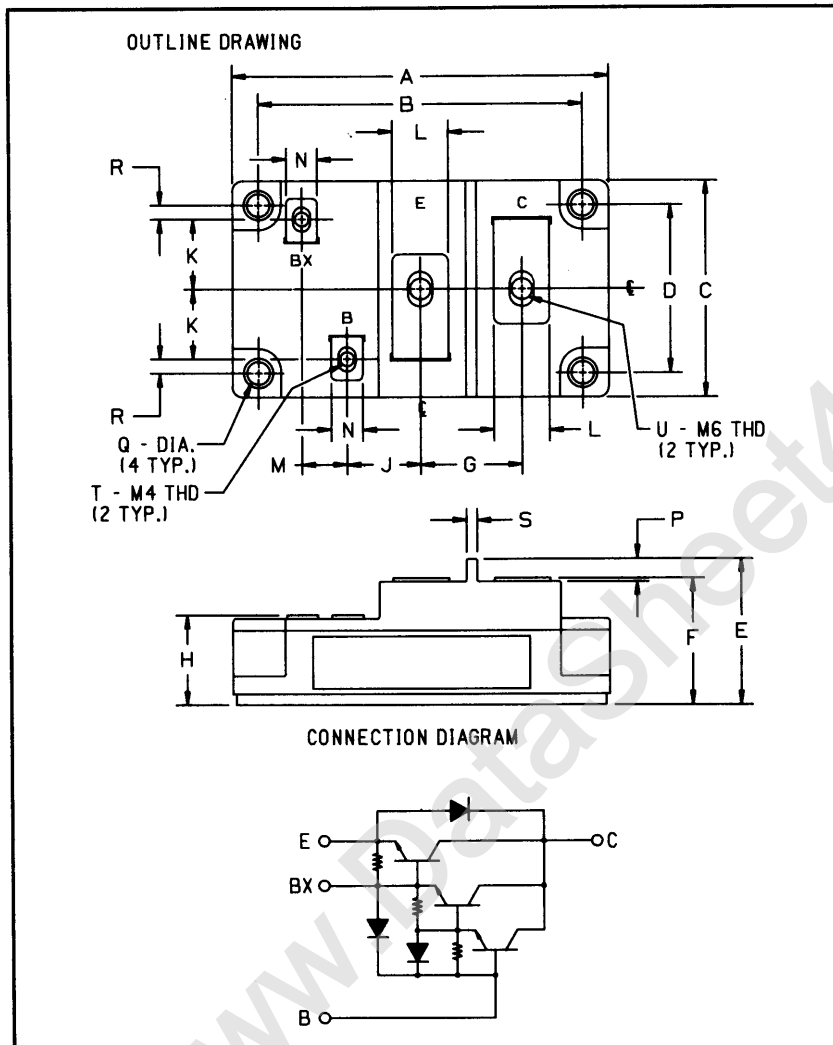


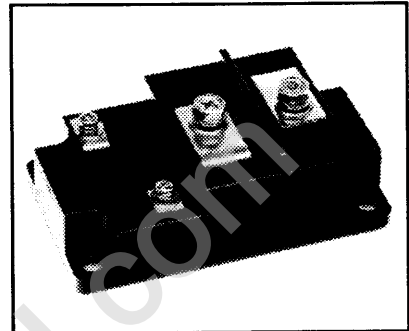
### Single Darlington Transistor Module 200 Amperes/1200 Volts



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	1.89 ± 0.012	48 ± 0.3
E	1.634 Max.	41.5 Max.
F	1.417 Max.	36 Max.
G	1.142	29
H	1.004	25.5
J	0.827	21
K	0.787	20

Dimensions	Inches	Millimeters
L	0.630	16
M	0.512	13
N	0.354	9
P	0.256	6.5
Q	0.256 Dia.	6.5 Dia.
R	0.157	4
S	0.118	3
T	M4 Metric	M4
U	M6 Metric	M6



#### 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 ( $h_{FE}$ )
- ☐ 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. KS621220A7 is a 1200 Volt, 200 Ampere Single Darlington Module with a gain of 75 at rated current (200 Amperes).

Type	$V_{CE(sus)}$ Volts (X 100)	Current Rating Amperes (X 10)
KS62	12	20



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

**KS621220A7**  
**Single Darlington Transistor Module**  
 200 Amperes/1200 Volts

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

Ratings	Symbol	KS621220A7	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, $V_{BE} = -2\text{V}$	$V_{CEV(sus)}$	1200	Volts
Collector-Base Voltage	$V_{CBO}$	1200	Volts
Emitter-Base Voltage	$V_{EBO}$	7	Volts
Collector-Emitter Voltage	$V_{CEV}$	1200	Volts
Continuous Collector Current	$I_C$	200	Amperes
Diode Forward Current	$I_{FM}$	200	Amperes
Continuous Base Current	$I_B$	10	Amperes
Diode Surge Current	$I_{FSM}$	2000	Amperes
Power Dissipation	$P_t$	1560	Watts
Max. Mounting Torque M6 Terminal Screws (E, C)	—	26	in.-lb.
Max. Mounting Torque M4 Terminal Screws (B, Bx)	—	12	in.-lb.
Max. Mounting Torque M6 Mounting Screws	—	26	in.-lb.
Modular Weight (Typical)	—	470	Grams
V Isolation	$V_{RMS}$	2500	Volts

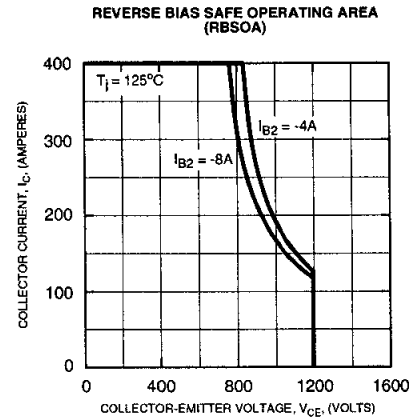
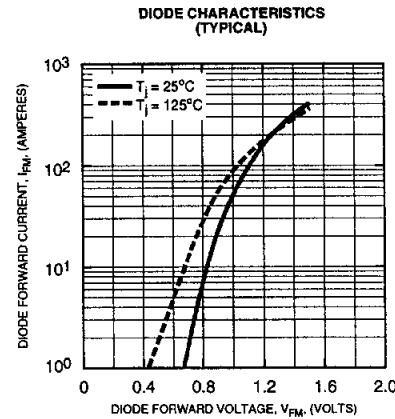
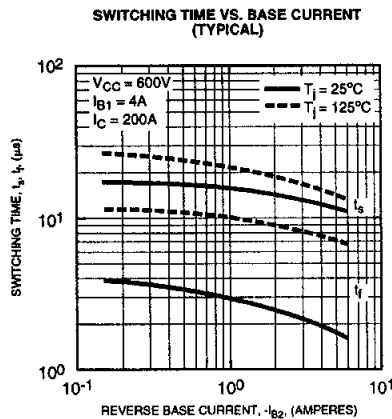
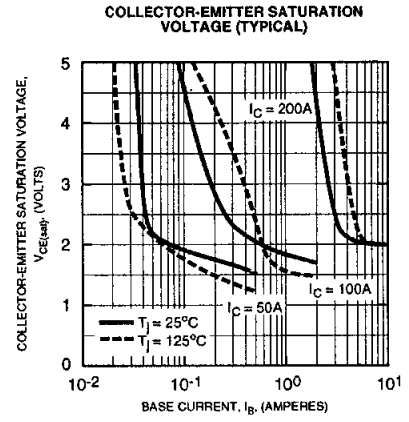
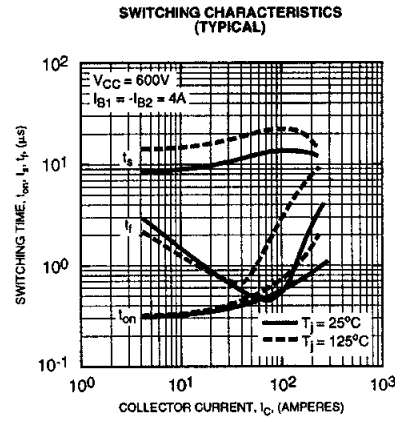
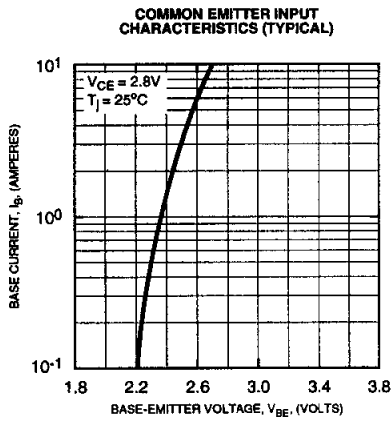
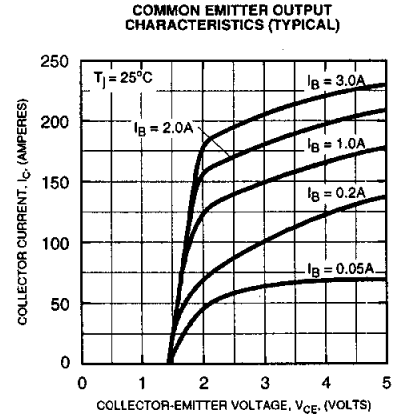
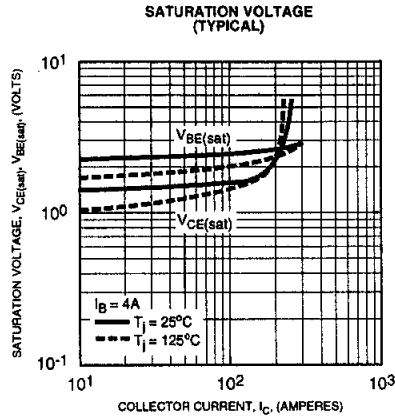
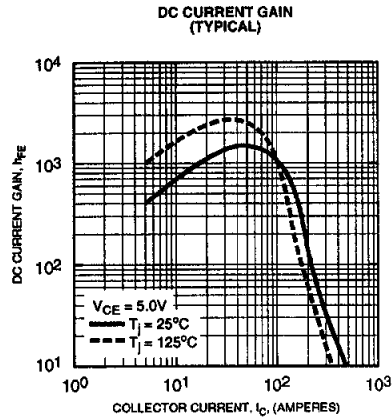
**Electrical Characteristics,  $T_J = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current	$I_{CEV}$	$V_{CE} = 1200\text{V}, V_{BE} = -2\text{V}$	—	—	4	mA
		$V_{CE} = 1200\text{V}, V_{BE} = -2\text{V}, T_C = 125^\circ\text{C}$	—	—	40	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 7\text{V}$	—	—	800	mA
DC Current Gain	$h_{FE}$	$I_C = 200\text{A}, V_{CE} = 5.0\text{V}$	100	—	—	—
Diode Forward Voltage	$V_{FM}$	$I_{FM} = 200\text{A}$	—	—	1.8	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 200\text{A}, I_B = 4.0\text{A}$	—	—	3.0	Volts
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 200\text{A}, I_B = 4.0\text{A}$	—	—	3.5	Volts
Resistive	Turn-on	$t_{on}$	$V_{CC} = 600\text{V}$	—	—	3.0 $\mu\text{s}$
Load	Storage Time	$t_s$	$I_C = 200\text{A}$	—	—	15 $\mu\text{s}$
Switch Times	Fall Time	$t_f$	$I_{B1} = 4\text{A}, I_{B2} = -4\text{A}$	—	—	3.0 $\mu\text{s}$

**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	$R_{\theta(c-s)}$	—	—	—	0.04	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Transistor Part	—	—	0.8	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Diode Part	—	—	0.35	$^\circ\text{C/W}$

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