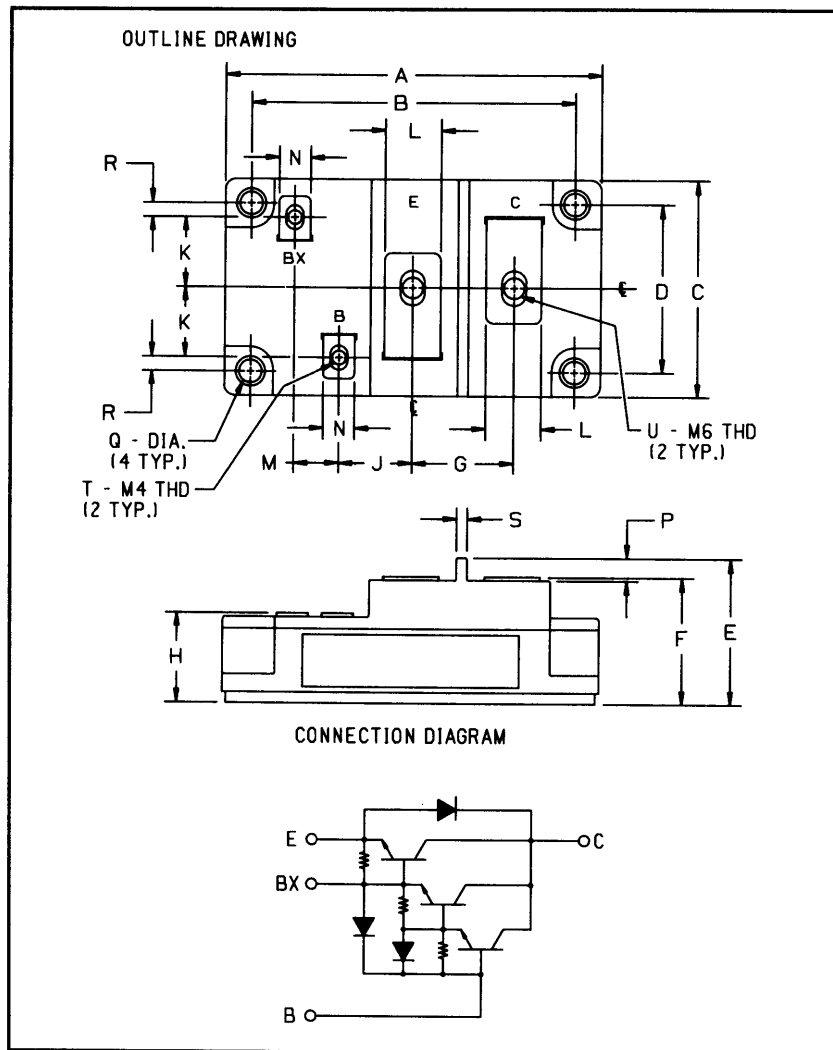


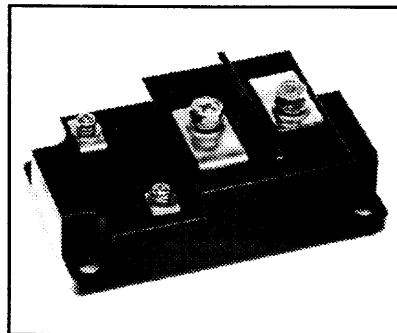
Single Darlington Transistor Module 400 Amperes/1000 Volts



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	1.890 ± 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. KS621K40A41 is a 1000 Volt, 400 Ampere Single Darlington Module with a gain of 70 at rated current (400 Amperes).

Type	$V_{CE0(sus)}$ Volts (1000)	Current Rating Amperes (X 10)
KS62	1K	40



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

KS621K40A41

Single Darlington Transistor Module

400 Amperes/1000 Volts

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

Ratings	Symbol	KS621K40A41	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, $V_{BE} = -2\text{VA}$	$V_{CEV(\text{sus})}$	1000	Volts
Collector-Base Voltage	V_{CBO}	1000	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage, $V_{BE} = -2\text{V}$	V_{CEV}	1000	Volts
Continuous Collector Current	I_C	400	Amperes
Diode Forward Current	I_{FM}	400	Amperes
Continuous Base Current	I_B	16	Amperes
Diode Surge Current	I_{FSM}	3000	Amperes
Power Dissipation, Each Transistor	P_t	1980	Watts
Max. Mounting Torque M6 Main 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



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

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Collector Cutoff Current	I_{CEV}	$V_{CE} = 1000V, V_{BE} = -2V$	—	—	5	mA
		$V_{CE} = 1000V, V_{BE} = -2V, T_C = 125^\circ\text{C}$	—	—	30	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 7V$	—	—	800	mA
DC Current Gain	h_{FE}	$I_C = 400A, V_{CE} = 5.0V$	70	—	—	—
Diode Forward Voltage	V_{FM}	$I_{FM} = 300A$	—	—	1.8	Volts
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 400A, I_B = 8A$	—	—	2.5	Volts
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 400A, I_B = 8A$	—	—	3.5	Volts
Resistive	Turn-on	t_{on}	$V_{CC} = 600V$	—	—	3.0 μs
Load	Storage Time	t_s	$I_C = 400A$	—	—	15 μs
Switch Times	Fall Time	t_f	$I_{B1} = 8A, I_{B2} = -8.0A$	—	—	3.0 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	$R_{\theta(c-s)}$	—	—	—	0.04	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Transistor Part	—	—	0.063	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta(j-c)}$	Diode Part	—	—	0.3	$^\circ\text{C/W}$



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