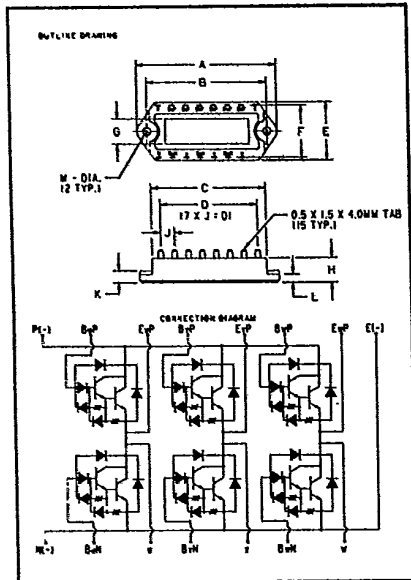




KEE525B0

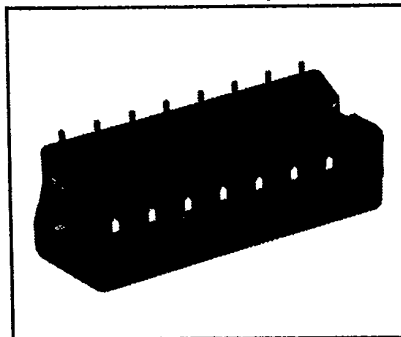
Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

**Integral Baker Clamp
Six-Darlington
Transistor Module
8 Amperes/300 Volts**



**300 Volt KEE525B0
Outline Drawing**

Dimension	Inches	Millimeters
A	3.031	77
B	2.598 ± .006	66 ± 0.15
C	2.480	63
D	2.100	53.34
E	1.287	32.7
F	1.150	29.2
G	.551	14
H	.531	13.5
J	.300	7.62
K	.256	6.5
L	.177	4.5
M	.169 ± .004 Dia.	4.3 ± 0.1 Dia.



**KEE525B0
Integral Baker Clamp
Six-Darlington
Transistor Module
8 Amperes/300 Volts**

Description

Powerex Integral Baker Clamp Six-Darlington Transistor Modules are designed for use in switching applications. The modules are isolated, consisting of six Darlington Transistors with each transistor having a reverse parallel connected high-speed diode, base emitter speed up diodes, and Baker clamp diodes. The transistors are connected in a three phase bridge configuration.

Features:

- Isolated Mounting
- Planar Chips
- Fast Recovery Feed-Back Diode
- High Gain (h_{FE})
- Base Emitter Speed Up Diode
- Base Emitter Resistors & Integral Baker Clamp

Applications:

- Inverters
- Switching Power Supplies
- AC Motor Control

Ordering Information

Example: Select the complete eight digit module part number you desire from the table - i.e. KEE525B0 is a 250 $V_{CE0(SUS)}$ (300 V_{CEV}), 8 Ampere Six-Darlington Module.

Type	$V_{CE0(SUS)}$ Volts ($\times 10$)	Current Rating Amperes (8)
KEE5	25	B0



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

KEE525B0
Integral Baker Clamp
Six-Darlington Transistor Module
8 Amperes/300 Volts

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

	Symbol	KEE525B0	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	$V_{\text{CEO(SUS)}}$	250	Volts
Collector-Emitter Sustaining Voltage $V_{\text{BE}} = -2\text{V}$	$V_{\text{CEV(SUS)}}$	300	Volts
Collector-Base Voltage	V_{CBO}	300	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage $V_{\text{BE}} = -2\text{V}$	V_{CEV}	300	Volts
Continuous Collector Current	I_C	8	Amperes
Diode Forward Current	I_{FM}	8	Amperes
Continuous Base Current	I_B	2	Amperes
Diode Surge Current	I_{FSM}	80	Amperes
Power Dissipation, Each Transistor	P_T	62.5	Watts
Max. Mounting Torque M4 Mounting Screws	—	12	in.-lb.
Module Weight	—	55	Grams
V isolation	V_{RMS}	2000	Volts

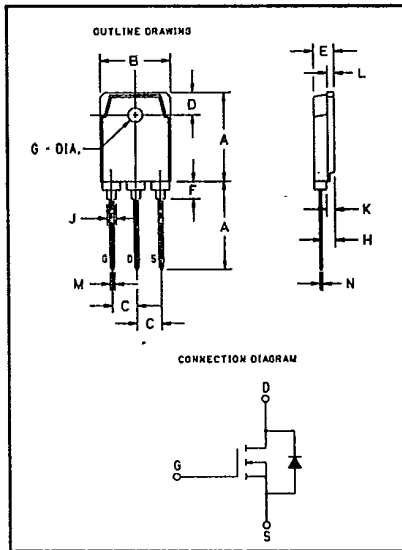
Electrical and Mechanical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	KEE525B0			Units
			Min.	Typ.	Max.	
Collector Cutoff Current	I_{CEV}	$V_{\text{CE}} = 300\text{V}, V_{\text{BE}} = -2\text{V}$	—	—	1	mA
Emitter Cutoff Current	I_{EBO}	$V_{\text{EB}} = 7\text{V}$	—	—	200	mA
DC Current Gain	h_{FE}	$I_C = 7.5\text{A}, V_{\text{CE}} = 2.5\text{V}$	250	—	—	—
Diode Forward Voltage	V_{FM}	$I_{\text{FM}} = 7.5\text{A}$	—	—	1.4	V
Collector-Emitter Saturation Voltage	$V_{\text{CE(SAT)}}$	$I_C = 7.5\text{A}, I_B = 0.03\text{A}$	—	—	2.5	V
Base-Emitter Saturation Voltage	$V_{\text{BE(SAT)}}$	$I_C = 7.5\text{A}, I_B = 0.03\text{A}$	—	—	3.5	V
Resistive Turn On	t_{on}	$V_{\text{CC}} = 150\text{V}$	—	.32	0.6	μs
Load Storage Time	t_s	$I_C = 7.5\text{A}$	—	.7	1.4	μs
Switch Times Fall Time	t_f	$I_{\text{B1}} = 0.08, -I_{\text{B2}} = 0.5\text{A}$	—	.3	0.6	μs
Diode Reverse Recovery	t_{rr}	$I_F = 7.5\text{A}$	—	.3	.5	μs
Thermal Resistance, Case to Sink Lubricated	$R_{\theta\text{CS}}$	—	—	—	0.6	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta\text{JC}}$	Transistor Part	—	—	2.0	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta\text{JC}}$	Diode Part	—	—	3.0	$^\circ\text{C/W}$

POWEREX**JS0225A1
JS0230A1 Tentative**

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

98 DE 7294621 0002516 0

**Single FETMOD™
Power Modules
15 Amperes/250-300 Volts**250-300 Volts JS0225A1, JS0230A1
Outline Drawing

Dimension	Inches	Millimeters
A	.787	20
B	.614	15.6
C	.214 ± .008	5.45 ± 0.2
D	.197	5
E	.177	4.5
F	.157	4
G	.126 ± .008 Dia.	3.2 ± 0.2 Dia.
H	.110	2.8
J	.079	2
K	.071	1.8
L	.059	1.5
M	.039	1
N	.024	0.6

Description

Powerex Single FETMOD™ Power Modules are designed for use in applications requiring high frequency switching and low loss control.

Features:

- TO-3P Package
- Vertical DMOS Chip
- High Speed Body Diode
- Low Drive Requirement
- Fast Switching

Applications:

- AC Motor Control
- UPS Inverters
- Switch Mode Power Supply
- PWM Regulators

Ordering Information

Example: Select the complete eight digit module part number you desire from the table - i.e. JS0230A1 is a 300 Volt, 15 Ampere Single FETMOD™ Module.

Type	V _{DSS} Volts (×10)	Current Rating Amperes (15)
JS02	25	A1
JS02	30	A1



Tentative

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

JS0225A1

JS0230A1

Single FETMOD™ Power Modules

15 Amperes/250-300 Volts

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

	Symbol	JS0225A1/JS0230A1	Units
Junction Temperature	T_J	- 55 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	- 55 to 125	$^\circ\text{C}$
Drain Source Voltage	V_{DSS}	250/300	Volts
Gate-Source Voltage	V_{GSS}	± 20	Volts
Continuous Drain Current	I_D	13	Amperes
Continuous Source Current	I_S	13	Amperes
Pulsed Drain Current Repetitive	I_{DM}	45	Amperes
Power Dissipation	P_T	100	Watts
Max. Mounting Torque (M3) Mounting Screw	—	7	in.-lb.
Module Weight	—	—	Grams
V isolation	V_{RMS}	—	Volts



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

JS0225A1

JS0230A1

Single FETMOD™ Power Modules

15 Amperes/250-300 Volts

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

Characteristics	Symbol	Test Conditions	JS0225A1/JS0230A1			Units
			Min.	Typ.	Max.	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$	—	—	1	mA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V$ $T_J = 150^\circ\text{C}$	—	—	4	mA
Gate Source Threshold	$V_{GS(th)}$	$I_D = 1mA, V_{DS} = 10V$	2	3	4	Volts
Gate Source Leakage	$\pm I_{GSS}$	$\pm V_{GS} = \pm 20V, V_{DS} = 0V$	—	—	0.1	μA
Drain Source On State Resistance*	$R_{DS(on)}$	$V_{GS} = 15V, I_D = 15A$	—	.23	0.28	Ω
		$V_{GS} = 15V, I_D = 15A, T_J = 150^\circ\text{C}$	—	—	.56	Ω
Drain Source On State Voltage*	$V_{DS(on)}$	$V_{GS} = 15V, I_D = 15A$	—	—	4.2	Volts
		$V_{GS} = 15V, I_D = 15A, T_J = 150^\circ\text{C}$	—	—	8.4	Volts
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	—	—	—	—	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	—	—	—	1.25	$^\circ\text{C}/\text{W}$

* Pulse Test: Pulse width $\leq 10\mu\text{s}$



Tentative

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

JS0225A1

JS0230A1

Single FETMOD™ Power Modules

15 Amperes/250-300 Volts

Source-Drain Diode Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	JS0225A1/JS0230A1			Units
			Min.	Typ.	Max.	
Source-Drain Voltage	V_{SD}	$I_S = 15\text{A}$, $V_{GS} = 0\text{V}$	—	—	2.5	Volts
Reverse Recovery Time	t_{rr}	$I_S = 15\text{A}$, $dI_S/dt = 30\text{A}/\mu\text{s}$, $V_{GS} = 0\text{V}$	—	—	180	μs

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

Characteristics	Symbol	Test Conditions	JS0225A1/JS0230A1			Units
			Min.	Typ.	Max.	
Forward Transconductance	g_{fs}	$I_D = 15\text{A}$, $V_{DS} = 10\text{V}$ $t_w \leq 300\mu\text{s}$, Duty=2%	4	—	—	mhos
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 10\text{V}$, $f = 1\text{ Mhz}$	—	—	3000	pf
Output Capacitance	C_{oss}		—	—	1500	pf
Reverse Transfer Capacitance	C_{rss}		—	—	600	pf
Total Gate Charge	Q_G	$V_{DD} = 0.8 V_{DSS}$ $V_{GS} = 10\text{V}$, $I_D = 15\text{A}$	—	—	—	nC
Turn On Time**	t_{on}	$V_{DD} = 0.5 V_{DSS}$ $I_D = 15\text{A}$, $V_{GS} = 15\text{V}$ $R_{GEN} = R_{GS} = 50\Omega$	—	—	400	ns
Turn Off Time**	t_{off}		—	—	600	ns

** Turn on Time (t_{on})=Turn on Delay ($t_{d(on)}$)+Rise Time (t_r)
Turn-off Time (t_{off})=Turn Off Delay ($t_{d(off)}$)+Fall Time (t_f)

This specification is tentative;
therefore, performance curves are not
included. Please contact the Powerex
sales representative nearest you for
further information.