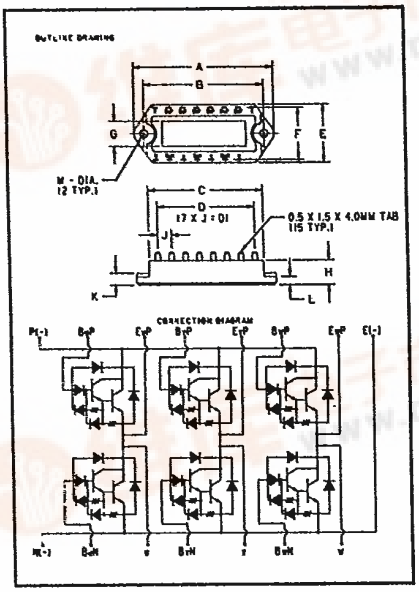
POWEREX

KEE525B0

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

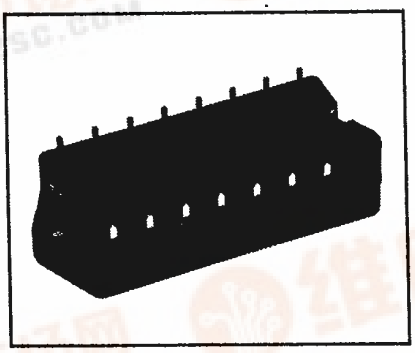
Integral Baker Clamp Six-Darlington Transistor Module

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 $V_{CEO(SUS)}$ (300 V_{CEV}), 8 Ampere Six-Darlington Module.

Type	$V_{CEO(SUS)}$ Volts (×10)	Current Rating Amperes (8)
KEE5	25	B0

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

Maximum Ratings T_J =25°C unless otherwise specified

	Symbol	KEE525B0	Units
Junction Temperature	T_J	−40 to 150	°C
Storage Temperature	T_{STG}	−40 to 125	°C
Collector-Emitter Sustaining Voltage	$V_{CEO(SUS)}$	250	Volts
Collector-Emitter Sustaining Voltage V_{BE} = −2V	$V_{CEV(SUS)}$	300	Volts
Collector-Base Voltage	V_{CBO}	300	Volts
Emitter-Base Voltage	V_{EBO}	7	Volts
Collector-Emitter Voltage V_{BE} = −2V	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°C unless otherwise specified

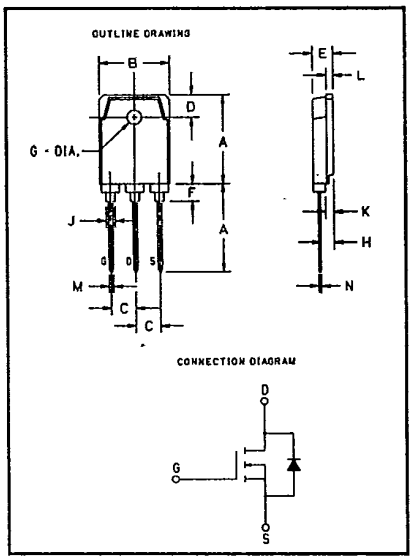
Characteristics		Symbol	Test Conditions	KEE525B0 Min.	Typ.	Max.	Units
Collector Cutoff Current		I_{CEV}	V_{CE} =300V, V_{BE} = −2V	—	—	1	mA
Emitter Cutoff Current		I_{EBO}	V_{EB} =7V	—	—	200	mA
DC Current Gain		h_{FE}	I_C =7.5A, V_{CE} =2.5V	250	—	—	—
Diode Forward Voltage		V_{FM}	I_{FM} =7.5A	—	—	1.4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

POWEREX

JS0225A1
JS0230A1 Tentative

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

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 (x10)	Current Rating Amperes (15)
JS02	25	A1
JS02	30	A1

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JS0225A1
JS0230A1
Single FETMOD™ Power Modules
15 Amperes/250-300 Volts

Maximum Ratings T_J =25°C unless otherwise specified

	Symbol	JS0225A1/JS0230A1	Units
Junction Temperature	T_J	−55 to 150	°C
Storage Temperature	T_{STG}	−55 to 125	°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

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JS0225A1
JS0230A1
Single FETMOD™ Power Modules
15 Amperes/250-300 Volts

Static Electrical Characteristics T_J = 25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	JS0225A1/JS0230A1 Min.	Typ.	Max.	Units
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}$, $V_{GS}=0V$	—	—	1	mA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=0.8\ V_{DSS}$, $V_{GS}=0V$ $T_J=150°C$	—	—	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
		$V_{GS}=15V$, $I_D=15A$, $T_J=150°C$	—	—	.56	Ω
Drain Source On State Voltage*	$V_{DS(on)}$	$V_{GS}=15V$, $I_D=15A$	—	—	4.2	Volts
		$V_{GS}=15V$, $I_D=15A$, $T_J=150°C$	—	—	8.4	Volts
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	—	—	—	—	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	—	—	—	1.25	°C/W

* Pulse Test: Pulse width ≤ 10μs

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JS0225A1
JS0230A1
Single FETMOD™ Power Modules
15 Amperes/250-300 Volts

Source-Drain Diode Characteristics T_J = 25°C unless otherwise specified

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

Dynamic Electrical Characteristics T_J = 25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	JS0225A1/JS0230A1 Min.	Typ.	Max.	Units
Forward Transconductance	g_{fs}	I_D = 15A, V_{DS} = 10V, $t_w \leq 300\mu s$, Duty = 2%	4	—	—	mhos
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1 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} = 10V, I_D = 15A	—	—	—	nC
Turn On Time**	t_{on}	V_{DD} = 0.5 V_{DSS}, I_D = 15A, V_{GS} = 15V, R_{GEN} = R_{GS} = 50Ω	—	—	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.