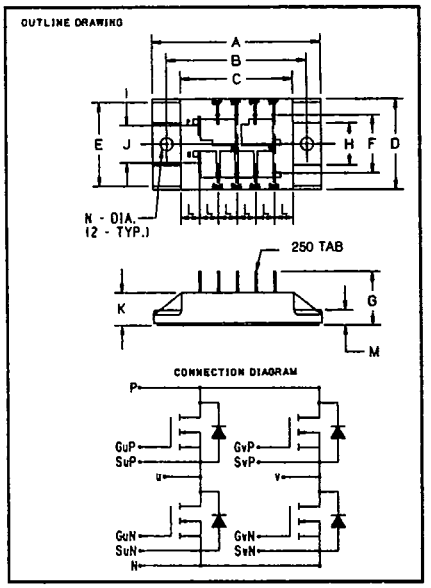
JBF225A1
JBF230A1

T-39-90

Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272
Powerex Europe, S.A., 428 Avenue G. Durand, BP107, 72003 Le Mans, France (43) 41.14.14

Quad-Mos FETMOD™ Power Modules

15 Amperes/250-300 Volts



250-300 Volts JBF225A1, JBF230A1 Outline Drawing

Dimension	Inches	Millimeters
A	2.835	72
B	2.362 ± .012	60 ± 0.3
C	1.890	48
D	1.535	39
E	1.417	36
F	.984	25
G	.906	23
H	.709	18
J	.630	16
K	.551	14
L	.315	8
M	.256	6.5
N	.216 Dia.	5.5 Dia.

Description

Powerex Quad-Mos FETMOD™ Modules are designed for use in applications requiring high-frequency switching and low loss control. The modules are isolated, consisting of four MOSFET Transistors connected in a single phase bridge configuration.

Features:

- ☐ Isolated Mounting
- ☐ Vertical DMOS Chips
- ☐ High Speed Body Diode
- ☐ Low $R_{DS(on)}$
- ☐ 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. JBF230A1 is a 300 Volt, 15 Ampere Quad-Mos FETMOD™ Module.

Type	V_{DSS} Volts (x10)	Current Rating Amperes (15)
JBF2	25	A1
JBF2	30	A1

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Maximum Ratings T_J = 25°C unless otherwise specified

	Symbol	JBF225A1/JBF230A1	Units
Junction Temperature	T_J	−40 to 150	°C
Storage Temperature	T_{STG}	−40 to 125	°C
Drain Source Voltage	V_{DSS}	250/300	Volts
Gate-Source Voltage	V_{GSS}	±20	Volts
Continuous Drain Current	I_D	15	Amperes
Continuous Source Current	I_S	15	Amperes
Pulsed Drain Current Repetitive	I_{DM}	45	Amperes
Power Dissipation	P_T	125	Watts
Max. Mounting Torque Mounting Screws (M5)	—	17	in.-lb.
Module Weight	—	—	Grams
V isolation	V_{RMS}	2500	Volts

Static Electrical Characteristics T_J = 25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	JBF225A1/JBF230A1 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	$V_{GS(th)}$	$I_D=1$ mA, $V_{DS}=10V$	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*	$R_{DS(on)}$	$V_{GS}=15V$, $I_D=15A$	—	—	.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	$R_{\theta JC}$	Per Device	—	—	1.00	°C/W

* Pulse Test: Pulse width ≤ 10μs

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

Characteristics	Symbol	Test Conditions	JBF225A1/JBF230A1 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, dIs/dt=30A/μs, V_{GS}=0V	—	—	180	ns

Dynamic Electrical Characteristics T_J =25°C unless otherwise specified

Characteristics	Symbol	Test Conditions	JBF225A1/JBF230A1 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)

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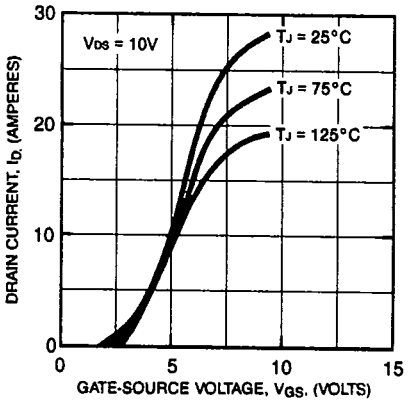
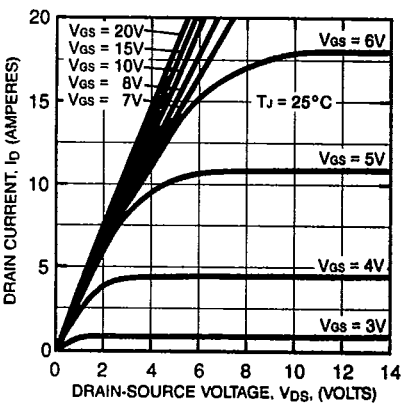
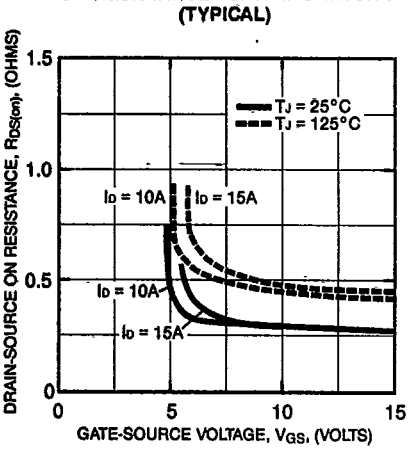
TRANSFER CHARACTERISTICS (TYPICAL)



COMMON SOURCE OUTPUT CHARACTERISTICS (TYPICAL)



ON-RESISTANCE VS. TEMPERATURE (TYPICAL)



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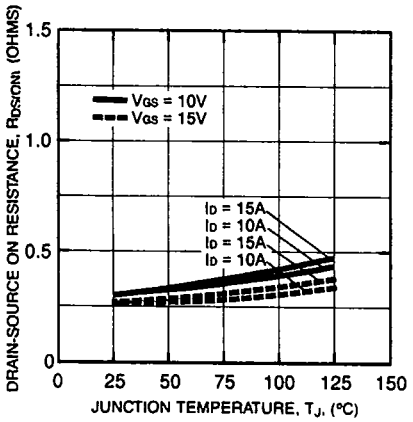
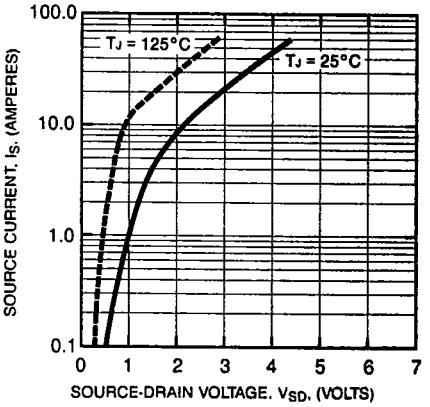
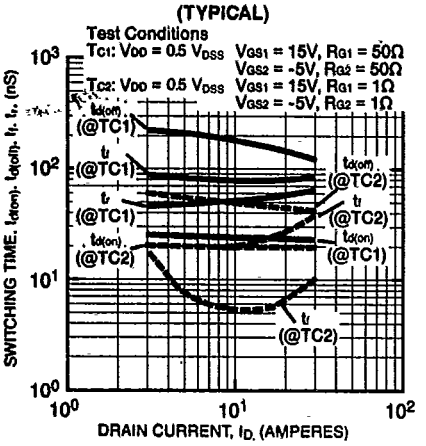


SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)



SWITCHING CHARACTERISTICS (TYPICAL)



Switching Characteristics Test Circuit