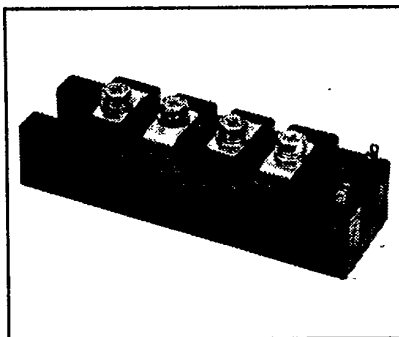
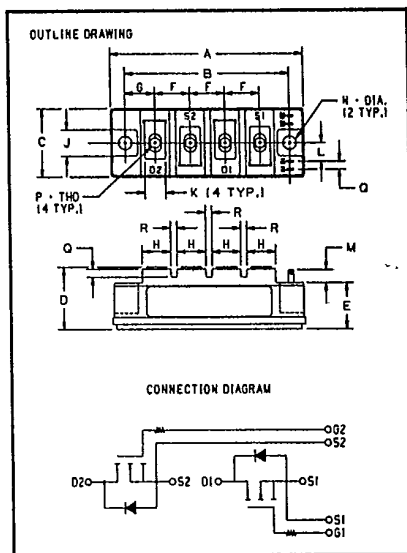




JT224503
JT225003 **Tentative**

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

Split-Dual FETMOD™ Power Modules
30 Amperes/450-500 Volts



JT224503
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30 Amperes/450-500 Volts

Description

Powerex Split-Dual FETMOD™ Modules are designed for use in applications requiring high-frequency switching and low loss control. The modules are isolated, consisting of two MOSFETs with internal series gate resistors and independent connections.

Features:

- Isolated Mounting
- Vertical DMOS Chips
- High Speed Body Diode
- Low Drive Requirement
- Low $R_{DS(on)}$
- Internal Series Gate Resistors
- Fast Switching

Applications:

- Choppers
- UPS Inverters
- Switch Mode Power Supply
- PWM Regulators
- Welding Power Supply

Ordering Information

Example: Select the complete eight digit module part number you desire from the table - i.e. JT225003 is a 500 Volt, 30 Ampere Split-Dual FETMOD™ Module.

450-500 Volts JT224503, JT225003 Outline Drawing

Dimension	Inches	Millimeters
A	3.701	94
B	3.150 ± .010	80 ± 0.25
C	1.338	34
D	1.220 Max.	31 Max.
E	.906	23
F	.669	17
G	.572	14.5
H	.551	14
J	.512	13
K	.394	10
L	.344	8.75
M	.256 Min.	6.5 Min.
N	.256 Dia.	6.5 Dia.
P	M5 Metric	M5
Q	.157	4
R	.118	3

Type	V_{DSS} Volts (×10)	Current Rating Amperes (×10)
JT22	45	03
JT22	50	03



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

	Symbol	JT224503/JT225003	Units
Junction Temperature	T_J	-40 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-40 to 125	$^\circ\text{C}$
Drain Source Voltage	V_{DSS}	450/500	Volts
Gate-Source Voltage	V_{GSS}	± 20	Volts
Continuous Drain Current	I_D	25	Amperes
Continuous Source Current	I_S	25	Amperes
Pulsed Drain Current Repetitive	I_{DM}	90	Amperes
Power Dissipation	P_T	250	Watts
Max. Mounting Torque (M5) Terminal Screws	—	17	in.-lb.
Max. Mounting Torque (M6) Mounting Screws	—	26	in.-lb.
Module Weight	—	250	Grams
V isolation	V_{RMS}	2500	Volts



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

Characteristics	Symbol	Test Conditions	JT224503/JT225003			Units
			Min.	Typ.	Max.	
Zero Gate Voltage Drain Current	I_{OSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$	—	—	1	mA
Zero Gate Voltage Drain Current	I_{OSS}	$V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V$ $T_J = 150^\circ\text{C}$	—	—	10	mA
Gate Source Threshold	$V_{GS(th)}$	$I_D = 1 \text{ mA}, V_{DS} = 10V$	2	3	4	Volts
Gate Source Leakage	$\pm I_{GSS}$	$\pm V_{GS} = \pm 20V, V_{DS} = 0V$	—	—	0.5	μA
Drain Source On State Resistance*	$R_{DS(on)}$	$V_{GS} = 15V, I_D = 30A$ $V_{GS} = 15V, I_D = 30A, T_J = 150^\circ\text{C}$	—	—	0.2 0.4	Ω Ω
Drain Source On State Voltage*	$V_{DS(on)}$	$V_{GS} = 15V, I_D = 30A$ $V_{GS} = 15V, I_D = 30A, T_J = 150^\circ\text{C}$	—	—	6 12	Volts Volts
Thermal Resistance, Case to Sink Lubricated	$R_{\theta CS}$	—	—	—	0.15	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	Per Device	—	—	0.5	$^\circ\text{C/W}$

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



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Split-Dual FETMOD™ Power Modules
30 Amperes/450-500 VoltsSource-Drain Diode Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	JT224503/JT225003			Units
			Min.	Typ.	Max.	
Source-Drain Voltage	V_{SD}	$I_S = 30\text{A}$, $V_{GS} = 0\text{V}$	—	—	2.5	Volts
Reverse Recovery Time	t_{rr}	$I_S = 30\text{A}$, $di/dt = 60\text{A}/\mu\text{s}$; $V_{GS} = 0\text{V}$	—	160	200	ns

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

Dynamic Electrical Characteristics	Symbol	Test Conditions	JT224503/JT225003			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%	10	—	—	mhos
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 10\text{V}$, $f = 1\text{ Mhz}$	—	—	7000	pf
Output Capacitance	C_{oss}		—	—	2000	pf
Reverse Transfer Capacitance	C_{rss}		—	—	800	pf
Total Gate Charge	Q_G	$V_{DD} = 0.8 V_{DSS}$ $V_{GS} = 10\text{V}$, $I_D = 30\text{A}$	—	360	—	nC
Turn On Time**	t_{on}	$V_{DD} = 0.5 V_{DSS}$ $I_D = 15\text{A}$, $V_{GS} = 15\text{V}$ $R_{GEN} = R_{GS} = 50\Omega$	—	—	500	ns
Turn Off Time**	t_{off}		—	—	1100	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.



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