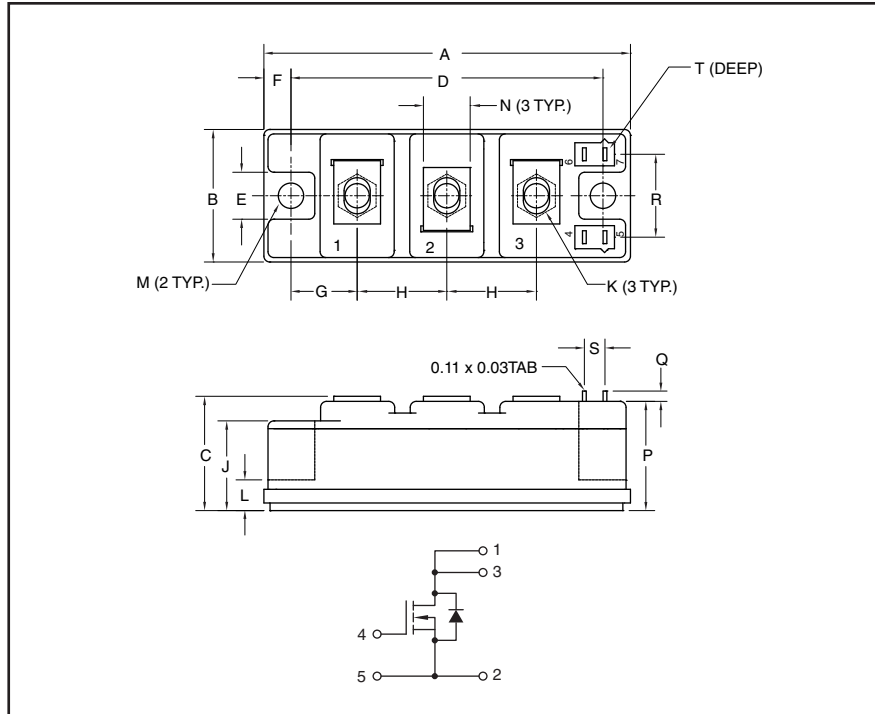


### Single MOSFET Module 120 Amperes/500 Volts



Outline Drawing and Circuit Diagram

Dimensions	Inches	Millimeters
A	3.70	94.0
B	1.34	34.0
C	1.18	30.0
D	3.15	80.0
E	0.50	12.7
F	0.28	7.0
G	0.67	17.0
H	0.91	23.0
J	0.91	23.0

Dimensions	Inches	Millimeters
K	M6 Metric	M6
L	0.31	8.0
M	0.256 Dia.	6.5 Dia.
N	0.47	12.0
P	1.13	28.7
Q	0.10	2.5
R	0.84	21.3
S	0.21	5.3
T	0.24	6.1



#### Description:

Powerex Single MOSFET Module is designed specially for customer applications. The module is isolated for easy mounting with other components on a common heatsink.

#### Features:

- Typical  $R_{DS(on)} = 0.022\Omega$
- High dv/dt Capabilities
- Two STY60NM50 Chips
- Isolated Mounting
- Isolation Material - DBC AlN
- Copper Baseplate



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**QJS0512001**  
**Single MOSFET Module**  
 120 Amperes/500 Volts

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

Ratings	Symbol	QJS0512001	Units
Drain-Source Voltage	$V_{DS}$	500	Volts
Drain-Gate Voltage	$V_{DGR}$	500	Volts
Gate-Source Voltage	$V_{GS}$	$\pm 30$	Volts
Drain Current (Continuous) at $T_C = 25^\circ\text{C}$	$I_D$	120	Amperes
Drain Current (Continuous) at $T_C = 100^\circ\text{C}$	$I_D$	75	Amperes
Junction Temperature	$T_j$	-40 to 150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 to 125	$^\circ\text{C}$
Mounting Torque, M6 Terminal Screws	—	26	in-lb
Mounting Torque, M6 Mounting Screws	—	26	in-lb
Module Weight (Typical)	—	220	Grams
V Isolation Voltage	$V_{RMS}$	2500	Volts

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

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 500\mu\text{A}, V_{GS} = 0$	500	—	—	Volts
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS} = 0, V_{DS} = 500\text{V}$	—	—	20	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{GS} = 0, V_{DS} = 500\text{V}, T_C = 125^\circ\text{C}$	—	—	200	$\mu\text{A}$
Gate Leakage Current	$I_{GSS}$	$V_{DS} = 0, V_{GS} = \pm 20\text{V}$	—	—	$\pm 20$	$\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 500\mu\text{A}$	3.0	4.0	5.0	Volts
Drain-Source On Resistance	$R_{DS(on)}$	$I_D = 60\text{A}, V_{GS} = 10\text{V}$	—	0.022	0.025	$\Omega$
Total Gate Charge	$Q_G$	$V_{DD} = 400\text{V}, I_D = 120\text{A}, V_{GS} = 10\text{V}$	—	380	530	nC
Forward On Voltage Source-Drain Diode	$V_{SD}$	$I_{SD} = 120\text{A}, V_{GS} = 0$	—	—	1.5	Volts

**Thermal and Mechanical Characteristics,  $T_j = 25^\circ\text{C}$  unless otherwise specified**

Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal Resistance, Junction to Case	$R_{th(j-c)}$	MOSFET	—	0.1	TBD	$^\circ\text{C/W}$
Contact Thermal Resistance,	$R_{th(c-f)}$	Module	—	—	0.075	$^\circ\text{C/W}$
Thermal Grease Applied						