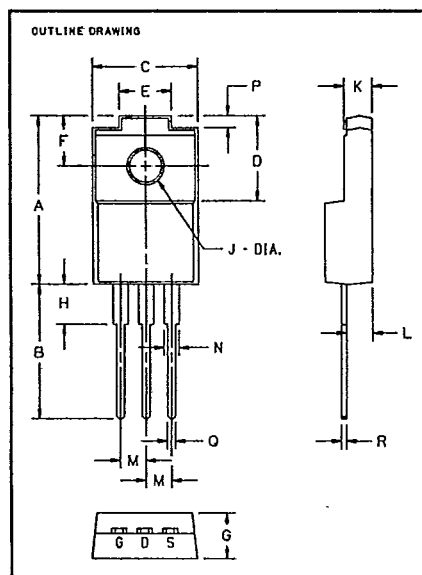
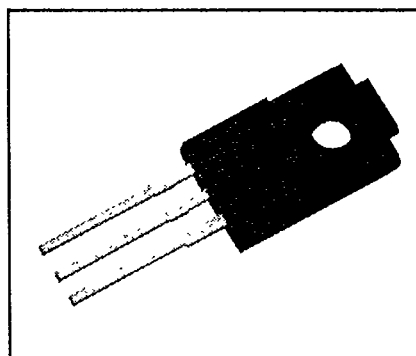


POWEREX**J936****Tentative**

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

**Single EXMOS™
MOSFET**
30 Amperes/50 Volts**50 Volts J936
Outline Drawing**

Dimension	Inches	Millimeters
A	.669 ± .012	17 ± 0.3
B	.531 Min.	13.5 Min.
C	.413 Max.	10.5 Max.
D	.335 ± .012	8.5 ± 0.3
E	.205 ± .008	5.2 ± 0.2
F	.197 ± .012	5.0 ± 0.3
G	.185 Max.	4.7 Max.
H	.157 Max.	4.0 Max.
J	.126 + .008/- .000	3.2 + 0.2/- 0.0
K	.110 ± .008	2.8 ± 0.2
L	.102 ± .008	2.6 ± 0.2
M	.100 ± .010	2.54 ± 0.25
N	.059 Max.	1.5 Max.
P	.047 ± .012	1.2 ± 0.3
Q	.031 ± .004	0.8 ± 0.1
R	.020 ± .004	0.5 ± 0.1

**J936
Single FETMOD™
Power Module**
30 Amperes/50 Volts**Description**

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

Features:

- ☐ TO-220F 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

Select the complete four digit module part number you desire from the table i.e. J936 is a 50 Volt, 30 Ampere Single EXMOS™ MOSFET™ Module.

Type	V _{oss} Volts (50)	Current Rating Amperes (30)
J936	—	—



T-39-13

Tentative

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

J936**Single EXMOS™ MOSFET****30 Amperes/50 Volts****Maximum Ratings $T_c = 25^\circ\text{C}$ unless otherwise specified**

	Symbol	J936	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_{DS}	50	Volts
Gate-Source Voltage	V_{GS}	± 30	Volts
Continuous Drain Current	I_D	30	Amperes
Continuous Source Current	I_S	30	Amperes
Pulsed Drain Current Repetitive	I_{DM}	90	Amperes
Power Dissipation	P_T	45	Watts
Max. Mounting Torque M3 Mounting Screw	—	7	in.-lb.

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

Characteristics	Symbol	Test Conditions	Min.	J936 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}	$V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V$ $T_J = 150^\circ\text{C}$	—	—	4	mA
Gate Source Threshold Voltage	$V_{GS(th)}$	$I_D = 1 \text{ mA}, V_{DS} = 10V$	2	3	4	Volts
Gate Source Leakage Current	$\pm I_{GSS}$	$\pm V_{GS} = \pm V_{DSS}, V_{DS} = 0V$	—	—	0.1	μA
Drain Source On State Resistance	$R_{DS(on)}$	$V_{GS} = 10V$ $I_D = 15A, t_{ws} \leq 10\mu s$	—	30	45	m Ω
Drain Source On State Voltage	$V_{DS(on)}$	$V_{GS} = 15V$ $I_D = 15A, t_{ws} \leq 10\mu s$	—	.45	.68	Volts
Thermal Resistance, Junction to Case	$R_{\theta JC}$	—	—	—	2.75	$^\circ\text{C/W}$

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

Characteristics	Symbol	Test Conditions	Min.	J936 Typ.	Max.	Units
Source-Drain Voltage	V_{SD}	$I_S = 15A, V_{GS} = 0V$	—	—	1.1	Volts
Reverse Recovery Time	t_{rr}	$I_S = 15A, T_J = 150^\circ\text{C}$ $dI_F/dt = -30A/\mu s, V_{GS} = 0V$	—	160	—	ns

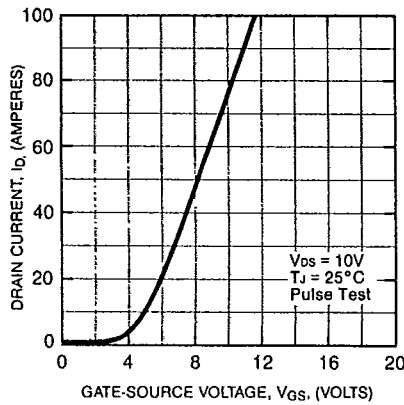
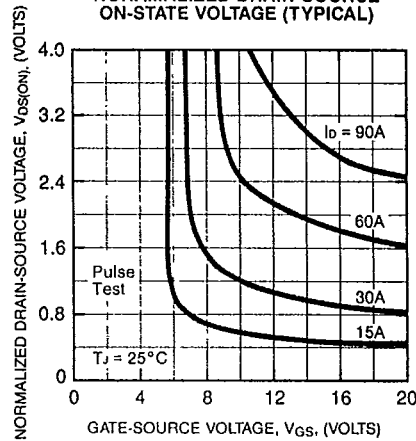
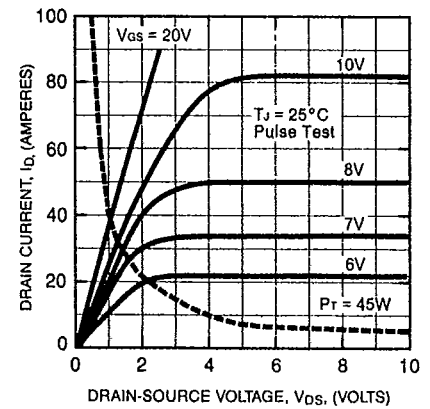
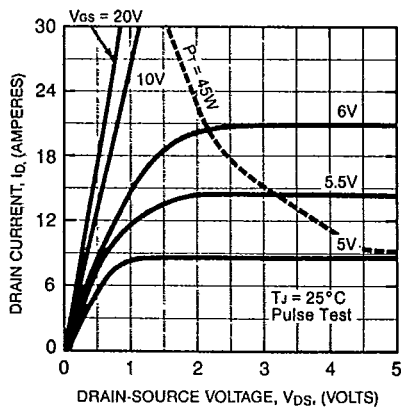
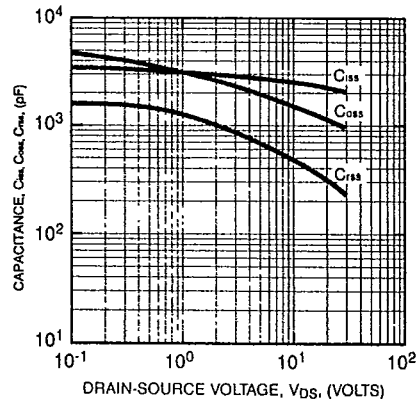
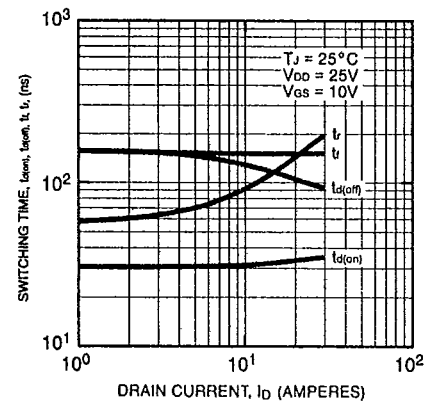
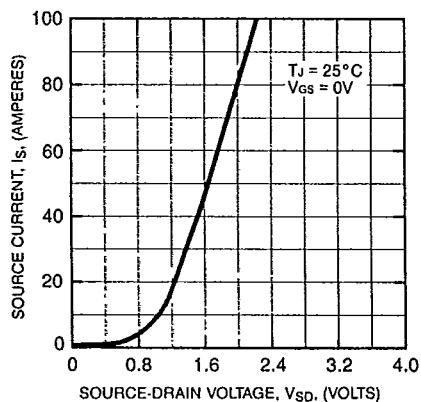
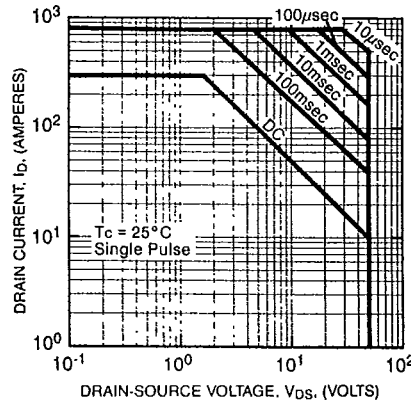
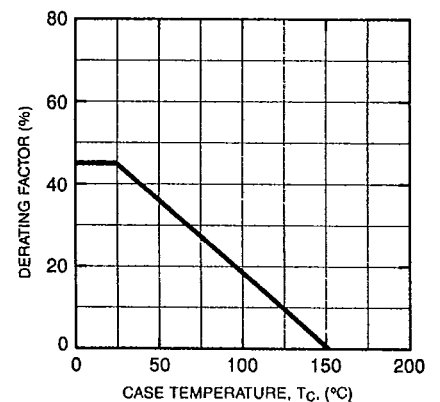
Dynamic Electrical Characteristics $T_c, T_J = 25^\circ\text{C}$ unless otherwise specified

Characteristics	Symbol	Test Conditions	Min.	J936 Typ.	Max.	Units
Forward Transconductance	g_{fs}	$I_D = 15A, V_{DS} = 10V$ $t_w \leq 300\mu s, \text{Duty} = 2\%$	4	—	—	mhos
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 10V$	—	2500	—	pF
Output Capacitance	C_{oss}	$f = 1 \text{ Mhz}$	—	1500	—	pF
Reverse Transfer Capacitance	C_{rss}		—	450	—	pF
Turn On Time(Note 1)	t_{on}	$V_{DD} = 0.5 V_{DSS}$	—	—	300	ns
Turn Off Time(Note 1)	t_{off}	$I_D = 15A, V_{GS} = 15V$ $R_{GEN} = R_{GS} = 50\Omega$	—	—	440	ns

Note 1: 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)

POWEREXT-39-13
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Powerex, Inc., Hillis Street, Youngwood, Pennsylvania 15697 (412) 925-7272

J936
Single EXMOS™ MOSFET
30 Amperes/50 Volts**TRANSFER CHARACTERISTICS (TYPICAL)****NORMALIZED DRAIN-SOURCE ON-STATE VOLTAGE (TYPICAL)****COMMON SOURCE OUTPUT CHARACTERISTICS (TYPICAL)****COMMON SOURCE OUTPUT CHARACTERISTICS (TYPICAL)****CAPACITANCE VS. DRAIN-SOURCE VOLTAGE (TYPICAL)****SWITCHING CHARACTERISTICS (TYPICAL)****SOURCE-DRAIN DIODE FORWARD CHARACTERISTICS (TYPICAL)****FORWARD BIAS SAFE OPERATING AREA (S.O.A.)****TEMPERATURE DERATING FACTOR OF SAFE OPERATING AREA (S.O.A.)**



T-39-13

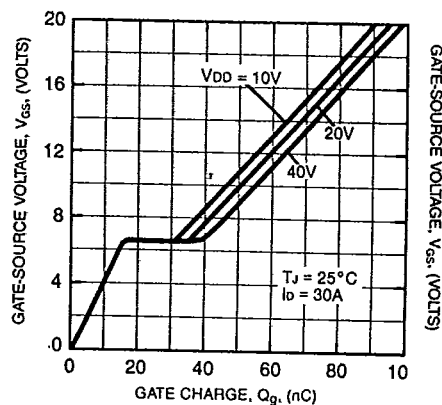
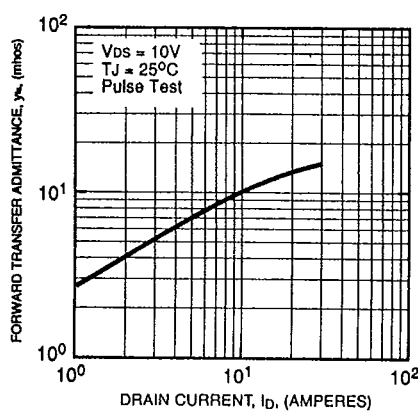
Tentative

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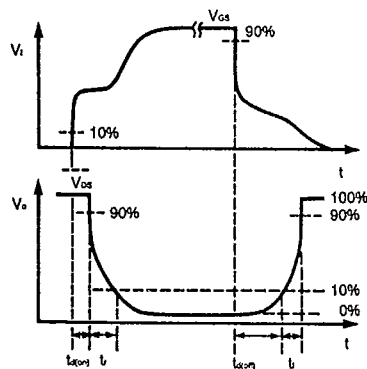
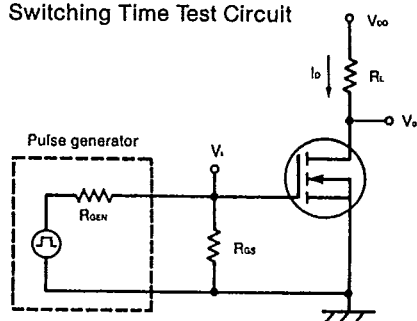
J936

Single EXMOS™ MOSFET

30 Amperes/50 Volts

GATE CHARGE VS. V_{GS}
(TYPICAL)FORWARD TRANSFER ADMITTANCE VS.
DRAIN CURRENT (TYPICAL)

Switching Time Test Circuit



Notice: MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling should be observed.