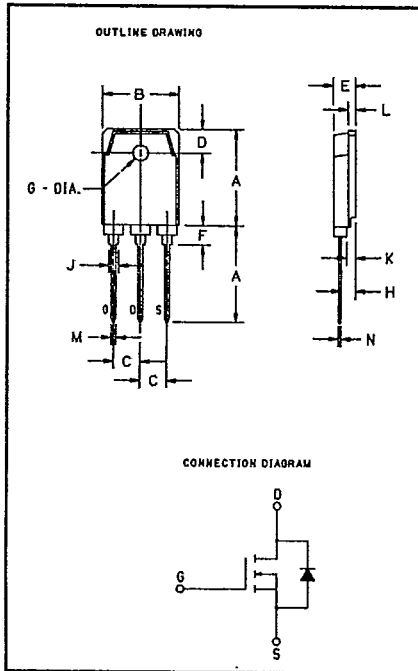


POWEREX**JS0180A0
JS0190A0 Tentative**

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

98 DE 7294621 0002731 4

**Single EXMOS™
MOSFET****5 Amperes/800-900 Volts**800-900 Volts JS0180A0, JS0190A0
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 EXMOS™ MOSFET Transistors are designed for use in applications requiring Hi-Frequency switching and low loss control.

Features:

- ☐ TO-3P Package
- ☐ Vertical DMOS Construction
- ☐ Low Drive Requirement
- ☐ No Second Breakdown

Applications:

- ☐ AC Motor Control
- ☐ UPS Inverters
- ☐ Switch Mode Power Supply
- ☐ PWM Regulator

Ordering Information

Select the complete eight digit module part number you desire from the table: i.e. JS0190A0 is a 900 Volt, 5 Ampere Single EXMOS™ MOSFET.

Type	V _{DS} Volts (×10)	Current Rating Amperes (5)
JS01	80	A0
	90	



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

JS0180A0
JS0190A0
Single EXMOS™ MOSFET
5 Amperes/800-900 Volts

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

Characteristics	Symbol	JS0180A0/JS0190A0	Units
Junction Temperature	T_J	-55 to 150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Drain Source Voltage, $I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	V_{DSS}	800/900	Volts
Gate-Source Voltage	V_{GSS}	± 30	Volts
Continuous Drain Current	I_D	5	Amperes
Continuous Source Current	I_S	5	Amperes
Pulsed Drain Current Repetitive	I_{DM}	15	Amperes
Power Dissipation	P_T	120	Watts
Max. Mounting Torque, Mounting Screw (M3)	—	7	in.-lb.

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

Characteristics	Symbol	Test Conditions	JS0180A0			JS0190A0			Units
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0\text{V}$	—	—	1	—	—	1	mA
Gate Source Leakage Current	$\pm I_{GSS}$	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0\text{V}$	—	—	0.1	—	—	0.1	μA
Gate Source Threshold Voltage	$V_{GS(th)}$	$I_D = 1\text{mA}$, $V_{DS} = 10\text{V}$	2	3	4	2	3	4	Volts
Drain Source On State Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 2.5\text{A}$	—	1.3	1.7	—	1.4	1.8	Ω
Drain Source On State Voltage	$V_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 2.5\text{A}$	—	3.3	4.3	—	3.5	4.5	Volts
Thermal Resistance, Junction to Case	$R_{\theta JC}$	—	—	—	1.0	—	—	1.0	$^\circ\text{C/W}$

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

Characteristics	Symbol	Test Conditions	Min.	JS0180A0/JS0190A0		Max.	Units
				Typ.			
Source-Drain Voltage	V_{SD}	$I_S = 2.5\text{A}$, $V_{GS} = 0\text{V}$	—	1.0	—	—	Volts
Reverse Recovery Time	t_{rr}	$I_S = 5\text{A}$, $dI_S/dt = -20\text{A}/\mu\text{s}$, $V_{GS} = 0\text{V}$	—	1600	—	—	ns

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

Characteristics	Symbol	Test Conditions	Min.	JS0180A0/JS0190A0		Max.	Units
				Typ.			
Forward Transconductance	g_{fs}	$I_D = 2.5\text{A}$, $V_{DS} = 10\text{V}$	3	5	—	—	mhos
Input Capacitance	C_{iss}		—	2400	—	—	pF
Output Capacitance	C_{oss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	—	210	—	—	pF
Reverse Transfer Capacitance	C_{rss}		—	50	—	—	pF
Turn On Time (Note 1)	t_{on}	$V_{DD} = 200\text{V}$, $I_D = 2.5\text{A}$, $V_{GS} = 10\text{V}$	—	80	160	—	ns
Turn Off Time (Note 1)	t_{off}	$R_{GEN} = R_{GS} = 50\Omega$	—	270	540	—	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)



Tentative

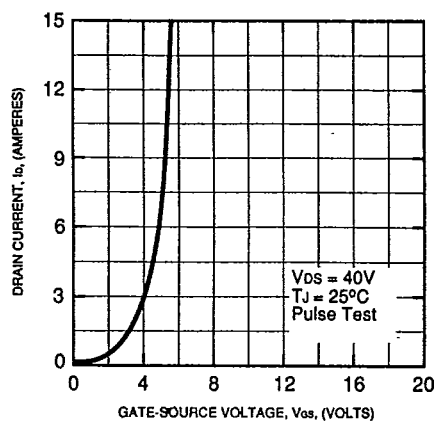
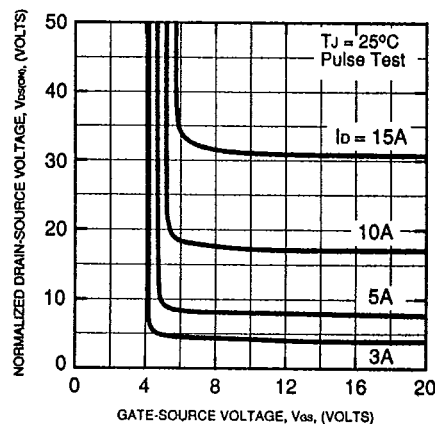
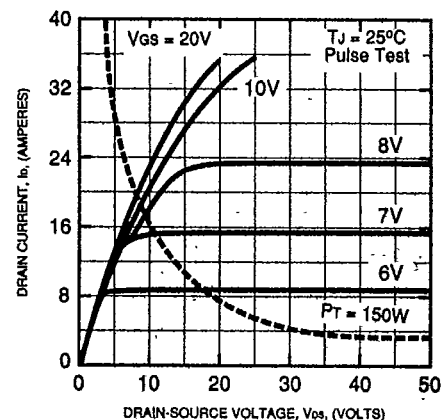
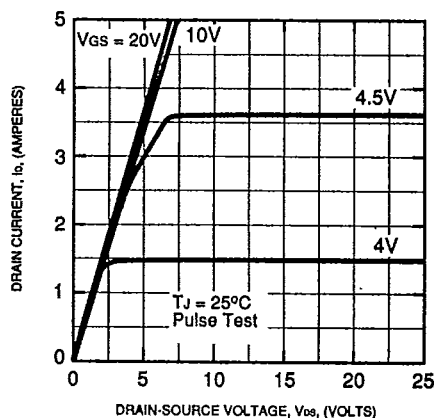
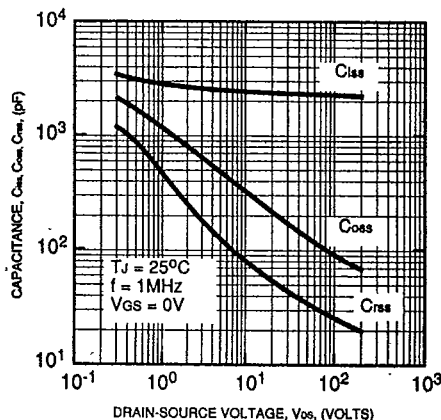
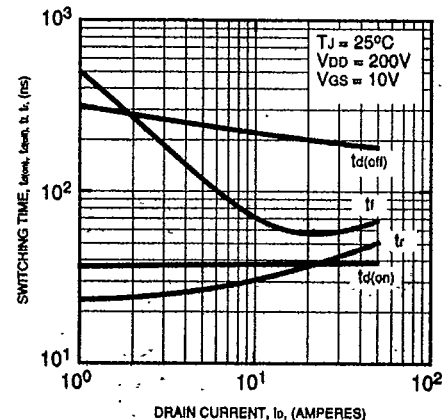
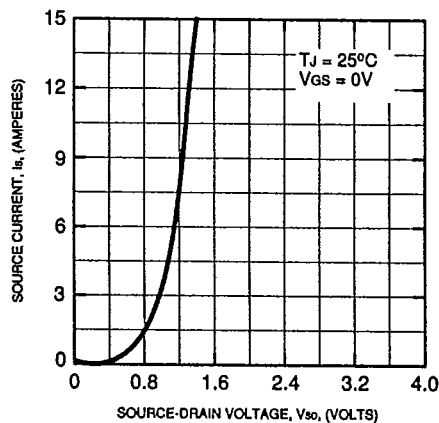
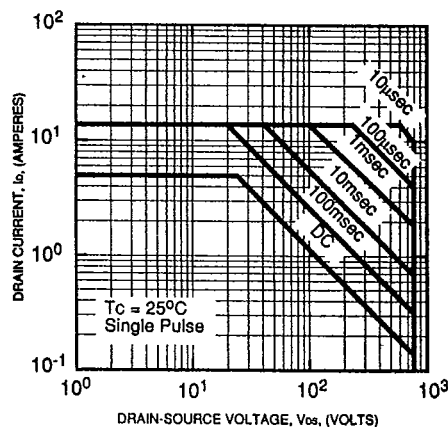
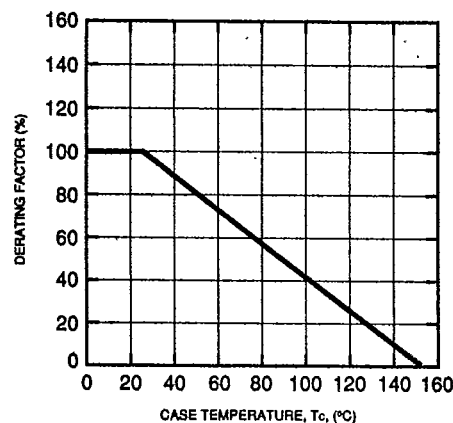
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JS0180A0

JS0190A0

Single EXMOS™ MOSFET

5 Amperes/800-900 Volts

TRANSFER CHARACTERISTICS
(TYPICAL)
JS0180A0NORMALIZED DRAIN-SOURCE
ON-STATE VOLTAGE (TYPICAL)
JS0180A0COMMON SOURCE OUTPUT
CHARACTERISTICS (TYPICAL)
JS0180A0COMMON SOURCE OUTPUT
CHARACTERISTICS (TYPICAL)
JS0180A0CAPACITANCE VS. DRAIN-SOURCE VOLTAGE
(TYPICAL)
JS0180A0SWITCHING CHARACTERISTICS
(TYPICAL)
JS0180A0SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS (TYPICAL)
JS0180A0FORWARD BIAS SAFE OPERATING AREA
(S.O.A.)
JS0180A0TEMPERATURE DERATING FACTOR
OF SAFE OPERATING AREA (S.O.A.)
JS0180A0

POWEREX

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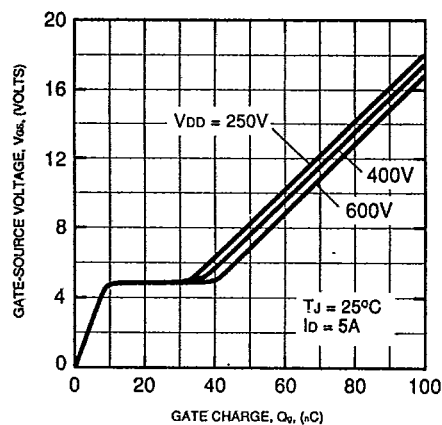
JS0180A0

JS0190A0

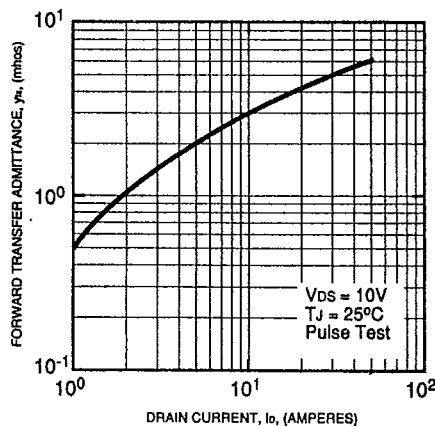
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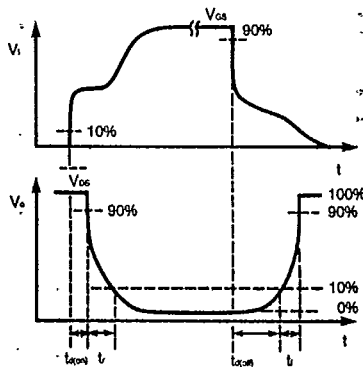
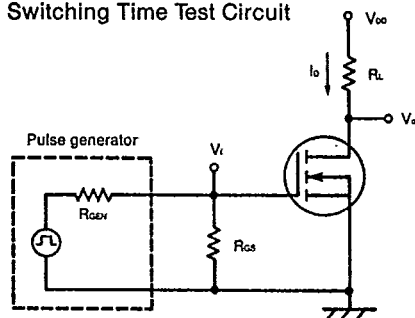
GATE CHARGE VS. V_{GS}
(TYPICAL)
JS0180A0



FORWARD TRANSFER ADMITTANCE VS.
DRAIN CURRENT (TYPICAL)
JS0180A0



Switching Time Test Circuit



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

POWEREX**Tentative**

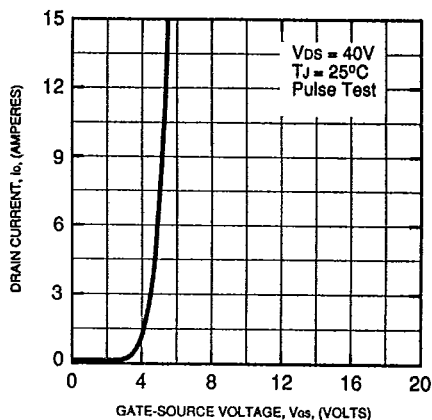
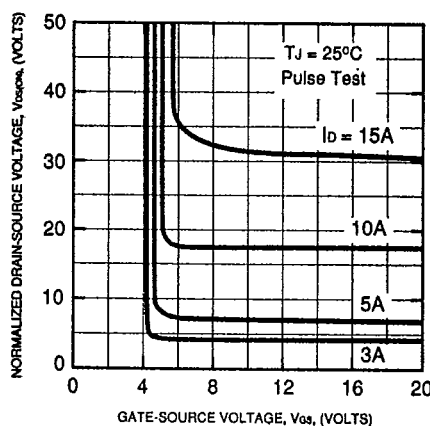
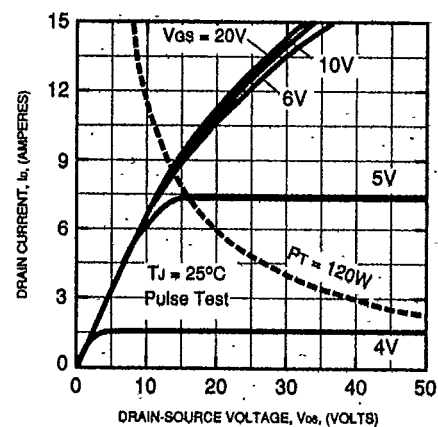
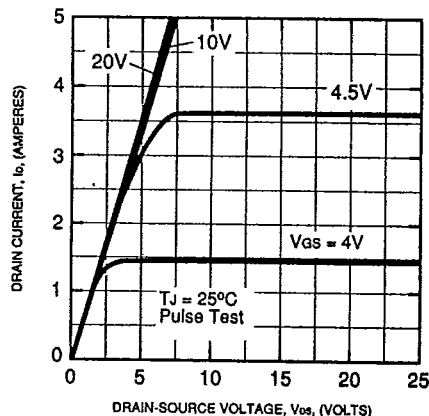
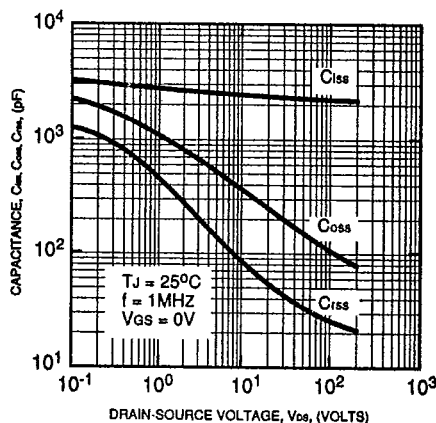
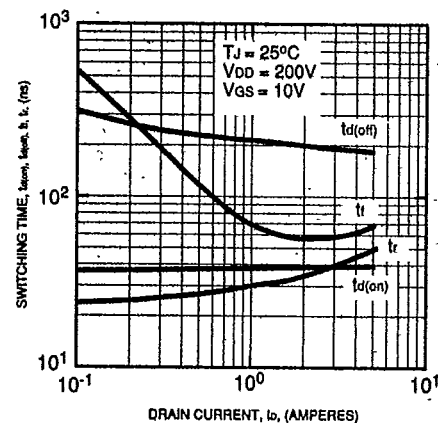
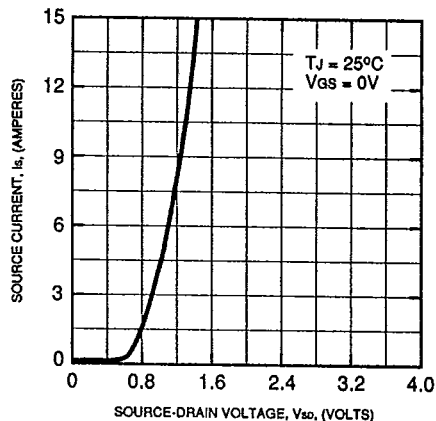
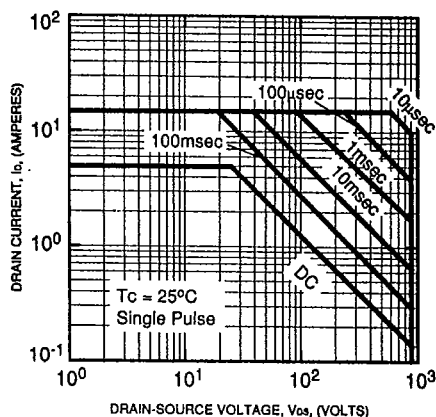
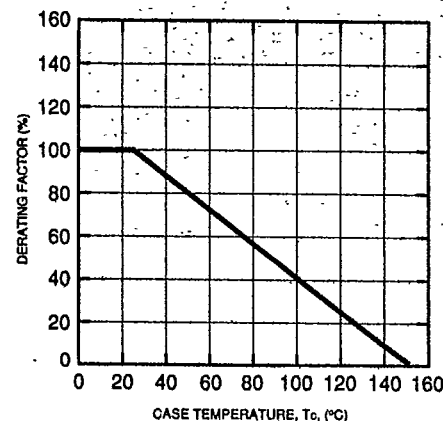
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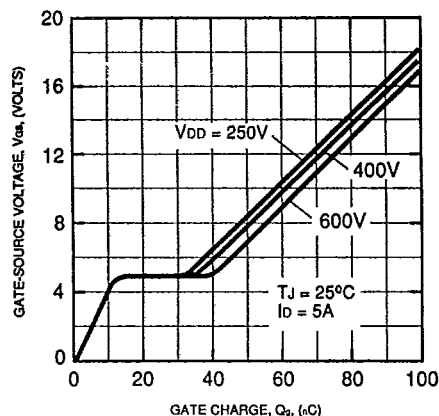


T-39-13
Tentative

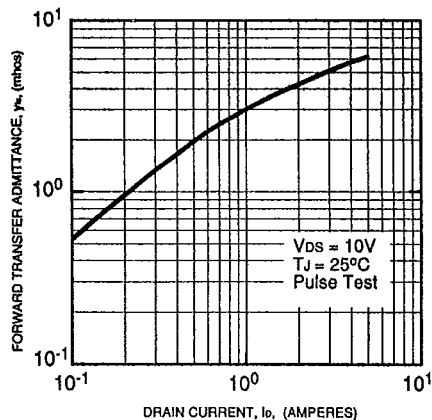
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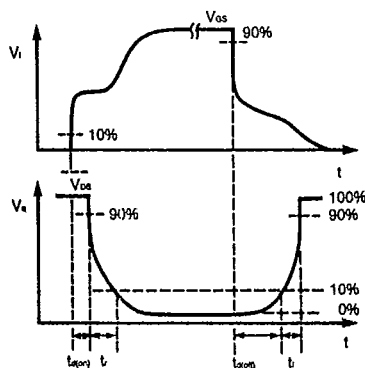
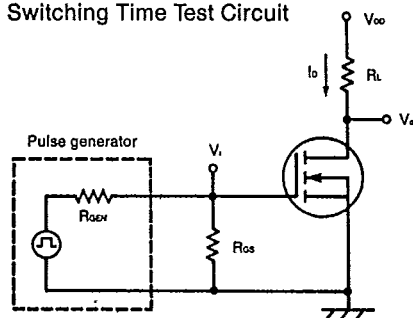
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