

## Description

### JMT P-channel MOSFET

#### Features

- $V_{DS} = -30V$ ,  $I_D = -5.1A$
- $R_{DS(ON)} = 40m\Omega$  (typ.) @  $V_{GS} = -10V$   
 $R_{DS(ON)} = 57m\Omega$  (typ.) @  $V_{GS} = -4.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

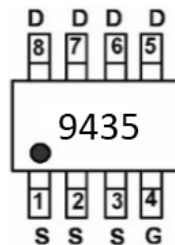
#### Application

- PWM Applications
- Load Switch
- Power Management

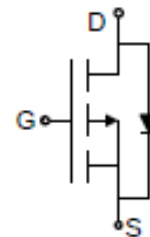
#### Package



SOP-8



Marking and pin Assignment



Schematic diagram

### Absolute Maximum Ratings ( $T_C = 25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units	
$V_{DSS}$	Drain-Source Voltage	-30	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current	$T_C = 25^\circ C$	-5.1	A
		$T_C = 100^\circ C$	-3.2	A
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	-20	A	
$P_D$	Power Dissipation	$T_A = 25^\circ C$	2.5	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	50	$^\circ C/W$	
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ C$	



## Electrical Characteristics (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> = -250μA	-30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V,	-	-	-1	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1	-1.5	-2.5	V
R <sub>DSON</sub>	Static Drain-Source on-Resistance <small>note2</small>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-5.1A	-	40	55	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4.2A	-	57	85	
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> = -5.1A	4	-	-	S
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz	-	980	-	pF
C <sub>oss</sub>	Output Capacitance		-	390	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	135	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = -15V, I <sub>D</sub> = -5.1A, V <sub>GS</sub> = -10V	-	11	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	2.0	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	2.8	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1A, V <sub>GS</sub> =-10V, R <sub>GEN</sub> =6Ω	-	14	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	12	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	56	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	20	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	-5.1	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-20	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = -5.1A	-	-	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

## Typical Performance Characteristics

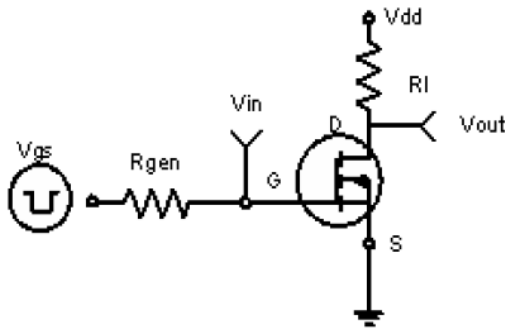


Figure 1: Switching Test Circuit

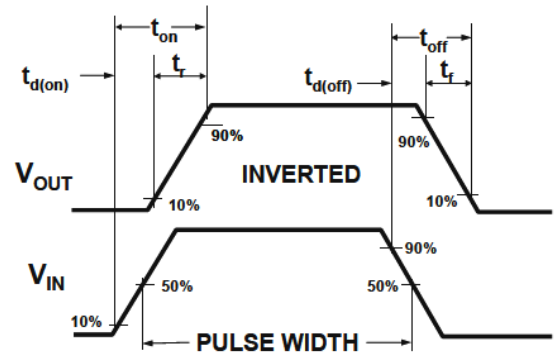


Figure 2: Switching Waveforms

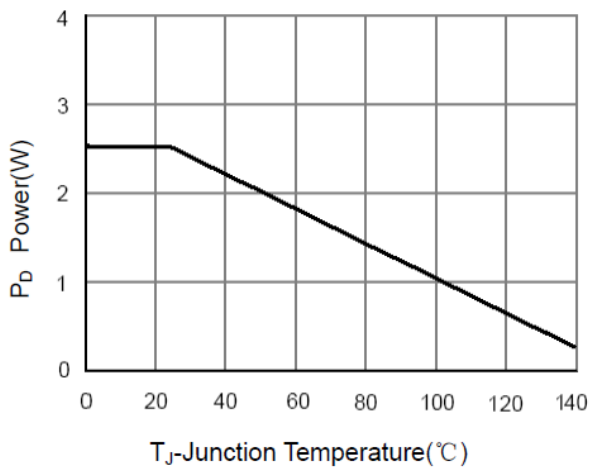


Figure 3 Power Dissipation

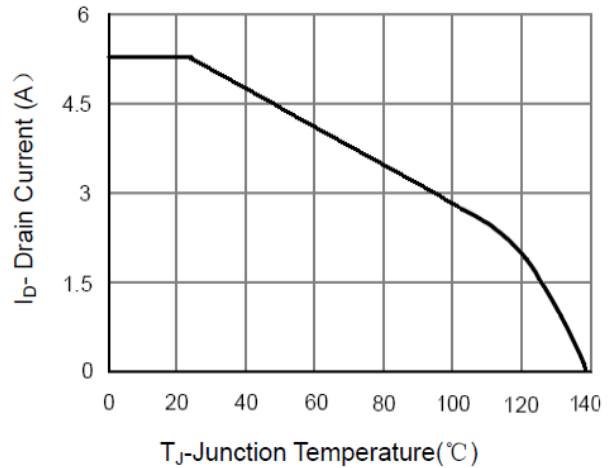


Figure 4 Drain Current

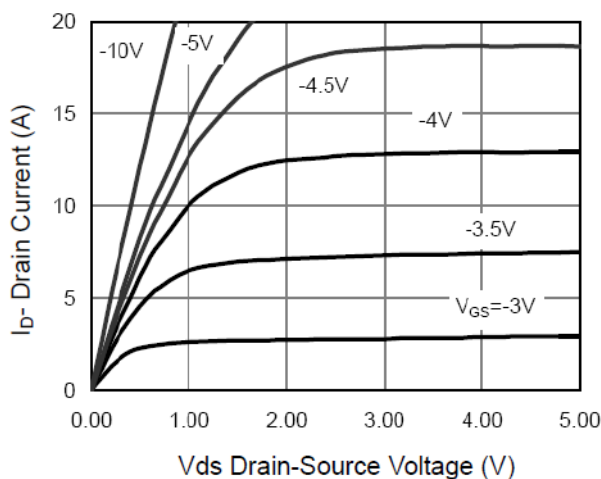


Figure 5 Output Characteristics

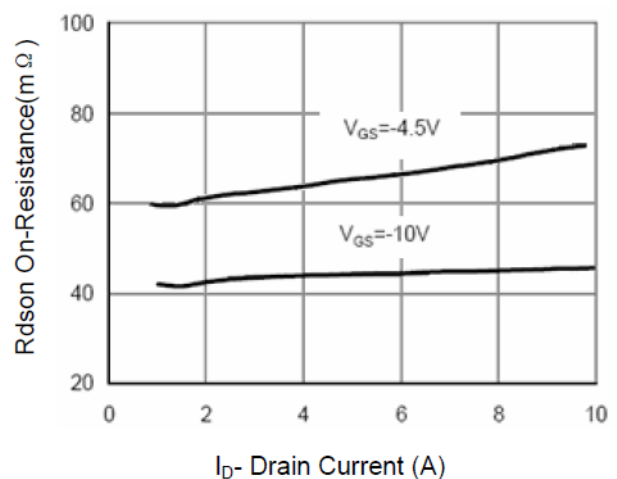


Figure 6 Drain-Source On-Resistance

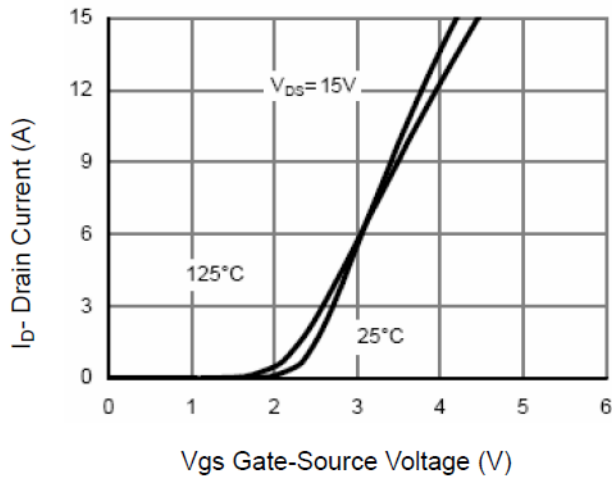


Figure 7 Transfer Characteristics

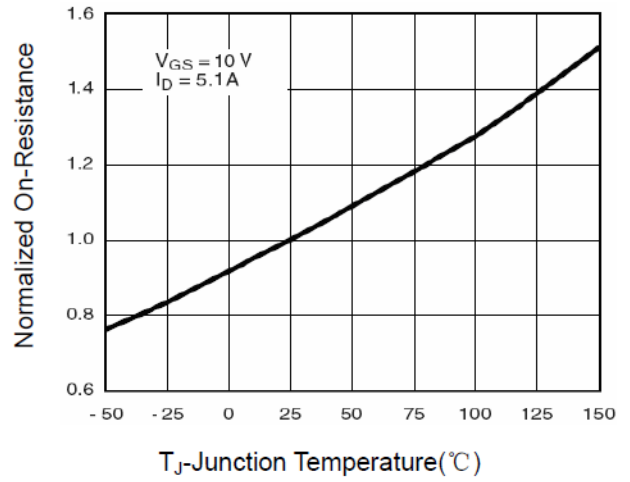


Figure 8 Drain-Source On-Resistance

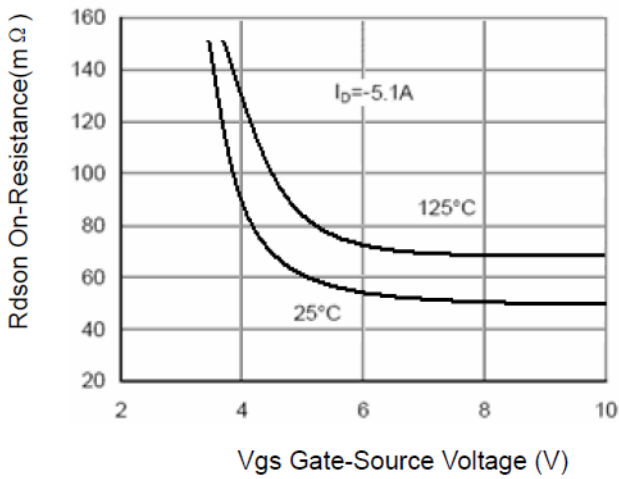


Figure 9 Rdson vs Vgs

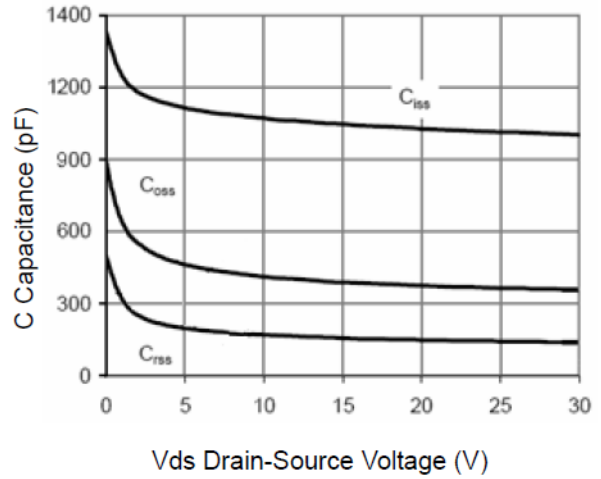


Figure 10 Capacitance vs Vds

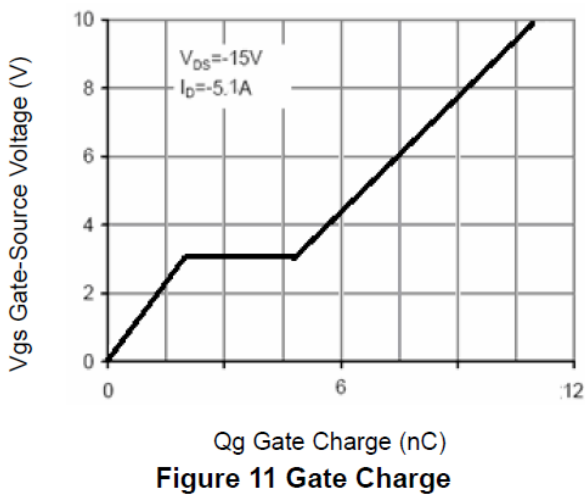


Figure 11 Gate Charge

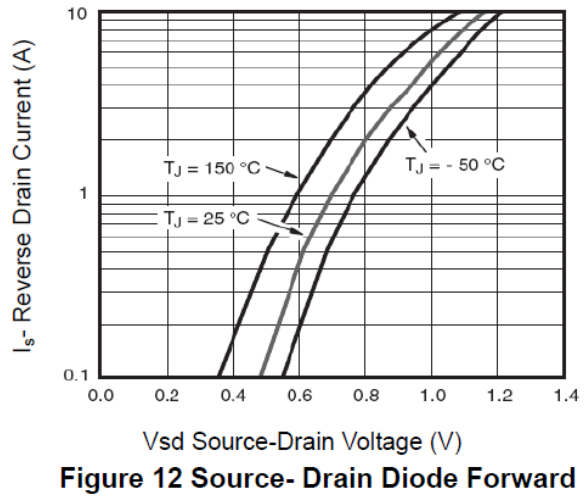
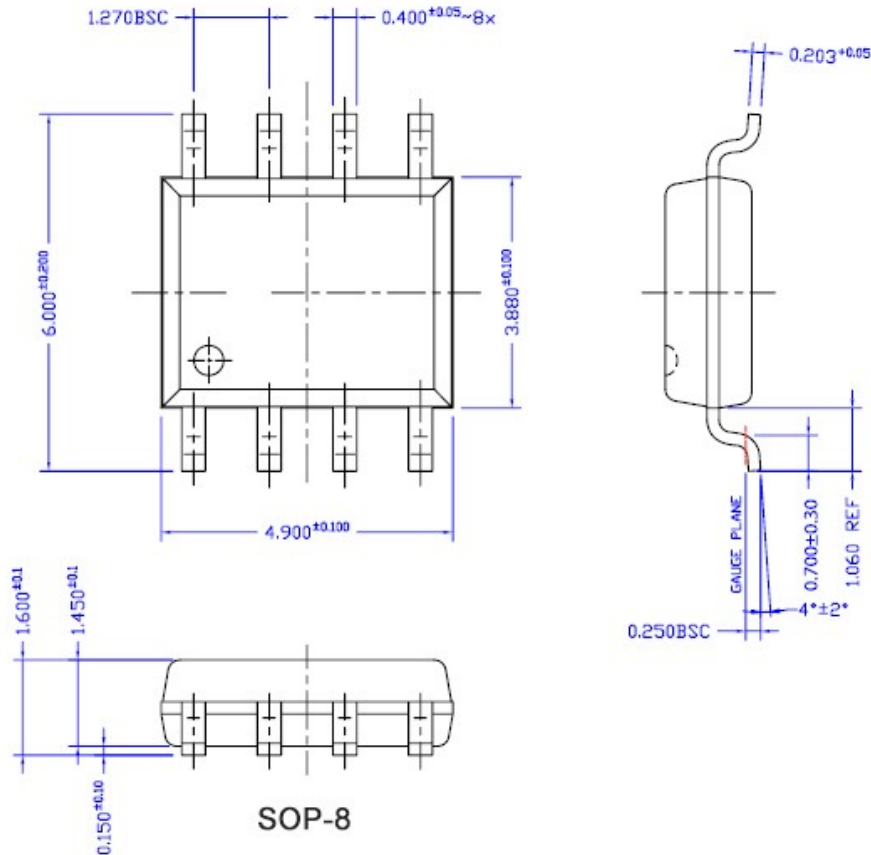


Figure 12 Source-Drain Diode Forward



## Package Mechanical Data



## Ordering Information

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE&REEL
SOP-8	TAPING	4,000	48,000	13 inch

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