

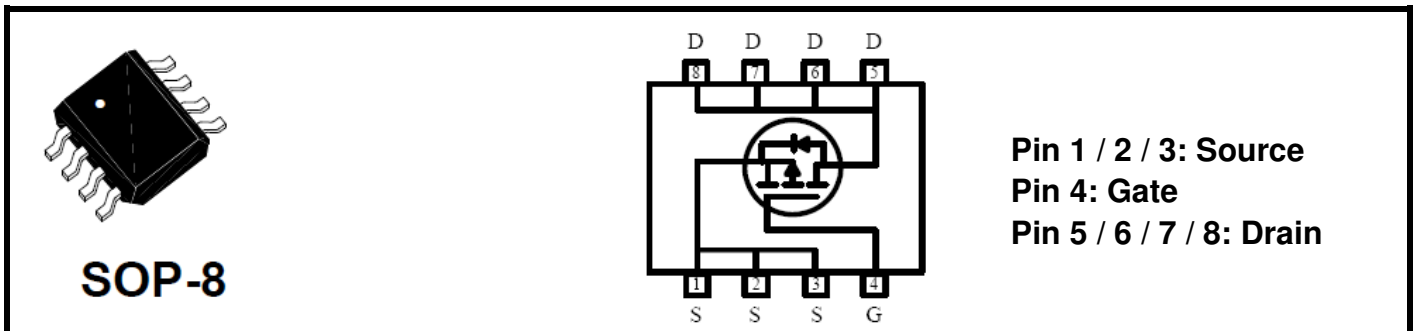
P-Channel Enhancement-Mode MOSFET (-30V, -9.1A)

PRODUCT SUMMARY




V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
-30V	-9.1A	20 @ V _{GS} = -10V, I _D = -9.1A
		35 @ V _{GS} = -4.5V, I _D = -6.9A

◆ Features

- 1、 Advanced Trench Process Technology.
- 2、 High Density Cell Design for Ultra Low On-Resistance.
- 3、 Lead free product is acquired.
- 4、 Surface mount Package.
- 5、 RoHS Compliant.



◆ Ordering Information

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		4	1/2/3	5/6/7/8	
SM4435PRL	SM4435PRG	SOP-8	G	S	D	Tape Reel
<p>SM4435X X X</p> <p>(1) Package Type </p> <p>(2) Packing Type </p> <p>(3) Lead Free </p>			<p>(1) P: SOP-8</p> <p>(2) R: Tape Reel</p> <p>(3) G: Halogen Free; L: Lead Free</p>			



◆ Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current (Continuous)	-9.1	A
I_{DM}	Drain Current (Pulsed) ^a	-36	A
P_D	Total Power Dissipation @ $T_A=25^{\circ}\text{C}$	2.5	W
I_S	Maximum Diode Forward Current	-2.1	A
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$
R_{qJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	50	$^{\circ}\text{C/W}$

a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

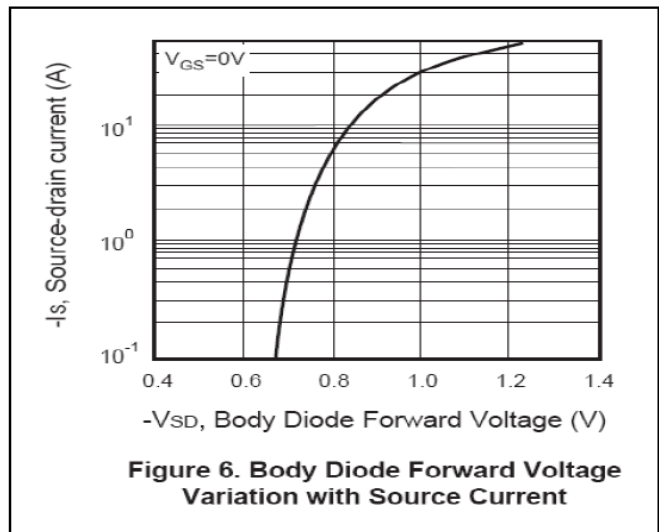
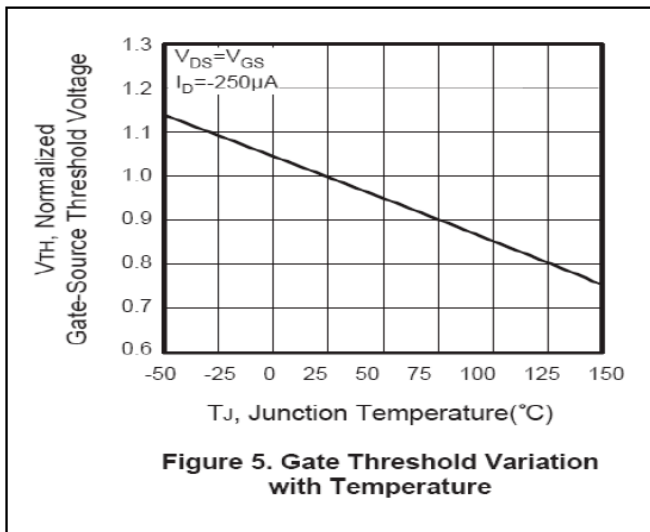
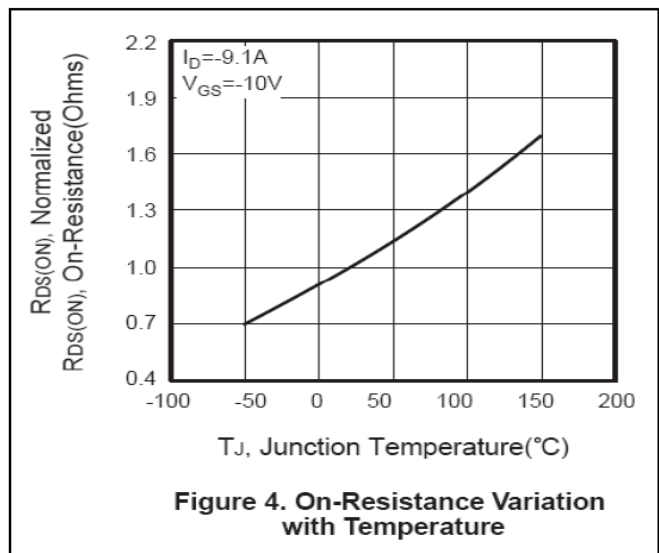
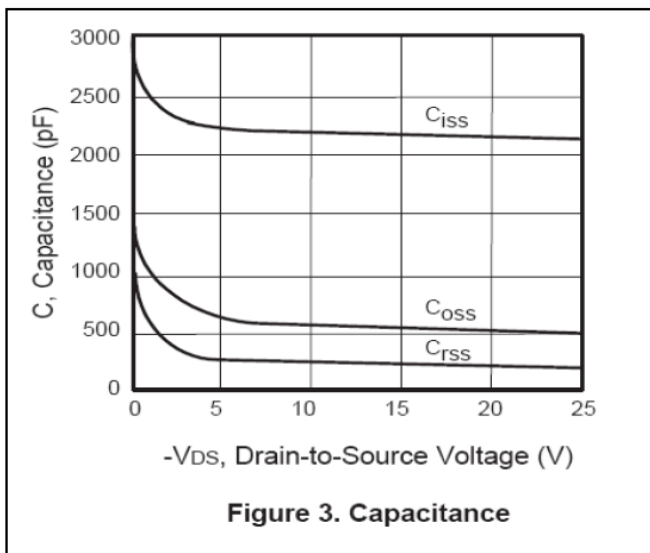
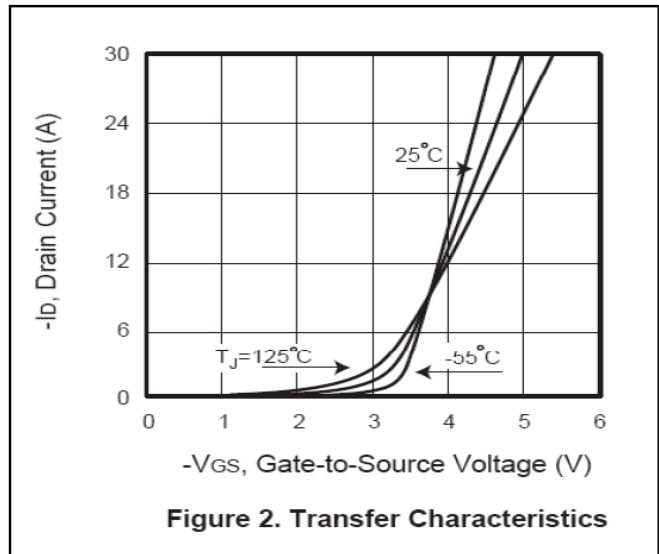
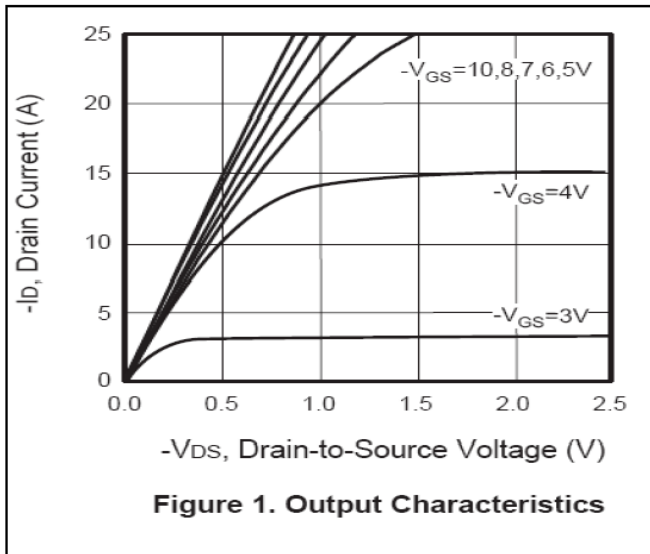
b: 1-in² 2oz Cu PCB board.

◆ Electrical Characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

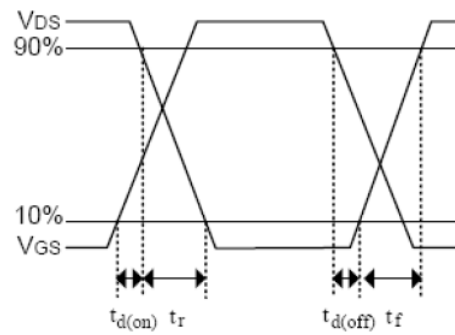
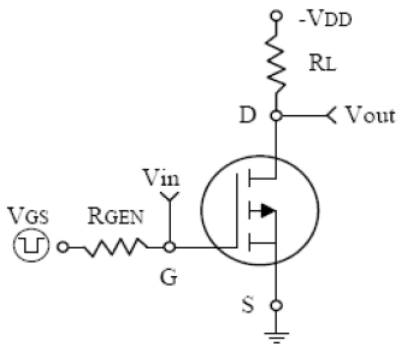
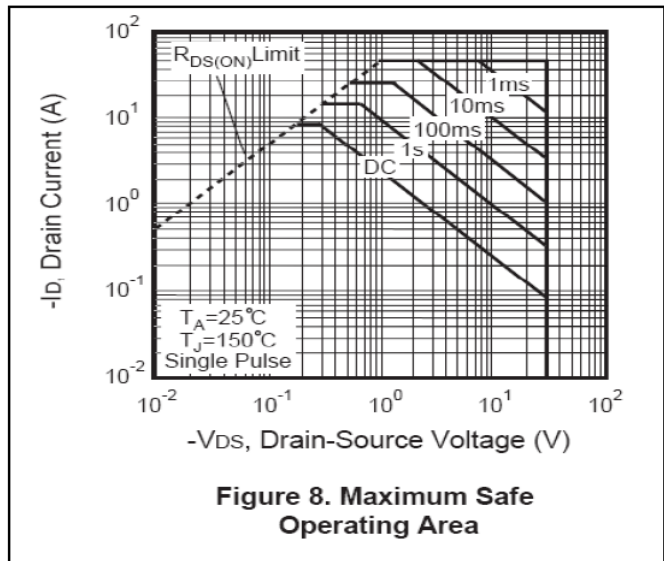
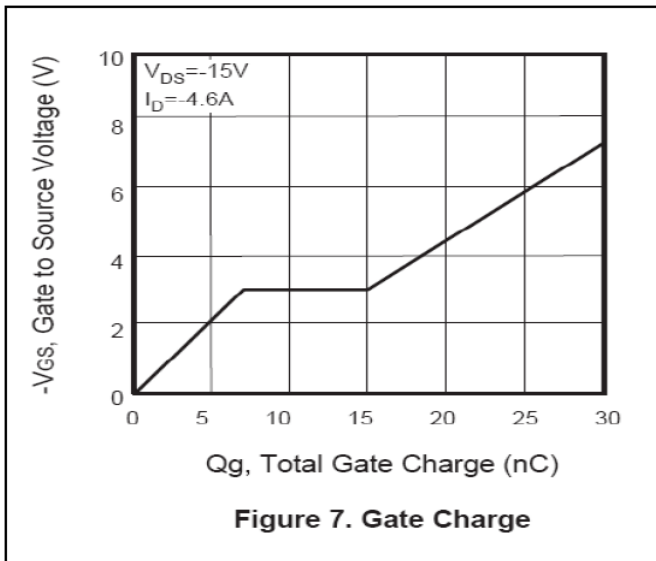
Symbol	Characteristi	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
• On Characteristics^c						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.4	-3	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-9.1A$	-	15	20	m Ω
		$V_{GS}=-4.5V, I_D=-6.9A$	-	20	35	
g_{FS}	Forward Transconductance	$V_{DS}=-10V, I_D=-9.1A$	-	21	-	S
• Dynamic Characteristics^d						
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	-	2253	-	pF
C_{oss}	Output Capacitance		-	555	-	
C_{rSS}	Reverse Transfer Capacitance		-	253	-	
• Switching Characteristics^d						
Q_g	Total Gate Charge	$V_{DS}=-15V, I_D=-9.1A, V_{GS}=-10V$	-	35	45.5	nC
Q_{gs}	Gate-Source Charge		-	5.5	7.15	
Q_{gd}	Gate-Drain Charge		-	8.2	10.66	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=-15V, R_L=15\Omega, I_D=-1A, V_{GEN}=-10V, R_G=6\Omega$	-	10	20	nS
t_r	Turn-on Rise Time		-	15	30	
$t_{d(off)}$	Turn-off Delay Time		-	110	220	
t_f	Turn-off Fall Time		-	70	140	
• Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-2.1A$	-	-	-1.2	V

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

◆ Characteristics Curve



◆ Characteristics Curve



Switching Test Circuit and Switching Waveforms