

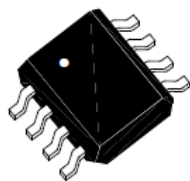
P-Channel Enhancement-Mode MOSFET(-30V, -5.3A)

PRODUCT SUMMARY

V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
-30V	-5.3A	60 @ V _{GS} = -10 V, I _D =-5.3A
		90 @ V _{GS} = -4.5V, I _D =-4.2A

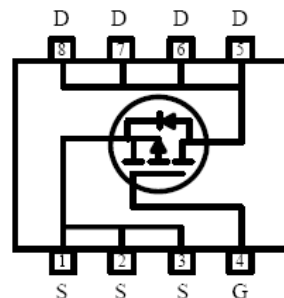
◆ Features

1. Advanced Trench Process Technology.
2. High Density Cell Design for Ultra Low On-Resistance.
3. Fully Characterized Avalanche Voltage and Current.
4. Improved Shoot-Through FOM.
5. RoHS Compliant.



SOP-8

Pin 1 / 2 / 3: Source
 Pin 4: Gate
 Pin 5 / 6 / 7 / 8: Drain



◆ Ordering Information

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		4	1/2/3	5/6/7/8	
SM9435PRL	SM9435PRG	SOP-8	G	S	D	Tape Reel
<p style="text-align: center;">SM9435X 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) ^a	-5.3	A
I_{DM}	Drain Current (Pulsed) ^b	-20	A
P_D	Total Power Dissipation @ $T_A=25^\circ\text{C}$	2.5	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) ^c	62.5	$^\circ\text{C/W}$

a:Fused current that based on wire numbers and diameter

b:Repetitive Rating: Pulse width limited by the maximum junction temperature

c:1-in² 2oz Cu PCB board

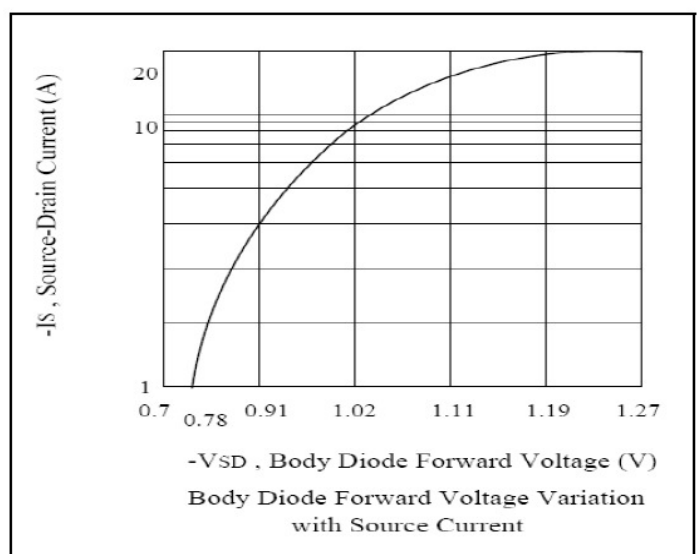
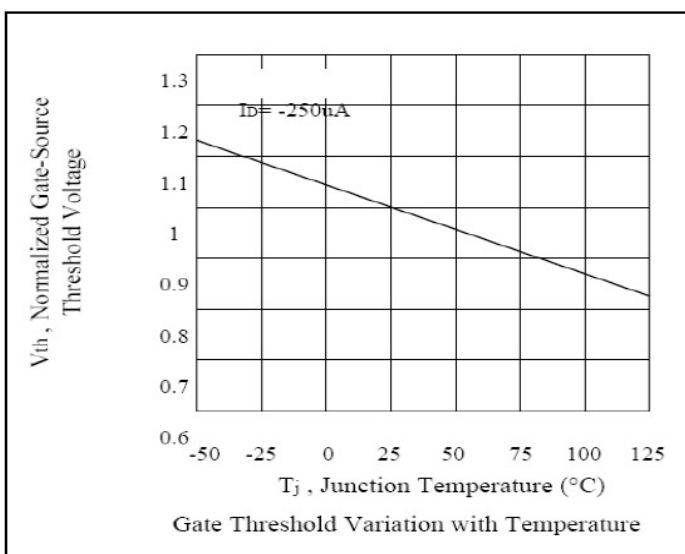
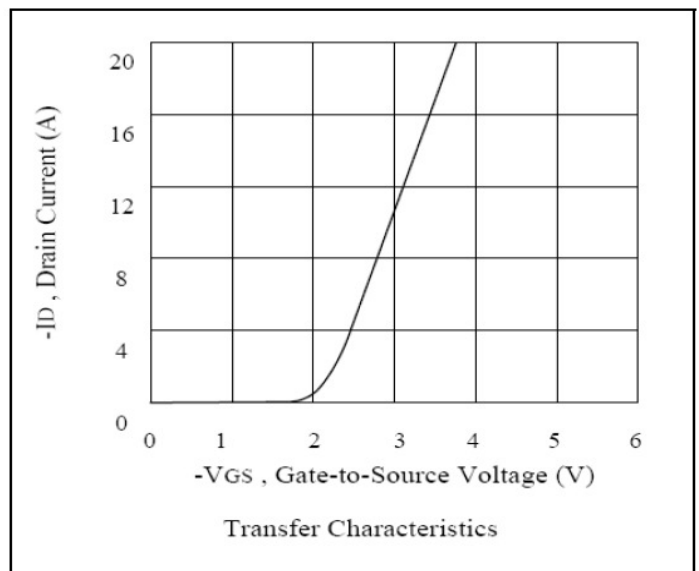
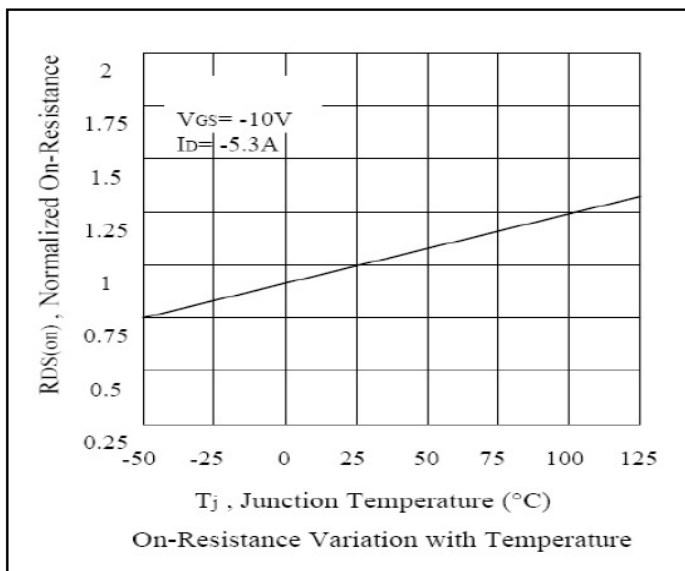
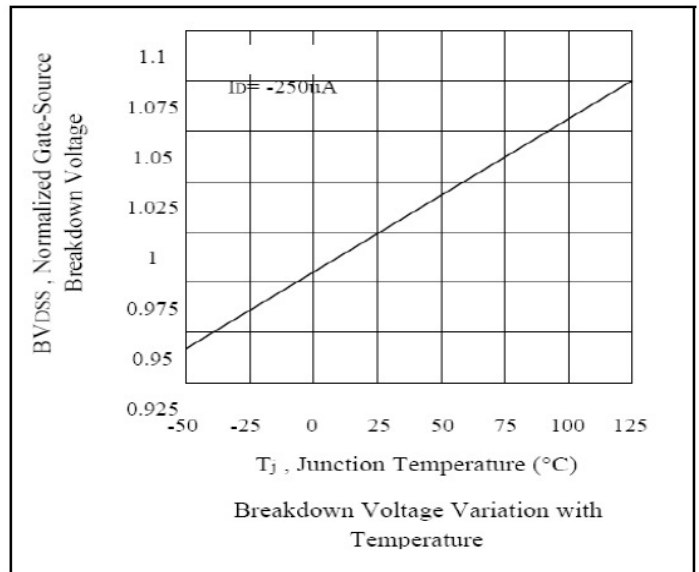
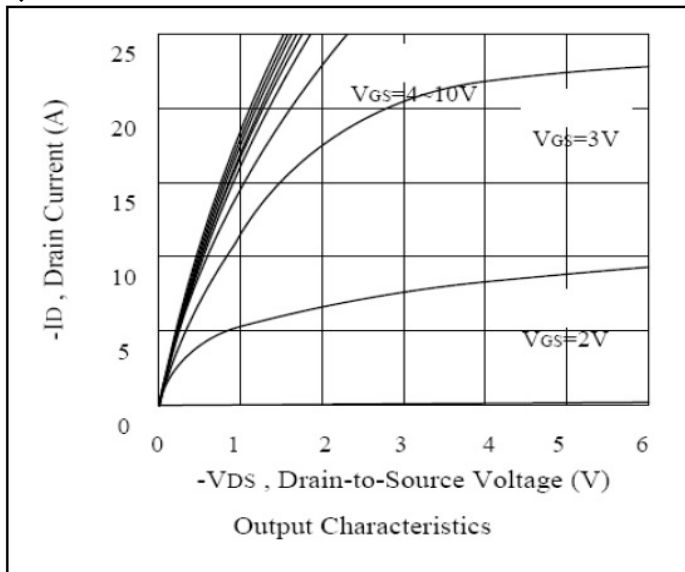
◆ Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu\text{A}$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
• On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-1	-	-3	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=-5.3A$	-	-	60	m Ω
		$V_{GS}=-4.5V, I_D=-4.2A$	-	-	90	
• Dynamic Characteristics^d						
C_{iss}	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	-	971.77	-	pF
C_{oss}	Output Capacitance		-	235.06	-	
C_{rss}	Reverse Transfer Capacitance		-	82.97	-	
• Switching Characteristics^d						
Q_g	Total Gate Charge	$V_{DS}=-15V, I_D=-5.3A, V_{GS}=-10V$	-	18.13	-	nC
Q_{gs}	Gate-Source Charge		-	2.37	-	
Q_{gd}	Gate-Drain Charge		-	3.2	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=-15V, R_L=15\Omega, V_{GEN}=-10V, I_D=-1A, R_G=6\Omega$	-	12.67	-	nS
t_r	Turn-on Rise Time		-	8.67	-	
$t_{d(off)}$	Turn-off Delay Time		-	41.13	-	
t_f	Turn-off Fall Time		-	7	-	
• Drain-Source Diode Characteristics						
I_S	Maximum Diode Forward Current		-	-	-2.6	A
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-2.6A$	-	-	-1.3	V

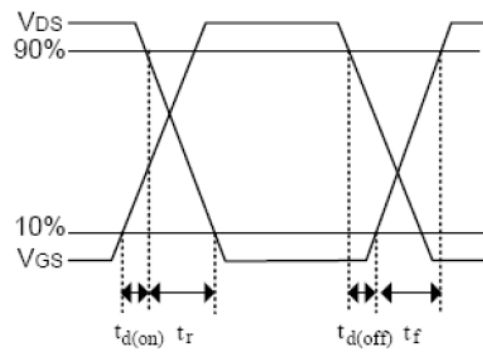
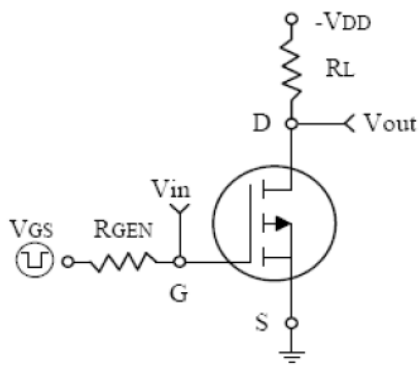
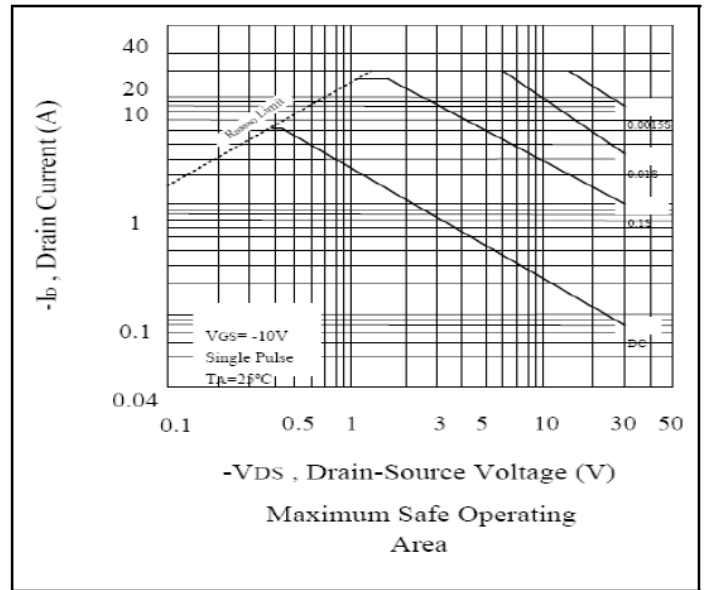
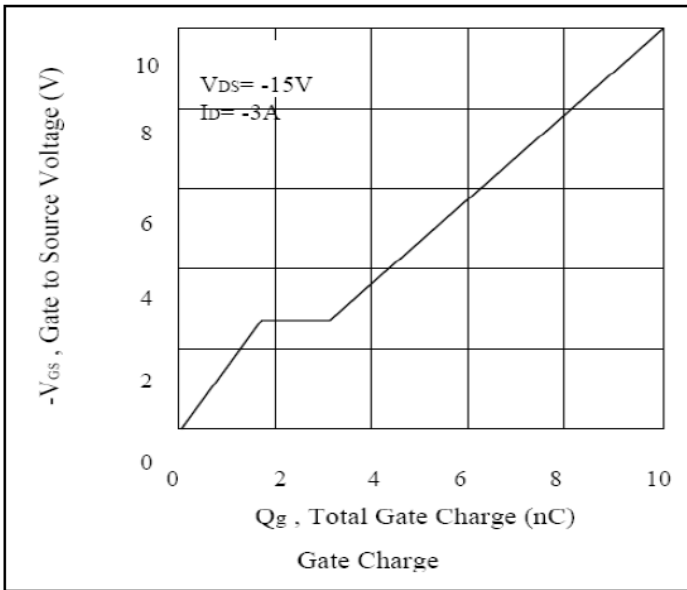
Note: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

d: Guaranteed by design: not subject to production testing

◆ Characteristics Curve



◆ Characteristics Curve



Switching Test Circuit and Switching Waveforms