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

PRODUCT SUMMARY

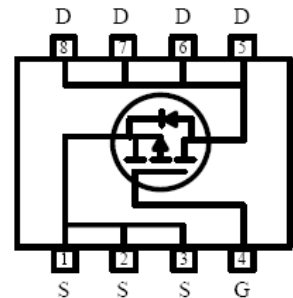| V_{DSS}	I_D	$R_{DS(on)}$ (m-ohm) Max
-30V	-5.3A	60 @ VGS = -10 V, ID=-5.3A
		90 @ VGS = -4.5V, ID=-4.2A

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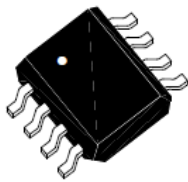
Pin 1 / 2 / 3: Source
Pin 4: Gate
Pin 5 / 6 / 7 / 8: Drain

SOP-8

◆ 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

SM9435X X X

(1)Package Type
(2)Packing Type
(3)Lead Free

(1) P：SOP-8

(2) R：Tape Reel

(3) G：Halogen Free；L：Lead Free

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◆ Absolute Maximum Ratings (T$_A$=25°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 @TA=25°C	2.5	W
T$_j$, T$_{stg}$	Operating Junction and Storage Temperature Range	-55 to +150	°C
R$_{\theta JA}$	Thermal Resistance Junction to Ambient (PCB mounted) [c]	62.5	°C/W

a:Fused current that based on wire numbers and diameter

b:Repetitive Rating: Pulse width limited by the maximum junction temperature
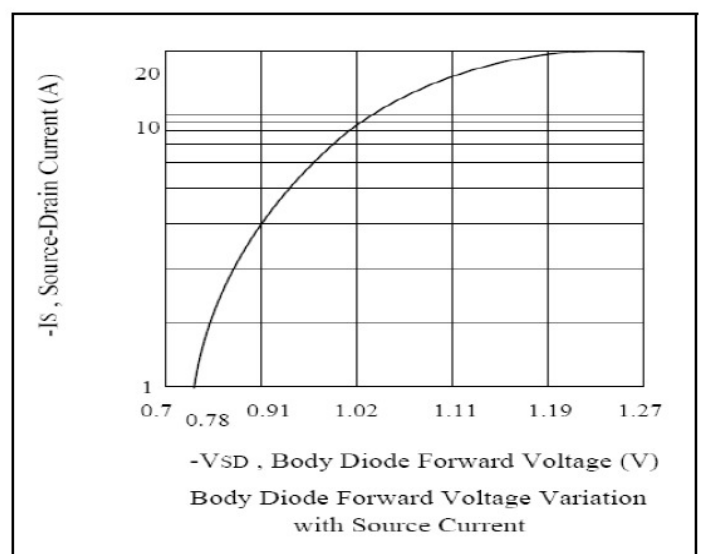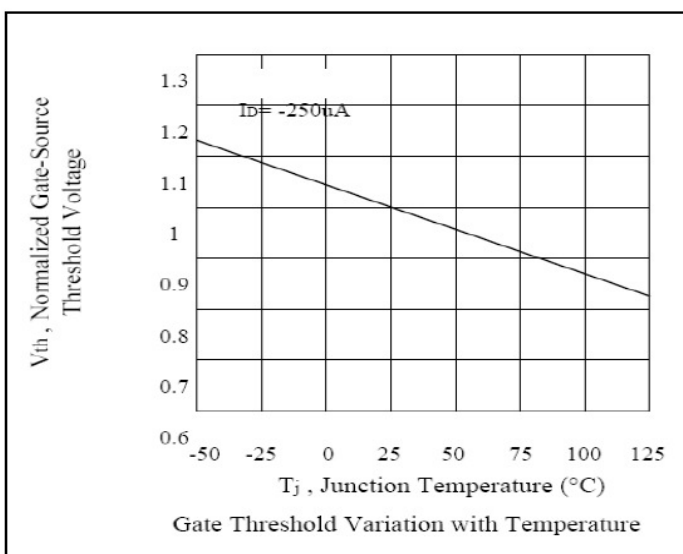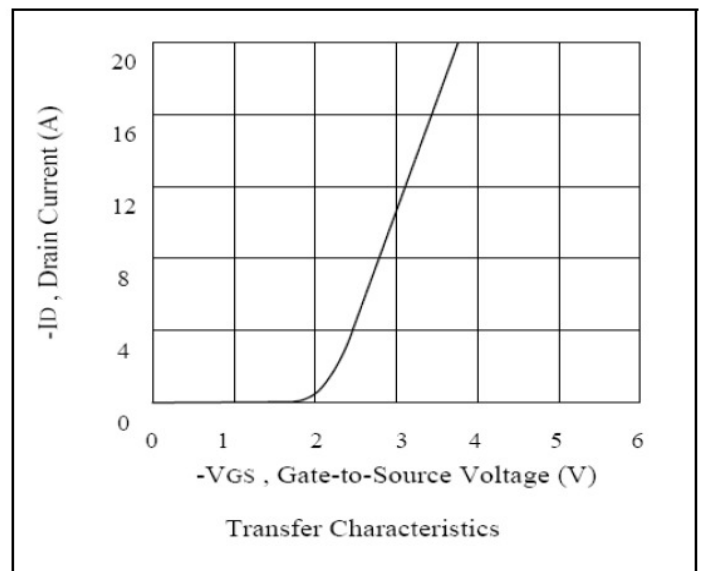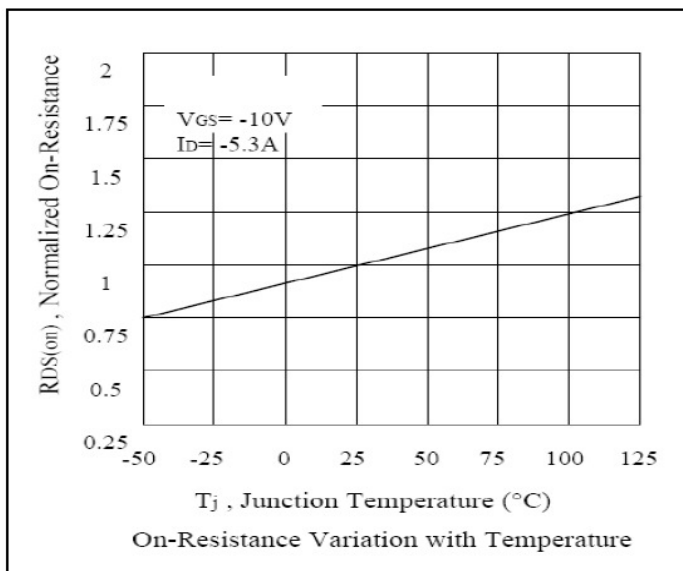
c:1-in^2 2oz Cu PCB board

◆ Electrical Characteristics (T$_A$=25°C, unless otherwise noted)

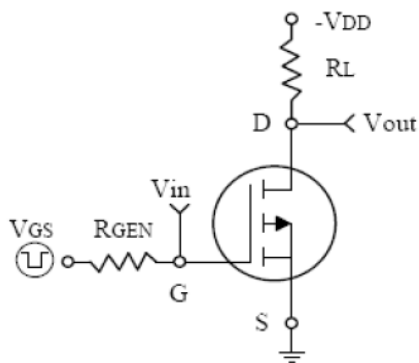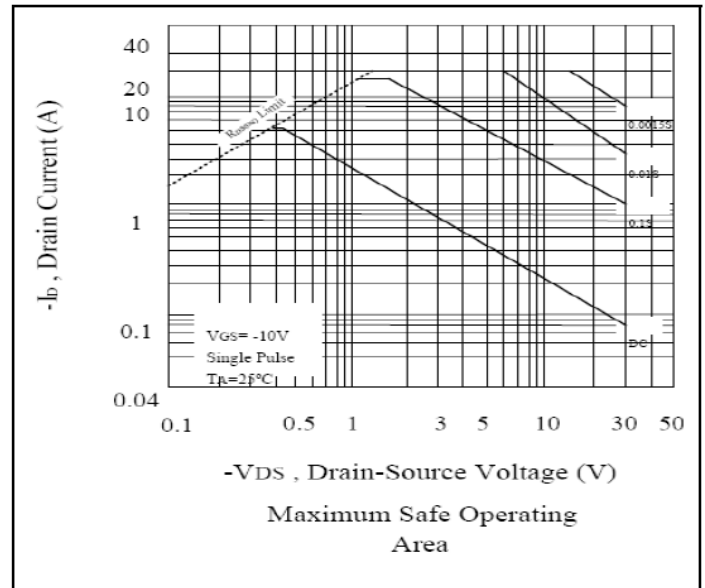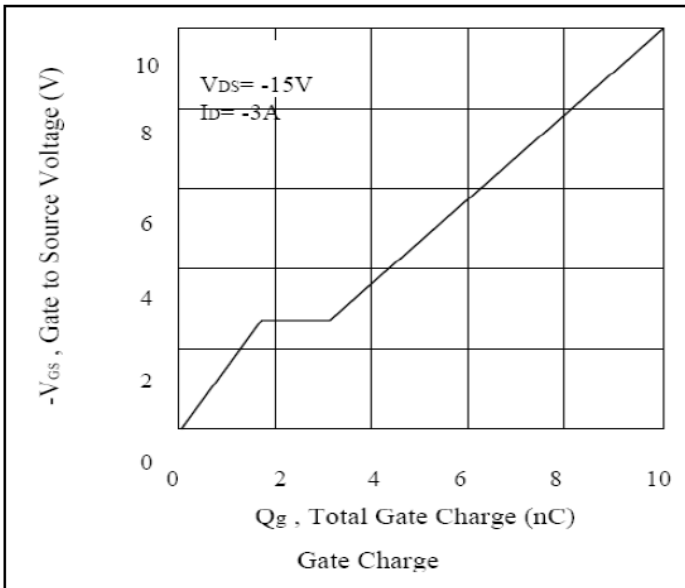| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
● Off Characteristics						
BV$_{DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V, I$_D$=-250uA	-30	-	-	V
I$_{DSS}$	Zero Gate Voltage Drain Current	V$_{DS}$=-24V, V$_{GS}$=0V	-	-	-1	uA
I$_{GSS}$	Gate-Body Leakage Current	V$_{GS}$=±20V, V$_{DS}$=0V	-	-	±100	nA
● On Characteristics						
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$=V$_{GS}$, I$_D$=-250uA	-1	-	-3	V
R$_{DS(on)}$	Drain-Source On-State Resistance	V$_{GS}$=10V, I$_D$=-5.3A	-	-	60	mΩ
		V$_{GS}$=-4.5V, I$_D$=-4.2A	-	-	90	
● Dynamic Characteristics[d]						
C$_{iss}$	Input Capacitance	V$_{DS}$=-15V, V$_{GS}$=0V, f=1MHz	-	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$_L$=15Ω, V$_{GEN}$=-10V, I$_D$=-1A,R$_G$=6Ω	-	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 ≤300us, Duty Cycle≤2%

d: Guaranteed by design: not subject to production testing

◆ Characteristics Curve

Output Characteristics

Breakdown Voltage Variation with Temperature

On-Resistance Variation with Temperature

Transfer Characteristics

Gate Threshold Variation with Temperature

Body Diode Forward Voltage Variation with Source Current

◆ **Characteristics Curve**

Gate Charge

Maximum Safe Operating
Area
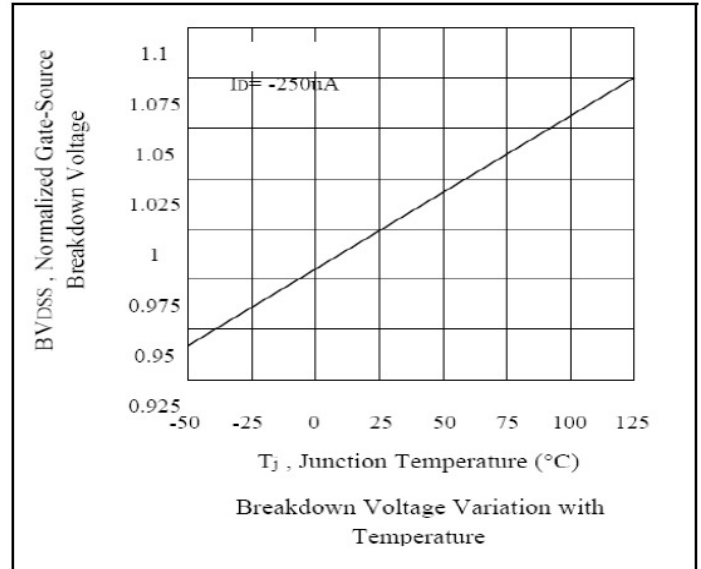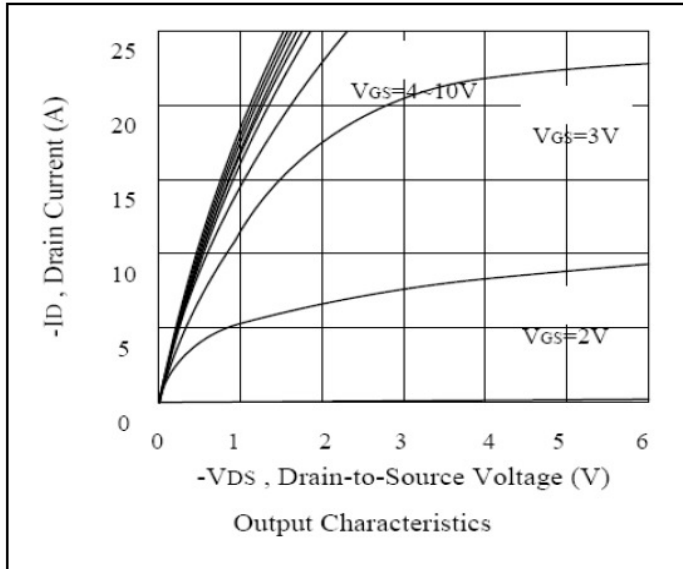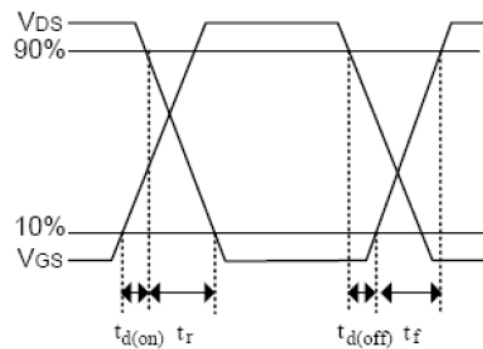
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