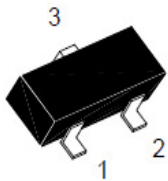


N-Channel High Density Trench MOSFET

◆ Features

1. Advanced Trench Process Technology.
2. High Density Cell Design for Ultra Low On-Resistance.
3. RoHS Compliant.

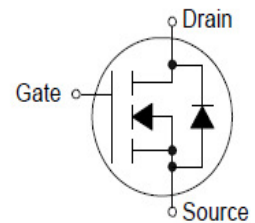
PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
30V	4.0A	37 @ V _{GS} = 10V, I _D =4.0A
		49 @ V _{GS} = 4.5V, I _D =3.5A






SM2306 Pin Assignment & Symbol

3-Lead Plastic SOT-23

Pin 1: Gate 2: Source 3: Drain



◆ Ordering Information

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
SM2306SRL	SM2306SRG	SOT-23	G	S	D	Tape Reel
<p style="text-align: center;">SM2306X X X</p> <p>(1)Package Type </p> <p>(2)Packing Type </p> <p>(3)Lead Free </p>		<p>(1) S: SOT-23;</p> <p>(2) R: Tape Reel</p> <p>(3) G: Halogen Free; L: Lead Free</p>				



◆ 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	4	A
I _{DM}	Drain Current (Pulsed) ^b	20	A
P _D	Total Power Dissipation @T _A =25°C	0.9	W
T _j , T _{stg}	Operating Junction and Storage Temperature Range	-55 to +150	°C
R _{θJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^c	100	°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°C, unless otherwise noted)

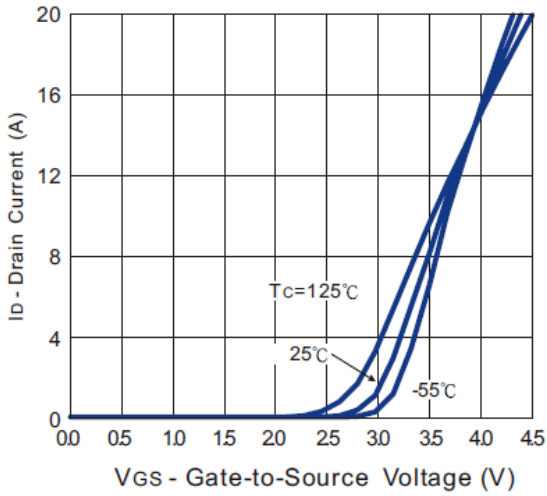
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	-	-	1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
• 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 =4.0A	-	27	37	mΩ
		V _{GS} =4.5V, I _D =3.5A	-	35	49	
• Dynamic Characteristics^d						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	-	240	-	pF
C _{oss}	Output Capacitance		-	110	-	
C _{rss}	Reverse Transfer Capacitance		-	17	-	
• Switching Characteristics^d						
Q _g	Total Gate Charge	V _{DS} =15V, I _D =5.8, V _{GS} =10V	-	4.5	-	nC
Q _{gs}	Gate-Source Charge		-	1.2	-	
Q _{gd}	Gate-Drain Charge		-	1.7	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} =15V, R _G =6Ω, I _D =1A V _{GEN} =10V, R _L =15Ω	-	8	-	nS
t _r	Turn-on Rise Time		-	12	-	
t _{d(off)}	Turn-off Delay Time		-	17	-	
t _f	Turn-off Fall Time		-	8	-	
• Drain-Source Diode Characteristics						
I _S	Maximum Diode Forward Current		-	-	2.5	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =1A	-	0.76	1	V

Note: Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%

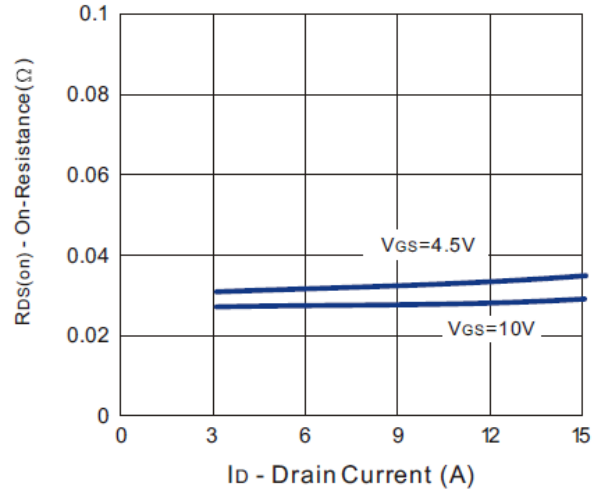
d: Guaranteed by design: not subject to production testing

◆ Characteristics Curve

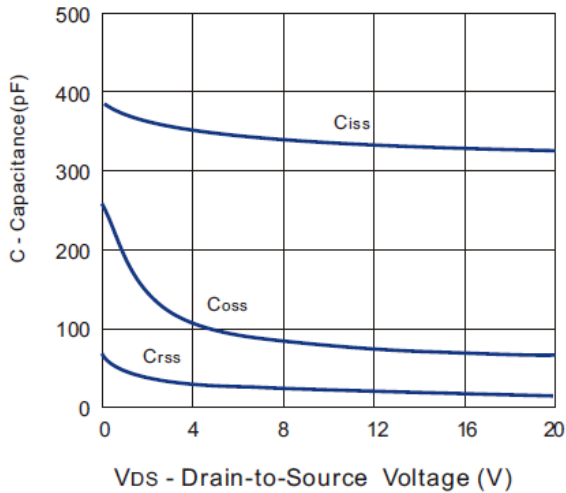
Transfer Characteristics



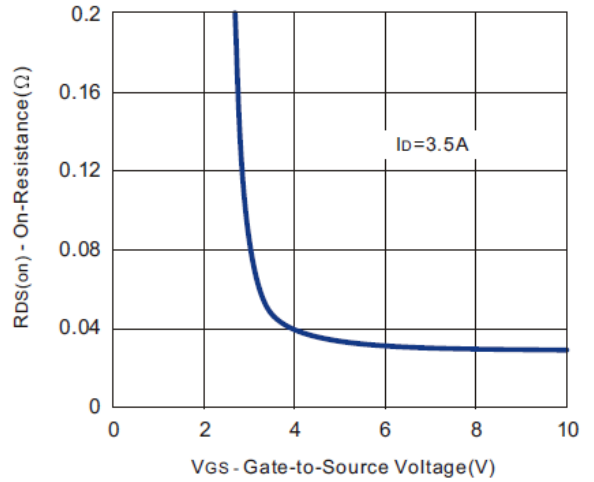
On- Resistance vs. Drain Current



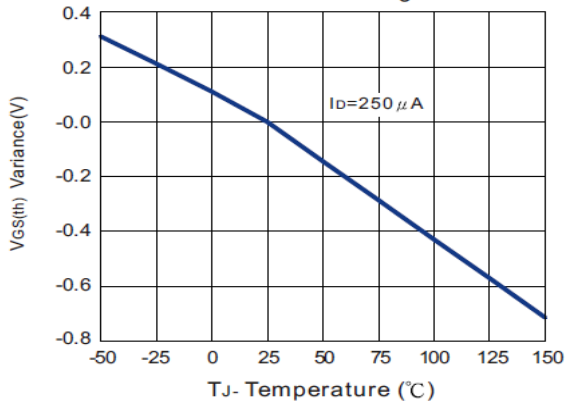
Capacitance



On- Resistance vs. Gate-to-Source Voltage



Threshold Voltage



◆ Characteristics Curve

