

SE2309
P-Channel Enhancement-Mode MOSFET

Revision:A

General Description

SE2309 is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount

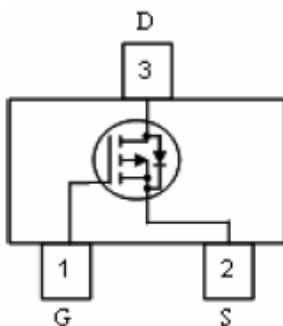
Features

- $V_{DS} = -20V, V_{GS} = 12V, I_D = -2.2A$
- $R_{DS(on)} < 140m\Omega @ V_{GS} = -4.5V, I_D = -1.9A,$
- $R_{DS(on)} = < 200m\Omega @ V_{GS} = -2.5V, I_D = -1A,$

Application

- Load Switch
- A Switch and Battery Switch for Portable Devices

Pin configurations



Absolute Maximum Ratings

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±12	V
Drain Current (Note 1)	Continuous	I _D	-2.2	A
	Pulsed		-10	
Total Power Dissipation	@TA=25°C	PD	120	mW
	@TA=75°C		-	
Operating Junction Temperature Range		T _J	-55 to 150	°C

Electrical Characteristics (T _J =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS (Note 2)						
BVDSS	Drain-Source Breakdown Voltage	ID=-250μA, VGS=0 V	-20	-	-	V
IDSS	Zero Gate Voltage Drain Current	VDS=-20 V, VGS=0 V	-	-	-1	μA
IGSS	Gate-Body leakage current	VDS=0 V, VGS=±8 V	-	-	±100	μA
VGS(th)	Gate Threshold Voltage	VDS=VGS ID=-250μA	-0.45	-0.8	-1.5	V
RDS(O N)	Static Drain-Source On-Resistance ²	VGS=-4.50V, ID=-1.9A	-	110	140	mΩ
		VGS=-2.5V, ID=-1A	-	150	200	
DYNAMIC PARAMETERS						
Ciss	Input Capacitance	VGS=0V, VDS=-6V, f=1MHz	-	350	-	pF
Coss	Output Capacitance		-	80	-	pF
Crss	Reverse Transfer Capacitance		-	35	-	pF
SWITCHING PARAMETERS						
td(on)	Turn-On DelayTime ²	VGS=-4.5V, VDD=-6V, RL=6Ω, RG=6Ω ID=-1A	-	13	25	ns
td(off)	Turn-Off DelayTime		-	42	70	
VSD	Drain-Source Diode Forward Voltage	VGS=0V, IS=-1.6A	-0.5	-	-1.2	V

Typical Characteristics

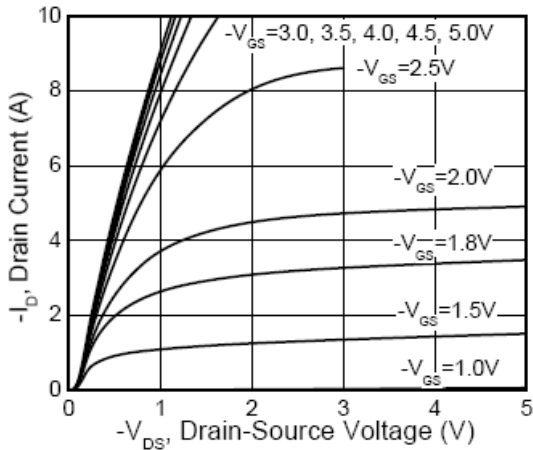


Figure 1. Output Characteristics

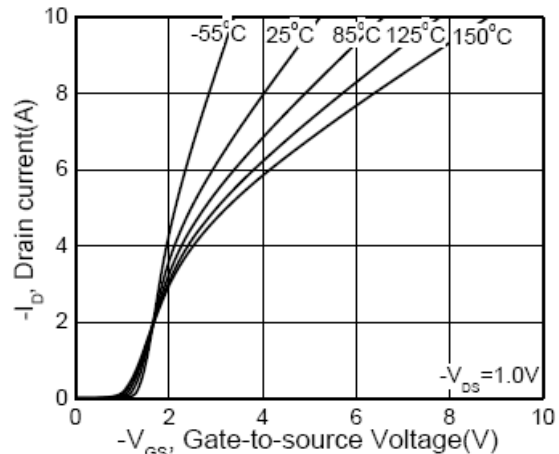


Figure 2. Transfer Characteristics

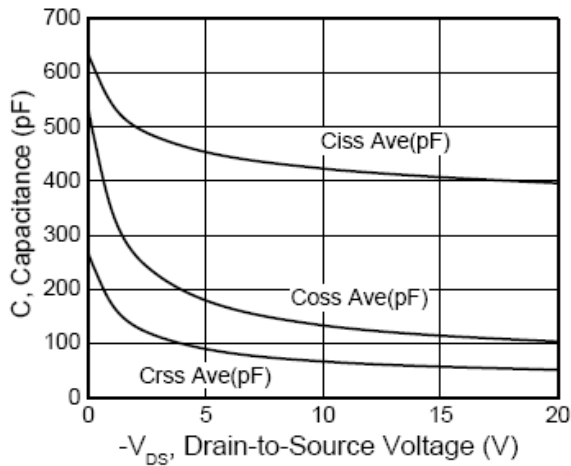


Figure 3. Capacitance

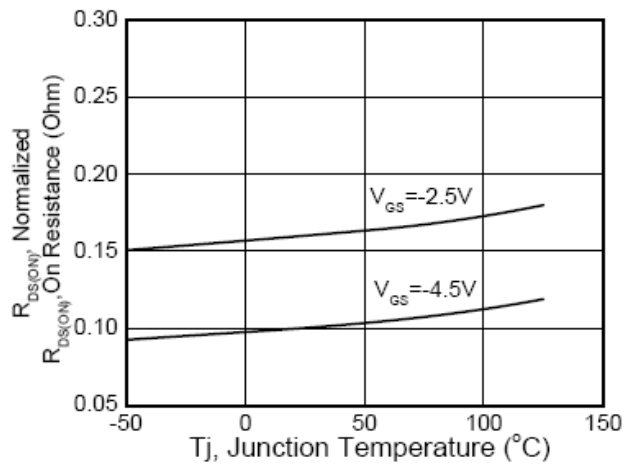


Figure 4. On Resistance Vs. Temperature

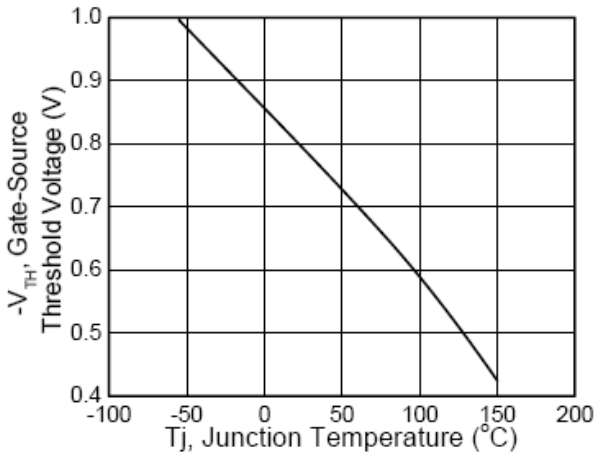


Figure 5. Gate Thershold Vs. Temperature

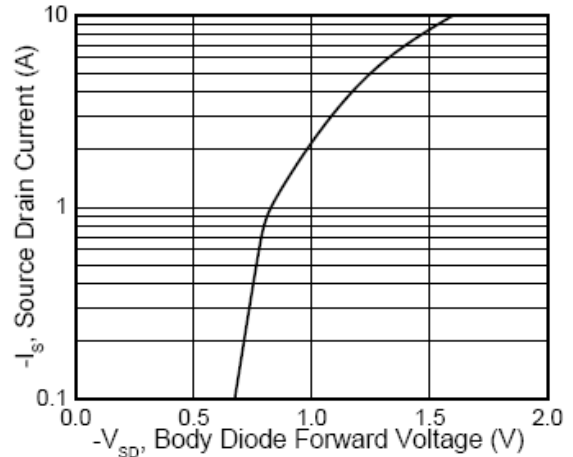
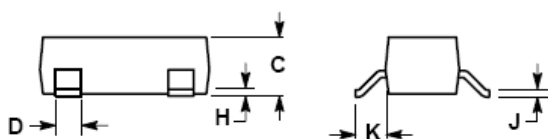
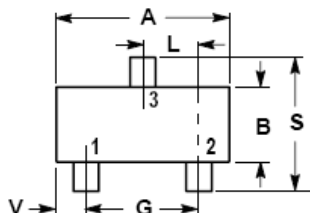


Figure 6. Body Diode Forward Voltage Vs. Source Current

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NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

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