



N-Channel Enhancement Mode MOSFET

● Features

- RDS(ON)=37mΩ @VGS=10V
- RDS(ON)=49mΩ@VGS=4.5V
- RDS(ON)=52mΩ@VGS=2.5V
- Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability

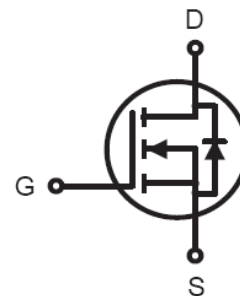
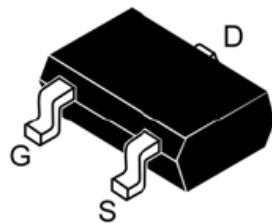
● General Description

The FS2306A is the N-Channel logic enhancement mode power field effect transistors, using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

● Pin Configurations



SOT23

● Absolute Maximum Ratings @TA=25°C unless otherwise noted

Parameter	Symbol	5 secs	Steady State	Units	
Drain-Source Voltage	V _{DS}	30		V	
Gate-Source Voltage	V _{GS}	±12		V	
Continuous Drain Current (t _J =150) ^{a,b}	I _D	T _A =25°C	4.0	3.16	A
		T _A =70°C	3.5	2.7	
Pulsed Drain Current	I _{DM}	20		A	
Continuous Source Current (Diode Conduction) ^{a,b}	I _S	1.04	0.62	A	
Power Dissipation ^{a,b}	P _D	T _A =25°C	1.25	0.75	W
		T _A =70°C	0.8	0.48	
Operating Junction Temperature	T _J	-55 to 150		°C	



● Thermal Resistance Ratings

Parameter		Symbol	Limits		Units
			Typ	Max	
Maximum Junction-to-Ambienta	T 5sec	R _{thJA}	80	100	°C/W
	Steady-State		130	166	
Maximum Junction-to-Foot(Drain)	Steady-State	R _{thJF}	60	75	°C/W

Notes

- a. Surface Mounted on FR4 Board, t ≤ 5 se c .
- b. Pulse width limited by maximum junction temperature.

● Electrical Characteristics @T_A=25°C unless otherwise noted

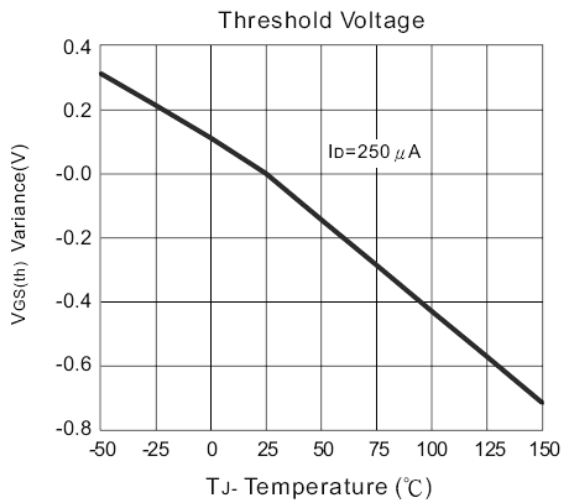
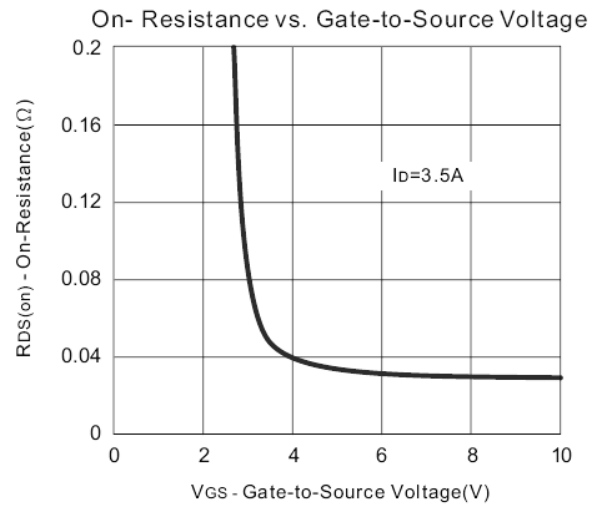
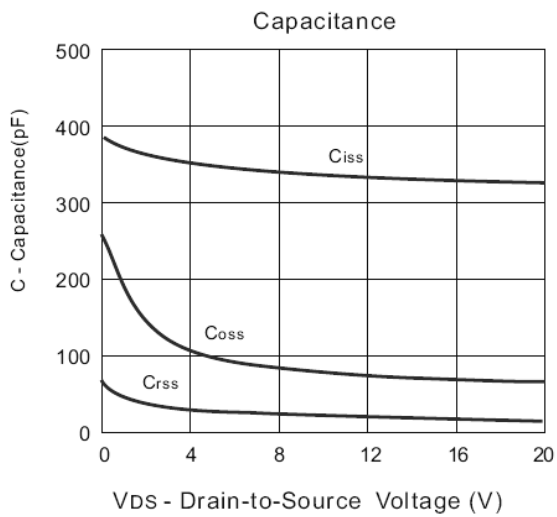
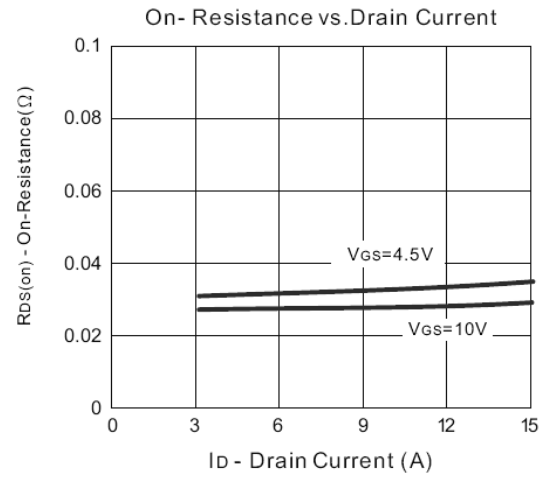
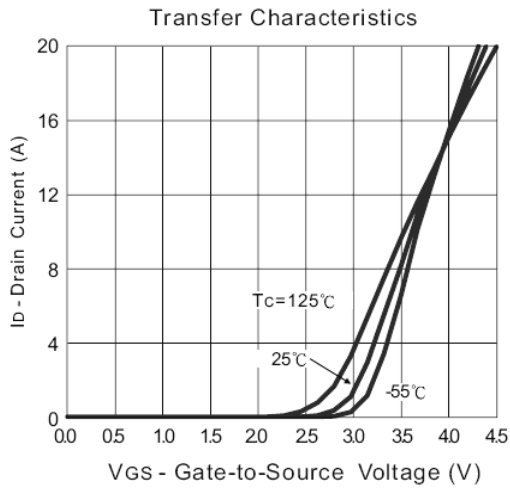
Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10 A	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D =250 A	0.7		1.4	
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} = 20V			100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} = 0V			0.5	A
		V _{DS} = 30V, V _{GS} = 0V T =55J			10	
I _{D(ON)}	On-Stae Drain Current ^a	V _{DS} 4.5V, V _{GS} = 10V	6			A
R _{DS(ON)}	Drain-Source On-Resistance ^a	V _{GS} = 10V, I _D = 4.0A		28	37	mΩ
		V _{GS} = 4.5V, I _D = 3.5A		36	49	
		V _{GS} = 2.5V, I _D = 2.8A		38	55	
V _{SD}	Diode Forward Voltage	I _S = 1.25A, V _{GS} = 0V		0.8	1.2	V
DYNAMIC PARAMETERS						
Q _g	Total Gate Charge	V _{DS} = 15V, V _{GS} = 10V, I _D = 2.5A		10.6	15	nC
Q _{gs}	Gate Source Charge			3.2		
Q _{gd}	Gate-Drain Charge			1		
R _g	Gate Resistance	f= 1.0MHz		0.72		Ω
t _{d(on)}	Turn-On Time	V _{DD} = 15V, R _L = 15Ω I _D = 1A, V _{GEN} = 10V R _G = 6Ω		7.4	15	nS
t _r				13.2	20	
t _{d(off)}	Turn-Off Time			21.6	31	
t _f				3.5	9	

Notes

- a. Pulse test: PW ≤ 300μs duty cycle ≤ 2%.

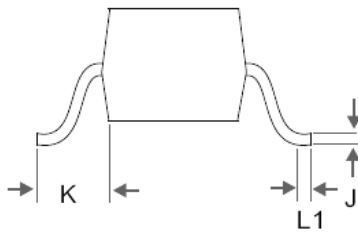
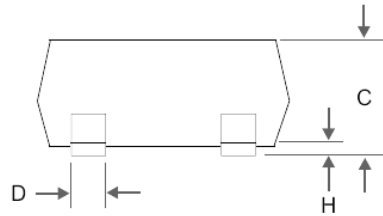
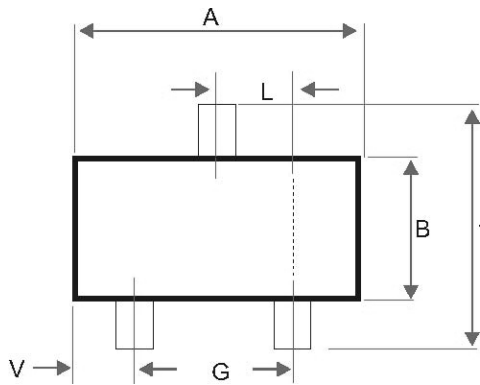


● **Typical Performance Characteristics** (T_J =25 Noted)





● Package Information



DIM	MILLIMETERS	
	MIN	MAX
A	2.80	3.1
B	1.20	1.7
C	0.89	1.3
D	0.37	0.50
G	1.78	2.04
H	0.013	0.15
J	0.085	0.2
K	0.45	0.7
L	0.89	1.02
S	2.10	3
V	0.45	0.60
L1	0.2	0.6