Features

- Rugged and Reliable
- Lead Free Product is Acquired
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request by Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

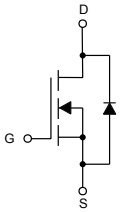
N-Channel Enhancement Mode Field Effect Transistor

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Drain Current-Continuous	I_D	3.0	A
Drain Current-Pulsed(Note1)	I_{DM}	10	A
Power Dissipation	P_D	1.25	W

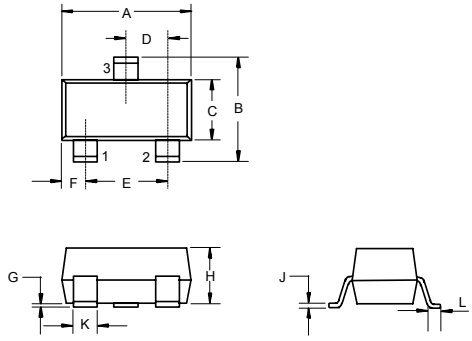
Internal Structure



1. GATE
2. SOURCE
3. DRAIN

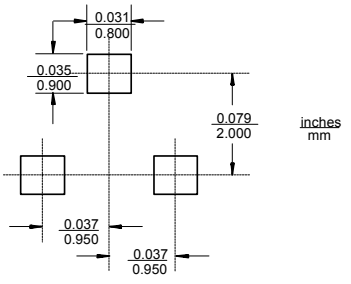
Marking: S2

SOT-23



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=10μA	20			V
Gate-Threshold Voltage(Note3)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=50μA	0.65		1.2	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 8V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Drain-Source On-Resistance(Note3)	$R_{DS(on)}$	V_{GS}=4.5V, I_D=3.6A		55	72	mΩ
		V_{GS}=2.5V, I_D=3.1A		82	110	
Forward Transconductance(Note3)	g_{FS}	V_{DS}=5V, I_D=3.6A		8.5		S
Dynamic Characteristics(Note4)						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V, f=1MHz		237		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			45		
Switching Characteristics(Note4)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V, V_{GS}=4.5V, I_D=3.6A, R_{GEN}=6Ω		23	45	ns
Turn-On Rise Time	t_r			11	30	
Turn-Off Delay Time	$t_{d(off)}$			34	70	
Turn-Off Fall Time	t_f			36	70	
Total Gate Charge	Q_g	V_{DS}=10V, V_{GS}=4.5V, I_D=3.6A		6	10	nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			1.8		
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage(Note3)	V_{SD}	V_{GS}=0V, I_S=0.94A			1.2	V
Drain-Source Diode Forward Current(Note2)	I_S				0.94	A

Notes:
1.Repetitive Rating : Pulse Width limited By Maximum Junction Temperature.
2.Surface Mounted on FR4 Board, t < 10 sec.
3.Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%.
4.Guaranteed By Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

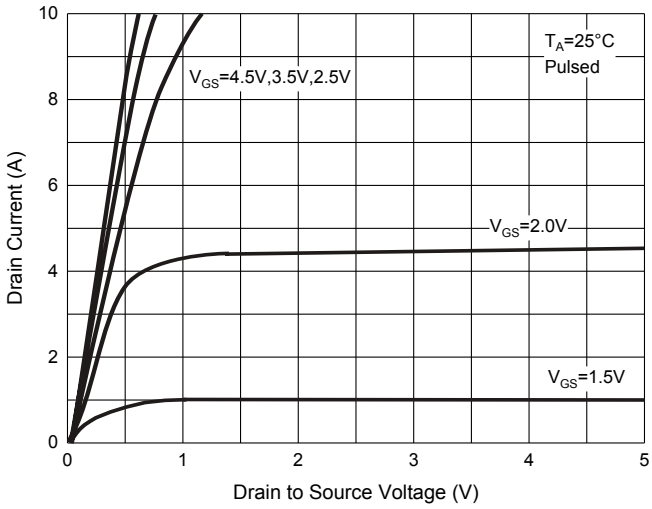


Fig. 2 - Transfer Characteristics

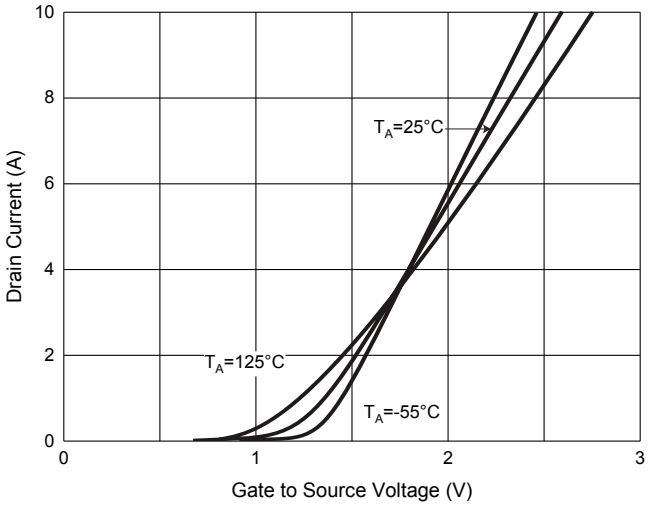


Fig. 3 - Capacitance Characteristics

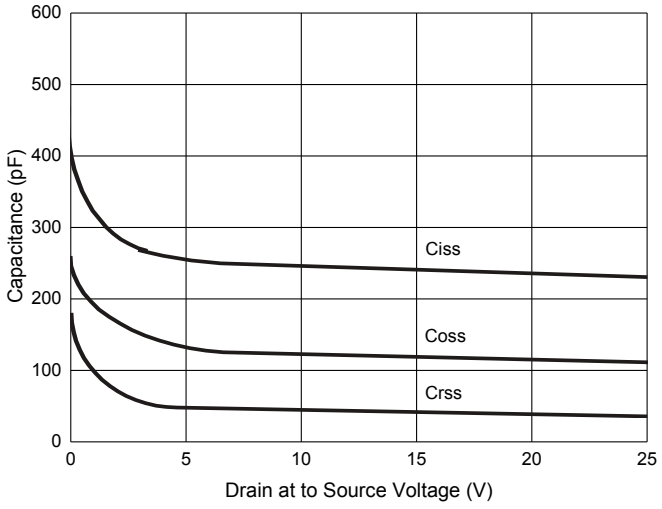


Fig. 4 - $R_{DS(ON)}$—Temperature

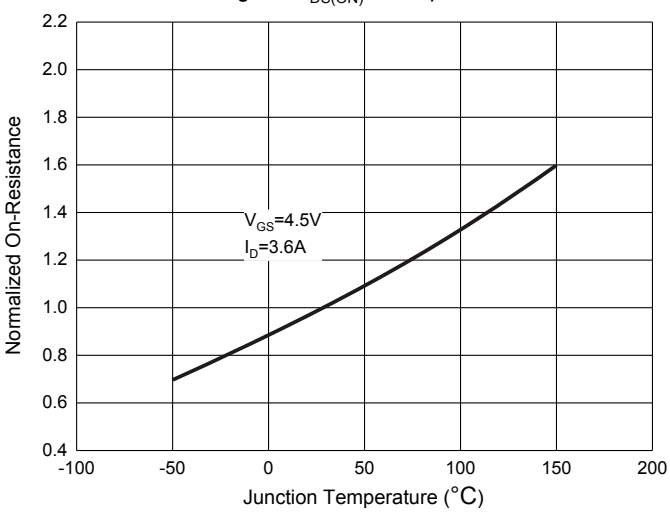


Fig. 5 - Threshold Voltage

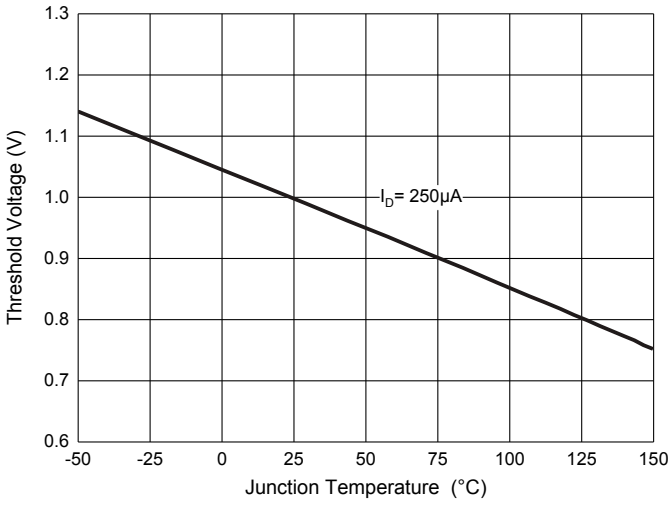
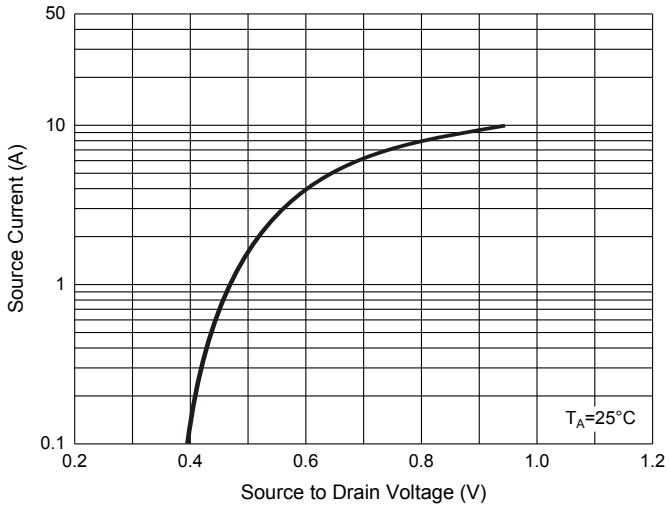


Fig. 6 - I_S—V_{SD}



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

Mouser Electronics

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