

Features

- High Dense Cell Design For Extremely Low $R_{DS(ON)}$
- Rugged and reliable
- High Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 3
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

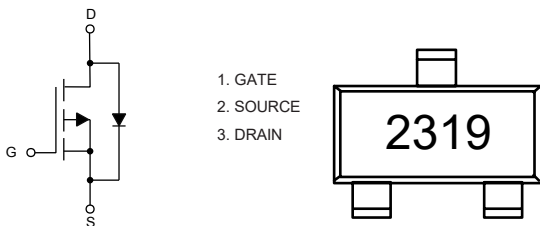
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 100°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-40	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-3.5	A
Drain Current-Pulse (Note 3)	I_{DM}	-12	A
Power Dissipation	P_D	1.25	W

Note:

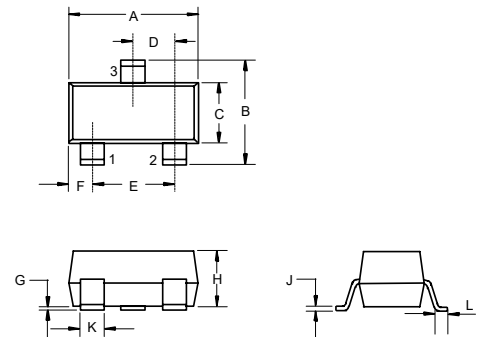
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on FR4 Board, $t < 5$ sec.
3. Repetitive Rating : Pulse width limited by maximum junction temperature.

Internal Structure and Marking Code



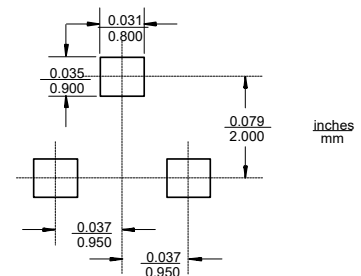
P-Channel MOSFET

SOT-23



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°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-40V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.7	-2.5	V
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-3A$		70	85	m Ω
		$V_{GS}=-4.5V, I_D=-2.5A$		90	105	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-3A$		-0.87	-1.3	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$		548		pF
Output Capacitance	C_{oss}			53		
Reverse Transfer Capacitance	C_{rss}			46		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-2A$		13.1		nC
Gate-Source Charge	Q_{gs}			2.76		
Gate-Drain Charge	Q_{gd}			2.5		
Reverse Recovery Charge	Q_{rr}	$I_F=-2A, di/dt=100A/\mu s$		6.5		
Reverse Recovery Time	t_{rr}			12		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=-20V, I_D=-1A, R_g=6\Omega$		5.2		ns
Turn-On Rise Time	t_r			17.8		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	t_f			28		

Note:

4.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

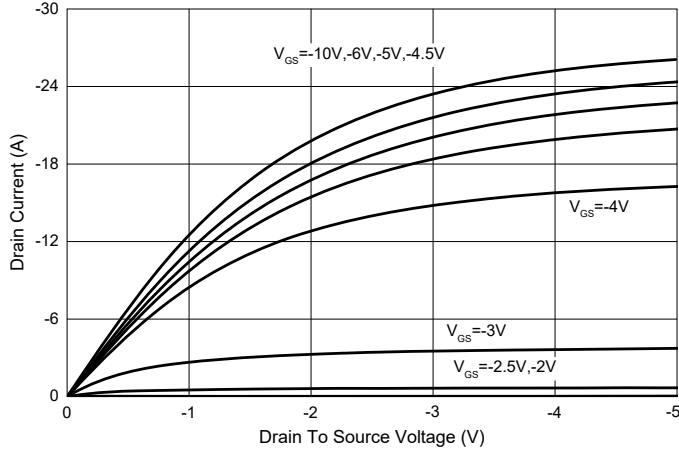


Fig. 2 - Transfer Characteristics

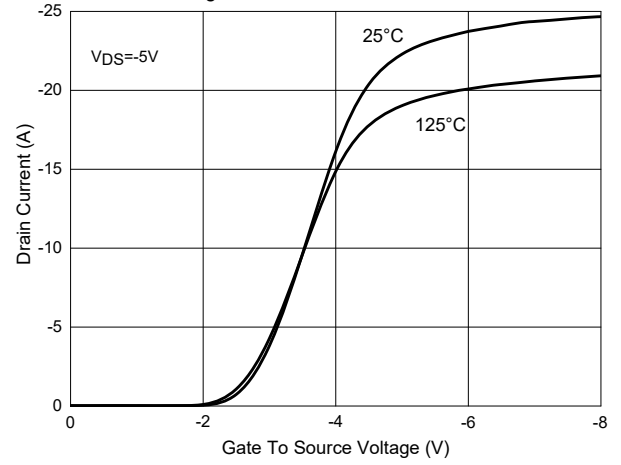


Fig. 3 - $R_{DS(ON)} - V_{GS}$

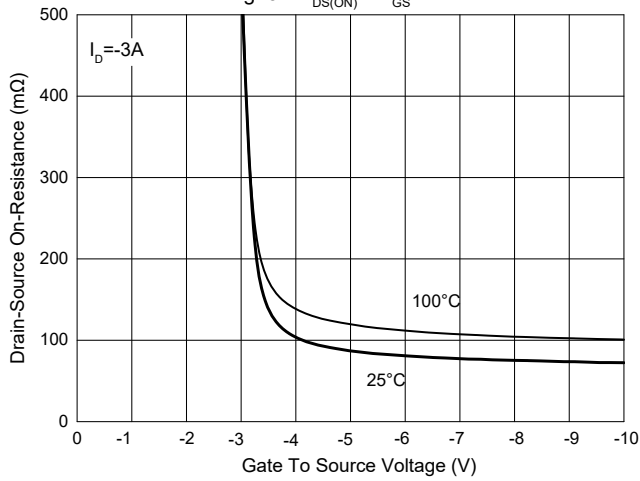


Fig. 4 - $R_{DS(ON)} - I_D$

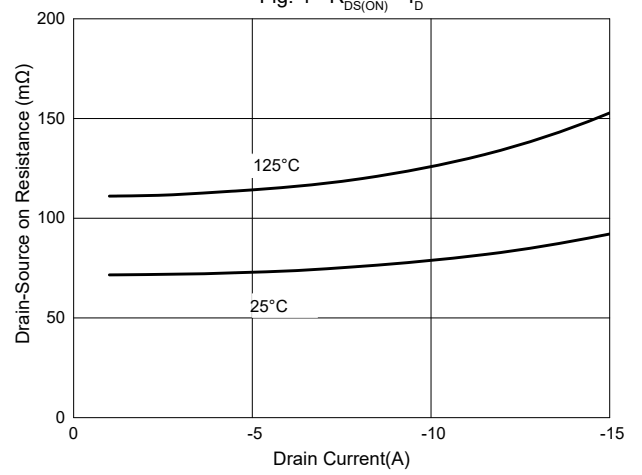


Fig. 5 - Normalized On Resistance Characteristics

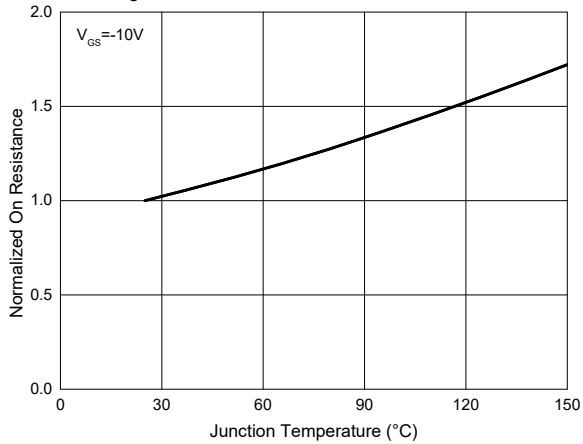
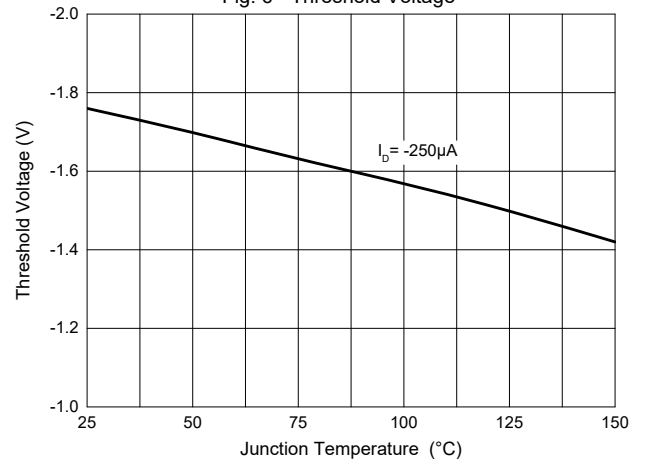


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Capacitance Characteristics

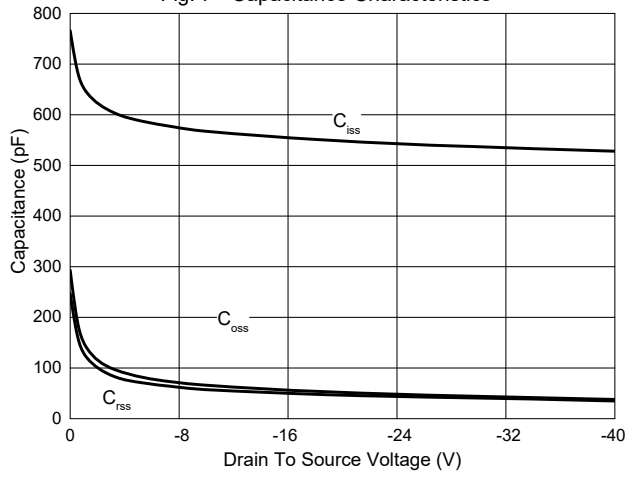
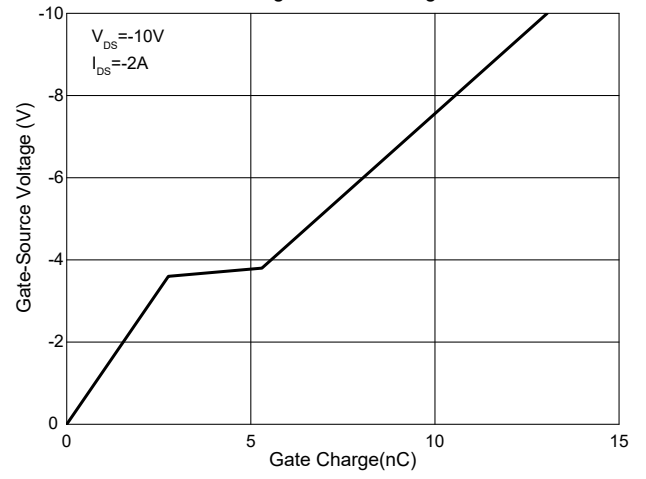


Fig. 8 - Gate Charge



Ordering Information

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

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