Features

- High Power and Current Handing Capability
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

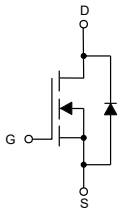
Maximum Ratings

- 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(Note 2)

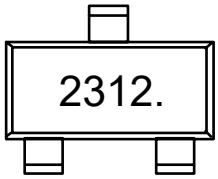
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current	T_A=25°C	I_D	6	A
	T_A=70°C		4.8	
Pulsed Drain Current(Note 3)		I_{DM}	30	A
Total Power Dissipation		P_D	1.25	W

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≤10s.
3. Repetitive Rating: Pulse Width Limited by Max. Junction Temperature.

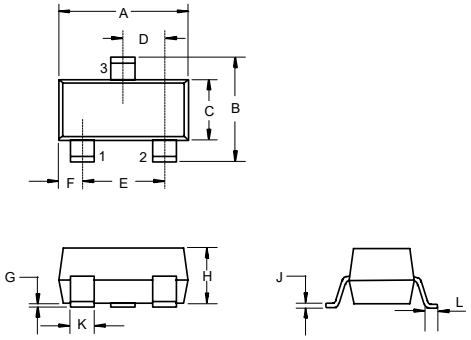
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

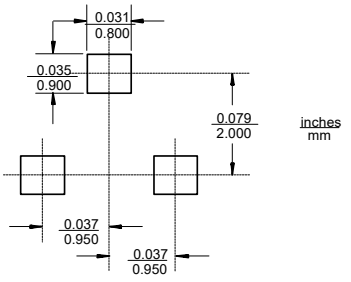


SOT-23



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 @ 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=250μA	20	22		V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	0.7	1.0	V
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=4.5V, I_D=5A		20	28	mΩ
		V_{GS}=2.5V, I_D=4A		27	35	
		V_{GS}=1.8V, I_D=2.5A		31	44	
Forward Transconductance(Note 4)	g_{FS}	V_{DS}=5V, I_D=6A		25		S
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz		888		pF
Output Capacitance	C_{oss}			133		
Reverse Transfer Capacitance	C_{rss}			117		
Switching Characteristics(Note 5)						
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=10V,I_D=6A		12		nC
Gate-Source Charge	Q_{gs}			1		
Gate-Drain Charge	Q_{gd}			2		
Reverse Recovery Charge	Q_{rr}	I_F=1.6A,di/dt=100A/μs		1.4		
Reverse Recovery Time	t_{rr}			11.5		ns
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=10V,R_L=1.7Ω, R_{GEN}=3Ω		3		
Turn-On Rise Time	t_r			7.5		
Turn-Off Delay Time	$t_{d(off)}$			20		
Turn-Off Fall Time	t_f			6		
Drain-Source Diode Characteristics						
Diode Forward Voltage(Note 4)	V_{SD}	V_{GS}=0V, I_S=1A			1.2	V
Diode Forward Current(Note 3)	I_S				6	A

Note: 4. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
5. Guaranteed by Design, Not Subject to Producting.

Curve Characteristics

Fig. 1 - Output Characteristics

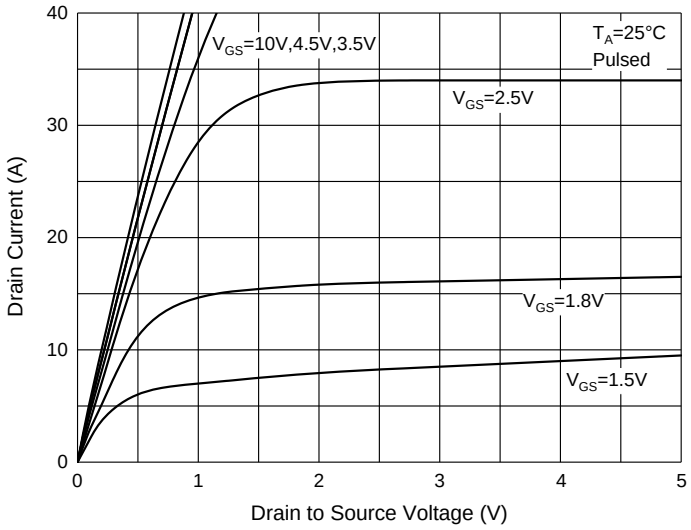


Fig. 2 - Transfer Characteristics

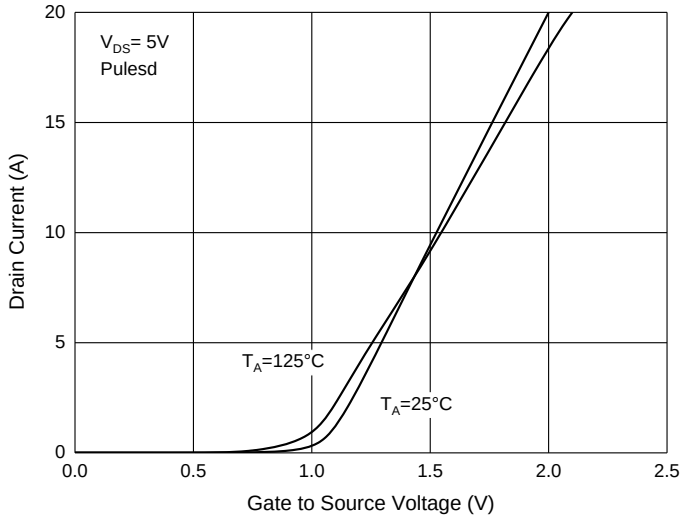


Fig. 3 - $R_{DS(ON)}$—I_D

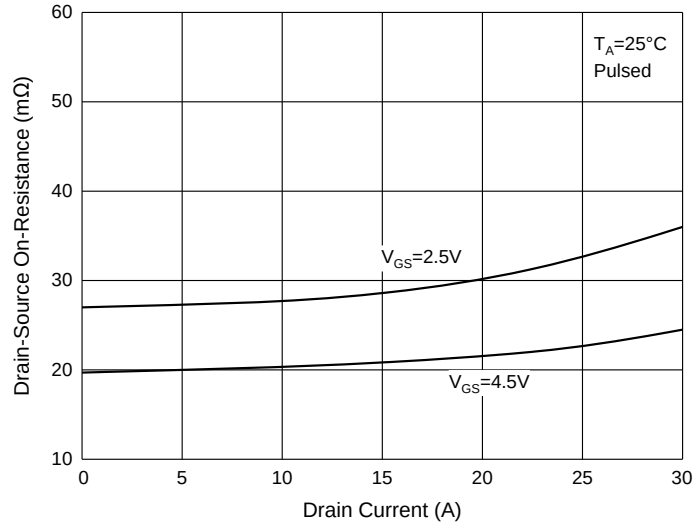
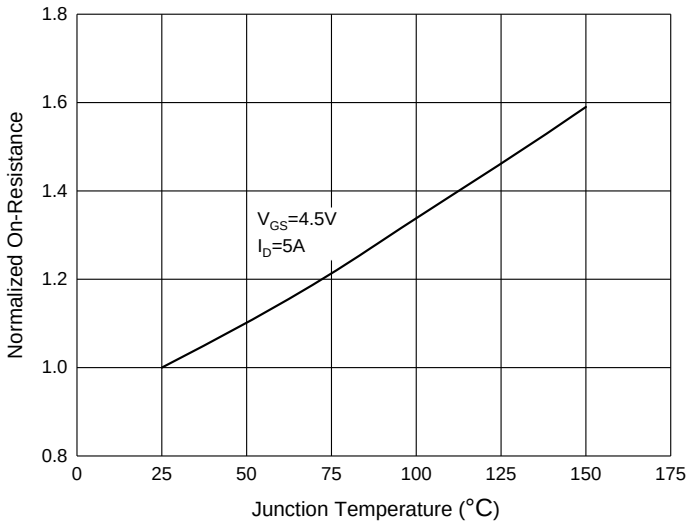


Fig. 4 - $R_{DS(ON)}$—Temperature



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel
Part Number-13P	Tape&Reel: 10Kpcs/Reel