Features

- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Exceptional On-Resistance and Maximum DC Current 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

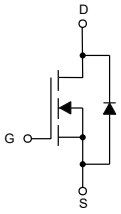
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 96°C/W Junction to Ambient(Note 3)

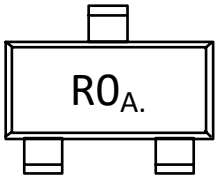
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	30	V
Gate -Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	5.8	A
Drain Current-Pulsed (Note 2)	I_{DM}	30	A
Power Dissipation	P_D	1.3	W

Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

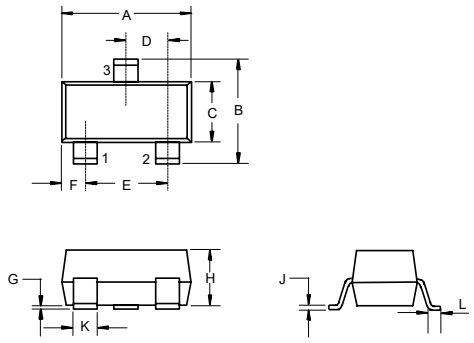
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

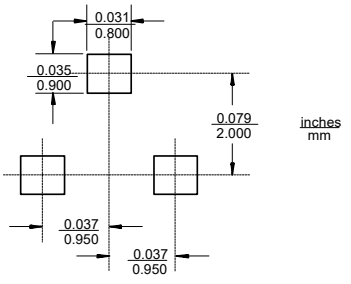


SOT-23



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 (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=250μA	30			V
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.7		1.2	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 12V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=5.8A		21	27	mΩ
		V_{GS}=4.5V, I_D=5.0A		25	33	
		V_{GS}=2.5V, I_D=4.0A		33	51	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=5.0A	8.0			S
Dynamic Characteristics(Note 5)						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V, I_D=5.6A		17.25		nC
Gate-Source Charge	Q_{gs}			2.1		
Gate-Drain Charge	Q_{gd}			2		
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1MHz			1155	pF
Output Capacitance	C_{oss}			108		
Reverse Transfer Capacitance	C_{rss}			84		
Gate Resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz			3.6	Ω
Switching Characteristics(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,R_L=2.7Ω,V_{DS}=15V, R_{GEN}=3Ω			5	ns
Turn-On Rise Time	t_r				7	
Turn-Off Delay Time	$t_{d(off)}$				40	
Turn-Off Fall Time	t_f				6	
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward voltage(Note 4)	V_{SD}	V_{GS}=0V,I_S=1A			1.0	V

Notes:

2. Repetitive Rating : Pulse width limited by maximum junction temperature.
3. Surface Mounted on FR4 Board, t < 5 sec.
4. Pulse Test: Pulse Width≤300μA, Duty Cycle≤2%.
5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

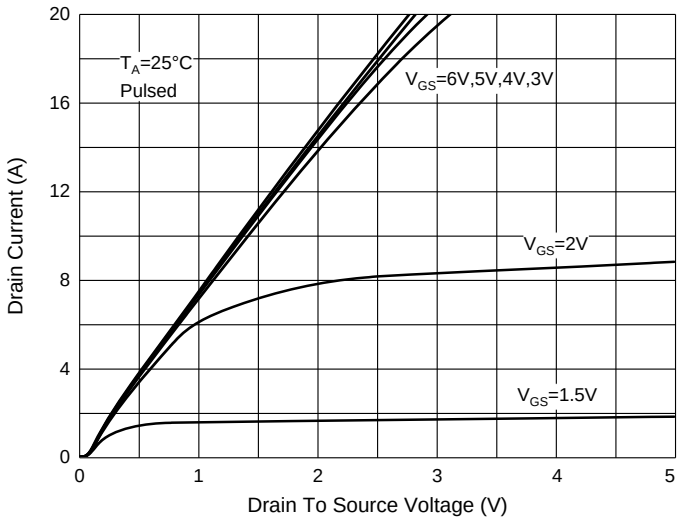


Fig. 2 - Transfer Characteristics

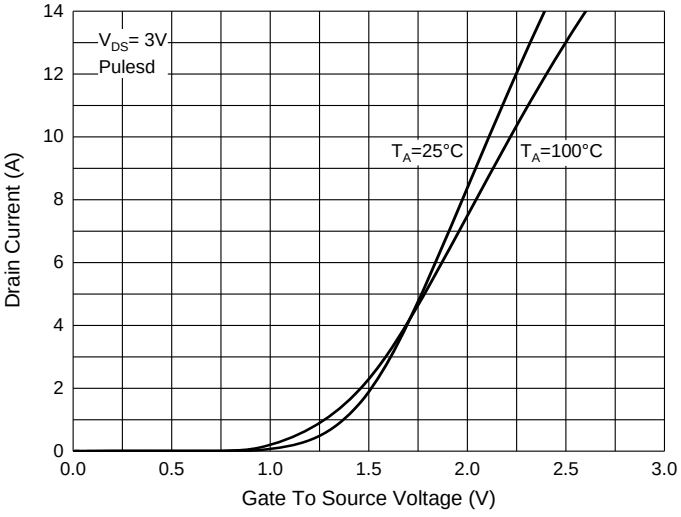


Fig. 3 - $R_{DS(ON)}$—I_D

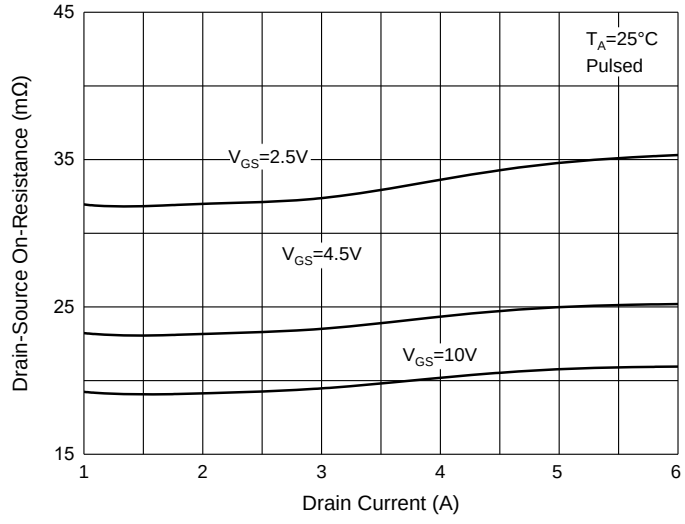


Fig. 4 - $R_{DS(ON)}$—V_{GS}

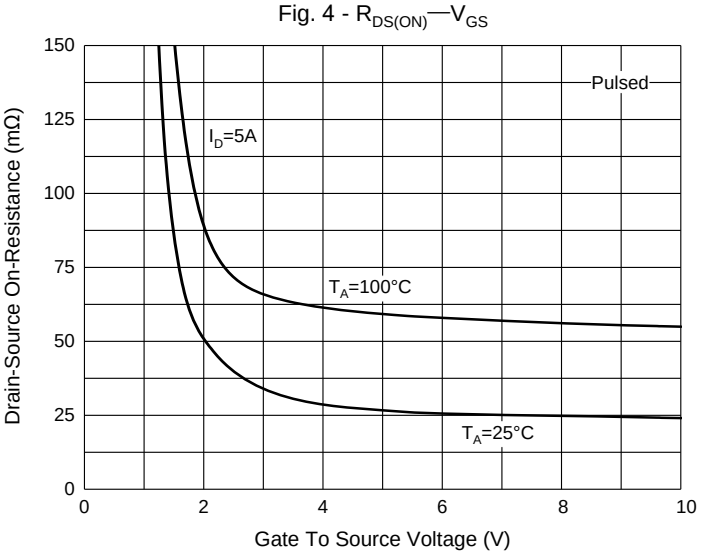


Fig. 5 - I_S—V_{SD}

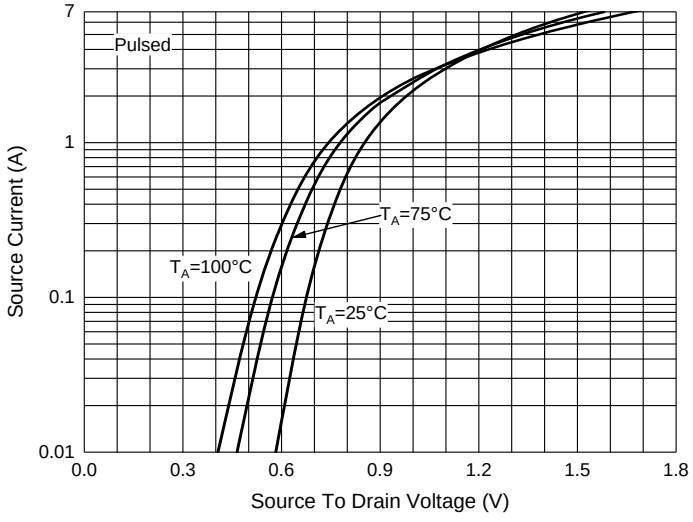
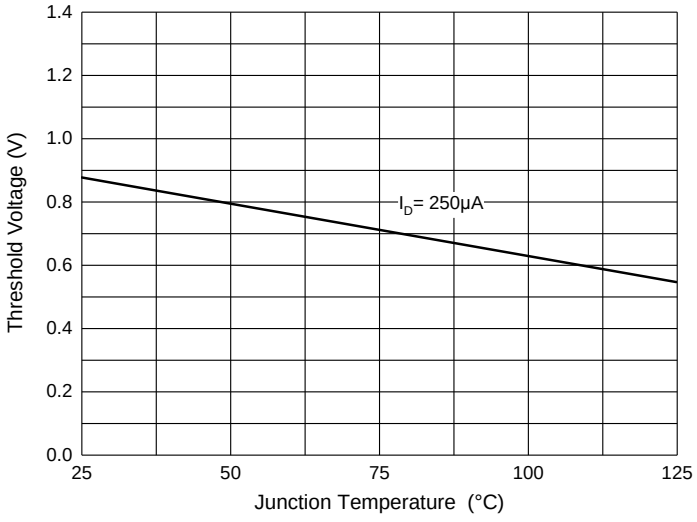


Fig. 6 - Threshold Voltage



Ordering Information

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