Features

- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Rugged and Reliable
- Surface Mount Package
- 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

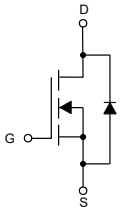
Maximum Ratings

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

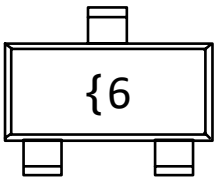
Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	30	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous(Note 2,3)	I_D	3.16	A
Drain Current-Pulse	I_{DM}	20	A
Source Current-Continuoud(Note 2,3)	I_S	0.62	W
Power Dissipation	P_D	0.75	W

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

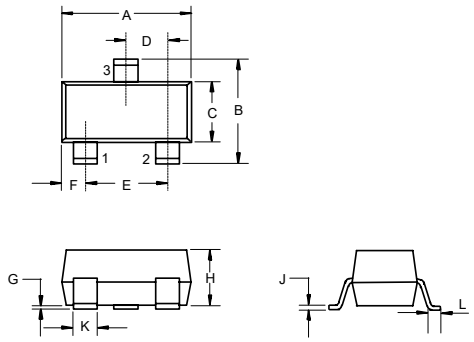
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN

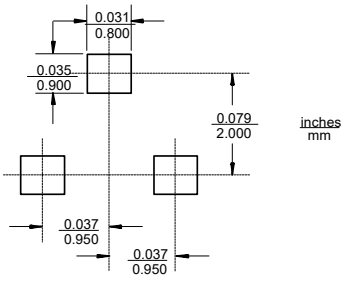


SOT-23



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	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0		3.0	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 20V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			0.5	μA
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=3.5A		38	47	mΩ
		V_{GS}=4.5V, I_D=2.8A		52	65	
Forward Transconductance(Note 4)	g_{FS}	V_{DS}=4.5V, I_D=2.5A		7.0		S
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1.25A		0.8	1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1MHz		305		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			29		
Gate Resistance	R_g	f=1MHz	2.5	5	7.5	Ω
Gate Charge	Q_g	V_{DS}=15V,V_{GS}=5V,I_D=2.5A		3.0	4.5	nC
Total Gate Charge	Q_{gt}	V_{DS}=15V,V_{GS}=10V,I_D=2.5A		6	9	
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			0.6		
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω,V_{GEN}=10V, I_D=1A,R_G=6Ω		7	11	ns
Turn-On Rise Time	t_r			12	18	
Turn-Off Delay Time	$t_{d(off)}$			14	25	
Turn-Off Fall Time	t_f			6	10	

Note:

2. Surface Mounted on 1" x1" FR4 Board, t<5s.
3. Pulse Width Limited by Maximum Junction Temperature.
4. Pulse Test: Pulse Width≤300μs, Duty Cycle ≤ 2%.

Curve Characteristics

Fig. 1 - Output Characteristics

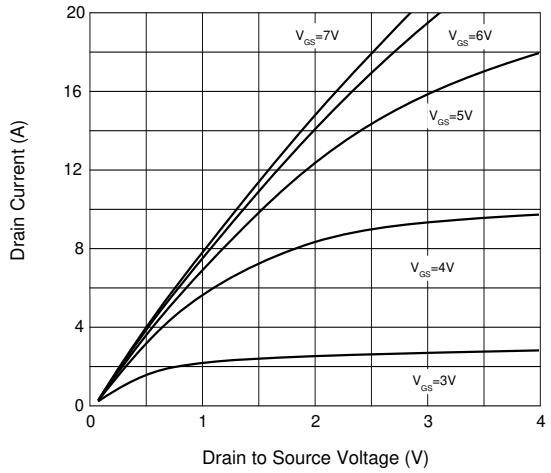


Fig. 2 - Transfer Characteristics

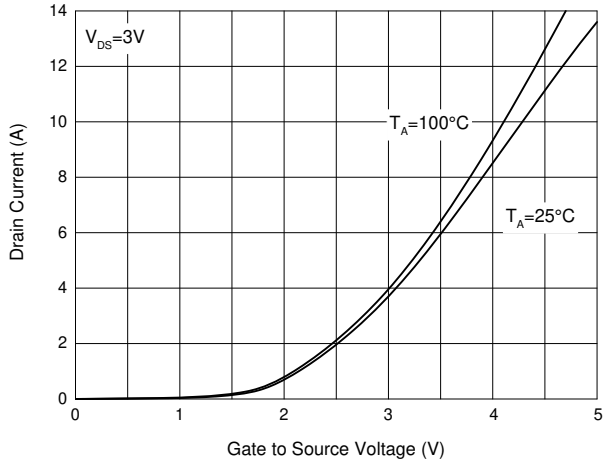


Fig. 3 - Drain-Source On-Resistancea Characteristics

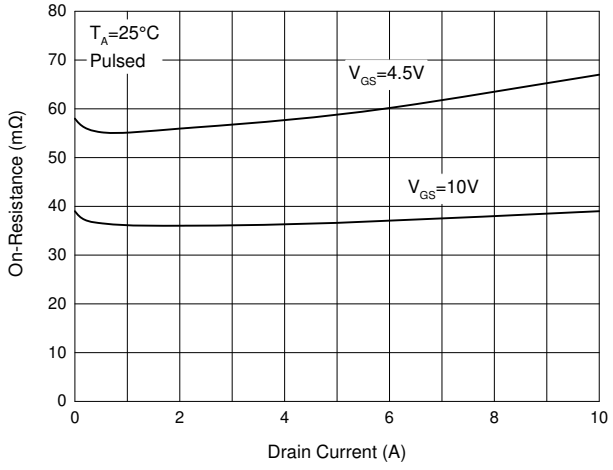


Fig. 4 - On-Resistance Characteristics

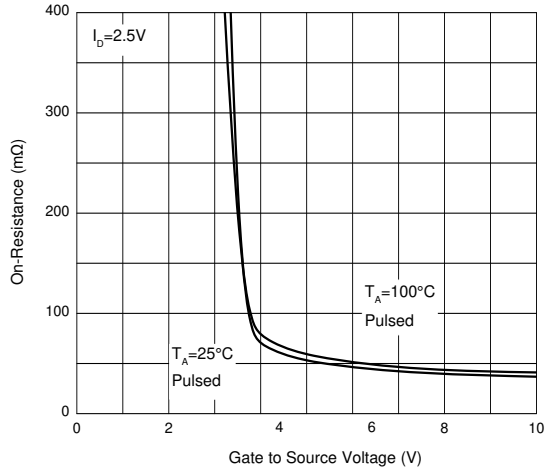


Fig. 5 - Source to Drain Voltage Characteristics

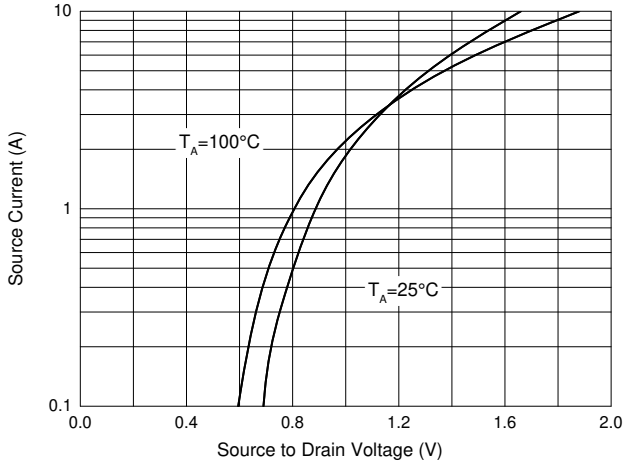
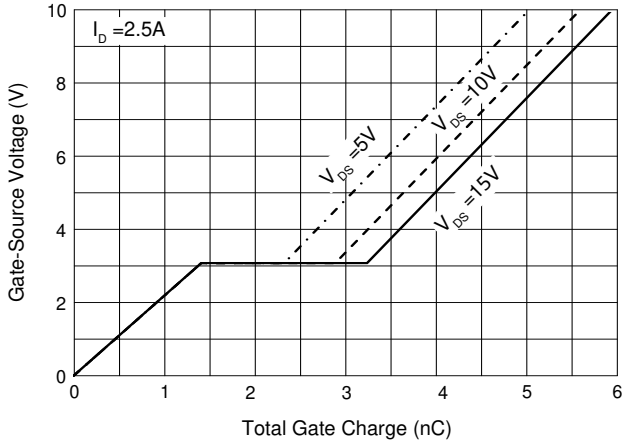


Fig. 6 - Total Gate Charge Characteristics



Ordering Information

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