

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)

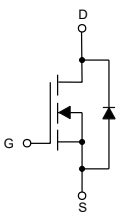
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature: -55°C to $+150^{\circ}\text{C}$
- 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

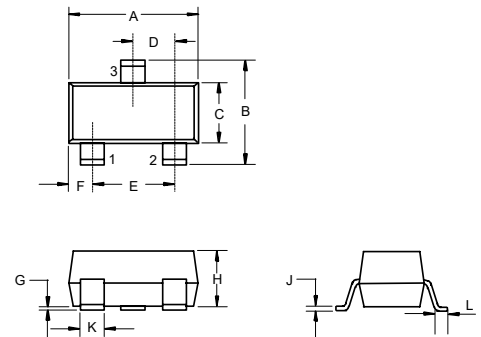


1. GATE
2. SOURCE
3. DRAIN

Marking: S6

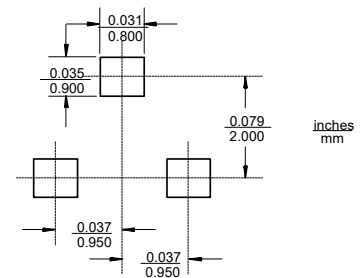
N-Channel MOSFET

SOT-23



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		3.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 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	m Ω
		$V_{GS}=4.5V, I_D=2.8A$		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	$t_{d(on)}$	$V_{DD}=15V, R_L=15\Omega, V_{GEN}=10V, I_D=1A, R_G=6\Omega$		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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Curve Characteristics

Fig. 1 - Output Characteristics

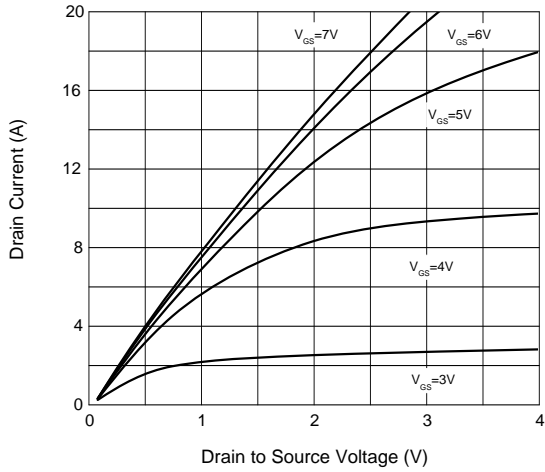


Fig. 2 - Transfer Characteristics

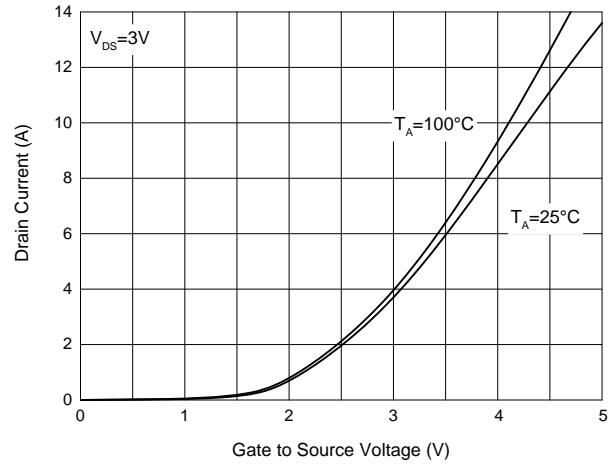


Fig. 3 - Drain-Source On-Resistance Characteristics

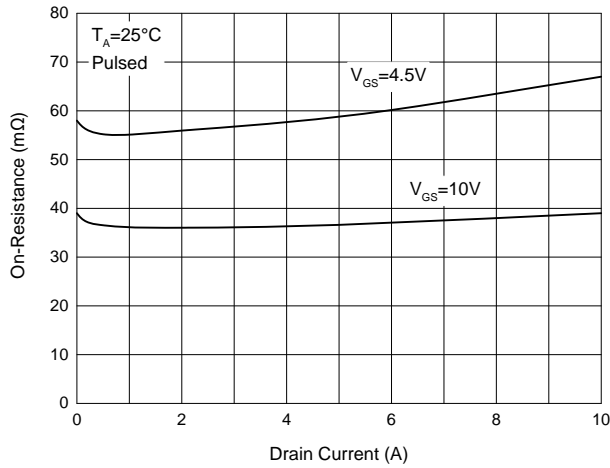


Fig. 4 - On-Resistance Characteristics

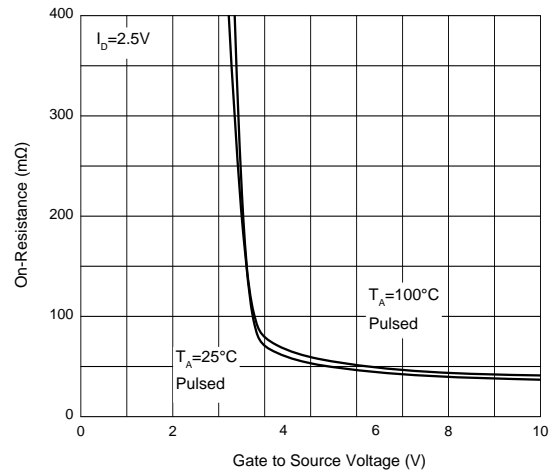


Fig. 5 - Source to Drain Voltage Characteristics

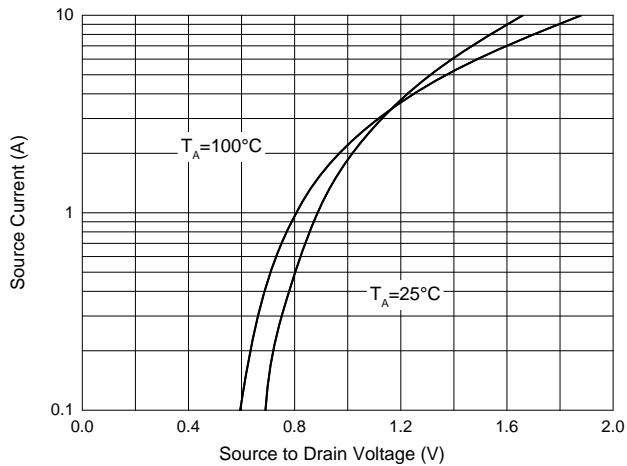
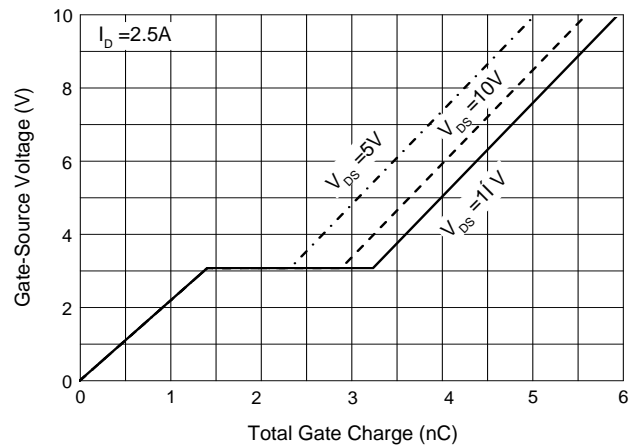


Fig. 6 - Total Gate Charge Characteristics



Ordering Information

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

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