

## 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)

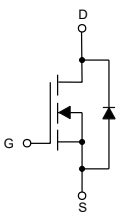
## Maximum Ratings

- Operating Junction Temperature Range:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Storage Temperature:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Thermal Resistance:  $100^{\circ}\text{C/W}$  Junction to Ambient

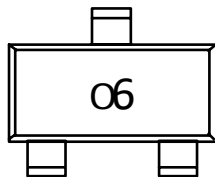
Parameter	Symbol	Rating	Unit
Drain -source Voltage	$V_{DS}$	30	V
Gate -Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous (Note 2,3)	$I_D$	3.16	A
Drain Current-Pulse	$I_{DM}$	20	A
Source Current-Continuoud (Note 2,3)	$I_S$	0.62	W
Power Dissipation	$P_D$	0.75	W

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

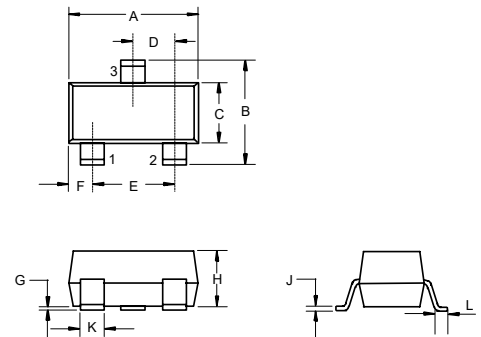


1. GATE
2. SOURCE
3. DRAIN



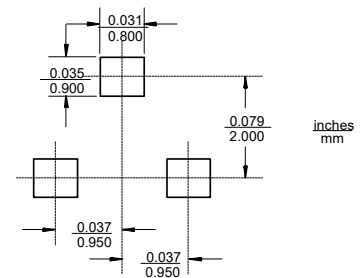
# N-Channel MOSFET

## 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
<b>Static Characteristics</b>						
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	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			0.5	$\mu A$
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=3.5A$		38	47	m $\Omega$
		$V_{GS}=4.5V, I_D=2.8A$		52	65	
Forward Transconductance <sup>(Note 4)</sup>	$g_{FS}$	$V_{DS}=4.5V, I_D=2.5A$		7.0		S
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1.25A$		0.8	1.2	V
<b>Dynamic Characteristics</b>						
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	$\Omega$
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		
<b>Switching Characteristics</b>						
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

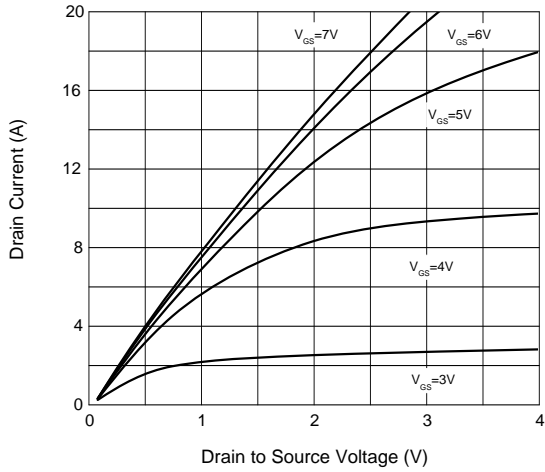


Fig. 2 - Transfer Characteristics

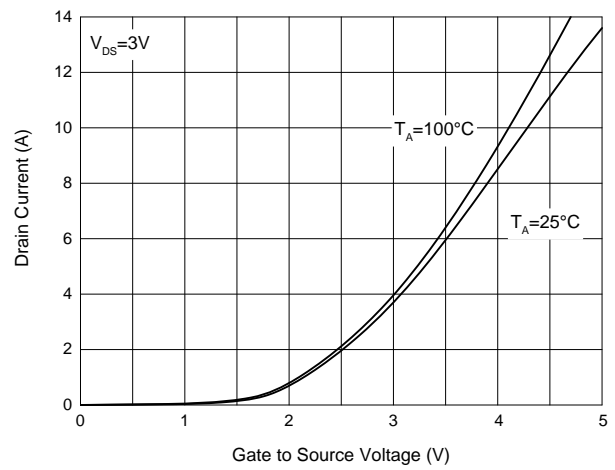


Fig. 3 - Drain-Source On-Resistance Characteristics

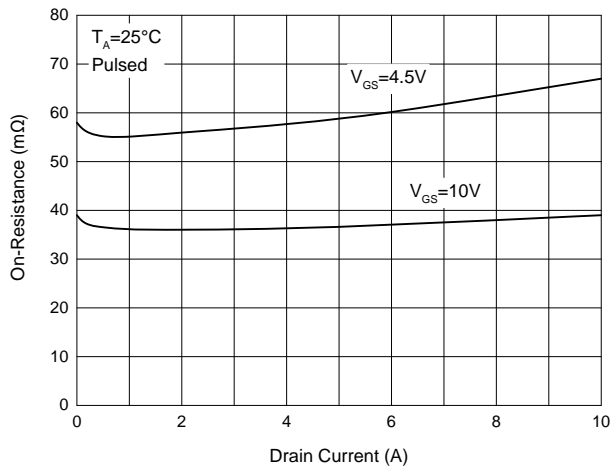


Fig. 4 - On-Resistance Characteristics

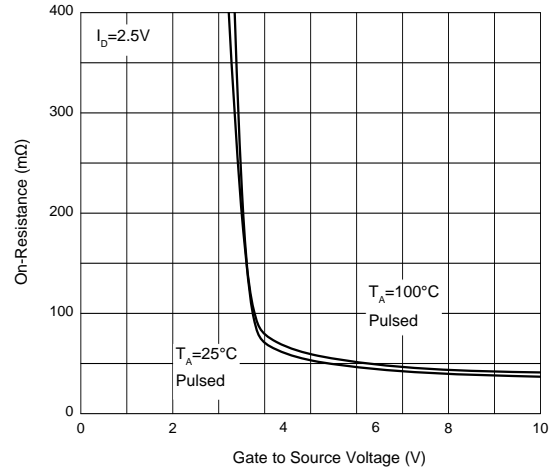


Fig. 5 - Source to Drain Voltage Characteristics

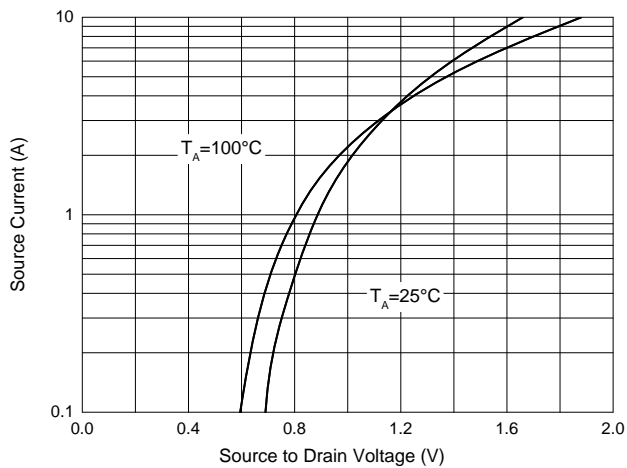
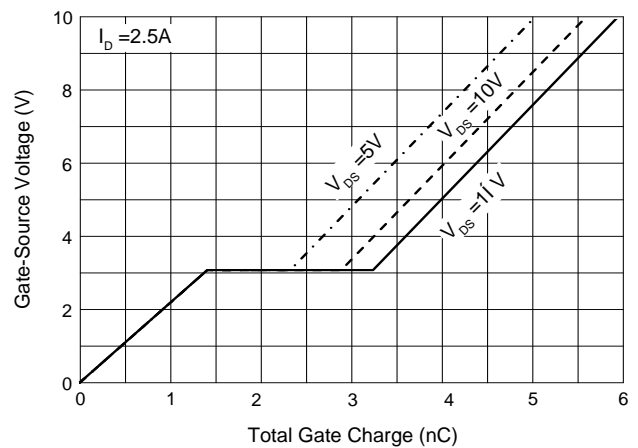


Fig. 6 - Total Gate Charge Characteristics



## Ordering Information

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

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