

Features

- High Density Cell Design for Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- ESD Protected up to 2KV (HBM)
- 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)

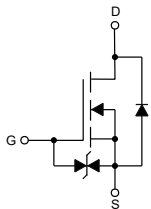
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 357°C/W Junction to Ambient

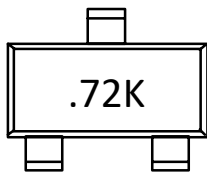
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.34	A
Power Dissipation	P_D	0.35	W

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

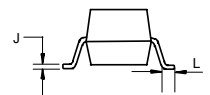
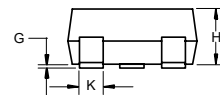
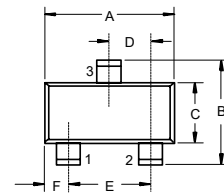


1. GATE
2. SOURCE
3. DRAIN



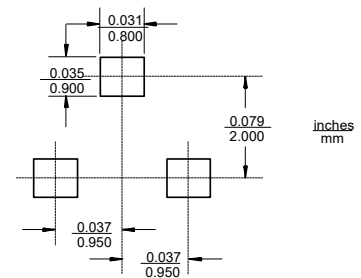
N-Channel MOSFET

SOT-23



DIM	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°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Threshold Voltage ⁽²⁾	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.4	2.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=48V, V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 10	μA
		$V_{GS}=\pm 10V, V_{DS}=0V$			± 200	nA
		$V_{GS}=\pm 5V, V_{DS}=0V$			± 100	nA
Drain-Source On-Resistance ⁽²⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$			5.0	Ω
		$V_{GS}=4.5V, I_D=200mA$			5.3	
Recovered Charge	Q_r	$V_{GS}=0V, I_S=300mA, V_R=25V$ $di/dt=-100A/\mu s$		30		nC
Dynamic Characteristics						
Input Capacitance ⁽³⁾	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		35		pF
Output Capacitance ⁽³⁾	C_{oss}			13		
Reverse Transfer Capacitance ⁽³⁾	C_{rss}			8		
Switching Characteristics						
Turn-on Delay Time ⁽³⁾	$t_{d(on)}$	$V_{DD}=25V, V_{GS}=10V, R_L=250\Omega,$ $R_{GS}=50\Omega, R_{GEN}=25\Omega$			10	ns
Turn-off Delay Time ⁽³⁾	$t_{d(off)}$				15	
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_S=300mA, V_R=25V,$ $di/dt=-100A/\mu s$		30		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=200mA$		0.82	1.3	V
Gate-Source Zener Diode						
Gate-Source Breakdown Voltage	BV_{GSO}	$I_{GS}=\pm 1mA, (Open\ Drain)$	± 21.5		± 30	V

Note: 2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

3. These Parameters Have No Way to Verify.

Curve Characteristics

Fig. 1 - Output Characteristics

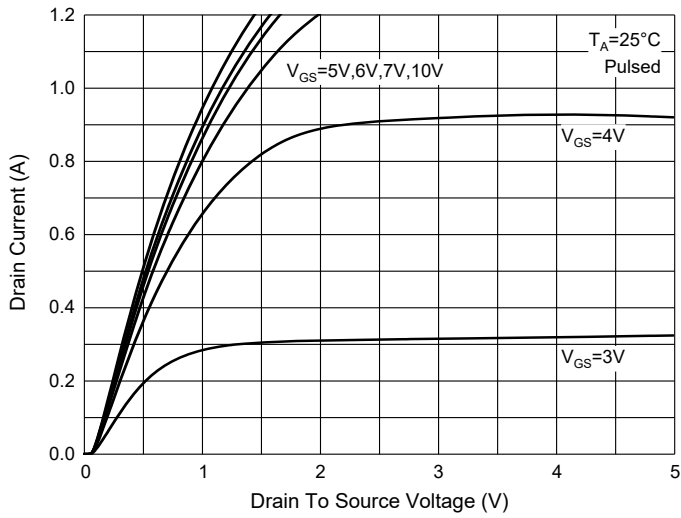


Fig. 2 - Transfer Characteristics

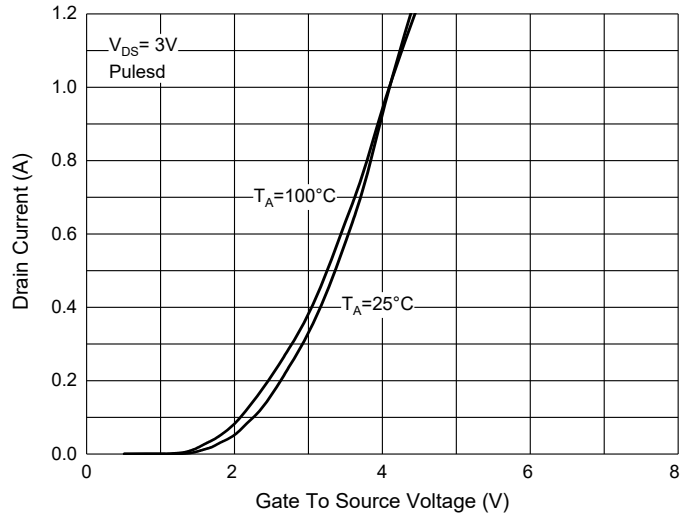


Fig. 3 - $R_{DS(ON)} - I_D$

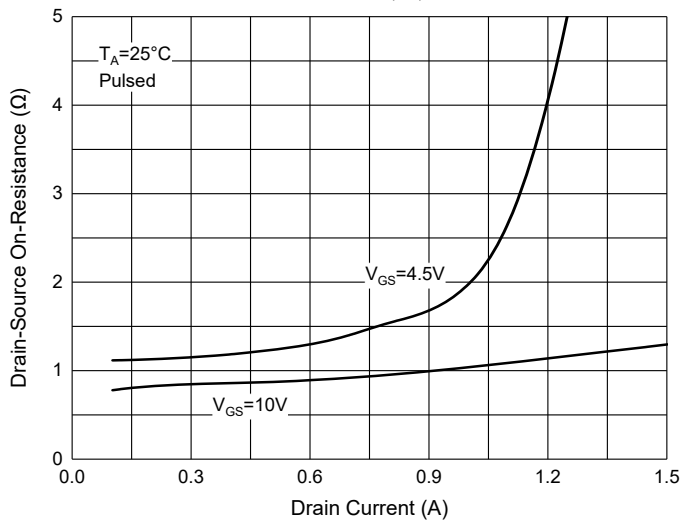


Fig. 4 - $R_{DS(ON)} - V_{GS}$

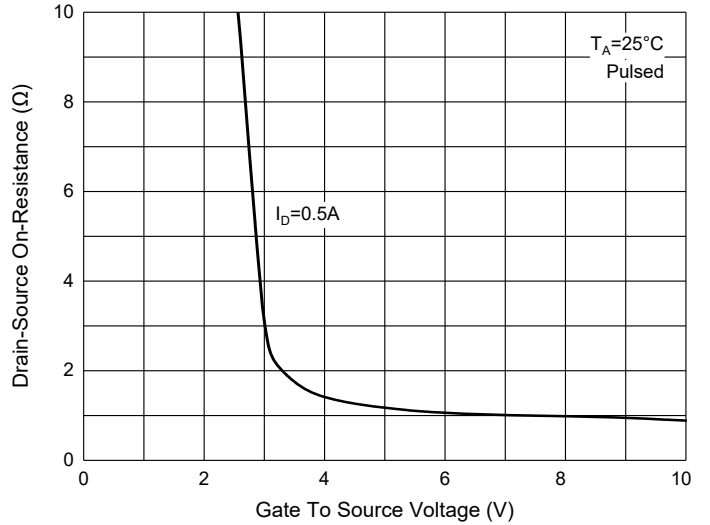


Fig. 5 - $I_S - V_{SD}$

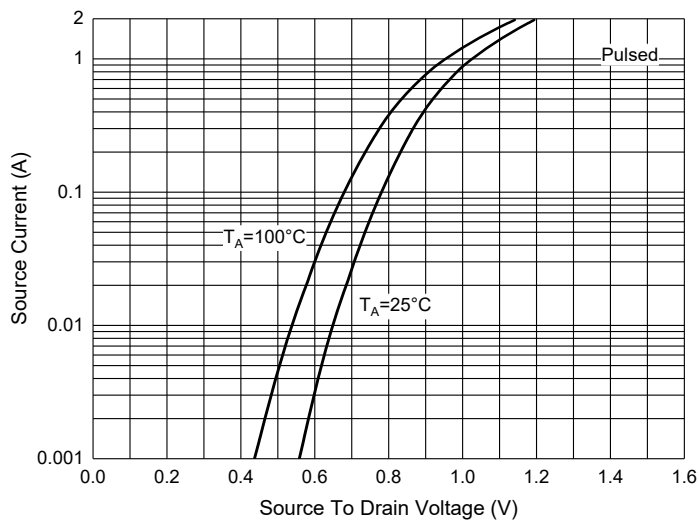
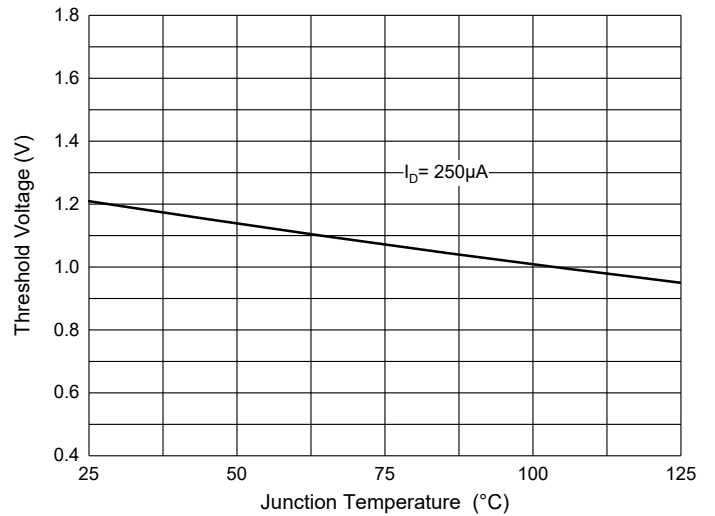
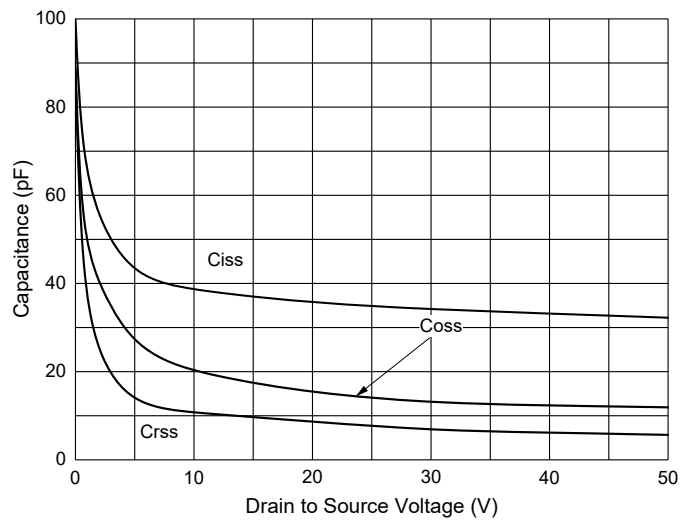


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Capacitance Characteristics



Ordering Information

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

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