

Features

- ESD Protected up to 1.5KV (HBM)
- Extremely Low Threshold Voltage
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

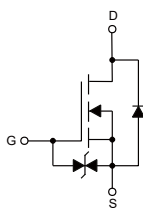
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 500°C/W Junction to Ambient(2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.25	A
Pulsed Drain Current (3)	I_{DM}	2	A
Total Power Dissipation	P_D	0.25	W

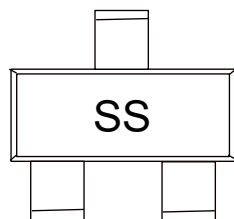
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on 1 in² pad area, t≤10 sec.
3. Pulse width≤300µs, duty cycle≤2%.

Internal Structure and Marking Code

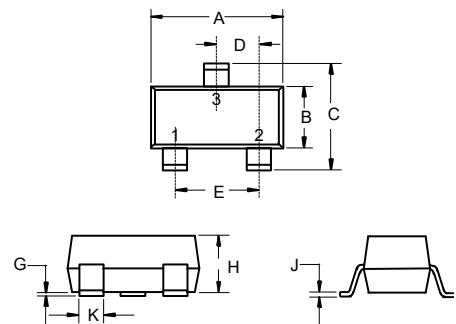


1. GATE
2. SOURCE
3. DRAIN



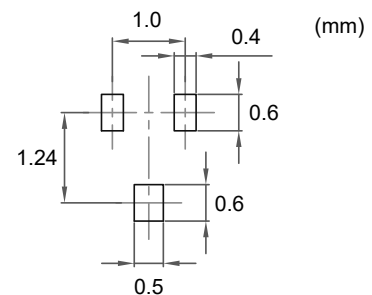
**N-CHANNEL
MOSFET**

SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.5A$			1.6	Ω
		$V_{GS}=4.5V, I_D=0.2A$			2.5	Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.25	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=0.2A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_S=0.5A, di/dt=100A/\mu s$		42		ns
Reverse Recovery Charge	Q_{rr}			41		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		22.8		pF
Output Capacitance	C_{oss}			3.5		
Reverse Transfer Capacitance	C_{rss}			2.9		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=0.5A$		0.7		nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GEN}=10V,$ $R_G=25\Omega, R_L=60\Omega,$ $I_{DS}=0.5A$		3.8		ns
Turn-On Rise Time	t_r			3.4		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			12		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

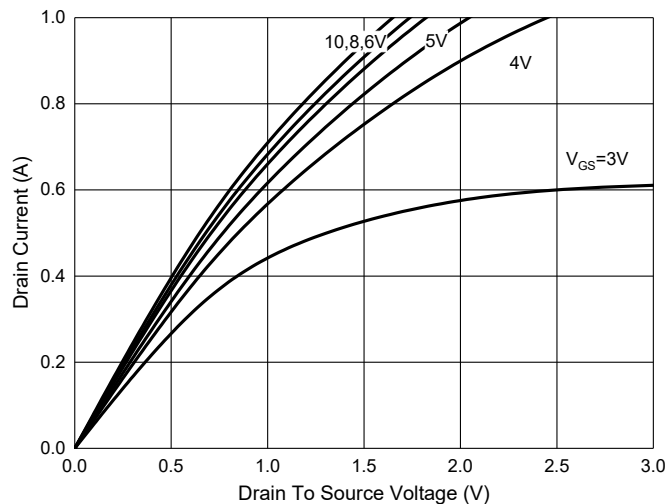


Fig. 2 - Transfer Characteristics

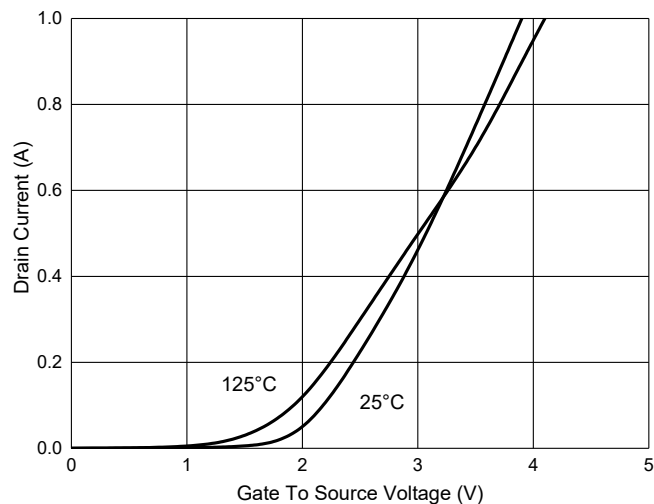


Fig. 3 - $R_{DS(ON)} - I_D$

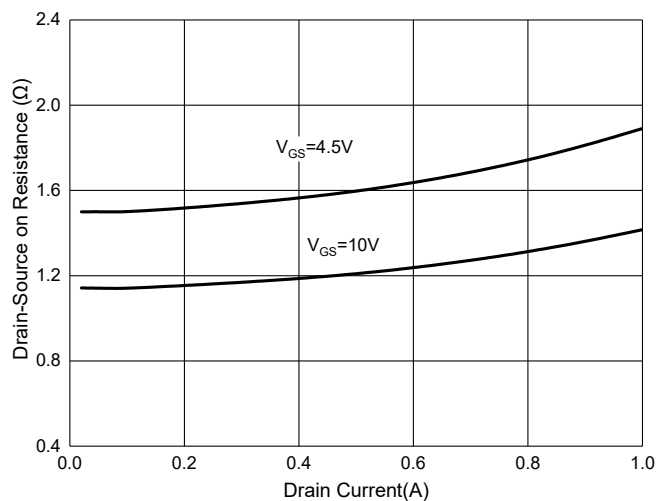


Fig. 4 - Normalized On Resistance Characteristics

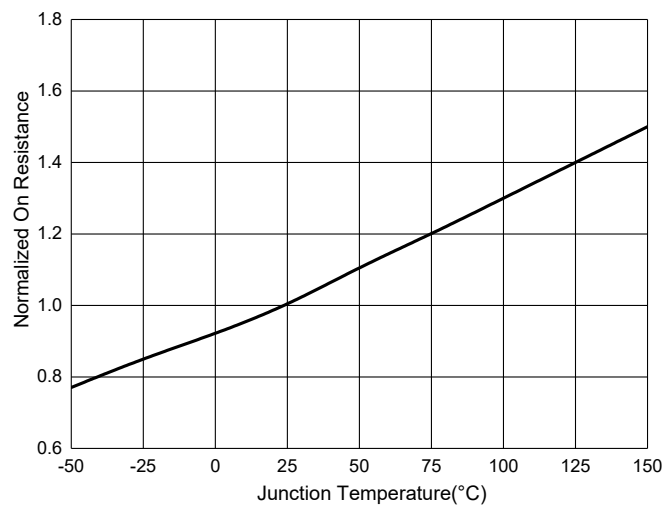


Fig. 5 - Capacitance Characteristics

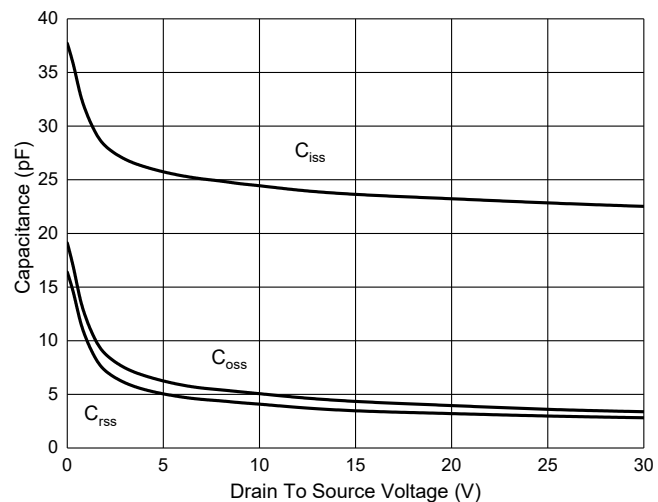
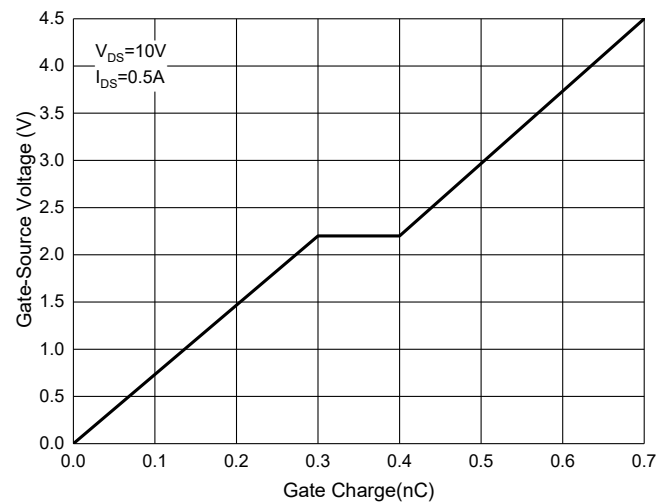


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - $I_S - V_{SD}$

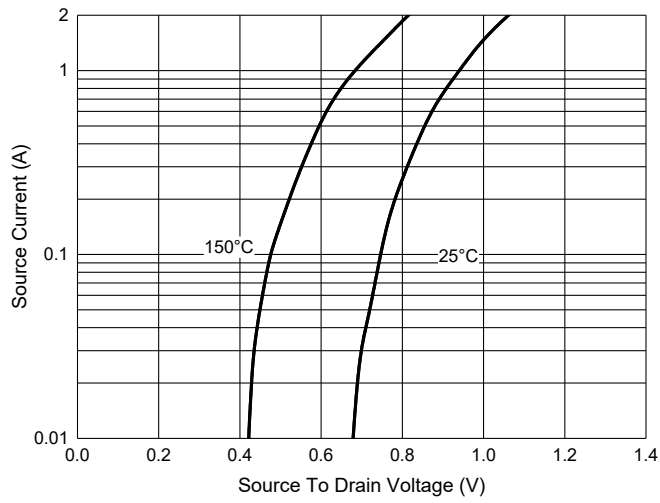
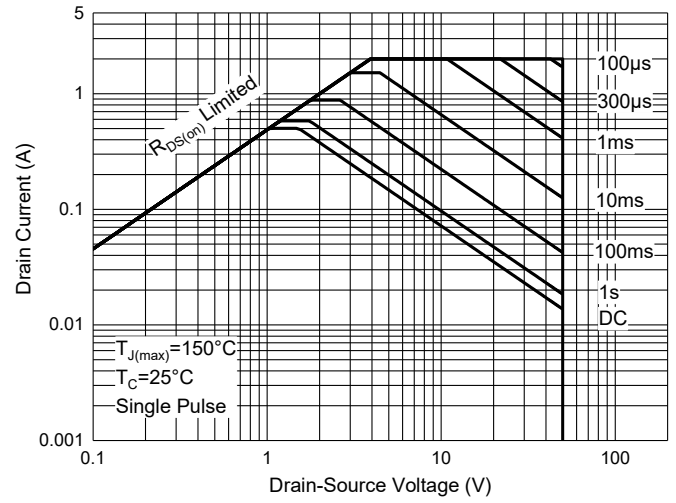


Fig. 8 - Safe Operation Area



Ordering Information

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

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