

Features

- ESD protected:1500V
- 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)

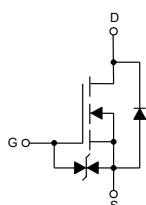
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 357°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.22	A
Power Dissipation	P_D	0.35	W

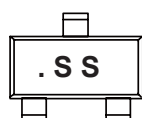
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



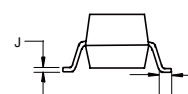
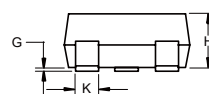
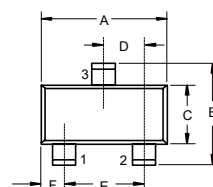
1. GATE
2. SOURCE
3. DRAIN

Marking:



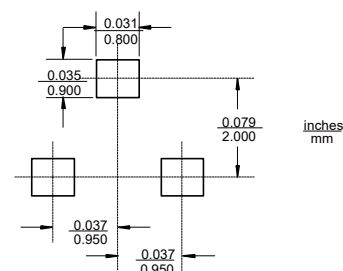
N-Channel MOSFET

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 @ 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 =250μA	50			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA
Gate-Threshold Voltage ^(Note2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.8		1.45	V
Gate Threshold Voltage Temperature Coefficient	$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	I _D =1mA, Referenced to 25°C		-2.5		mV/°C
Drain-Source On-Resistance ^(Note2)	R _{DS(on)}	V _{GS} =10V, I _D =0.5A			1.6	Ω
		V _{GS} =4.5V, I _D =0.1A			2.5	
Forward Transconductance ^(Note2)	g _{FS}	V _{DS} =10V, I _D =0.2A	100			mS
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =0.5A	0.5		1.3	V
Dynamic Characteristics ^(Note3)						
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		
Switching Characteristics ^(Note 3)						
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 =25Ω, R _L =60Ω, I _{DS} =0.5A		3.4		ns
Turn-On Rise Time	t _r			5.2		
Turn-Off Delay Time	t _{d(off)}			13		
Turn-Off Fall Time	t _f			7		

Note:

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

3. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

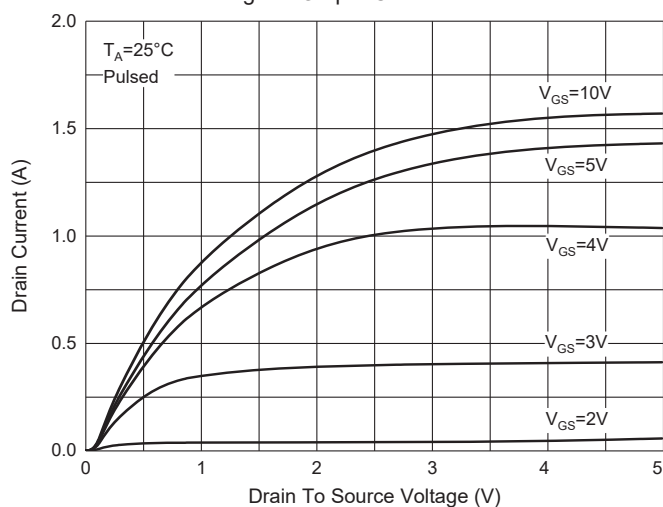


Fig. 2 - Transfer Characteristics

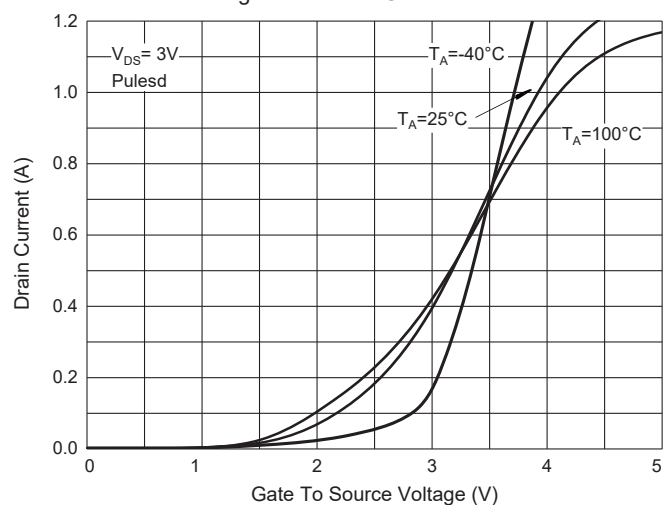


Fig. 3 - $R_{DS(ON)} - I_D$

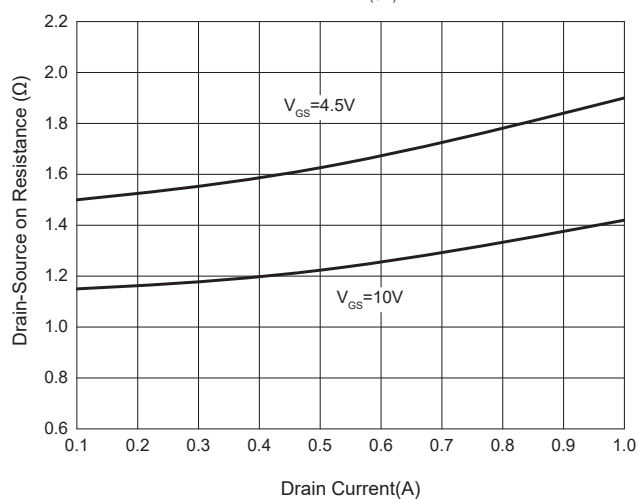


Fig. 4 - $R_{DS(ON)} - V_{GS}$

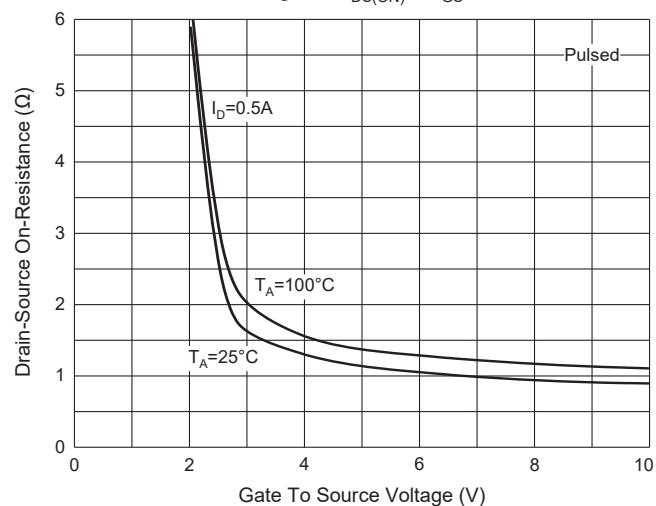


Fig. 5 - $I_S - V_{SD}$

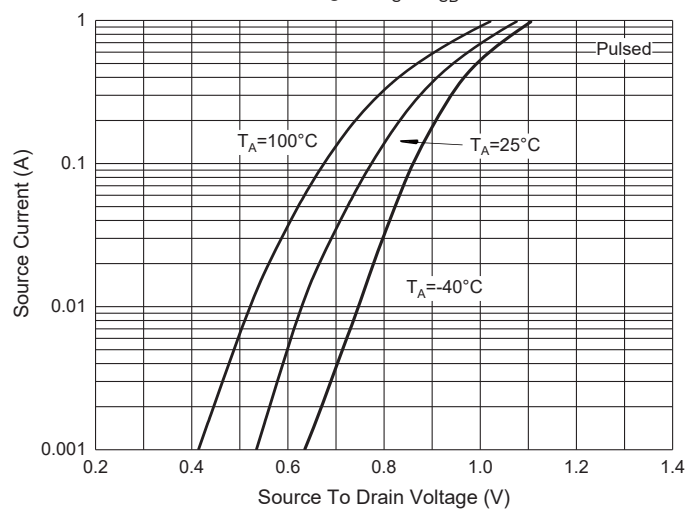
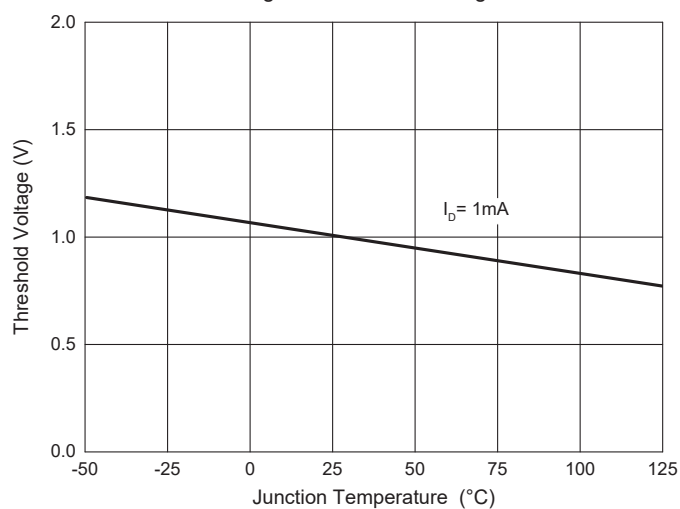


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Total Gate Charge Characteristics

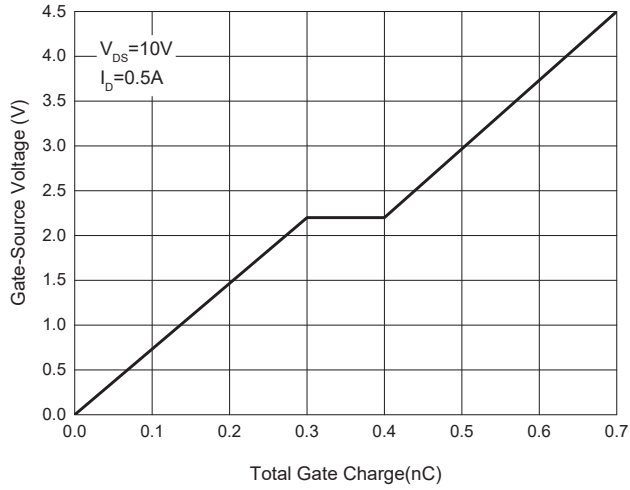


Fig. 8 - Capacitance Characteristics

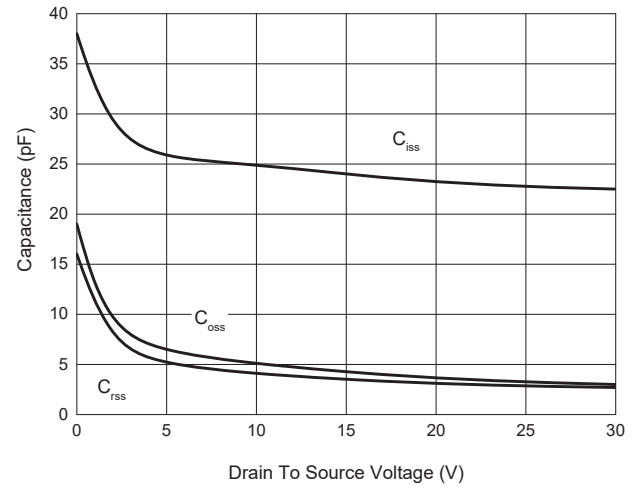


Fig. 9 - Normalized On Resistance Characteristics

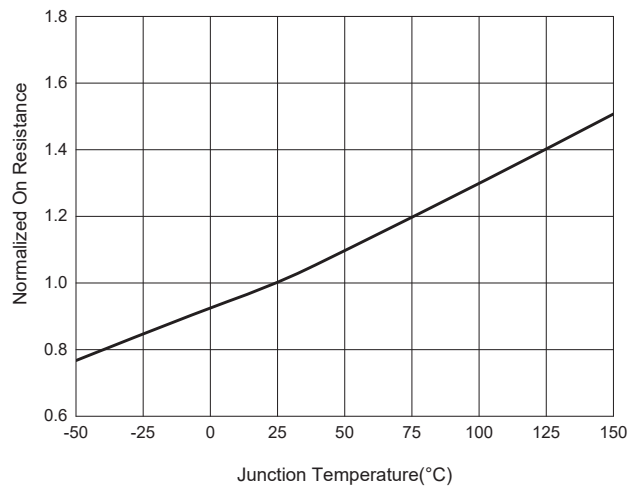
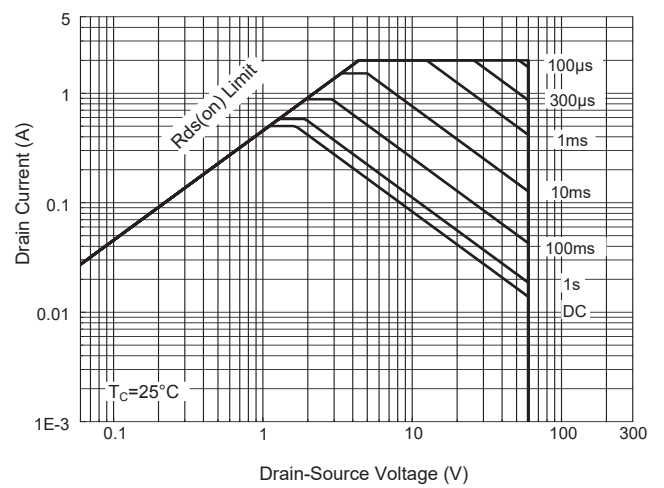


Fig. 10- Safe Operation Area



Ordering Information

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

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