

Features

- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Rugged and Reliable
- 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)

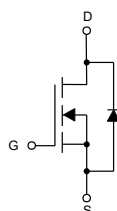
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 125°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	20	V
Gate -Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous	I_D	4.5	A
Power Dissipation	P_D	1.0	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

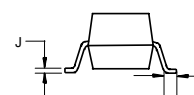
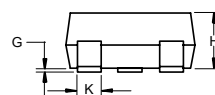
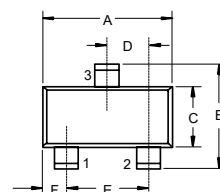


1. GATE
2. SOURCE
3. DRAIN

Marking:S0

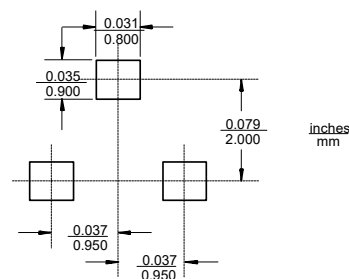
N-Channel MOSFET

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 =250μA	20			V
Gate-Threshold Voltage ^(Note 2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	0.9	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 10V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Drain-Source On-Resistance ^(Note 2)	R _{DS(on)}	V _{GS} =4.5V, I _D =4.5A		19.5	25	mΩ
		V _{GS} =2.5V, I _D =4.0A		25	38	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =4.5A	5.0			S
Dynamic Characteristics ^(Note 3)						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V, f=1MHz		482		pF
Output Capacitance	C _{oss}			85		
Reverse Transfer Capacitance	C _{rss}			52		
Switching Characteristics ^(Note 3)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V,R _L =2.8Ω,V _{GS} =4.5V, I _D =1A , R _{GEN} =6Ω		13		ns
Turn-On Rise Time	t _r			54		
Turn-Off Delay Time	t _{d(off)}			18		
Turn-Off Fall Time	t _f			11		
Total Gate Charge	Q _g	V _{DS} =10V,I _D =4.5A,V _{GS} =4.5V		4.2		nC
Gate-Source Charge	Q _{gs}			0.9		
Gate-Drain Charge	Q _{gd}			1.4		
Source-Drain Diode characteristics						
Drain-Source Diode Forward Current	I _S	V _{GS} =0V,I _S =1A			4.5	A
Diode Forward voltage	V _{SD}	V _{GS} =0V,I _S =1A		0.8	1.2	V

Notes:

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

3. These Parameters Have No Way to Verify.

Curve Characteristics

Fig. 1 - Output Characteristics

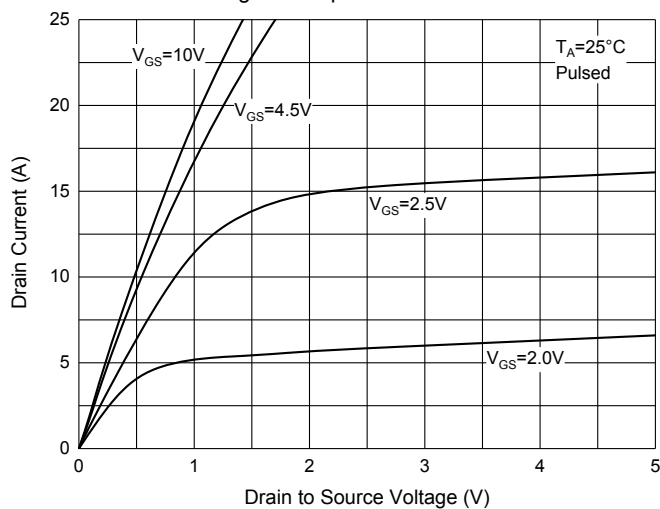


Fig. 2 - Transfer Characteristics

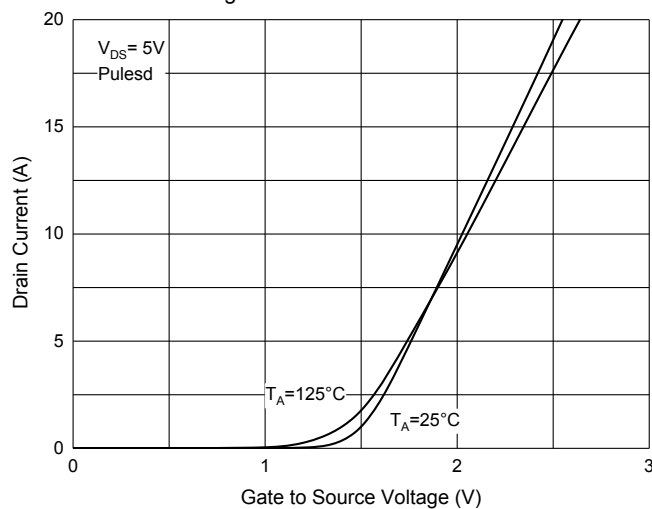


Fig. 3 - Capacitance Characteristics

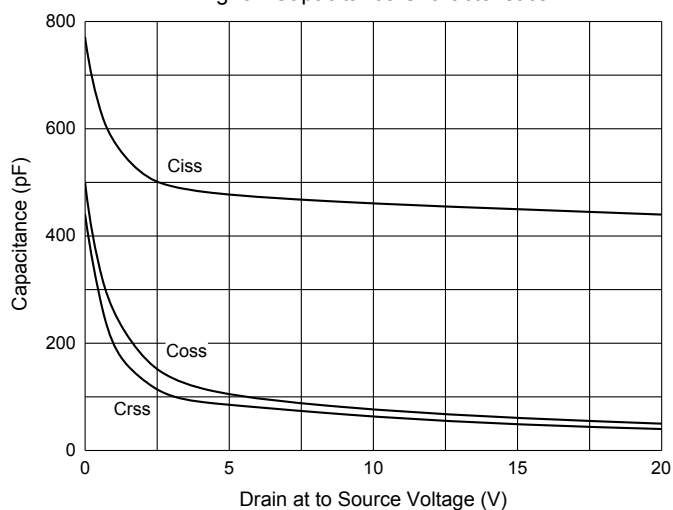


Fig. 4 - $R_{DS(ON)}$ —Temperature

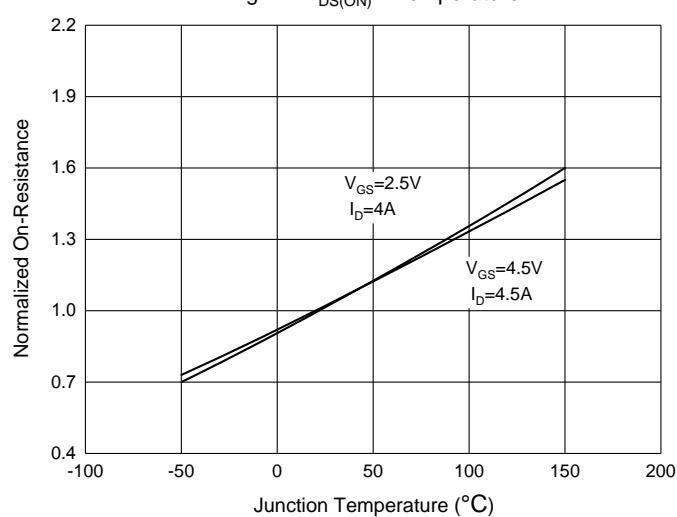


Fig. 5 - Threshold Voltage

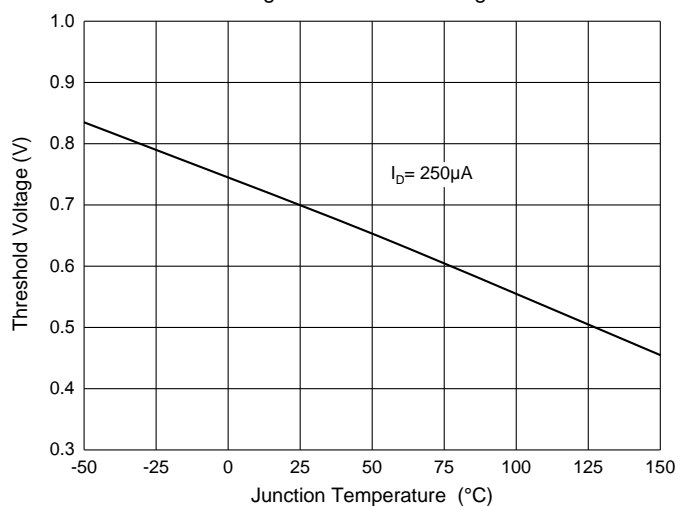
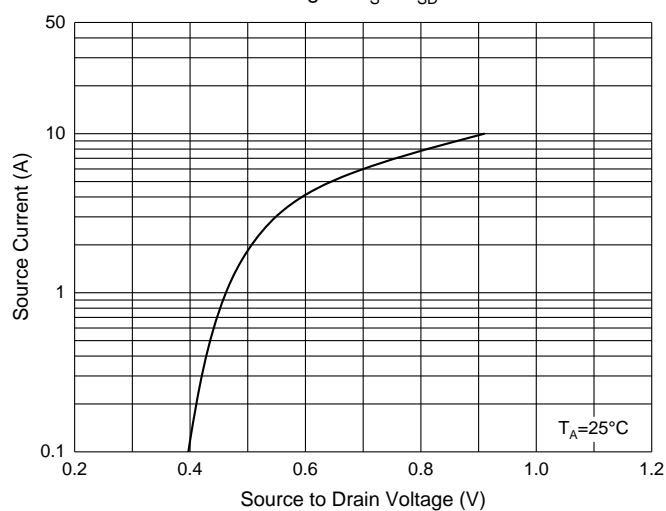


Fig. 6 - I_S — V_{SD}



Ordering Information

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

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