

Features

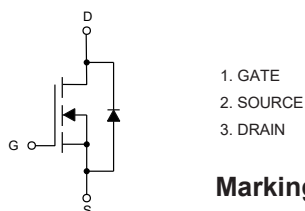
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Surface Mount Package
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix 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

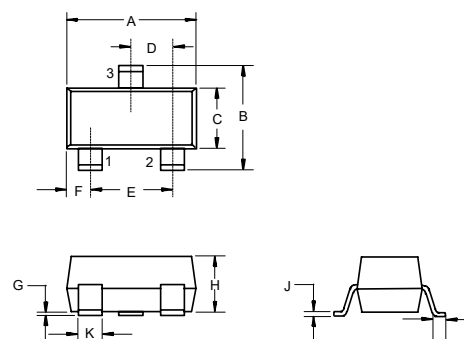
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.22	A
Power Dissipation	P_D	0.35	W

Internal Structure



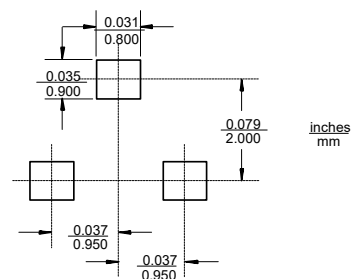
N-Channel MOSFET

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	50			V
Gate-Threshold Voltage ^(Note1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =1mA	0.8		1.5	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =50V, V _{GS} =0V			100	nA
Drain-Source On-Resistance ^(Note1)	R _{DS(on)}	V _{GS} =10V, I _D =0.22A			3.5	Ω
		V _{GS} =4.5V, I _D =0.22A			6	
Forward Transconductance ^(Note1)	g _{FS}	V _{DS} =10V, I _D =0.22A	120			mS
Diode Forward Voltage ^(Note1)	V _{SD}	V _{GS} =0V, I _S =0.44A			1.4	V
Dynamic Characteristics ^(Note2)						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V, f=1MHz		27	60	pF
Output Capacitance	C _{oss}			13	20	
Reverse Transfer Capacitance	C _{rss}			6	15	
Switching Characteristics						
Turn-On Delay Time ^(Note1,2)	t _{d(on)}	V _{DD} =30V,V _{GS} =10V,R _G =6Ω, I _D =0.29A			5	ns
Turn-On Rise Time ^(Note1,2)	t _r				18	
Turn-Off Delay Time ^(Note1,2)	t _{d(off)}				36	
Turn-Off Fall Time ^(Note1,2)	t _f				14	

Note:

1.Pulse Test : Pulse Width=300 μ s, Duty Cycle $\leq$ 2%.

2.These Parameters Have No Way to Verify.

Curve Characteristics

Fig. 1 - Output Characteristics

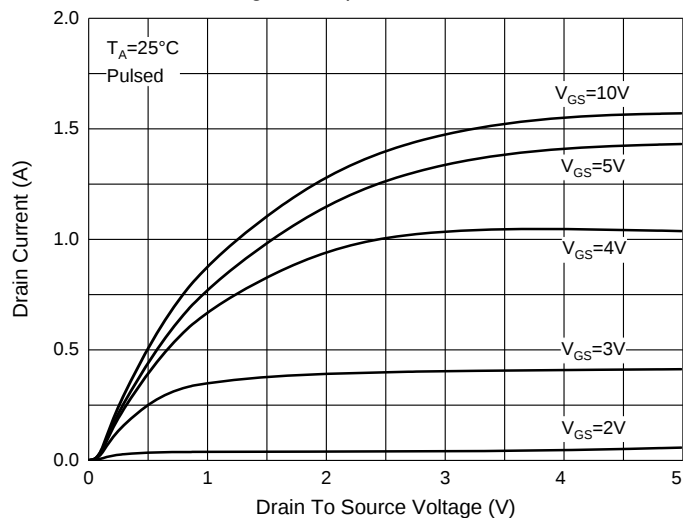


Fig. 2 - Transfer Characteristics

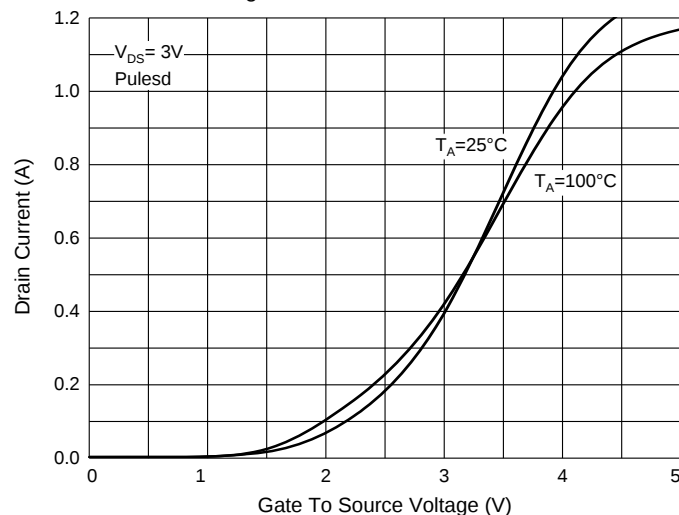


Fig. 3 - $R_{DS(ON)} - I_D$

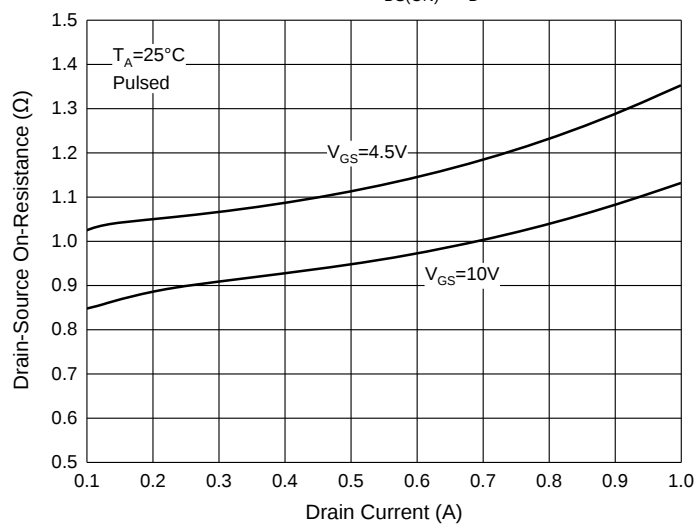


Fig. 4 - $R_{DS(ON)} - V_{GS}$

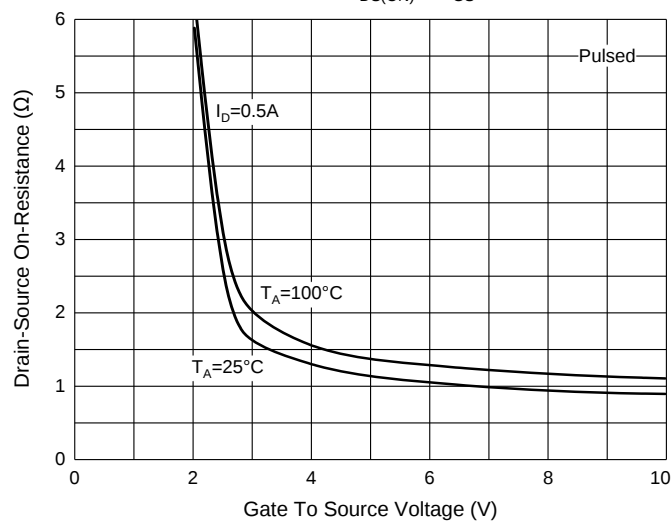


Fig. 5 - $I_S - V_{SD}$

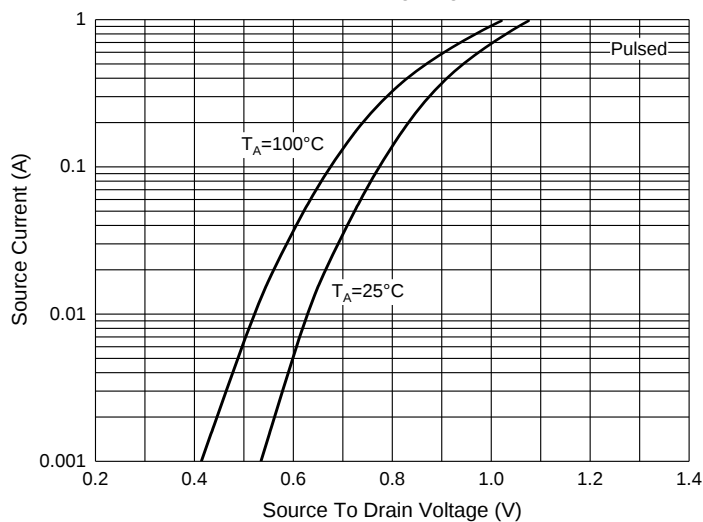
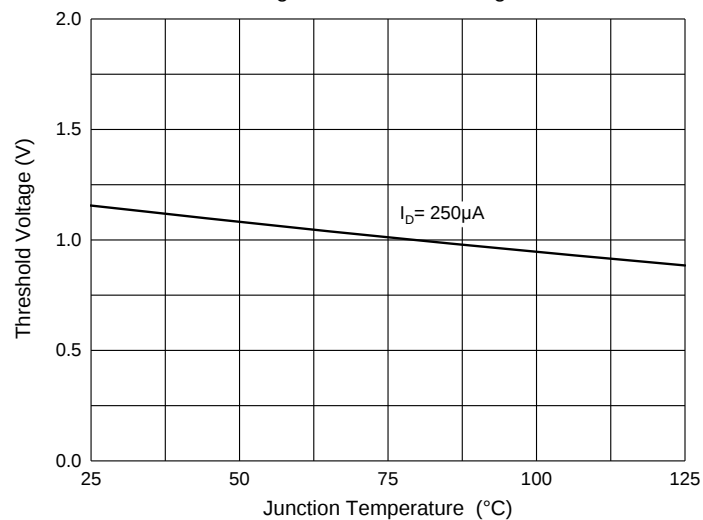


Fig. 6 - Threshold Voltage



Ordering Information

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

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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