

Features

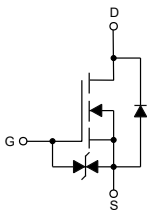
- Low $R_{DS(ON)}$
- Rugged and Reliable
- ESD Protected Gate
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"

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: 417°C/W Junction to Ambient^(Note 1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current	I_D	7.0	A
Pulsed Drain Current ^(Note1)	I_{DM}	30	A
Total Power Dissipation	P_D	0.3	W

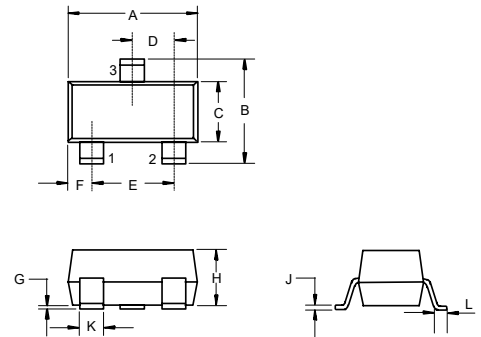
Internal Structure:



Marking Code: 8810

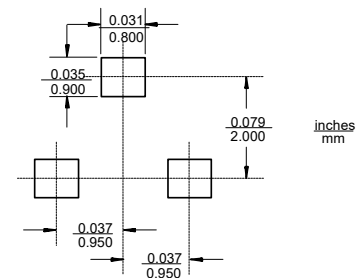
N-Channel MOSFET

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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Threshold Voltage ^(Note 1)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4		1.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 4.5V, V_{DS} = 0V$			± 1	μA
		$V_{GS} = \pm 8V, V_{DS} = 0V$			± 10	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
Drain-Source On-Resistance ^(Note 1)	$R_{DS(on)}$	$V_{GS}=10V, I_D=7A$			20	m Ω
		$V_{GS}=4.5V, I_D=6.6A$			22	
		$V_{GS}=3.8V, I_D=6A$			24	
		$V_{GS}=2.5V, I_D=5.5A$			26	
		$V_{GS}=1.8V, I_D=5A$			39	
Forward Transconductance ^(Note 1)	g_{fs}	$V_{DS}=5V, I_D=7A$	9			S
Diode Forward Voltage ^(Note 1)	V_{SD}	$V_{GS}=0V, I_S=1A$			1	V
Dynamic Characteristics^(Note 2)						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		1150		μF
Output Capacitance	C_{oss}			185		
Reverse Transfer Capacitance	C_{rss}			145		
Switching Characteristics^(Note 2)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GS}=5V, R_L=1.35\Omega, R_{GEN}=3\Omega$		6		ns
Turn-On Rise Time	t_r			13		
Turn-Off Delay Time	$t_{d(off)}$			52		
Turn-Off Fall Time	t_f			16		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=7A$		15		nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			3.2		

Note:

1. Pulse Test: Pulse Width=300 μs , Duty Cycle $\leq 2\%$.
2. Guaranteed by Design, Not Subject to Production Testing

Curve Characteristics

Fig. 1 - Output Characteristics

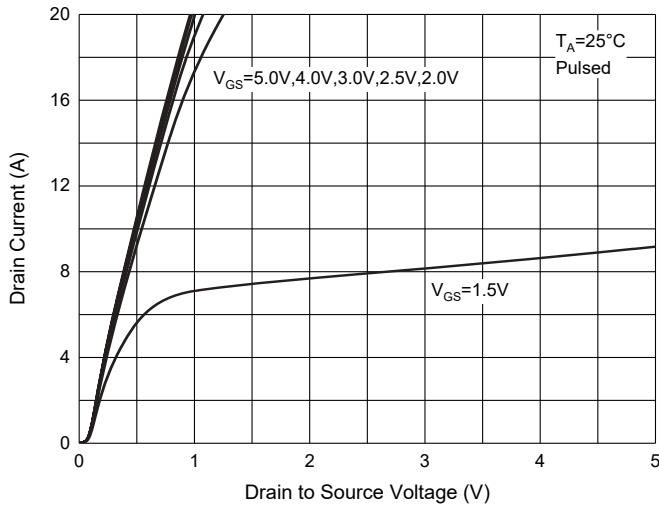


Fig. 2 - Transfer Characteristics

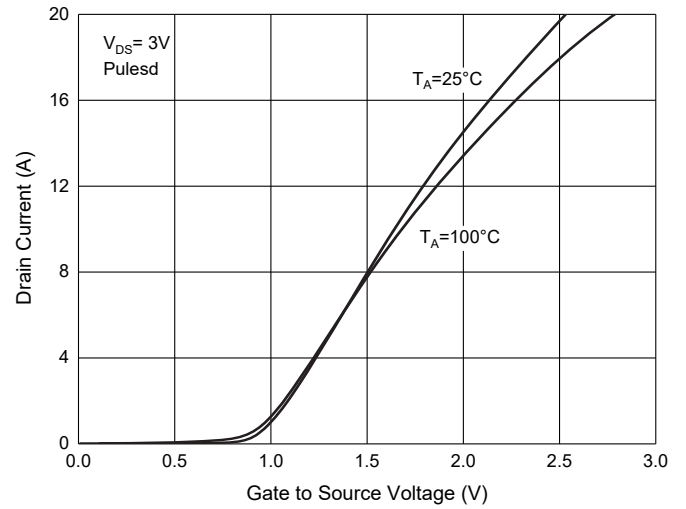


Fig. 3 - $R_{DS(ON)} - I_D$

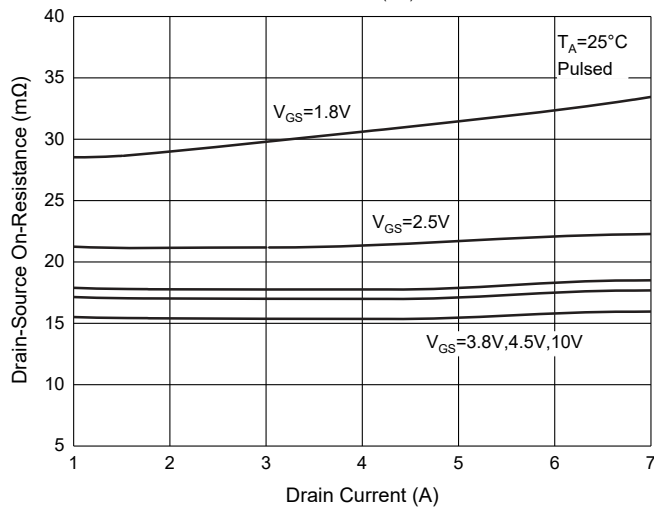


Fig. 4 - $R_{DS(ON)} - V_{GS}$

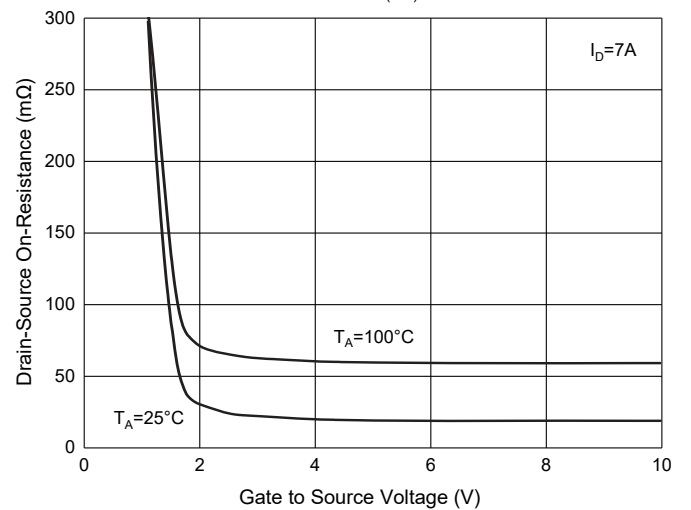


Fig. 5 - $I_S - V_{SD}$

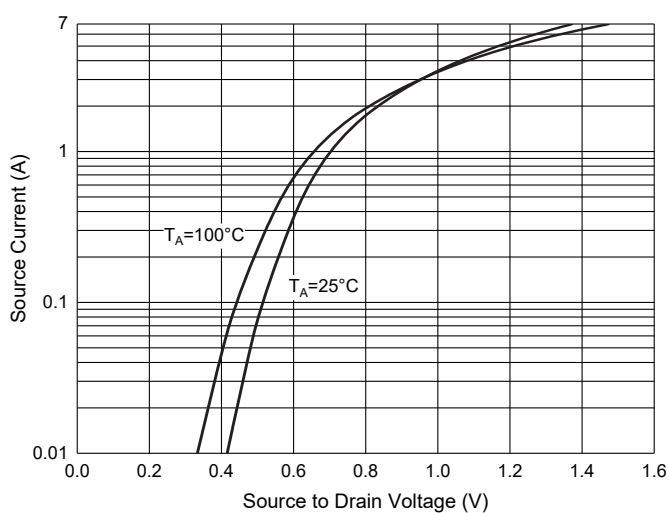
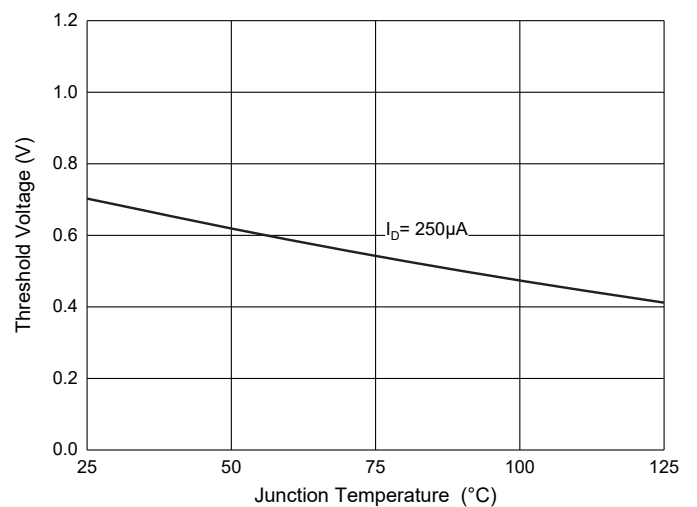


Fig. 6 - Threshold Voltage



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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