

Features

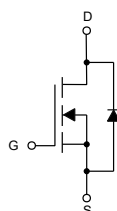
- TrenchFET Power MOSFET
- Low $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 357°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	2.0	A
Drain Current-Pulsed ^(Note 1)	I_{DM}	8.0	A

Internal Structure

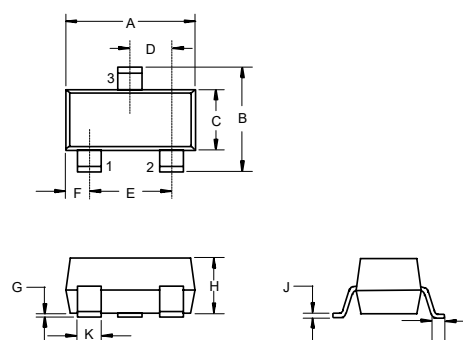


1. GATE
2. SOURCE
3. DRAIN

Marking: S24

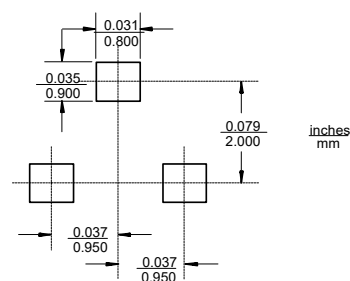
N-Channel MOSFET

SOT-23



DIMENSIONS					
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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Threshold Voltage ^(Note 2)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2		2.8	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Drain-Source On-Resistance ^(Note2)	$R_{DS(on)}$	$V_{GS}=10V, I_D=1.5A$			234	m Ω
		$V_{GS}=6.0V, I_D=1.0A$			267	
		$V_{GS}=4.5V, I_D=0.5A$			278	
Forward Transconductance ^(Note2)	g_{FS}	$V_{DS}=20V, I_D=1.5A$		2.0		S
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=1.3A$			1.2	V
Dynamic Characteristics^(Note 3)						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		190		pF
Output Capacitance	C_{oss}			22		
Reverse Transfer Capacitance	C_{rss}			13		
Gate Resistance	R_g	$f=1MHz$	0.3		2.8	Ω
Switching Characteristics^(Note 3)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=50V, R_L=39\Omega, V_{GEN}=4.5V, I_D=1.3A, R_{GEN}=1\Omega$			45	ns
Turn-On Rise Time	t_r				39	
Turn-Off Delay Time	$t_{d(off)}$				26	
Turn-Off Fall Time	t_f				20	
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=4.5V, I_D=1.6A$			5.8	nC
Gate-Source Charge	Q_{gs}			0.75		
Turn-Off Fall Time	Q_{gd}			1.4		

Notes:

- 1.Repetitive Rating: Pluse Width Limited By Junction Temperature.
- 2.Pulse Test: Pulse Width $\leq 300\mu A$, Duty Cycle $\leq 0.5\%$.
- 3.Guaranteed By Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

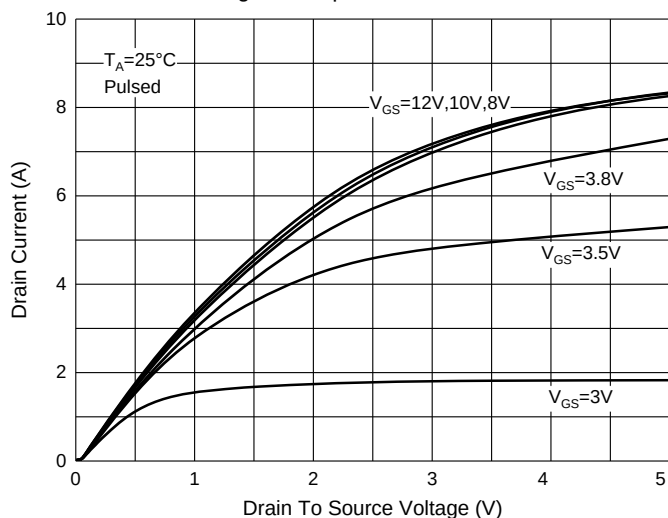


Fig. 2 - Transfer Characteristics

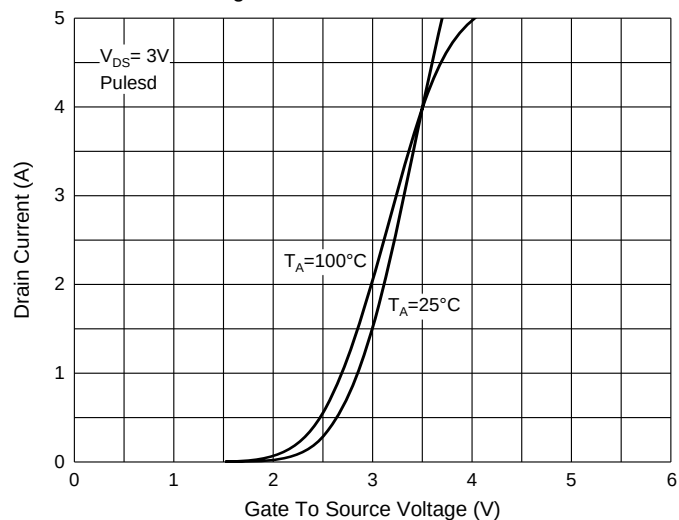


Fig. 3 - $R_{DS(ON)} - I_D$

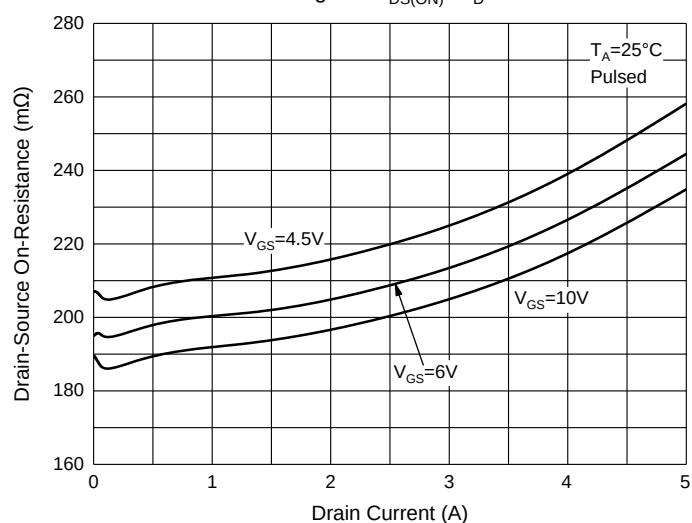


Fig. 4 - $R_{DS(ON)} - V_{GS}$

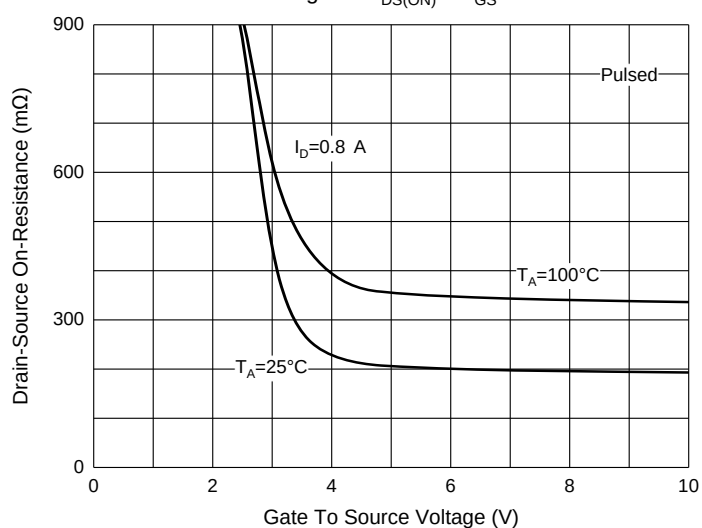


Fig. 5 - $I_S - V_{SD}$

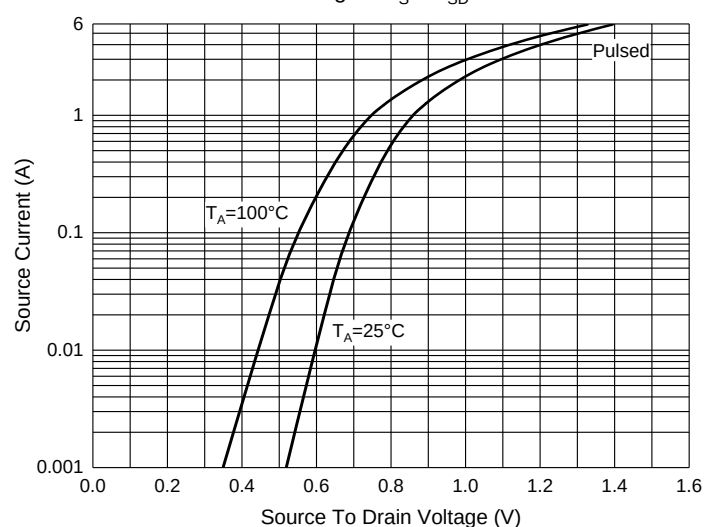
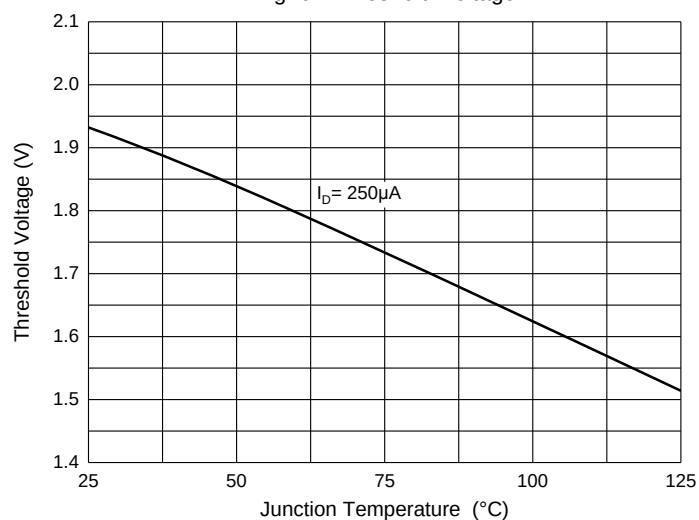


Fig. 6 - Threshold Voltage



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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