

Features

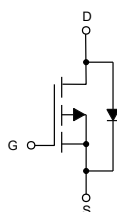
- Leading Trench Technology for Low $R_{DS(on)}$
- High Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 431°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-1.4	A
Pulsed Drain Current	I_{DM}	150	A
Total Power Dissipation	P_D	0.29	W

Internal Structure

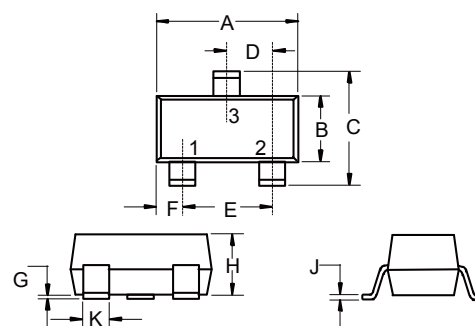


1. GATE
2. SOURCE
3. DRAIN

Marking: TS1

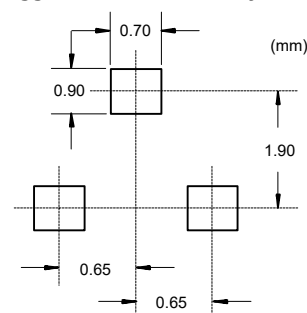
P-CHANNEL MOSFET

SOT-323



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.044	0.90	1.10	
J	0.002	0.010	0.05	0.25	
K	0.006	0.016	0.15	0.40	

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	-20			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage ^(Note 1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.45	-0.7	-1.2	V
Drain-Source On-Resistance ^(Note 1)	R _{DS(on)}	V _{GS} =-4.5V, I _D =-1A			100	mΩ
		V _{GS} =-2.5V, I _D =-0.5A			140	
		V _{GS} =-1.8V, I _D =-0.3A			210	
Dynamic Characteristics ^(Note 2)						
Input Capacitance	C _{iss}	V _{DS} =-8V, V _{GS} =0V, f=1MHz		640		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			82		
Turn-On Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-4.0V, I _D =-1.0A, R _G =6.2Ω		6.2		ns
Turn-On Rise Time	t _r			15		
Turn-Off Delay Time	t _{d(off)}			26		
Turn-Off Fall Time	t _f			18		
Drain-Source Body Diode Characteristics						
Body Diode Voltage	V _{SD}	I _{SD} =-0.3A, V _{GS} =0V		-0.62	-1.2	V

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

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

Curve Characteristics

Fig. 1 - Output Characteristics

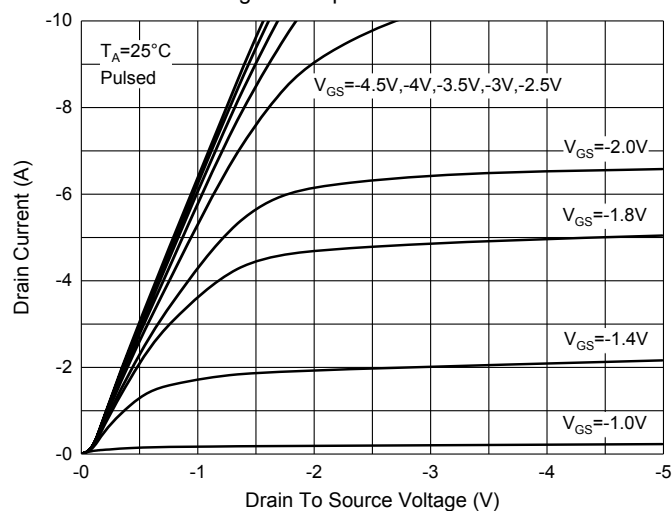


Fig. 2 - Transfer Characteristics

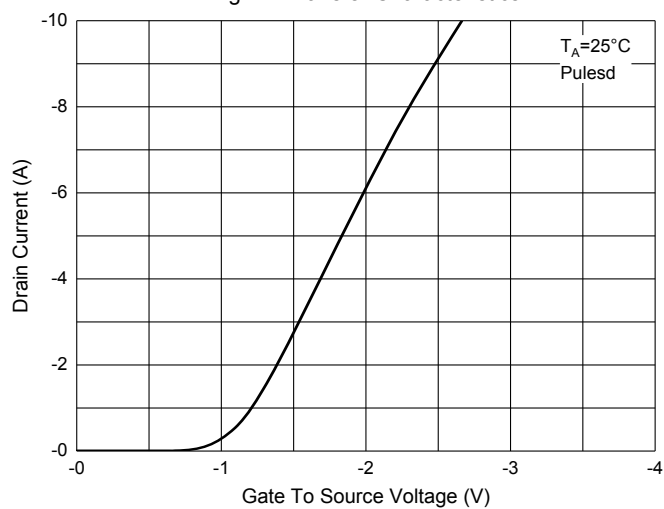


Fig. 3 - $R_{DS(ON)} - I_D$

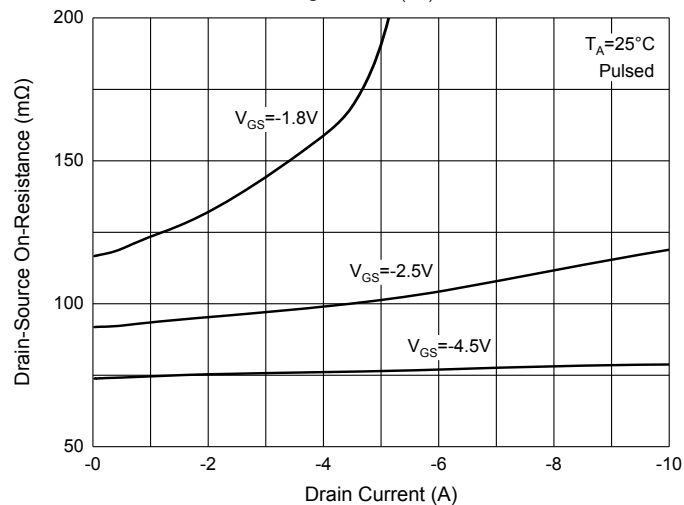


Fig. 4 - $R_{DS(ON)} - V_{GS}$

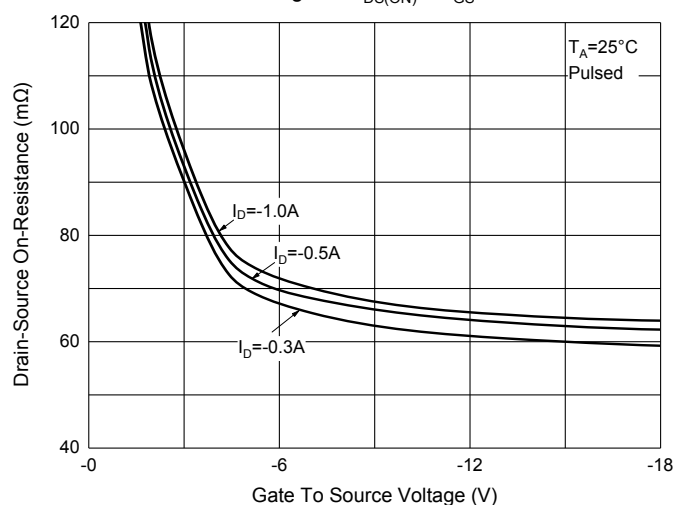
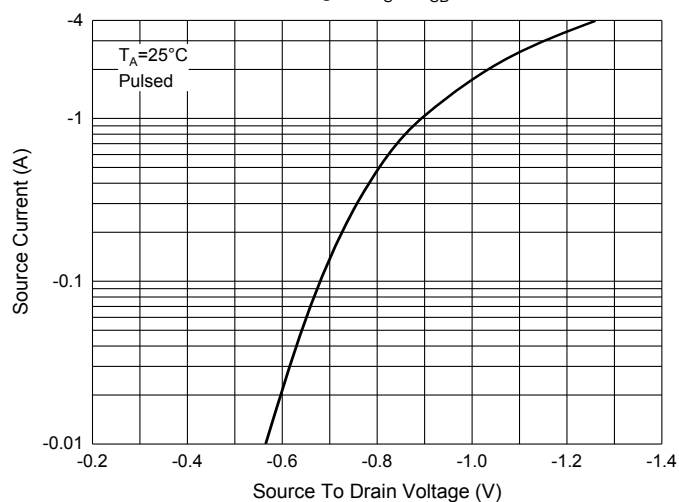


Fig. 5 - $I_S - V_{SD}$



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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