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)

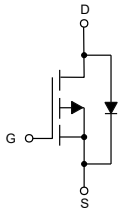
P-CHANNEL MOSFET

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 Volltage	V_{GS}	±8	V
Continuous Drain Current	I_D	-1.4	A
Pulsed Drain Current	I_{DM}	-3	A
Total Power Dissipation	P_D	0.29	W

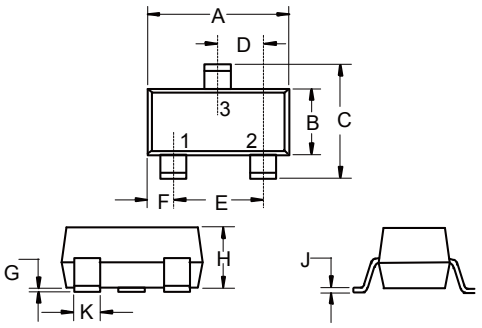
Internal Structure



1. GATE
2. SOURCE
3. DRAIN

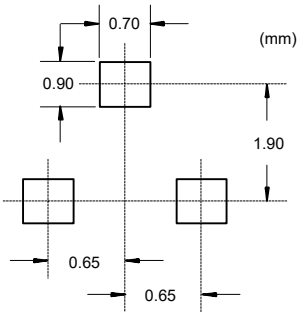
Marking: TS1

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≤300μs, Duty Cycle ≤2%.

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

Curve Characteristics

Fig. 1 - Output Characteristics

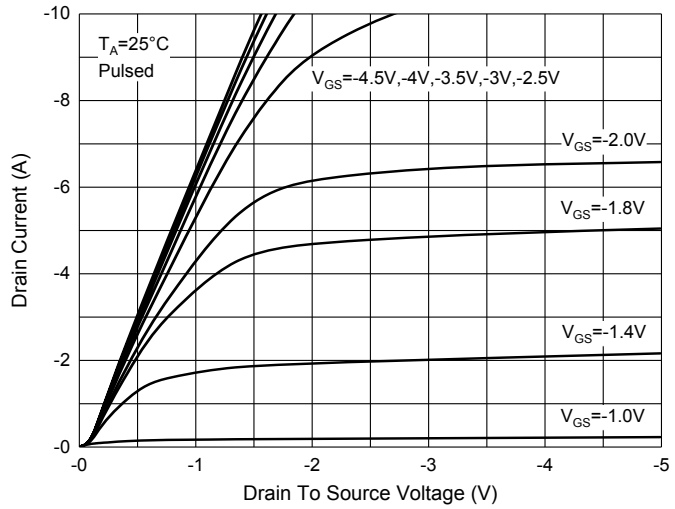


Fig. 2 - Transfer Characteristics

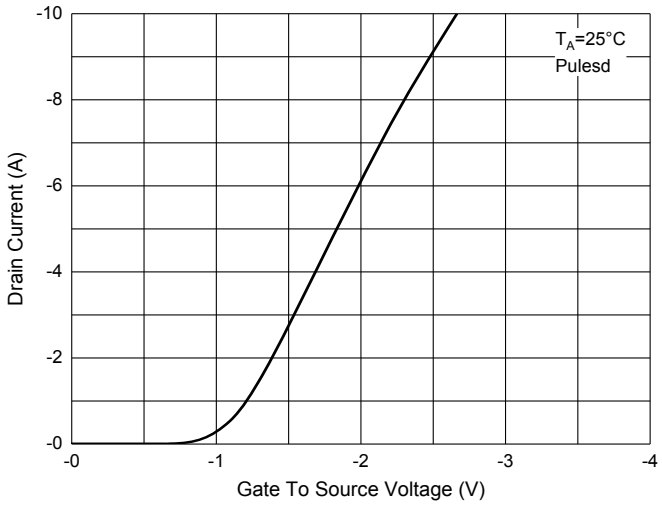


Fig. 3 - $R_{DS(ON)}$—I_D

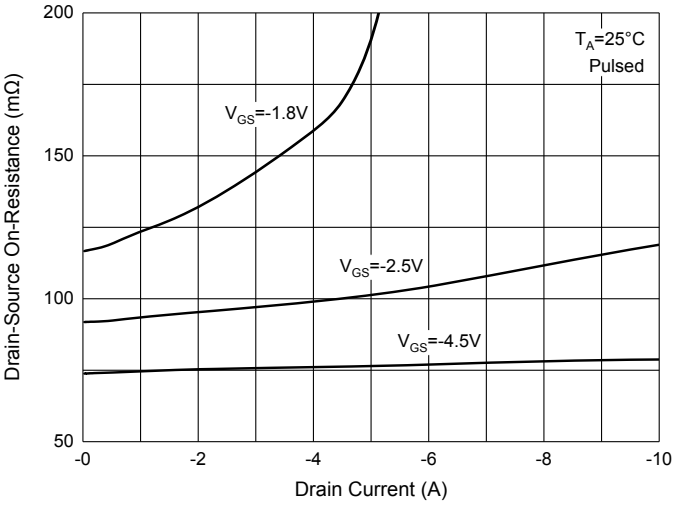


Fig. 4 - $R_{DS(ON)}$—V_{GS}

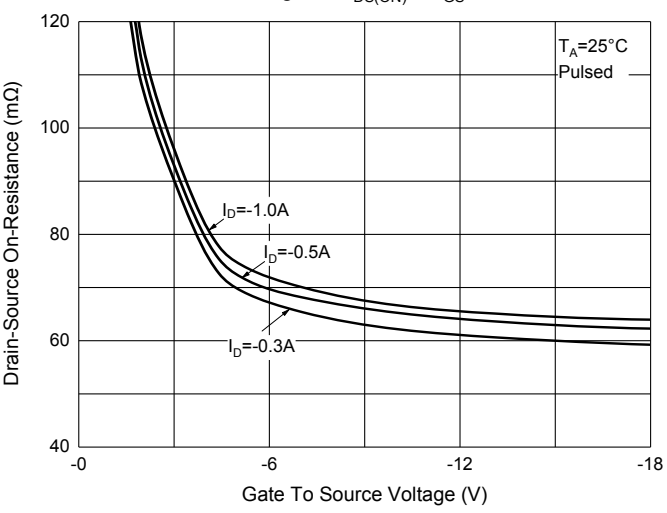
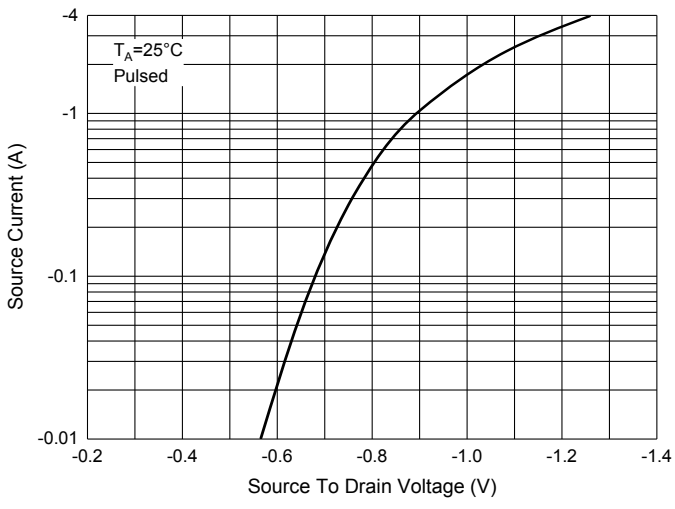


Fig. 5 - I_S—V_{SD}



Ordering Information

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

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