Features

- TrenchFET Power Mosfet
- Excellent $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

P-Channel MOSFET

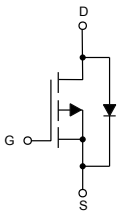
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 113°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 357°C/W Junction to Ambient(Note 3)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-12	V
Gate -Source Voltage	V_{GS}	±8	V
Drain Current-Continuous(Note 2)	I_D	-6.0	A
Drain Current-Pulse	I_{DM}	-20	A
Total Power Dissipation	P_D	0.35(Note 3)	W
		1.10(Note 2)	

Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

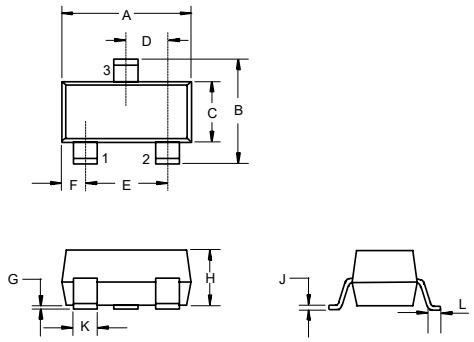
Internal Structure



1. GATE
2. SOURCE
3. DRAIN

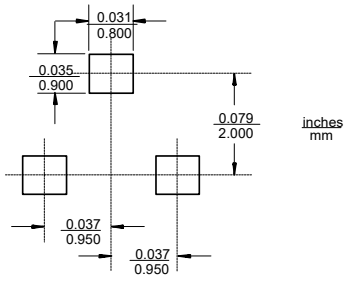
Marking:S33

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℃ 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	-12			V
Gate-Threshold Voltage(Note 3)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.40		-1.0	V
Gate-Body Leakage Current	I_{GSS}	V_{GS} =± 8V, V_{DS} =0V			±0.1	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-12V, V_{GS} =0V			-1	μA
Drain-Source On-Resistance(Note 3)	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-5.0A			28	mΩ
		V_{GS}=-3.7V, I_D=-4.6A			32	
		V_{GS}=-2.5V, I_D=-4.3A			40	
		V_{GS}=-1.8V, I_D=-1.0A			63	
		V_{GS}=-1.5V, I_D=-0.5A			150	
Forward Tranconductance(Note 3)	g_{FS}	V_{DS}=-5V, I_D=-5.0A		18		S
Dynamic Characteristics(Note 4)						
Input Capacitance	C_{iss}	V_{DS}=-6V,V_{GS}=0V, f=1MHz		1275		pF
Output Capacitance	C_{oss}			255		
Reverse Transfer Capacitance	C_{rss}			236		
Gate Resistance	R_g	f =1MHz	1.9		19	Ω
Total Gate Charge	Q_g	V_{DS}=-6V,V_{GS}=-4.5V,I_D=-5A		14	21	nc
Gate-Source Chage	Q_{gs}			2.3		
Gage-Drain Charge	Q_{gd}			3.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-6V,V_{GEN}=-4.5V,I_D=-4A R_L=6Ω,R_{GEN}=1Ω		26	40	ns
Turn-On Rise Time	t_r			24	40	
Turn-Off Delay Time	$t_{d(off)}$			45	70	
Turn-Off Fall Time	t_f			20	35	
Source-Drain Diode Characteristics						
Diode Forward Current	I_S	T_C=25℃			-1.4	A
Diode Pulsed Forward Current	I_{SM}				-20	A
Diode Forward Voltage(Note 3)	V_{SD}	V_{GS}=0V, I_S=-4A			-1.2	V
Diode Reverse Recovery Time(Note 4)	t_{rr}	I_F=-4A,dI/dt=100A/εs		24	48	ns
Diode Reverse Recovery Charge(Note 4)	Q_{rr}			8	16	nc

Note:

1. Device Mounted On FR-4 Substrated Board, With Minimum Recommended Pad Layout, Single Side.
2. Device Mounted on No Heat Sink.
3. Pulse Test: Pulse Width≤ 300μs,Duty Cycle≤2%.
4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

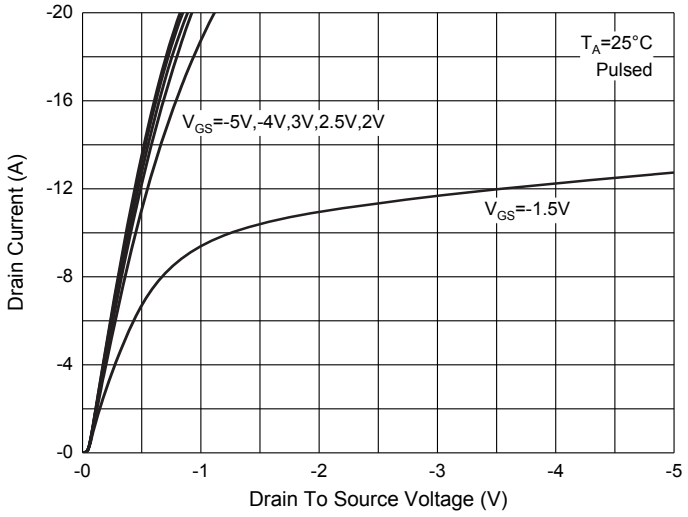


Fig. 2 - Transfer Characteristics

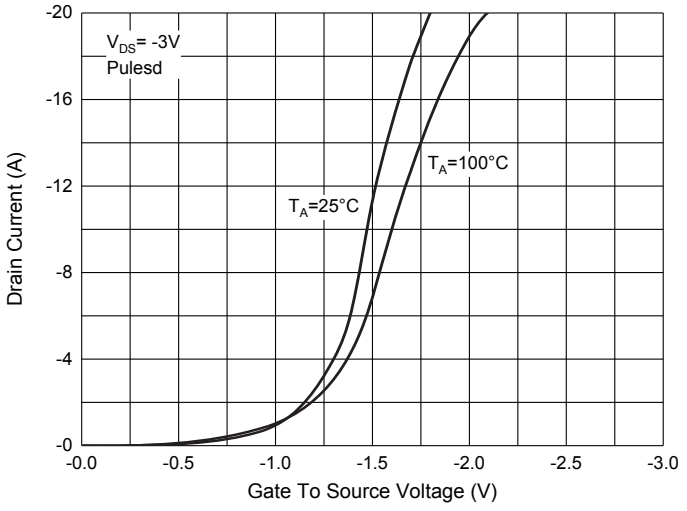


Fig. 3 - $R_{DS(ON)}$—I_D

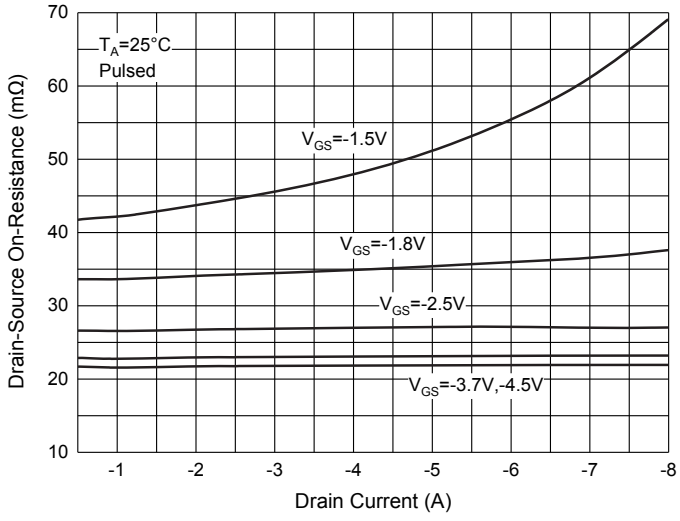


Fig. 4 - $R_{DS(ON)}$—V_{GS}

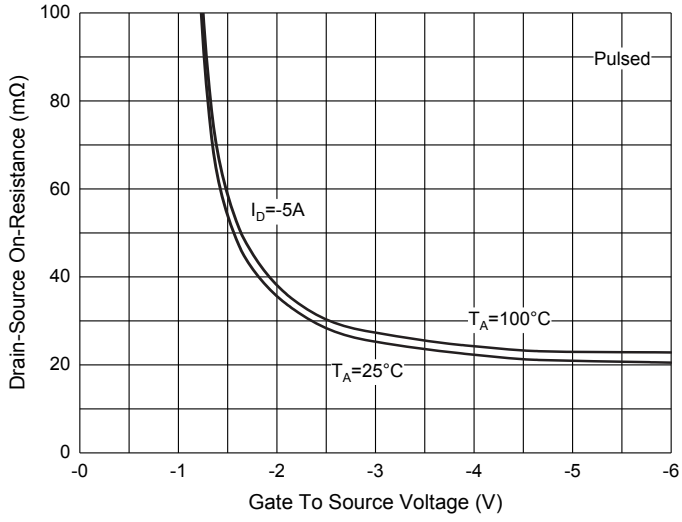


Fig. 5 - I_S—V_{SD}

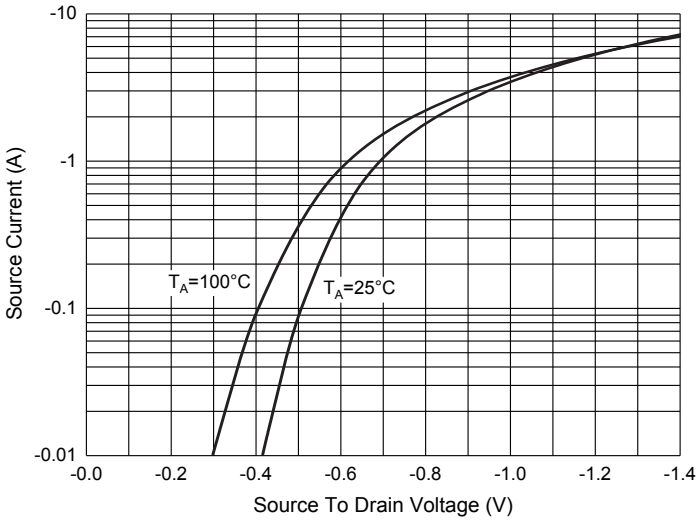
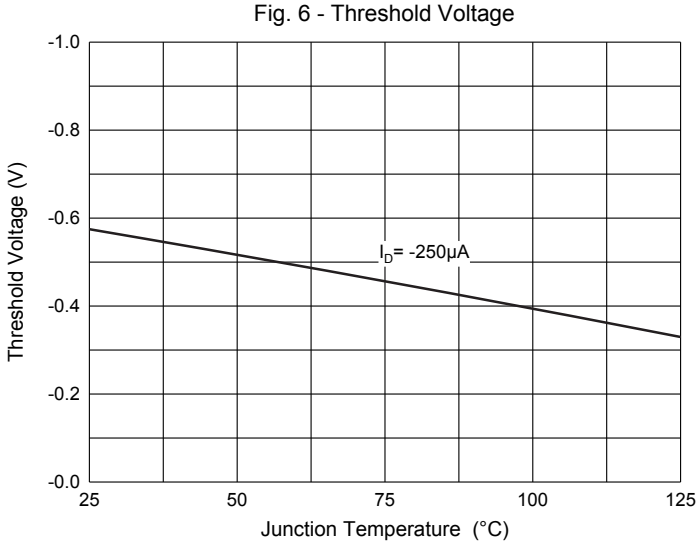


Fig. 6 - Threshold Voltage



Ordering Information

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