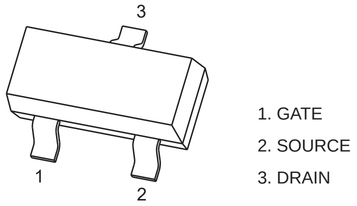
30V P-Channel MOSFET

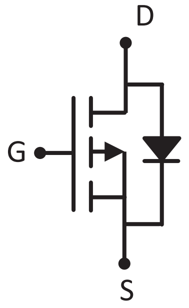
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	43mΩ@-10V	-4.0A
	52mΩ@-4.5V	
	72mΩ@-2.5V	

SOT-23



Schematic diagram



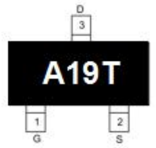
Feature

- TrenchFET Power MOSFET
- Exceptional on-resistance and maximum DC current capability

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	-30	V
Gate - Source Voltage		V_{GS}	±12	V
Continuous Drain Current[1,5]	T_A = 25℃	I_D	-4.0	A
Pulsed Drain Current[2]		I_{DM}	-17	A
Power Dissipation[4,5]	T_A = 25℃	P_D	1.5	W
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	83.3	℃/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.7	-0.9	-1.3	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.2A		43	65	mΩ
		V_{GS} =-4.5V, I_D =-4A		52	75	
		V_{GS} =-2.5V, I_D =-1A		72	90	
Forward tranconductance[3]	g_{FS}	V_{DS} =-5V, I_D =-4.2A		10		S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		954		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			77		
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V,V_{DS}=-15V, R_L=3.6Ω,R_{GEN}=6Ω			6.3	ns
Turn-on rise time	t_r				3.2	
Turn-off delay time	$t_{d(off)}$				38.2	
Turn-off fall time	t_f				12	
Source-Drain Diode characteristics						
Diode forward current	I_S				-2	A
Diode pulsed forward current	I_{SM}				-15	A
Diode Forward voltage[3]	V_{DS}	V_{GS} =0V, I_S=-4.2A			-1.2	V

Notes:

1.The maximum current rating is limited by package.

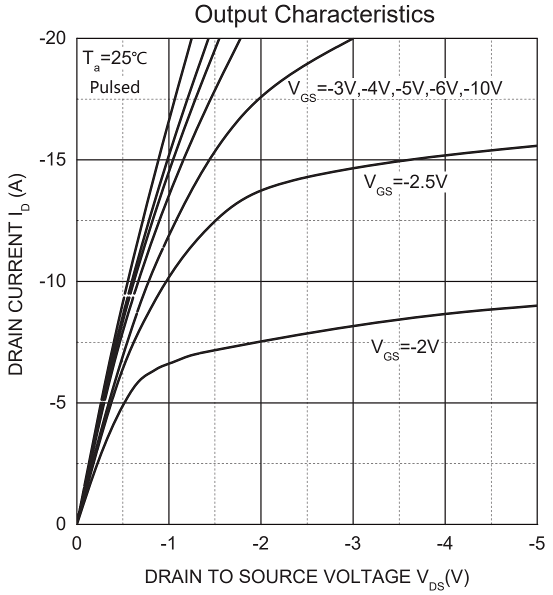
2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

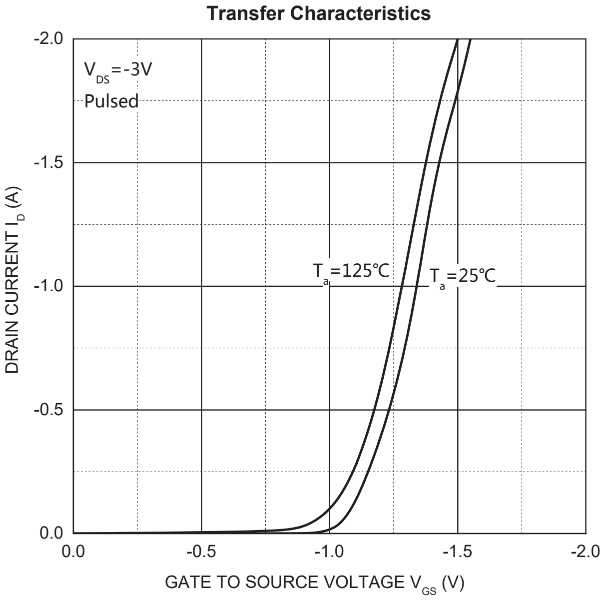
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

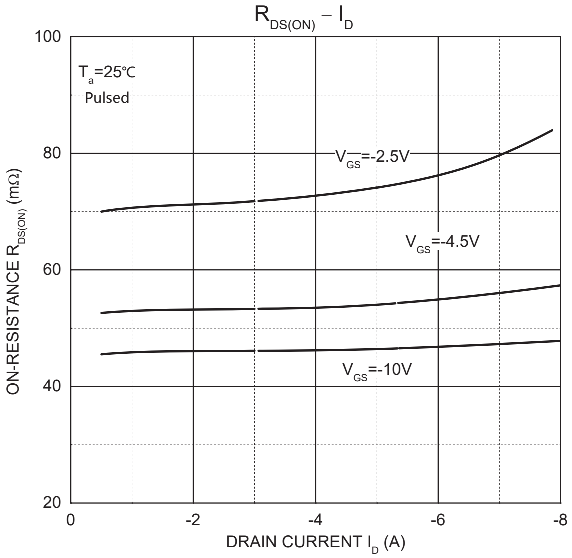
4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

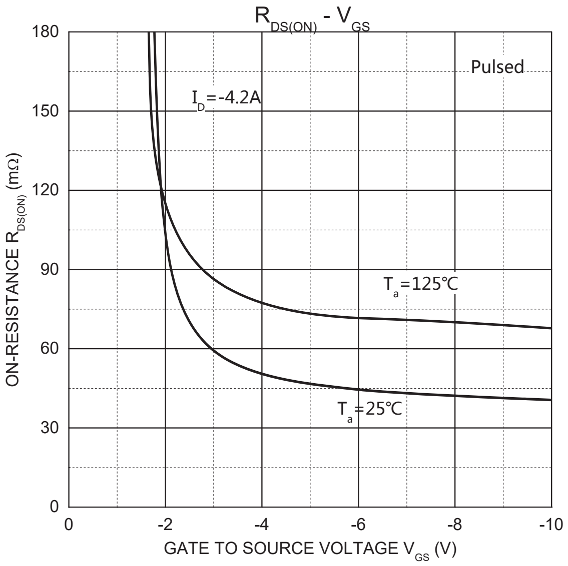
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

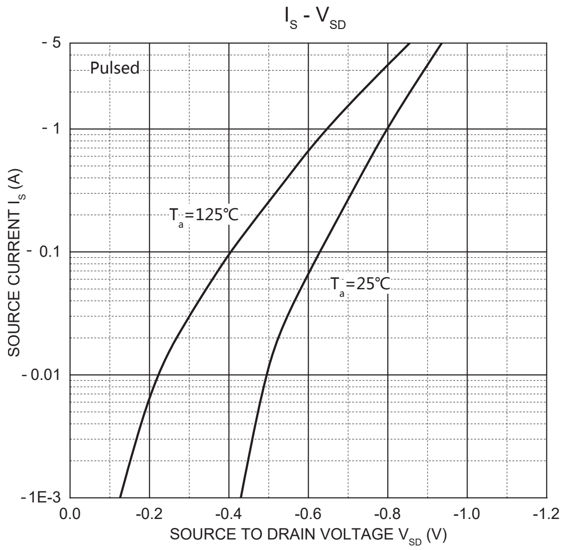
Typical Electrical and Thermal Characteristics

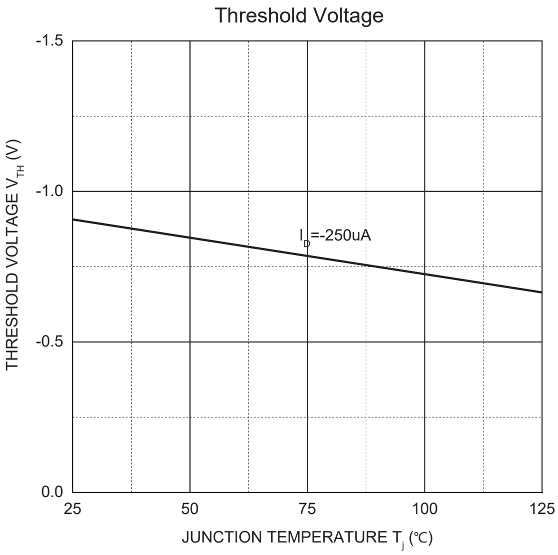


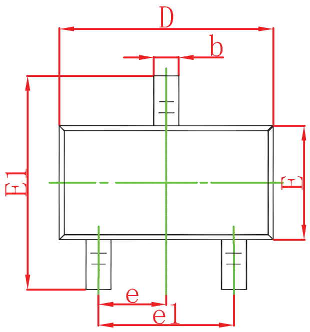


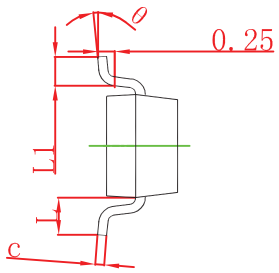


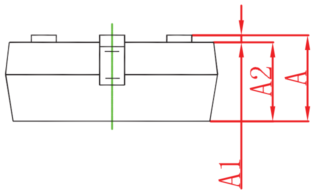






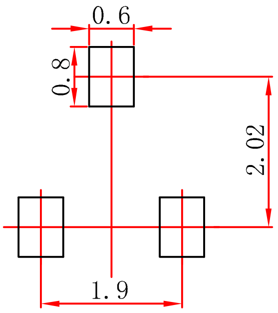






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.