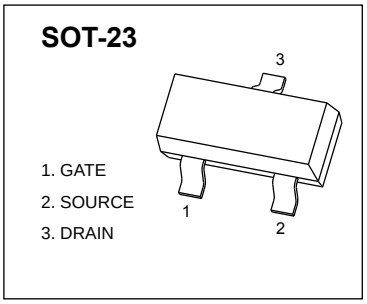
SOT-23 Plastic-Encapsulate MOSFETS

P-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)Typ}$	I_D
-20 V	38mΩ@-4.5V	-4A
	50mΩ@-2.5V	
	70mΩ@-1.8V	



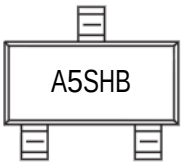
FEATURE

- TrenchFET Power MOSFET

APPLICATION

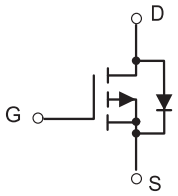
- PA Switch
- Load Switch

MARKING



A5SHB= Device code

Equivalent Circuit



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current	I_{DM}	-15	
Continuous Source-Drain Diode Current	I_S	-0.59	
Maximum Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{stg}	-50 ~+150	℃

MOSFET ELECTRICAL CHARACTERISTICS

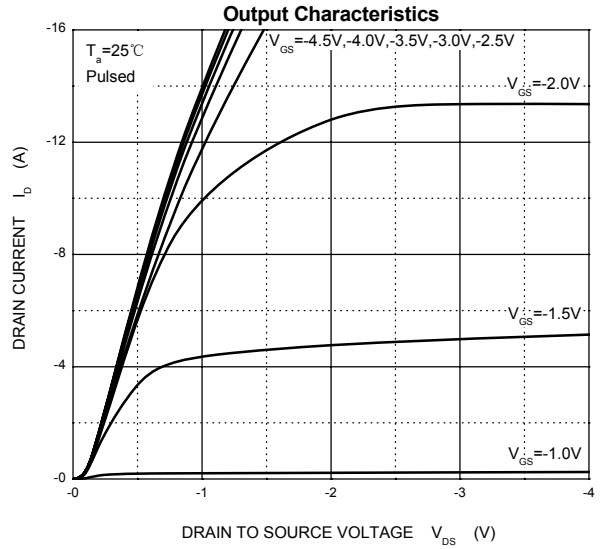
T_a=25℃ unless otherwise specified

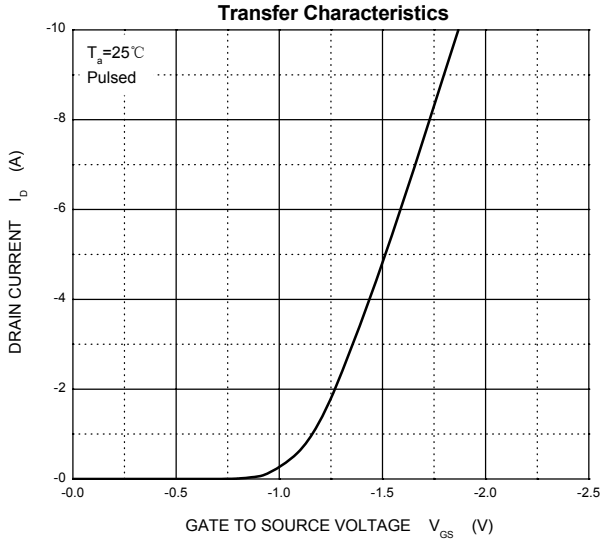
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =-10μA	-20			V
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±12V			±100	nA
Zero Gate voltage drain current	I_{DSS}	V_{DS} =-16V, V_{GS} =0V			-1.0	μA
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4		-1.0	V
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-3.4A		0.038	0.060	Ω
		V_{GS} =-2.5V, I_D =-2.0A		0.050	0.075	
		V_{GS} =-1.8V, I_D =-2.5A		0.070	0.095	
Forward tranconductance	g_{fS}	V_{DS} =-5V, I_D =-3.4A	3			S
Forward diode voltage	V_{SD}	V_{GS} =0V,I_S=-1.6A			-1.2	V
Dynamic						
Input capacitance[a,b]	C_{iss}	V_{DS} =-6V,V_{GS} =0V,f =1MHz		715		pF
Output capacitance[a,b]	C_{oss}			170		
Reverse transfer capacitance[a,b]	C_{rss}			120		
Total Gate charge[a]	Q_g	V_{DS} =-6V,V_{GS} =-4.5V,I_D=-3.3A			13	nc
Gate-Source charge[a]	Q_{gs}			1.2		nc
Gate-Drain charge[a]	Q_{gd}			2.2		nc
Switching[a,b]						
Turn-on delay Time	$t_{d(on)}$	V_{GEN}=-4.5V,V_{DD}=-6V, I_D =-1.0A,R_G=6Ω, R_L=6Ω			25	ns
Rise time	t_r				55	
Turn-off delay time	$t_{d(off)}$				90	
Fall time	t_f				60	

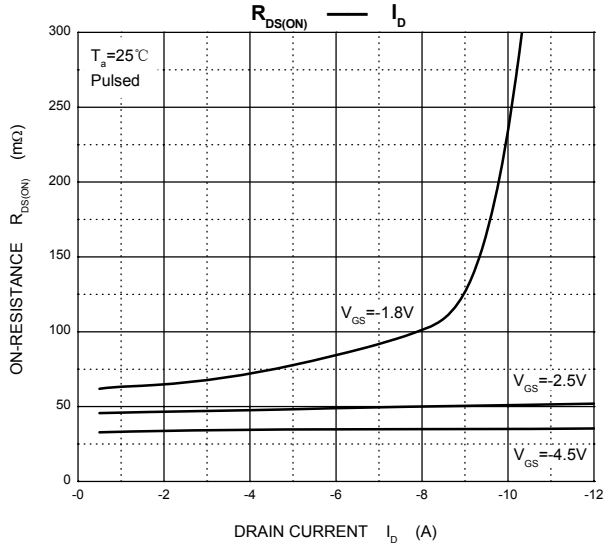
Notes :

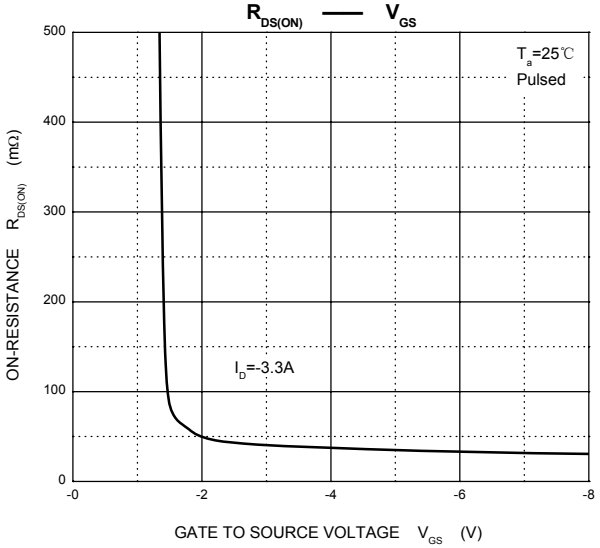
a. Pulse Test : pulse width ≤300μs, duty cycle ≤2%.

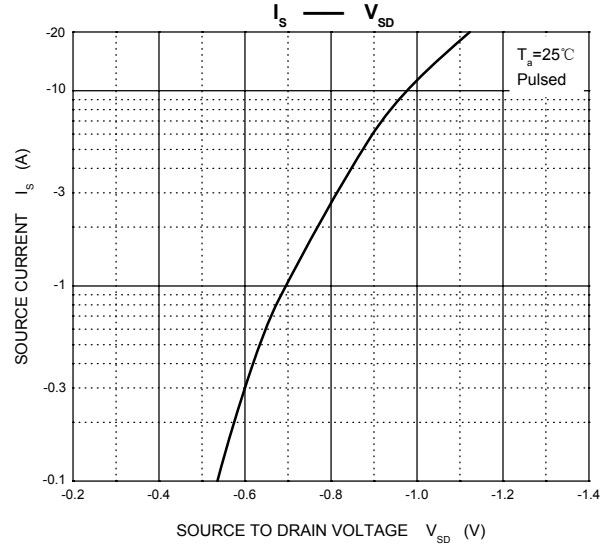
b. These parameters have no way to verify.


Output Characteristics
T_a=25℃
Pulsed
V_GS=-4.5V,-4.0V,-3.5V,-3.0V,-2.5V
V_GS=-2.0V
V_GS=-1.5V
V_GS=-1.0V
DRAIN CURRENT I_D (A)
DRAIN TO SOURCE VOLTAGE V_DS (V)

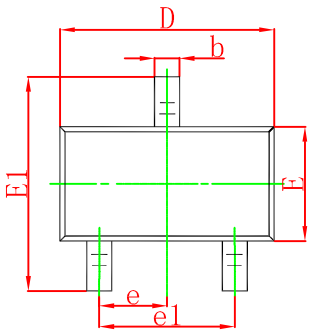

Transfer Characteristics
T_a=25℃
Pulsed
DRAIN CURRENT I_D (A)
GATE TO SOURCE VOLTAGE V_GS (V)

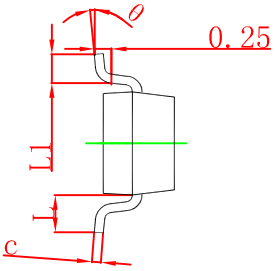

R_DS(ON) — I_D
T_a=25℃
Pulsed
V_GS=-1.8V
V_GS=-2.5V
V_GS=-4.5V
ON-RESISTANCE R_DS(ON) (mΩ)
DRAIN CURRENT I_D (A)

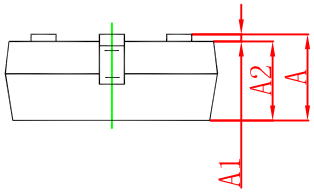

R_DS(ON) — V_GS
T_a=25℃
Pulsed
I_D=-3.3A
ON-RESISTANCE R_DS(ON) (mΩ)
GATE TO SOURCE VOLTAGE V_GS (V)


I_S — V_SD
T_a=25℃
Pulsed
SOURCE CURRENT I_S (A)
SOURCE TO DRAIN VOLTAGE V_SD (V)

SOT-23 Package Outline Dimensions

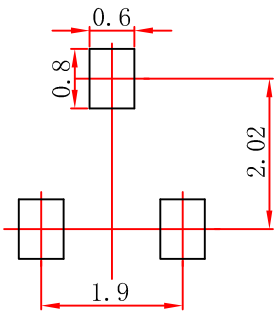






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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.