MDD®

SI2302

SOT-23 Plastic-Encapsulate MOSFETS

SI2302   N-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20 V	60 mΩ@4.5V	2.0A
	80 mΩ@2.5V	

SOT-23
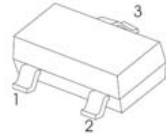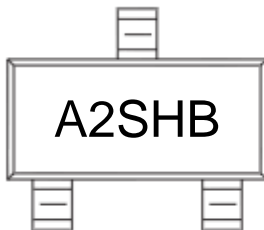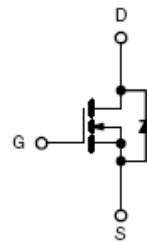

1. GATE
2. SOURCE
3. DRAIN

FEATURE

- TrenchFET Power MOSFET

APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

MARKING

A2SHB

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}	±12	
Continuous Drain Current	I_D	2.0	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	0.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	312.5	℃/W
Operating Junction	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~+150	

Notes
1) Pulse width limited by maximum junction temperature.
2) Surface Mounted on FR4 Board, t ≤ 5 sec.

The above data are for reference only.

DN:T19827A0

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25℃ unless otherwise specified

| Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =10µA	18	20		V
Gate-threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =50µA	0.65	0.95	1.2	
Gate-body leakage	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
Drain-source on-resistance[a]	$r_{DS(on)}$	V_{GS} =4.5V, I_D =2.0A		0.044	0.060	Ω
		V_{GS} =2.5V, I_D =1.5A		0.055	0.080	
Forward transconductance[a]	g_{fs}	V_{DS} =5V, I_D =3.6A		8		S
Diode forward voltage	V_{SD}	I_S=0.94A,V_{GS}=0V		0.76	1.2	V
Dynamic						
Total gate charge	Q_g	V_{DS} =10V,V_{GS} =4.5V,I_D =3.6A		4.0	10	nC
Gate-source charge	Q_{gs}			0.65		
Gate-drain charge	Q_{gd}			1.5		
Input capacitance [b]	C_{iss}	V_{DS} =10V,V_{GS} =0V,f=1MHz		300		pF
Output capacitance [b]	C_{oss}			120		
Reverse transfer capacitance[b]	C_{rss}			80		
Switching[b]						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, R_L=5.5Ω, I_D ≈3.6A, V_{GEN}=4.5V,Rg=6Ω		7	15	ns
Rise time	t_r			55	80	
Turn-off delay time	$t_{d(off)}$			16	60	
Fall time	t_f			10	25	

Notes :

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

b. These parameters have no way to verify.
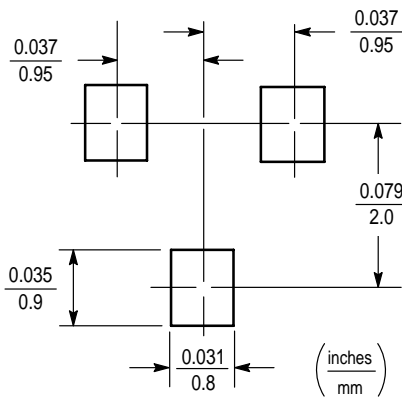
Figure 3 Power Dissipation

Outlitne Drawing

SOT-23 Package Outline Dimensions
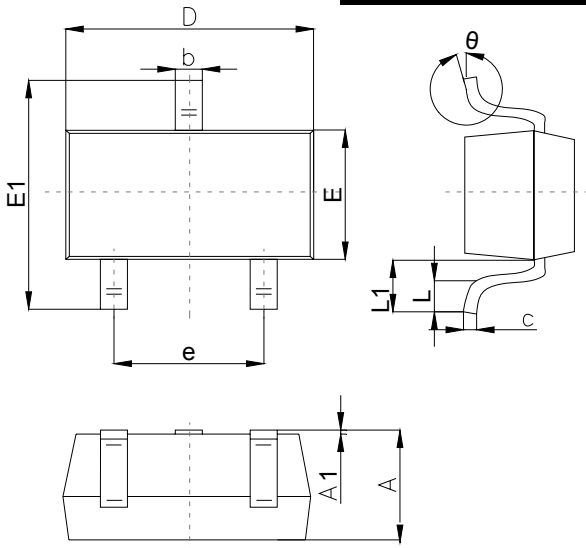
Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.4		2.80
e		1.90	
L	0.10		0.30
L1	0.4		
θ	0°		10°

Suggested Pad Layout

Note:

1. Controlling dimension:in/millimeters.

2. General tolerance: ±0.05mm.

3. The pad layout is for reference purposes only.

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