

**2A , 20V , N-Channel MOSFET****Features** $R_{DS(ON)} \leq 60m\Omega @ V_{GS}=4.5V$ $R_{DS(ON)} \leq 100m\Omega @ V_{GS}=2.5V$

Industry-standard pinout SOT-23 Package

Compatible with Existing Surface Mount Techniques

RoHS Compliant, Halogen-Free

APPLICATIONS

Load switch for portable

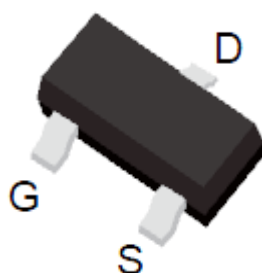
DC/DC converter

FEATURE

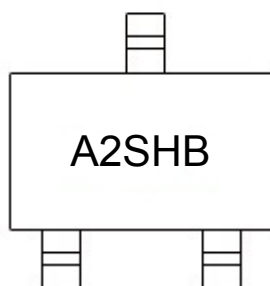
High Density Cell Design For Ultra

Low On-Resistance

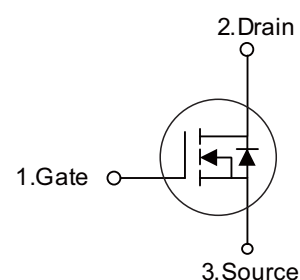
Advanced trench process technology



SOT-23 top view



Marking and pin Assignment



Schematic Diagram

Package Marking and Ordering Information

Device model	Marking	Packing	Device Package	Reel (PCS)	BOX (PCS)	Per Carton (PCS)
H2302	A2SHB	Tape and Reel	SOT-23	3000	45000	180000

ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DSS}		20	V
Gate-Source Voltage	V_{GSS}		± 12	
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	2	A
Pulsed Drain Current ^{Note1}	I_{DM}	$T_C=25^\circ\text{C}$	10	
Power Dissipation	P_D	$T_A=75^\circ\text{C}$	0.6	W
Operating and Storage Temperature	T_J, T_{stg}		-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$		357	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)**Static**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	V_{DSS}	$V_{\text{DS}}=0\text{V}$, $I_{\text{D}}=10\mu\text{A}$	20	--	--	V
Gate-threshold voltage	$V_{\text{GS(th)}}$	$V_{\text{DS}}=V_{\text{GS}}$, $I_{\text{D}}=250\mu\text{A}$	0.5	0.73	1.2	
Diode forward voltage	V_{SD}	$S=0.94\text{A}$, $V_{\text{GS}}=0\text{V}$	--	0.76	1.2	
Gate-source leakage current	I_{GSS}	$V_{\text{DS}}=0\text{V}$, $V_{\text{GS}}=\pm 8\text{V}$	--	--	± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{\text{DS}}=20\text{V}$, $V_{\text{GS}}=0\text{V}$	--	--	1	μA
Static Drain-Source on-Resistance ^{Note3}	$R_{\text{DS(on)}}$	$V_{\text{GS}}=4.5\text{V}$, $I_{\text{D}}=3\text{A}$	--	55	60	m Ω
		$V_{\text{GS}}=2.5\text{V}$, $I_{\text{D}}=3\text{A}$	--	80	100	
Forward Transconductance ¹	g_{FS}	$V_{\text{DS}}=-5\text{V}$, $I_{\text{D}}=3\text{A}$	--	8	--	S

Dynamic Characteristics

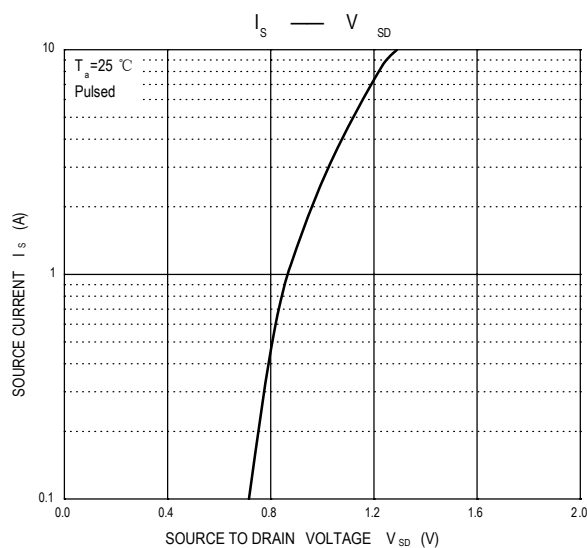
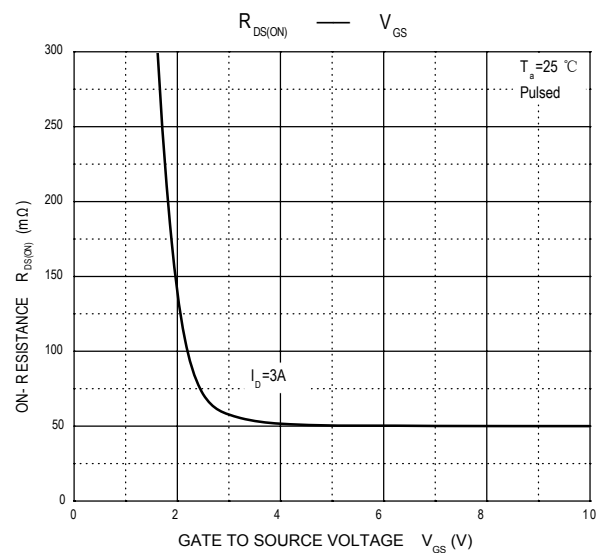
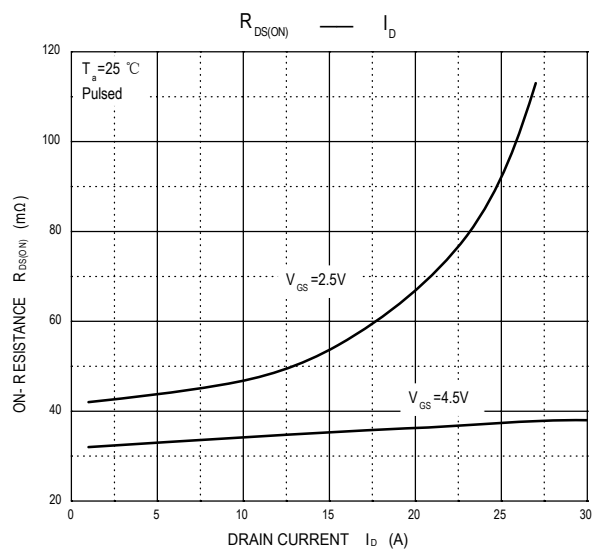
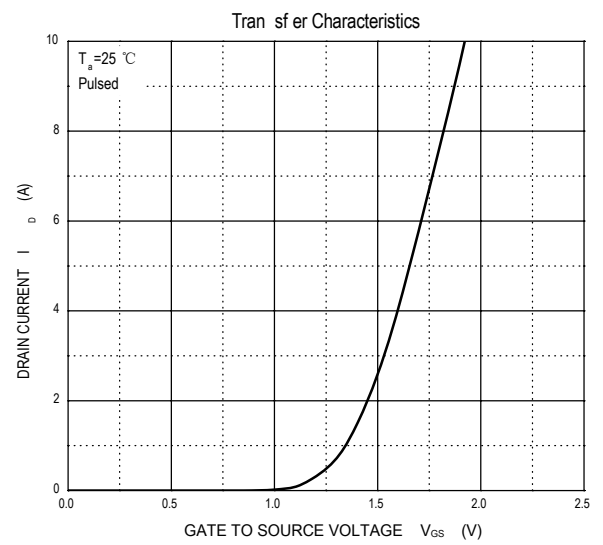
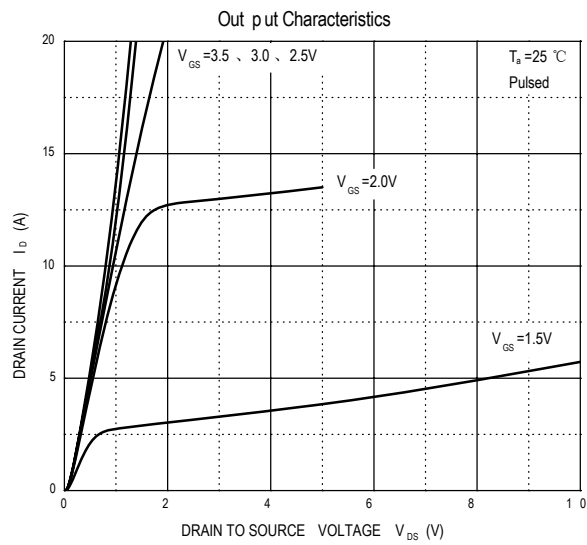
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{\text{GS}}=0\text{V}$ $V_{\text{DS}}=10\text{V}$ $f=1.0\text{MHz}$	--	300	--	pF
Output capacitance	C_{oss}		--	120	--	
Reverse transfer capacitance	C_{rss}		--	80	--	
Gate to source charge	Q_{gs}	$V_{\text{DS}}=10\text{V}$ $V_{\text{GS}}=4.5\text{V}$ $I_{\text{D}}=3\text{A}$	--	4.0	--	nC
Gate to drain charge	Q_{gd}		--	0.65	--	
Gate charge total	Q_{g}		--	1.5	--	

Switching Characteristics

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Turn-on Delay Time	$t_{\text{d(on)}}$	$V_{\text{DS}}=10\text{V}$ $V_{\text{GS}}=4.5\text{V}$ $I_{\text{D}}=3\text{A}$ $R_{\text{L}}=5.5\Omega$ $R_{\text{G}}=6\Omega$	--	7	15	nS
Rise time	t_{r}		--	55	80	
Turn-off delay time	$t_{\text{d(off)}}$		--	16	60	
Fall time	t_{f}		--	10	25	



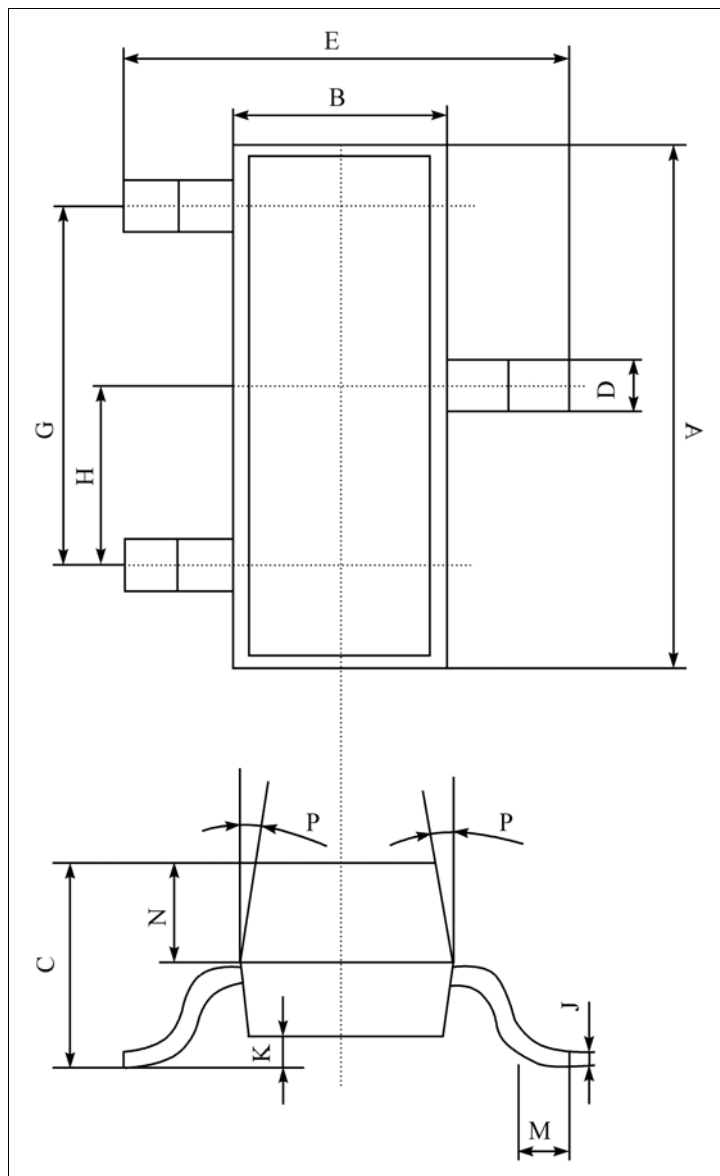
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS





SOT-23-3L PACKAGE OUTLINE DIMENSIONS

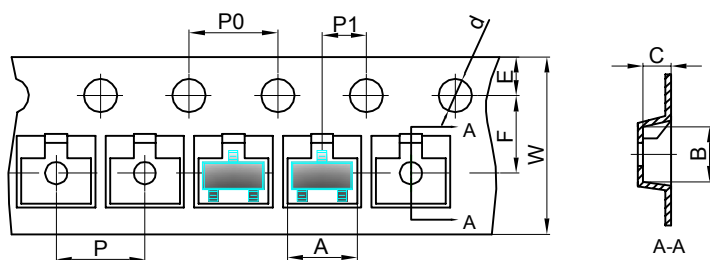
单位 (UNIT) : mm



序号	数值及公差
A	2.90±0.10
B	1.30±0.10
C	1.00±0.10
D	0.40±0.10
E	2.40±0.20
G	1.90±0.10
H	0.95±0.05
J	0.13±0.05
K	0.00-0.10
M	≥0.20
N	0.60±0.10
P	7±2°

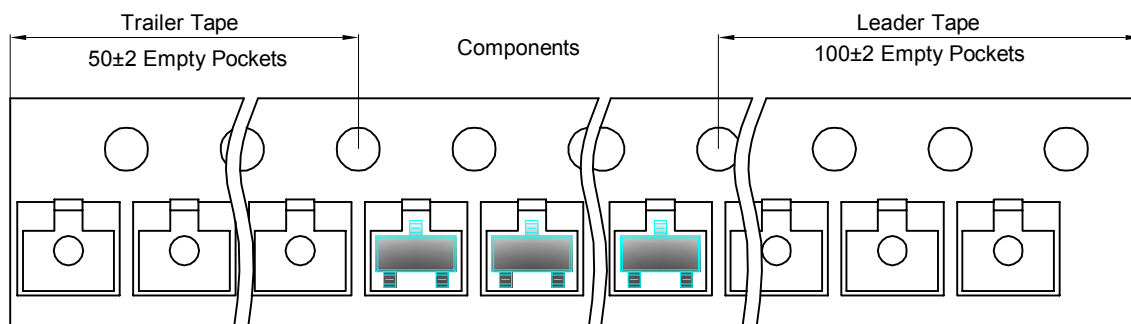
Packing
SOT-23 包装规格
SMD片式表面贴封装
包装方式: 载带卷盘包装
Tape & Reel, 3Kpcs/Reel
每卷数量3000只 (3Kpcs/Reel)
每盒数量45000只 (45Kpcs/BOX)
每箱数量180000只 (180Kpcs/Cartons)

SOT-23 Tape and reel

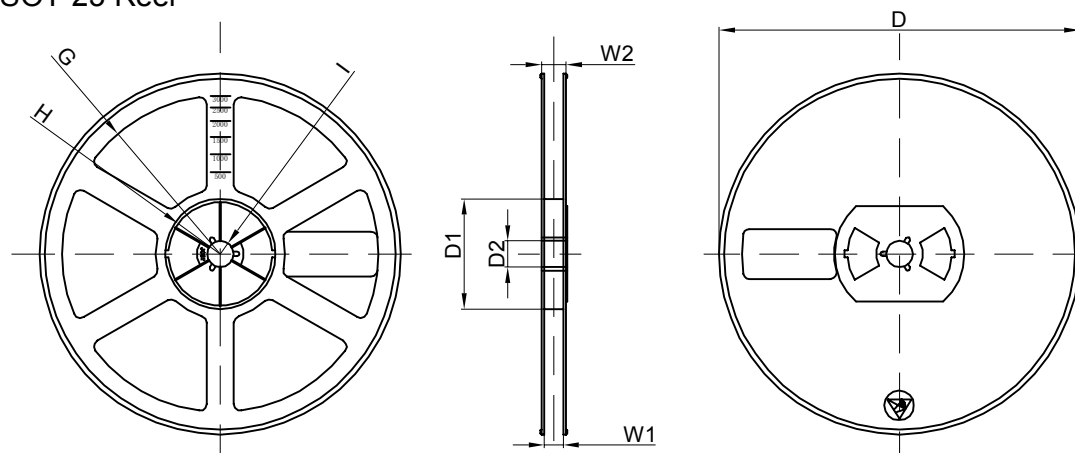


Dimensions are in millimeter											
Pkg type	A	B	C	d	E	F	P0	P	P1	W	
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00	

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	192×192×193	180,000 pcs	404×404×214	



Manufacturers version information

2021-02-24 , HAOHAI™ Product Data-1.0

2023-04-27 , HAOHAI™ Product Data-1.1



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