



HY2302

N-CHANNEL MOSFET

3.5A, 20V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The HY2302 is N-channel Power MOSFET, designed with high density cell, with fast switching speed, ultra low on-resistance, and excellent thermal and electrical capabilities. Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

The HY2302 meet the ROHS and Green Product requirement with full function reliability approved.

FEATURE

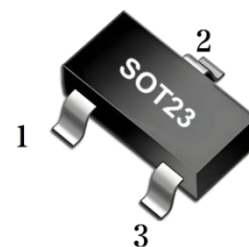
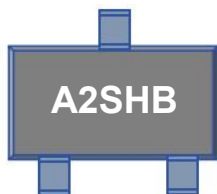
*TrenchFET Power MOSFET

APPLICATION

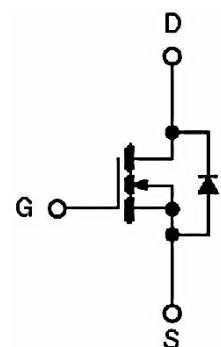
- * Load Switch for Portable Devices
- * DC/DC Converter

MARKING

Type Code: Marking: A2SHB



Equivalent Circuit



ABSOLUTE MAXIMUM RATINGS(TA=25°C, unless otherwise specified.)

SYMBOL	PARAMETER	VALUE	UNIT
VDS	Drain-Source Voltage	20	V
VGS	Gate Source Voltage	±12	V
ID	Continuous Drain Current	3.5	A
IS	Continuous Source-Drain Current(Diode Conduction)	0.6	A
PD	Maximum Power Dissipation	0.35	W
TJ	Junction Temperature	150	°C
TSTG	Storage Temperature	-55~150	°C
RθJA	Thermal Resistance from Junction to Ambient(t≤5s)	312.5	°C/W

Notes: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.



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■ ELECTRICAL CHARACTERISTICS (TA=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =10μA	20			V
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =250μA	0.45	0.7	1.2	V
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			100	nA
Drain-source on-state resistance(Note1)	R _{DS(ON)}	V _{GS} =6V, I _D =2.5A		37	50	mΩ
		V _{GS} =4.5V, I _D =2.5A	26	34	35	
		V _{GS} =2.5V, I _D =2.5A		48	80	
Forward transconductance(Note1)	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						
Input Capacitance(Note 2)	C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		300		pF
Output Capacitance(Note 2)	C _{OSS}			120		pF
Reverse Transfer Capacitance(Note 2)	C _{RSS}			80		pF
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =3.6A		4	10	nC
Gate-source charge	Q _{gs}			0.65		
Gate-drain charge	Q _{gd}			1.5		
SWITCHING(Note 2)						
Turn-On Delay Time	td(on)	V _{DD} =10V, R _L =5.5Ω, I _D ≈3.6A V _{GEN} =4.5V, R _G =6Ω		7	15	nS
Rise time	tr			55	80	
Turn-Off Delay Time	td(off)			16	60	
Fall time	tf			10	25	

Notes: 1. Pulse Test : Pulse Width < 300 μ s, Duty Cycle $\leq$ 2%.

2. These parameters have no way to verify.

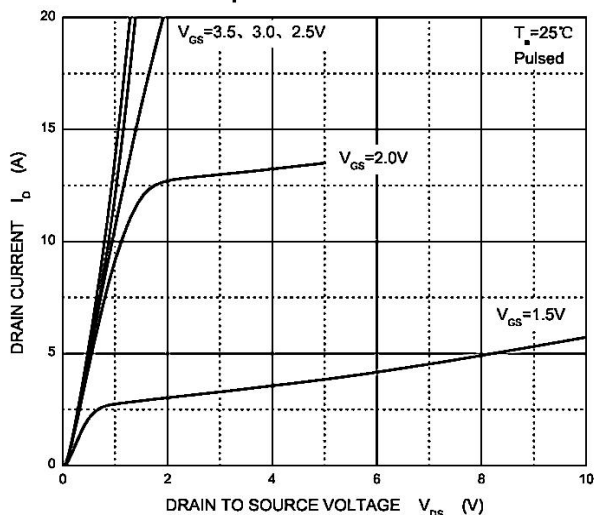


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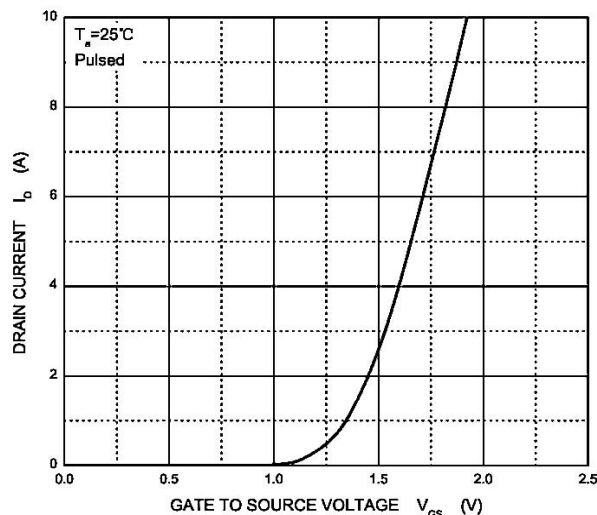
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TYPICAL CHARACTERISTICS

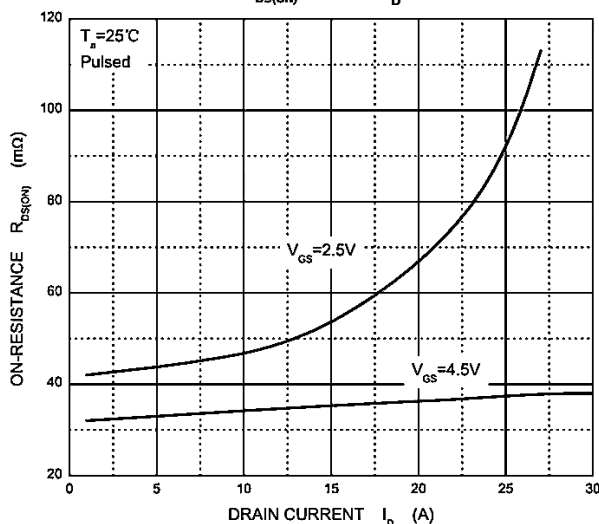
Output Characteristics



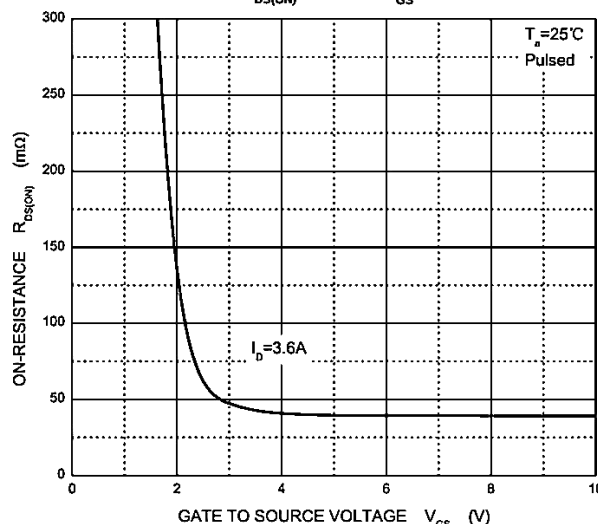
Transfer Characteristics



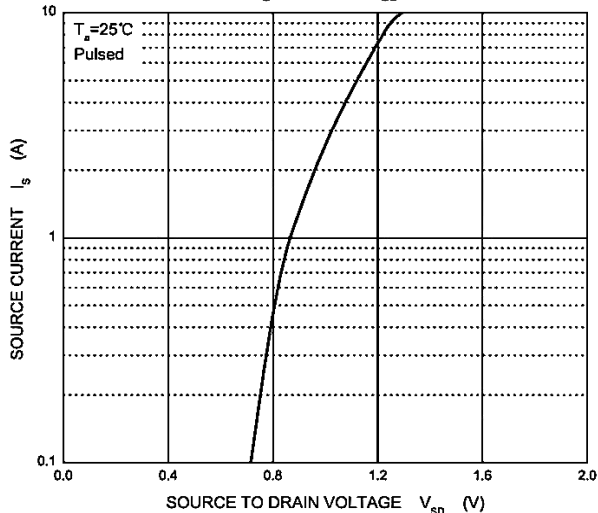
$R_{DS(on)}$ — I_D



$R_{DS(on)}$ — V_{GS}



I_S — V_{SD}

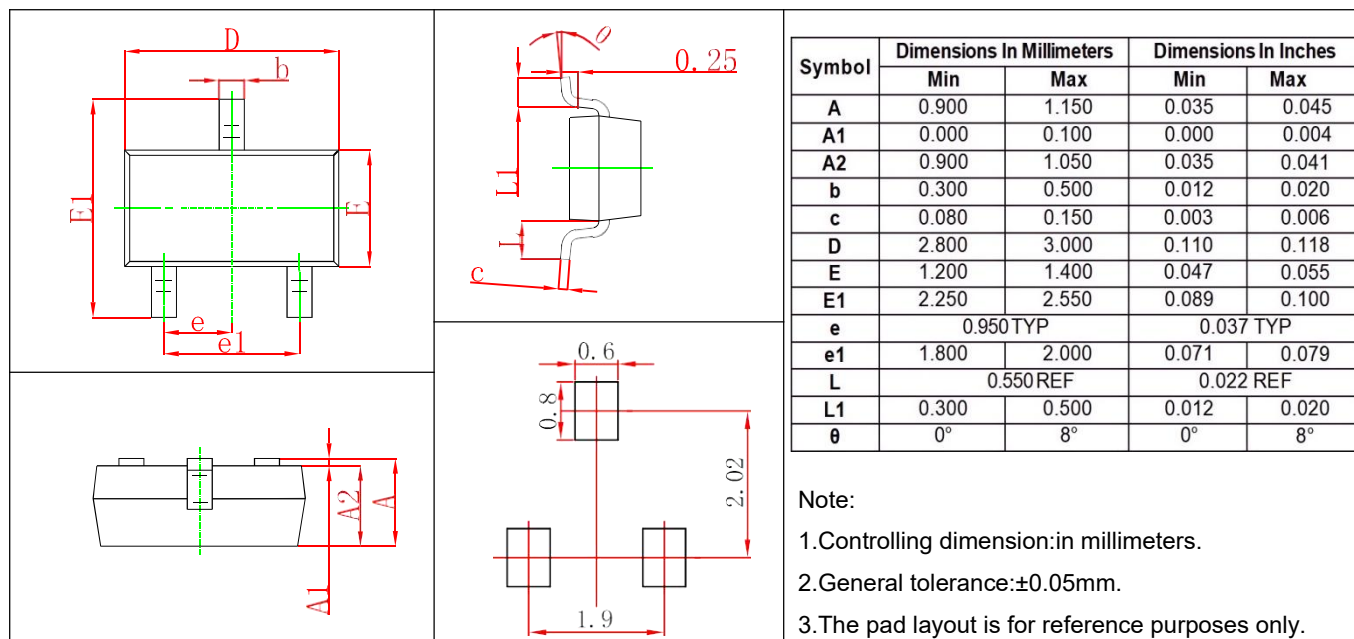




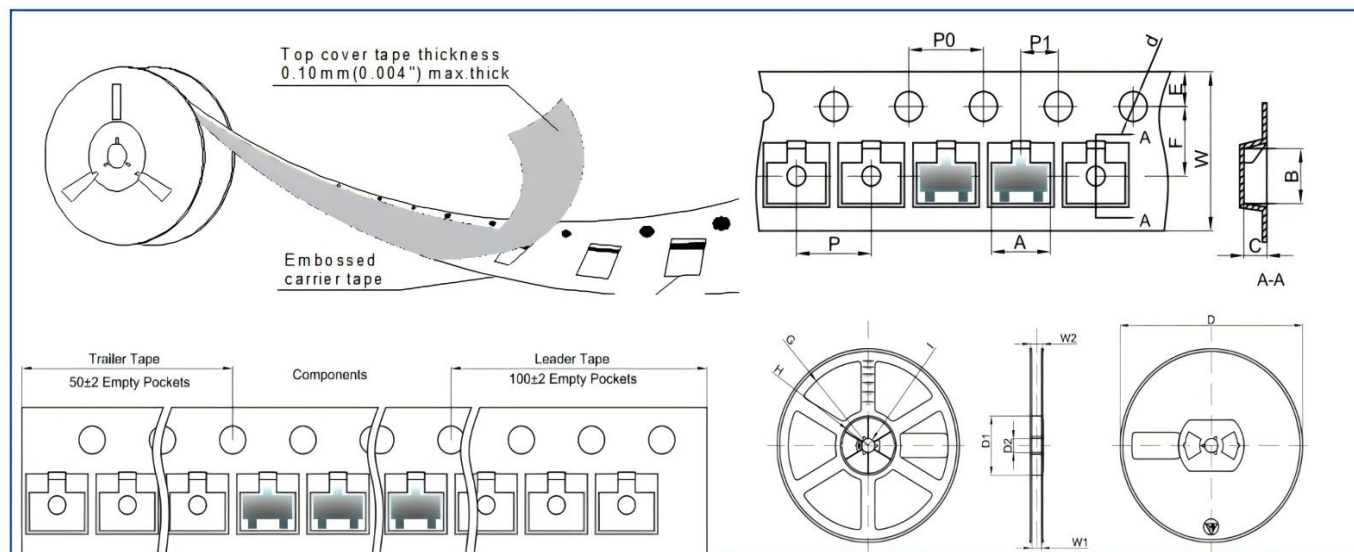
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SOT23 PACKAGE OUTLINE DIMENSIONS



REEL PACKING



Dimensions are in millimeter

PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Option	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13" Dia	Φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	