



HY2301

Power MOSFET

-2.3A, -20V P-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The HY2301 is P-channel enhancement mode power MOSFET, designed in serried ranks. With fast switching speed, low on-resistance, favorable stabilization. Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

The HY2301 meet the ROHS and Green Product requirement with full function reliability approved.

FEATURE

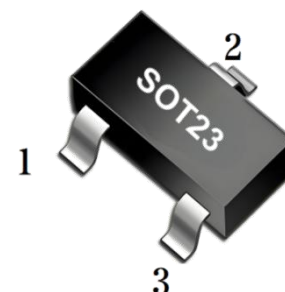
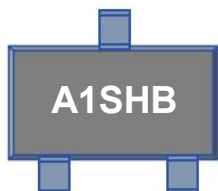
*TrenchFET Power MOSFET

APPLICATION

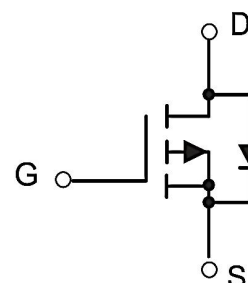
- * Load Switch for Portable Devices
- * DC/DC Converter

MARKING

Type Code: Marking: A1SHB



Equivalent Circuit



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

SYMBOL	PARAMETER	VALUE	UNIT
V _{DS}	Drain-Source Voltage	-20	V
V _{GS}	Gate Source Voltage	±8	V
I _D	Continuous Drain Current	-2.3	A
I _{DM}	Pulsed Drain Current	-10	A
I _S	Continuous Source-Drain Diode Current	-0.72	A
P _D	Maximum Power Dissipation	0.4	W
T _J	Storage Temperature	150	°C
T _{STG}	Thermal Resistance Fr .0om Junction To Ambient	-55~150	°C/W
R _{θJA}	Thermal Resistance fromJunction 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	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Gate-Source Threshold Voltage	V _{GS(TH)}	V _{GS} =V _{DS} , I _D =-250μA	-0.4	-0.7	-1	V
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Drain-source on-state resistance(Note1)	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-2.8A		0.065	0.112	Ω
		V _{GS} =-2.5V, I _D =-2.0A		0.079	0.142	
Forward transconductance(Note1)	g _{fs}	V _{DS} =-5V, I _D =-2.8A		6.5		S
DYNAMIC(Note2)						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} = -10V, f=1.0MHz		405		pF
Output Capacitance	C _{OSS}			75		pF
Reverse Transfer Capacitance	C _{RSS}			55		pF
Total gate charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-3A		5.5	10	nC
		V _{DS} =-10V, V _{GS} =-2.5V, I _D =-3A		3.3	6	
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Gate resistance	R _g	f =1MHz		6		Ω
Turn-On Delay Time	td(on)	V _{DD} =-10V, R _L =10Ω, I _D =-1A V _{GEN} =-4.5V, R _G =1Ω		11	20	nS
Rise time	tr			35	60	
Turn-Off Delay Time	td(off)			30	50	
Fall time	tf			10	20	
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Continuous source-drain diode current	I _S	T _c =25°C			-1.3	A
Pulse diode forward current(Note1)	I _{SM}				-10	A
Body diode voltage	V _{SD}	I _S =-0.7A		-0.8	-1.2	V

Notes: 1. Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

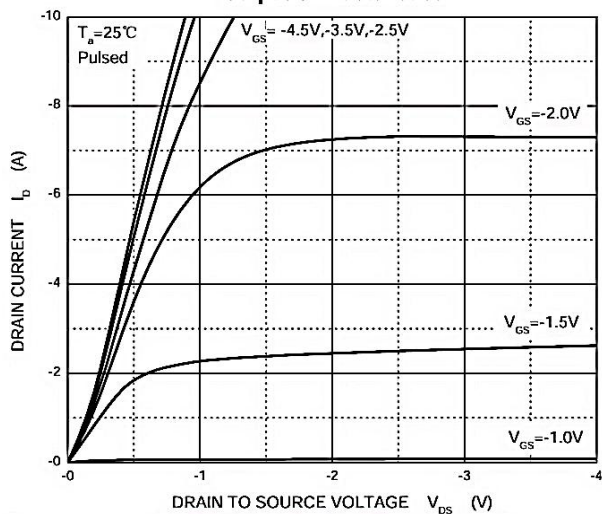


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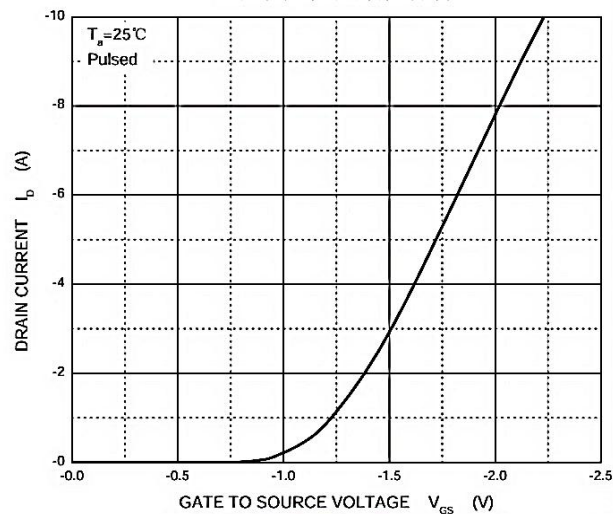
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TYPICAL CHARACTERISTICS

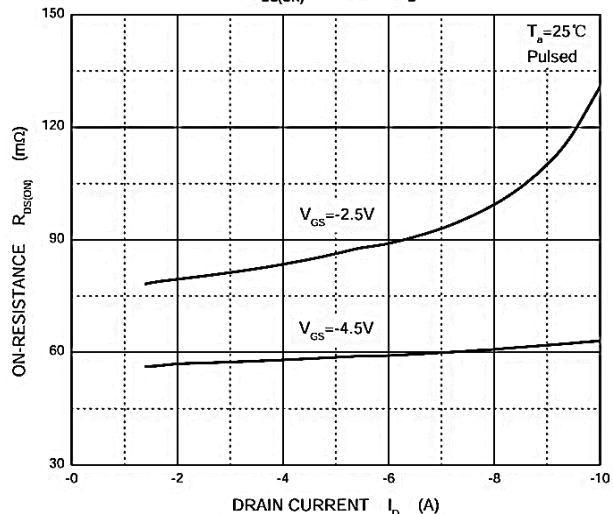
Output Characteristics



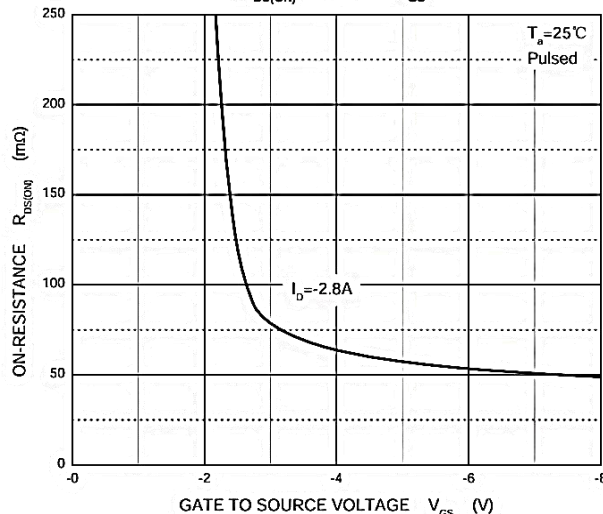
Transfer Characteristics



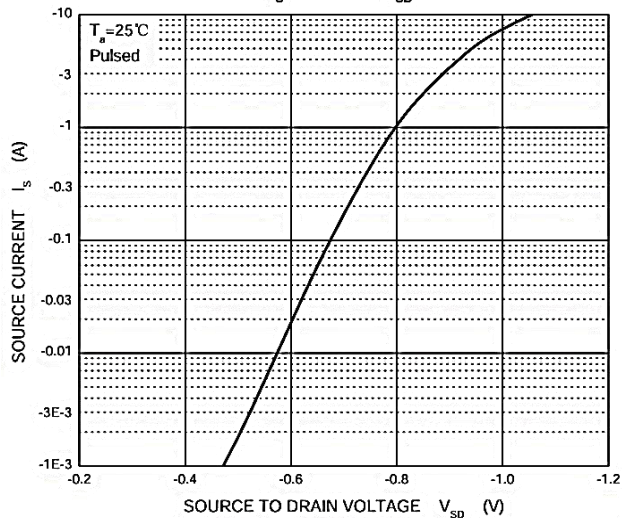
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

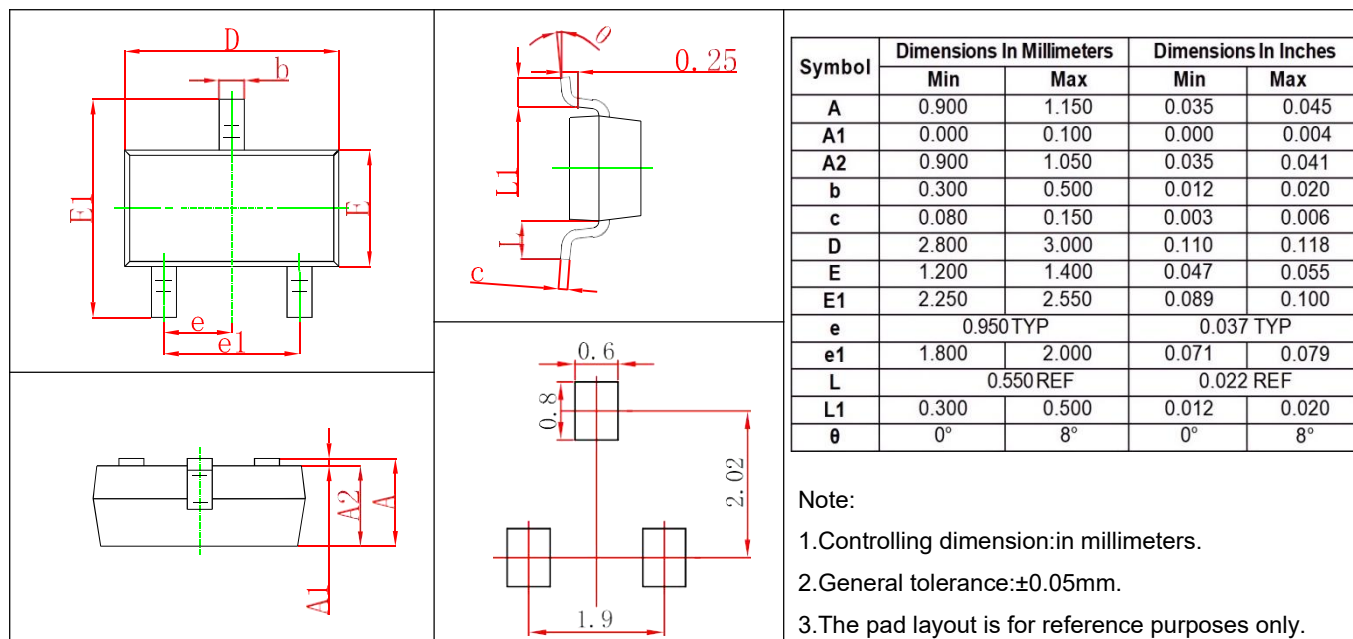




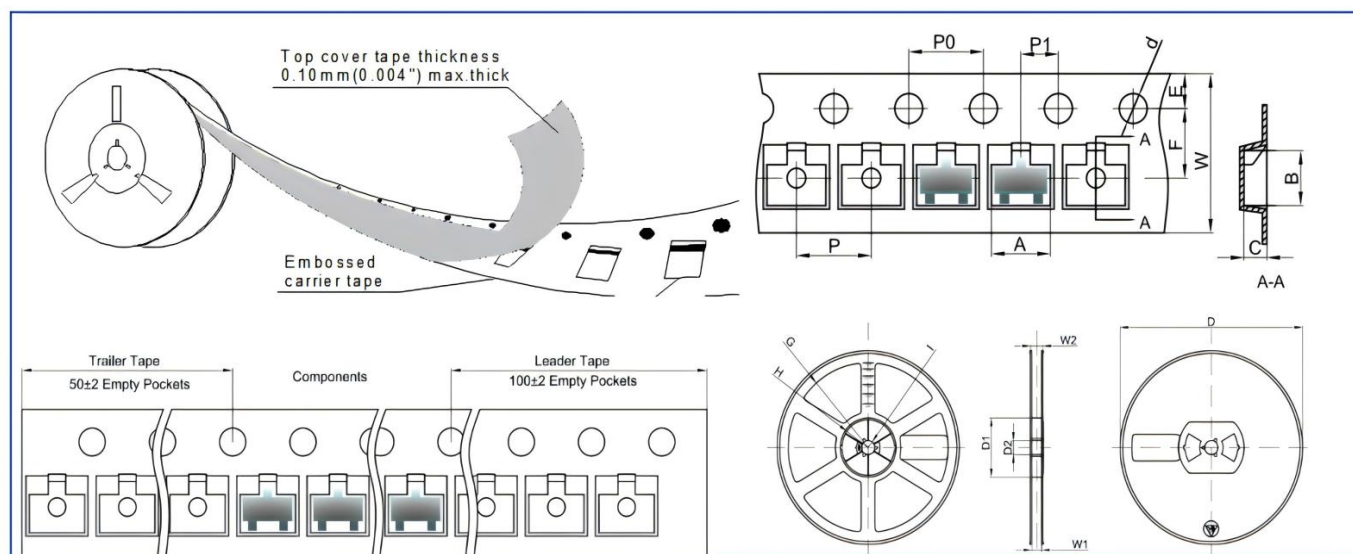
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SOT23 PACKAGE OUTLINE DIMENSIONS



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	