

SOT-23 Plastic-Encapsulate MOSFETS

SI2305 P-Channel MOSFET

Marking: A5SHB

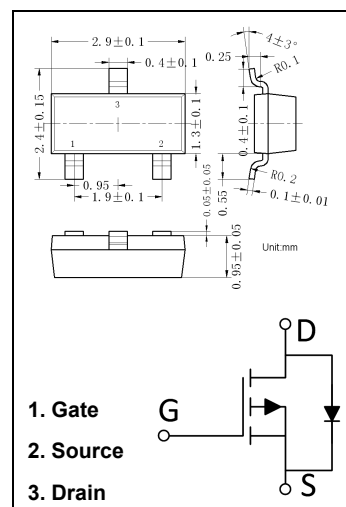
Features

- TrenchFET Power MOSFET
- Moisture Sensitivity: Level 3 per J-STD-020

Applications

- Load Switch for Portable Devices
- DC/DC Converter

Marking: A5SHB



Maximum Ratings ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source voltage	-20	V
V_{GS}	Gate-Source voltage	± 12	
I_D	Continuous Drain Current	-6.0	A
I_S	Continuous Source-Drain Diode Current	-0.8	
P_D	Maximum Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient($t \leq 10s$)	357	$^{\circ}\text{C/W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-50 ~ +150	$^{\circ}\text{C}$

Electrical Characteristics (T_J=25°C unless otherwise specified)

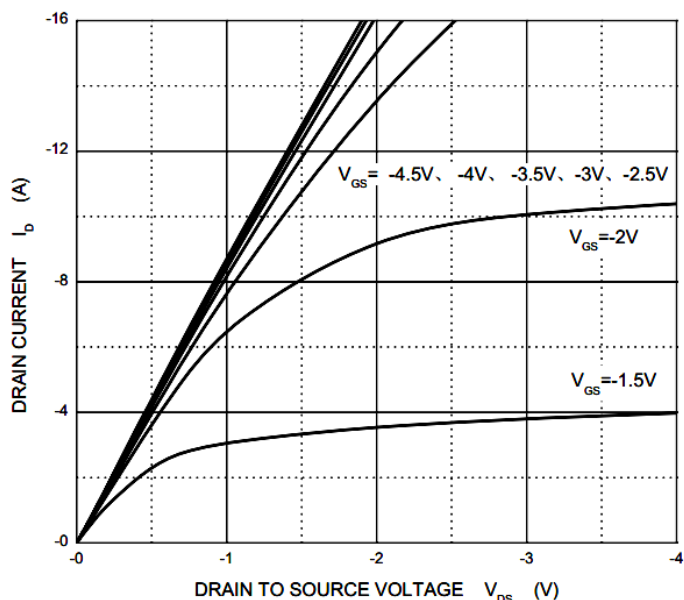
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-20			V
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.5		-0.9	V
I _{GSS}	Gate-body Leakage current	V _{DS} = 0V, V _{GS} = ±12V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V			-1	μA
R _{DS(on)}	Drain-Source On-Resistance ¹⁾	V _{GS} = -4.5V, I _D = -3.5A		30	45	mΩ
		V _{GS} = -2.5V, I _D = -3.0A		40	60	
		V _{GS} = -1.8V, I _D = -2.0A		60	90	
g _{fs}	Forward Trans conductance ¹⁾	V _{DS} = -5V, I _D = -4.1A	6			S
Dynamic						
C _{iss}	Input Capacitance ^{2) 3)}	V _{GS} = 0V V _{DS} = -4V f = 1.0MHz		740		pF
C _{oss}	Output Capacitance ^{2) 3)}			290		
C _{rss}	Reverse Transfer Capacitance ^{2) 3)}			190		
Q _g	Total Gate Charge ²⁾	V _{DS} = -4V, V _{GS} = -4.5V, I _D = -4.1A		7.8	15	nC
				4.5	9	
Q _{gs}	Gate-Source Charge ²⁾	V _{DS} = -4V, V _{GS} = -2.5V, I _D = -4.1A		1.2		
Q _{gd}	Gate-Drain Charge ²⁾			1.6		
R _g	Gate resistance ^{2) 3)}	f =1MHz	1.4	7	14	Ω
t _{d(on)}	Turn-On Delay Time ^{2) 3)}	V _{DD} = -4V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -4.5V, R _g = 1Ω		13	20	ns
t _r	Rise Time ^{2) 3)}			35	53	
t _{d(off)}	Turn-Off Delay Time ^{2) 3)}			32	48	
t _f	Fall Time ^{2) 3)}			10	20	
t _{d(on)}	Turn-On Delay Time ^{2) 3)}	V _{DD} = -4V, R _L = 1.2Ω, I _D ≈ -3.3A, V _{GEN} = -8V, R _g = 1Ω		5	10	ns
t _r	Rise Time ^{2) 3)}			11	17	
t _{d(off)}	Turn-Off Delay Time ^{2) 3)}			22	33	
t _f	Fall Time ^{2) 3)}			16	24	
Drain-Source Body Diode Characteristics						
I _s	Continuous Source-Drain Diode Current	T _C = 25°C			-1.4	A
I _{SM}	Pulsed Diode Forward Current ¹⁾				-10	
V _{SD}	Body diode voltage	I _F = -3.3A			-1.2	V

Note:

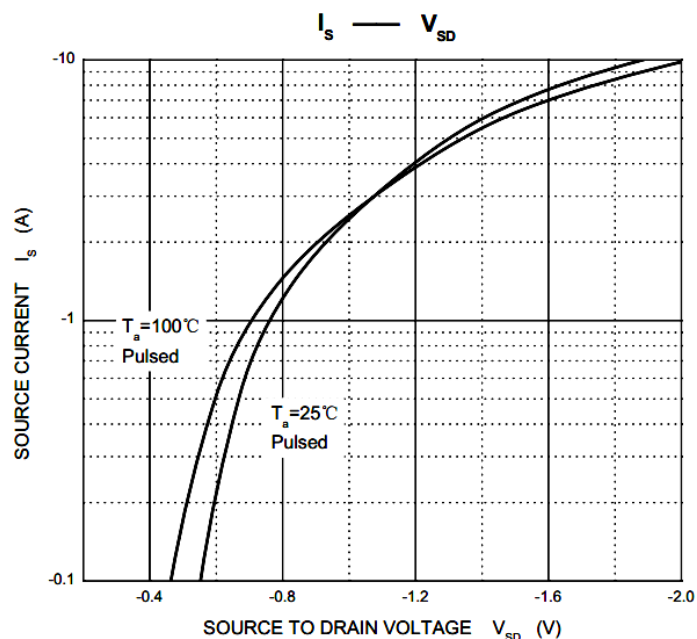
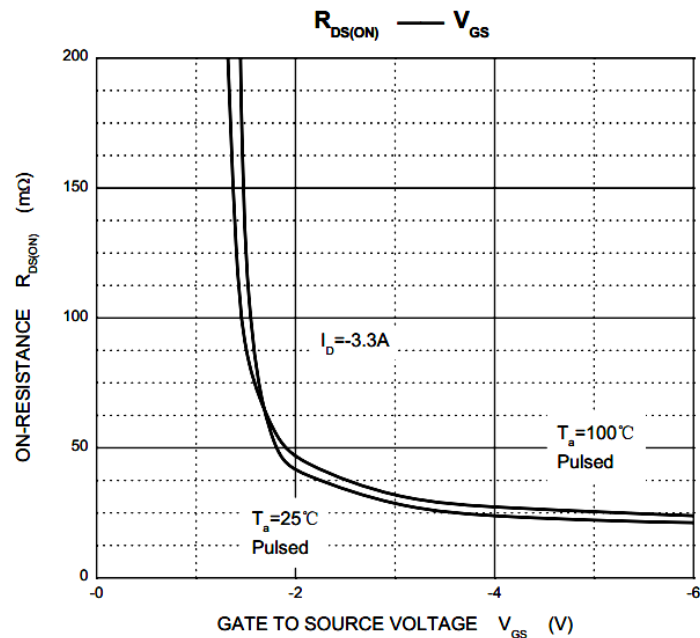
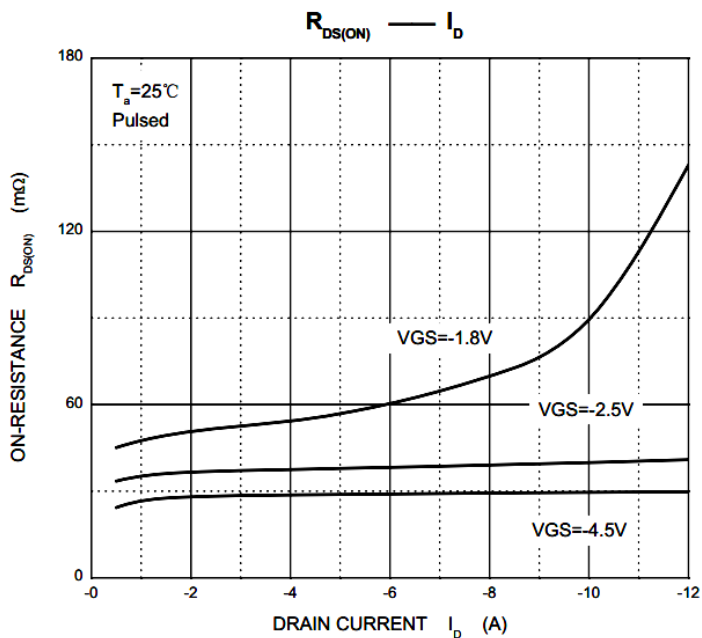
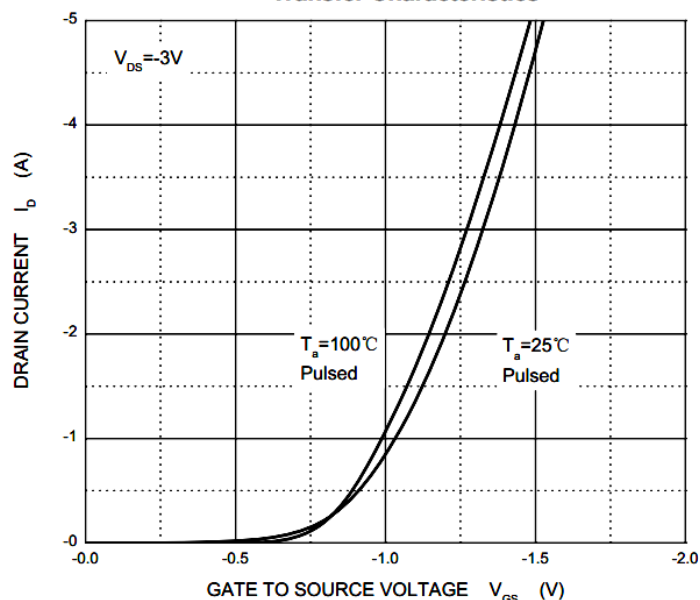
1. Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%.
2. Guaranteed by design, not subject to production testing.
3. These parameters have no way to verify.

Typical Characteristics

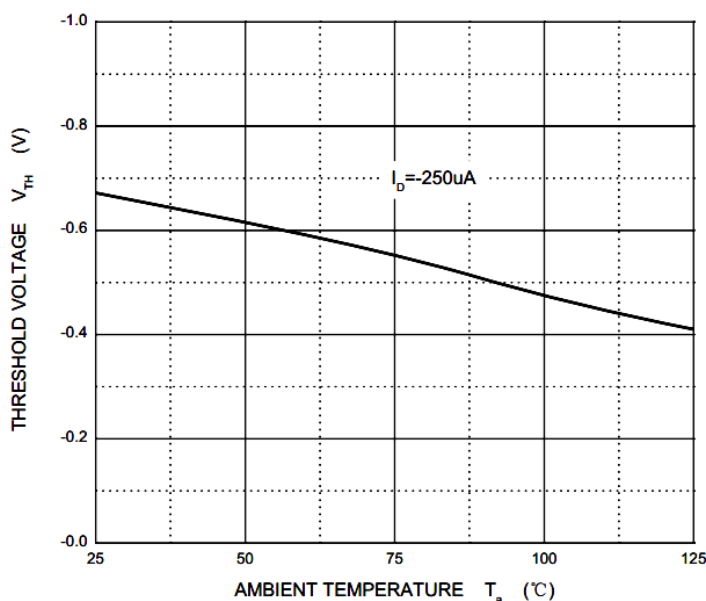
Output Characteristics



Transfer Characteristics

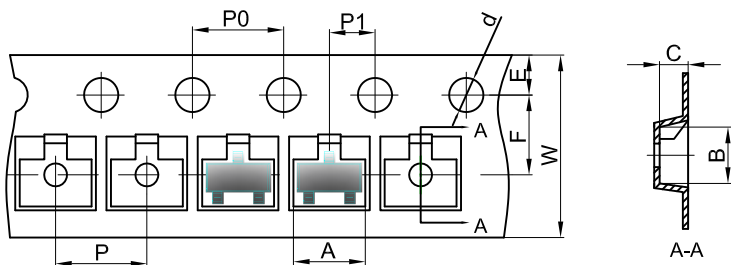


Threshold Voltage



SOT-23 Tape and Reel

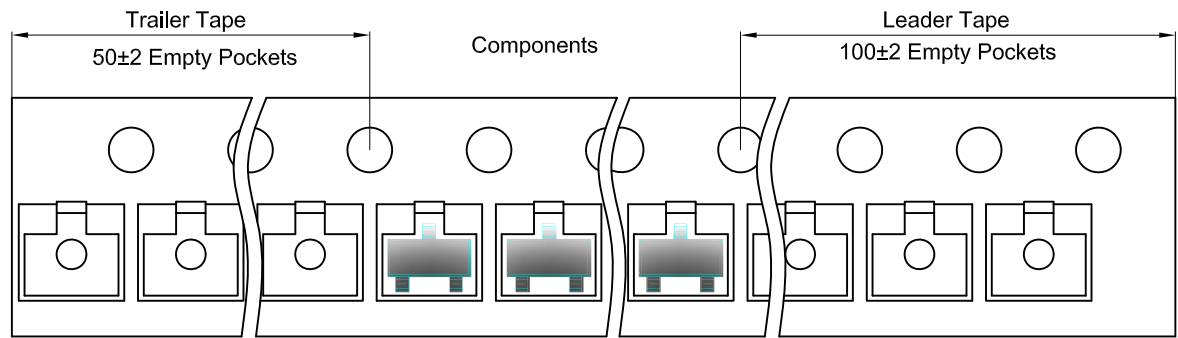
SOT-23 Embossed Carrier Tape



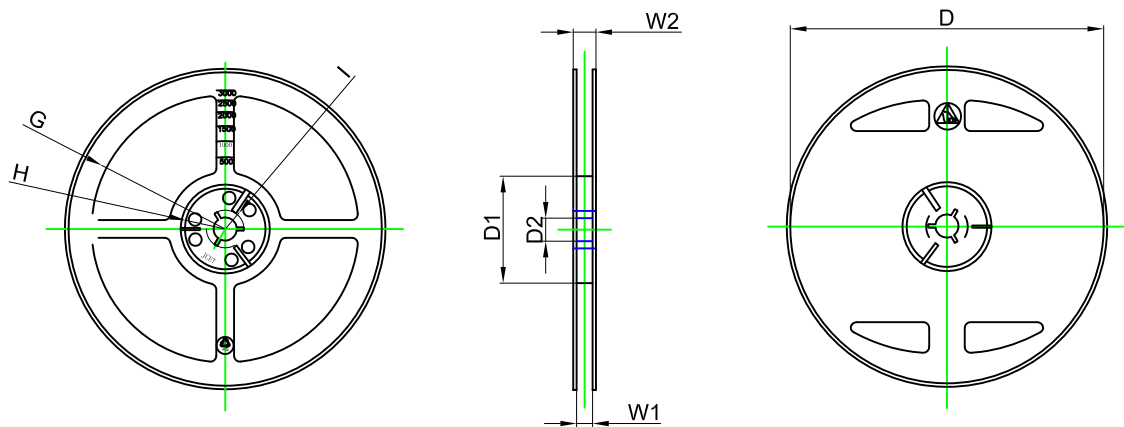
Packaging Description:
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

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(S)

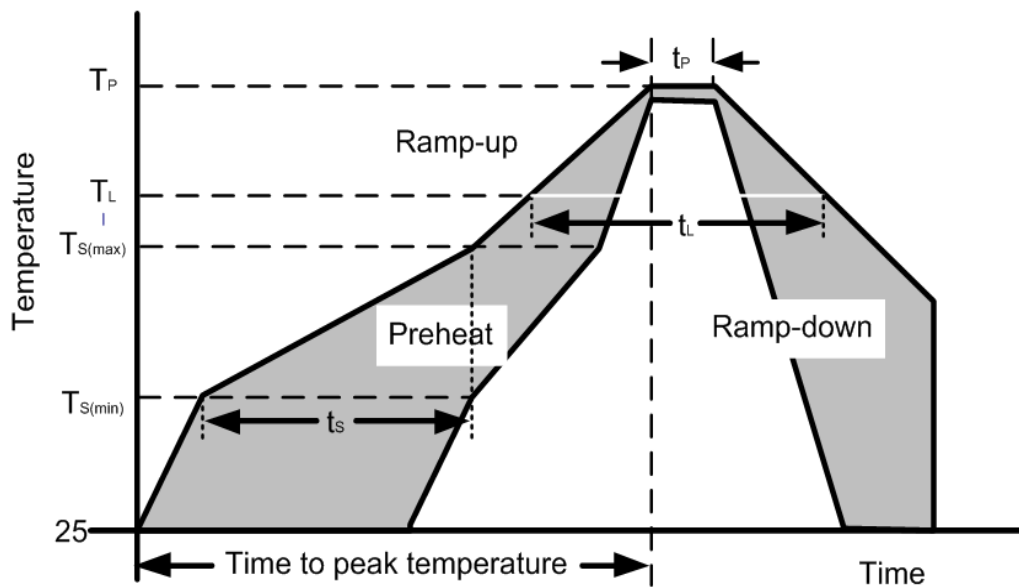


Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R9.35	9.50	12.00

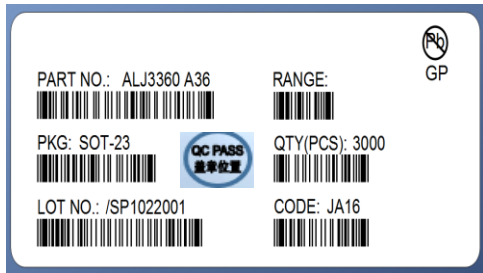
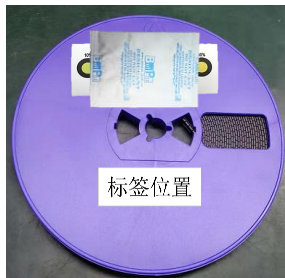
REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



SOT-23产品包装说明

客户	A01	封装	SOT-23	编号	LJA01-BZ-SOT23-001-A
版次	变更/更新描述			起草人/起草日期	生效日期
A	客户第一次导入			龚婷/2020/06/20	2020/6/20
 左图1 卷盘背面  左图2				卷盘尺寸：7寸 8MM'蓝色卷盘 前空格：50 后空格：112 3K/盘，卷盘要贴标签，贴标签位置见左图1。	
 此处标签只做样板展示，非实际标签内容				标签尺寸：用102*41的标签纸/标签需要盖QC PASS章。盖章位置如左图所示。 标签内容说明： PART NO.: 通知单包装标签内容 通知单HEF范围 封装形式 QTY(PCS): 按实际数量打印 LOT NO.: 机台号/订单号与流水号（盒与箱标签不打印流水号） CODE: 实际日期自厂格式	
 左图1  左图2  左图3				铝箔袋尺寸：22.5*27CM/见左图1 左图2为：5g干燥剂 左图3为：6点式湿度卡	
 标签位置  封口处				铝箔袋要贴标签（标签位置见左图），每盘都要装铝箔袋，及抽真空封口，封口前在卷盘上方放一张6点式的湿度卡和一包5g的干燥剂（如左图所示位置），（在卷盘最外围缠上粉色海绵条和黑色保护带）。	
 标签位置  QC PASS 盖章位置				内盒尺寸：21*21*20.5CM 15盘/盒（即45K/盒） 内盒右上角贴上标签，盒子封口后在开口处贴上绿色环保标签。 若是一盒内不满10盘料，需要用气泡袋填充，以免产品晃动。	
 标签位置				外箱尺寸：44*44*22.7CM 4个内盒/箱（即180K/箱） 外箱的右上角贴上标签。 若是一箱内不满4个内盒，则需填充空盒，并贴上【EMPTY】的空盒标签（标签尺寸：60*25MM）	

制表：龚婷

审核：郑江涛