

SOT-23 Plastic-Encapsulate Transistors

ALJ101S~ALJ106S

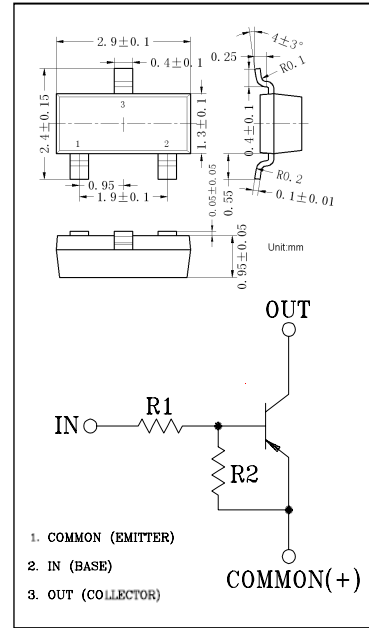
SWITCHING APPLICATION.
INTERFACE CIRCUIT AND DRIVER CIRCUIT APPLICATION.

FEATURES

- With Built-in Bias Resistors.
- Simplify Circuit Design.
- Reduce a Quantity of Parts and Manufacturing Process.

BIAS RESISTOR VALUES

TYPE NO.	R1(kΩ)	R2(kΩ)
ALJ101S	4.7	4.7
ALJ102S	10	10
ALJ103S	22	22
ALJ104S	47	47
ALJ105S	2.2	47
ALJ106S	4.7	47



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Output Voltage	ALJ101S~106S	V_o	-50	V
Input Voltage	ALJ101S	V_i	-20, 10	V
	ALJ102S		-30, 10	
	ALJ103S		-40, 10	
	ALJ104S		-40, 10	
	ALJ105S		-12, 5	
	ALJ106S		-20, 5	
Output Current	ALJ101S~106S	I_o	-100	mA
Power Dissipation		P_D	200	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

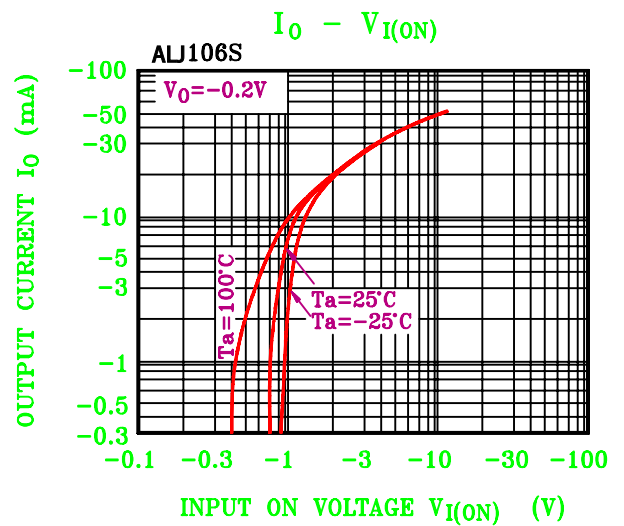
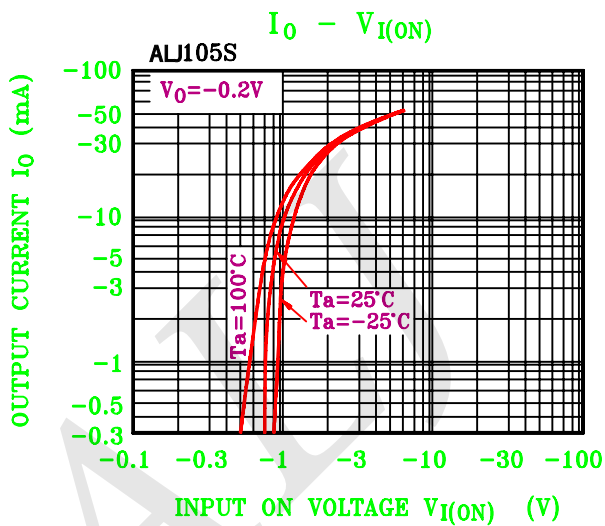
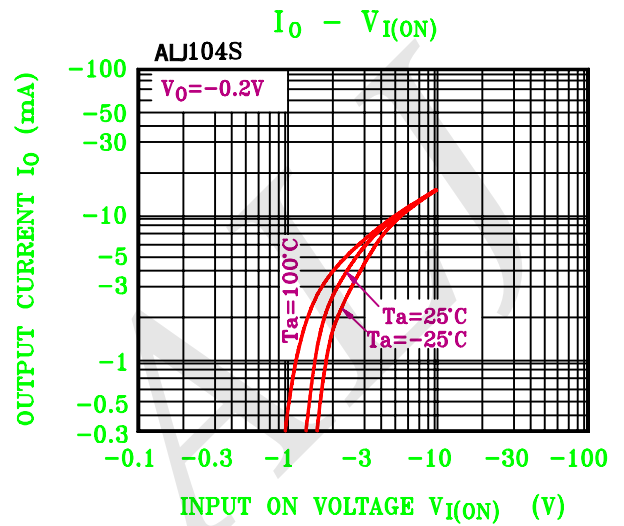
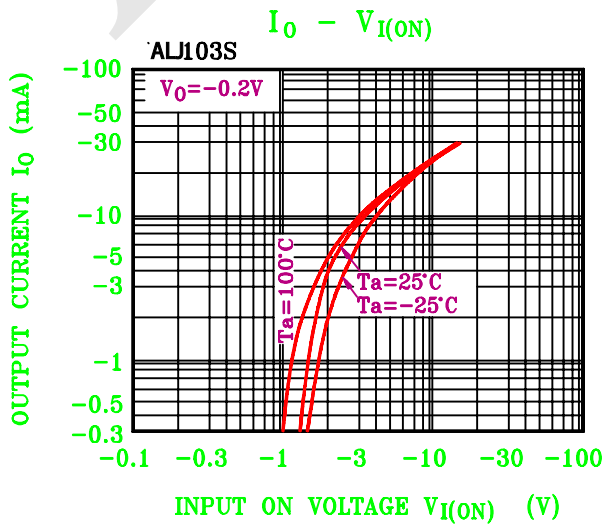
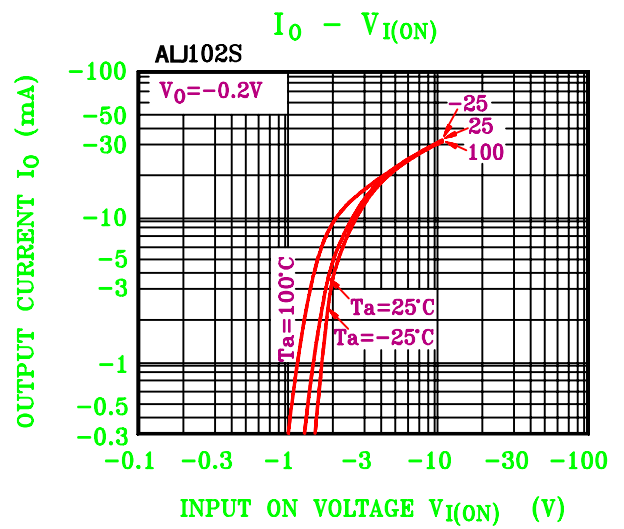
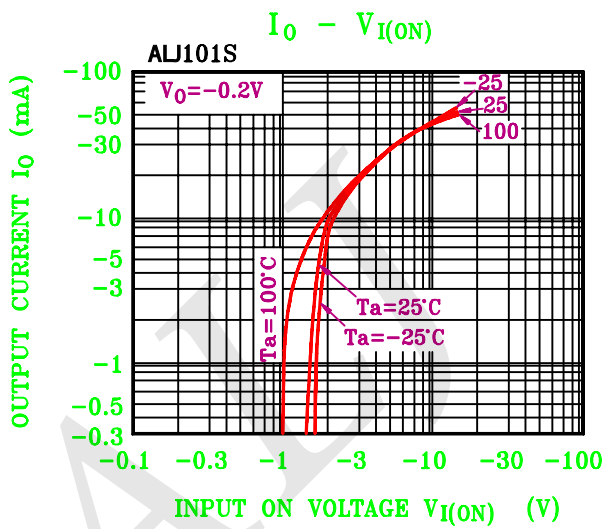
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Cut-off Current	ALJ101S~106S	$I_{O(OFF)}$	$V_O=-50V, V_I=0$	-	-	-500	nA
DC Current Gain	ALJ101S	G_I	$V_O=-5V, I_O=-10mA$	30	55	-	
	ALJ102S			50	80	-	
	ALJ103S			70	120	-	
	ALJ104S			80	200	-	
	ALJ105S			80	200	-	
	ALJ106S			80	200	-	
Output Voltage	ALJ101S~106S	$V_{O(ON)}$	$I_O=-10mA, I_I=-0.5mA$	-	-0.1	-0.3	V
Input Voltage (ON)	ALJ101S	$V_{I(ON)}$	$V_O=-0.2V, I_O=-5mA$	-	-1.5	-2.0	V
	ALJ102S			-	-1.8	-2.4	
	ALJ103S			-	-2.1	-3.0	
	ALJ104S			-	-2.8	-5.0	
	ALJ105S			-	-0.8	-1.1	
	ALJ106S			-	-0.9	-1.3	
Input Voltage (OFF)	ALJ101S~104S	$V_{I(OFF)}$	$V_O=-5V, I_O=-0.1mA$	-1.0	-1.2	-	V
	ALJ105S~106S			-0.5	-0.65	-	
Transition Frequency	ALJ101S~106S	$f_T *$	$V_O=-10V, I_O=-5mA$	-	200	-	MHz
Input Current	ALJ101S	I_I	$V_I=-5V$	-	-	-1.8	mA
	ALJ102S			-	-	-0.88	
	ALJ103S			-	-	-0.36	
	ALJ104S			-	-	-0.18	
	ALJ105S			-	-	-3.6	
	ALJ106S			-	-	-1.8	

Note : *Characteristic of Transistor Only

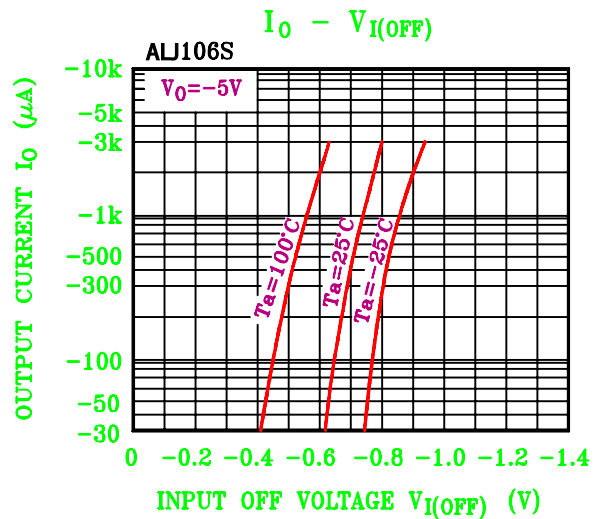
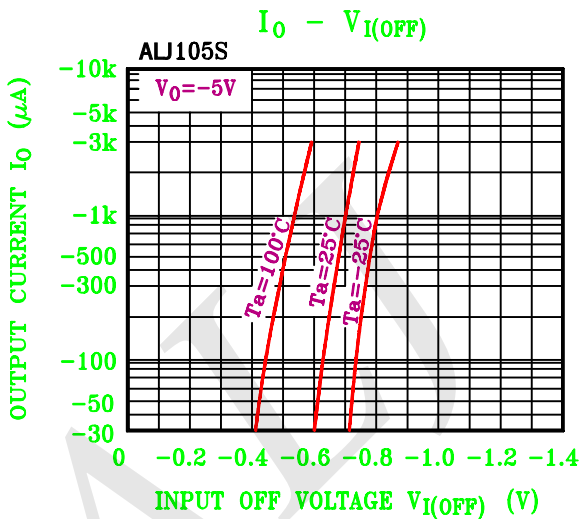
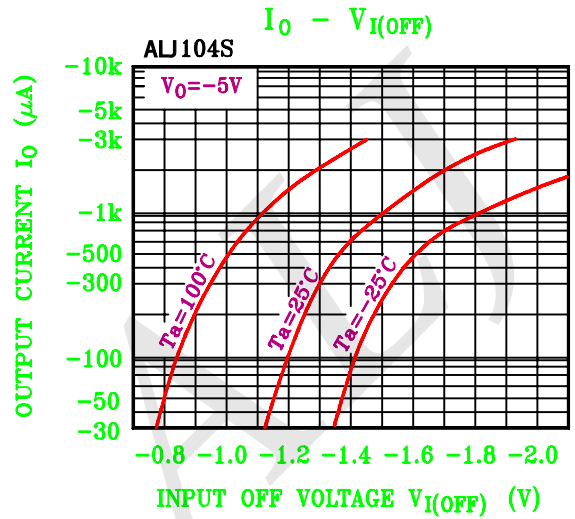
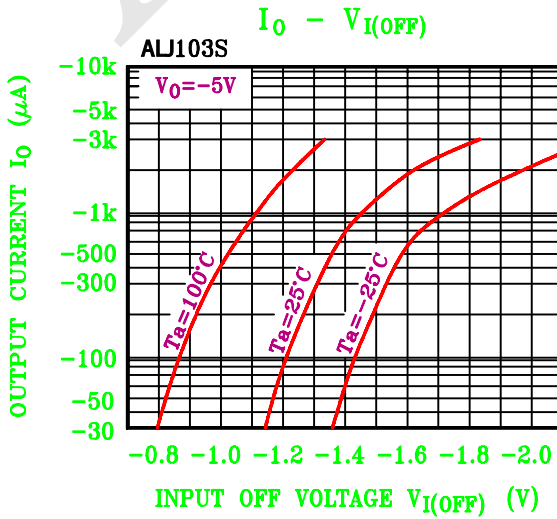
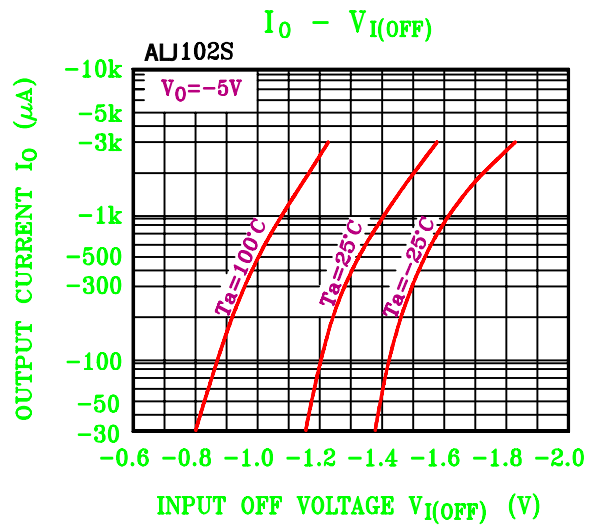
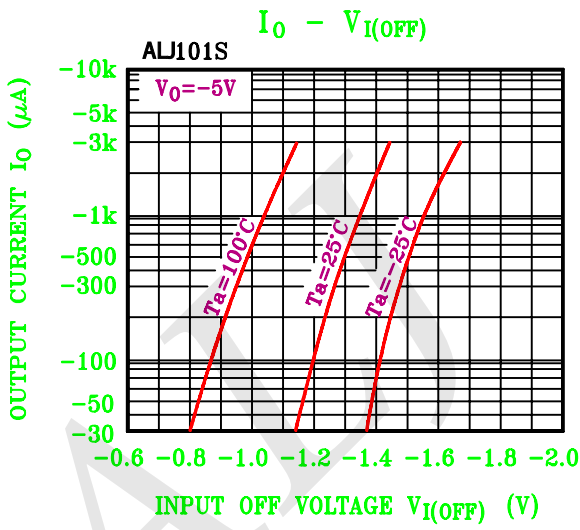
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC			SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Switching Time	Rise Time	ALJ101S	t_r	$V_O=-5V$ $V_{IN}=-5V$ $R_L=1k\Omega$	-	0.07	-	μS
		ALJ102S			-	0.06	-	
		ALJ103S			-	0.2	-	
		ALJ104S			-	0.24	-	
		ALJ105S			-	0.02	-	
		ALJ106S			-	0.07	-	
	Storage Time	ALJ101S	t_{stg}		-	1.1	-	
		ALJ102S			-	1.1	-	
		ALJ103S			-	1.1	-	
		ALJ104S			-	1.1	-	
		ALJ105S			-	1.1	-	
		ALJ106S			-	1.1	-	
	Fall Time	ALJ101S	t_f		-	0.15	-	
		ALJ102S			-	0.24	-	
		ALJ103S			-	0.38	-	
		ALJ104S			-	0.63	-	
		ALJ105S			-	0.1	-	
		ALJ106S			-	0.2	-	

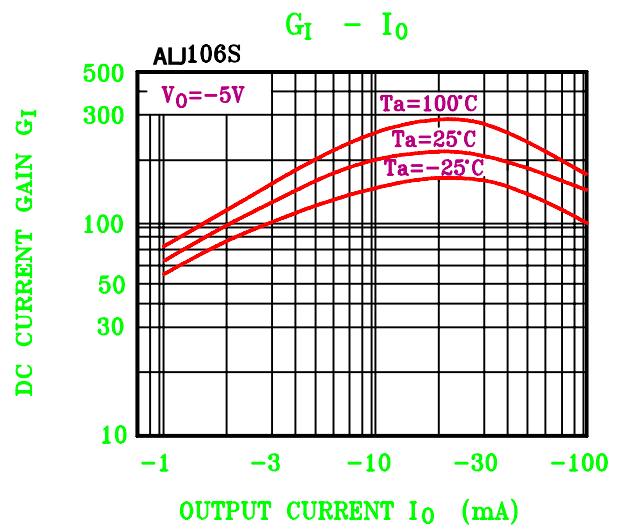
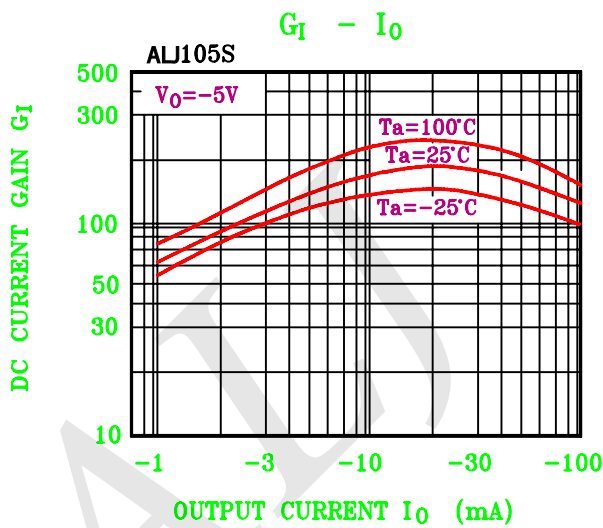
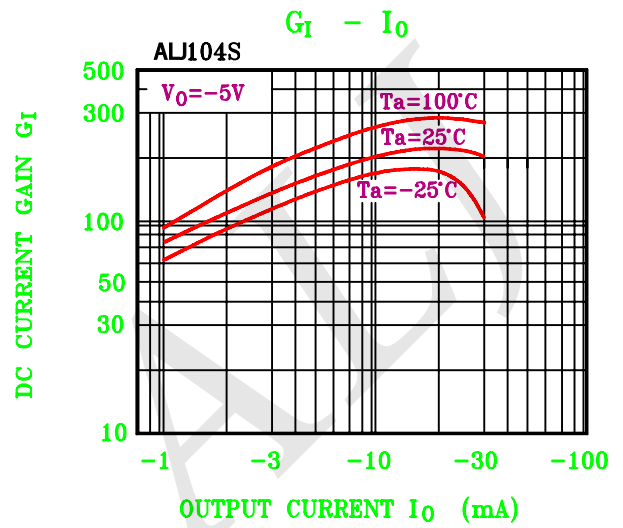
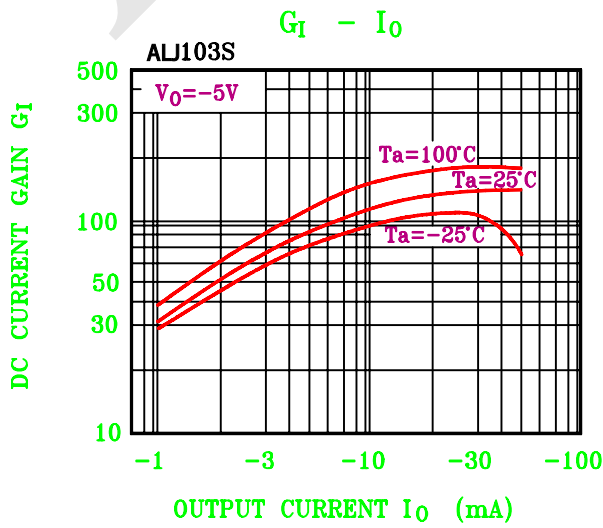
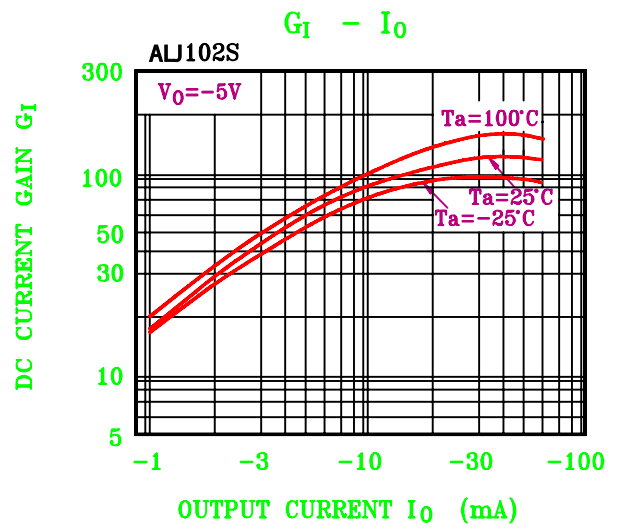
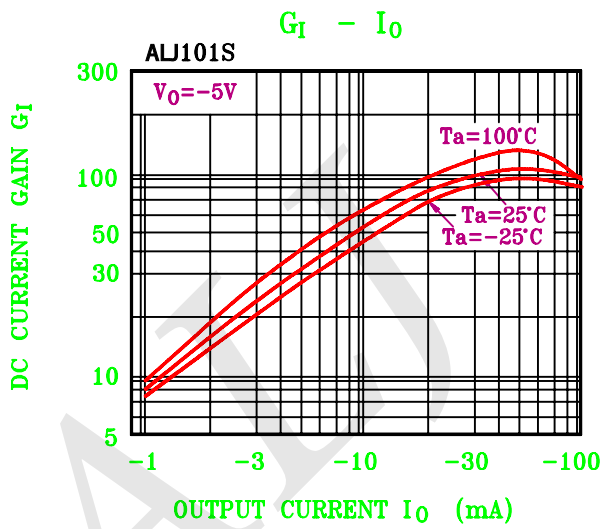
Typical Characteristics



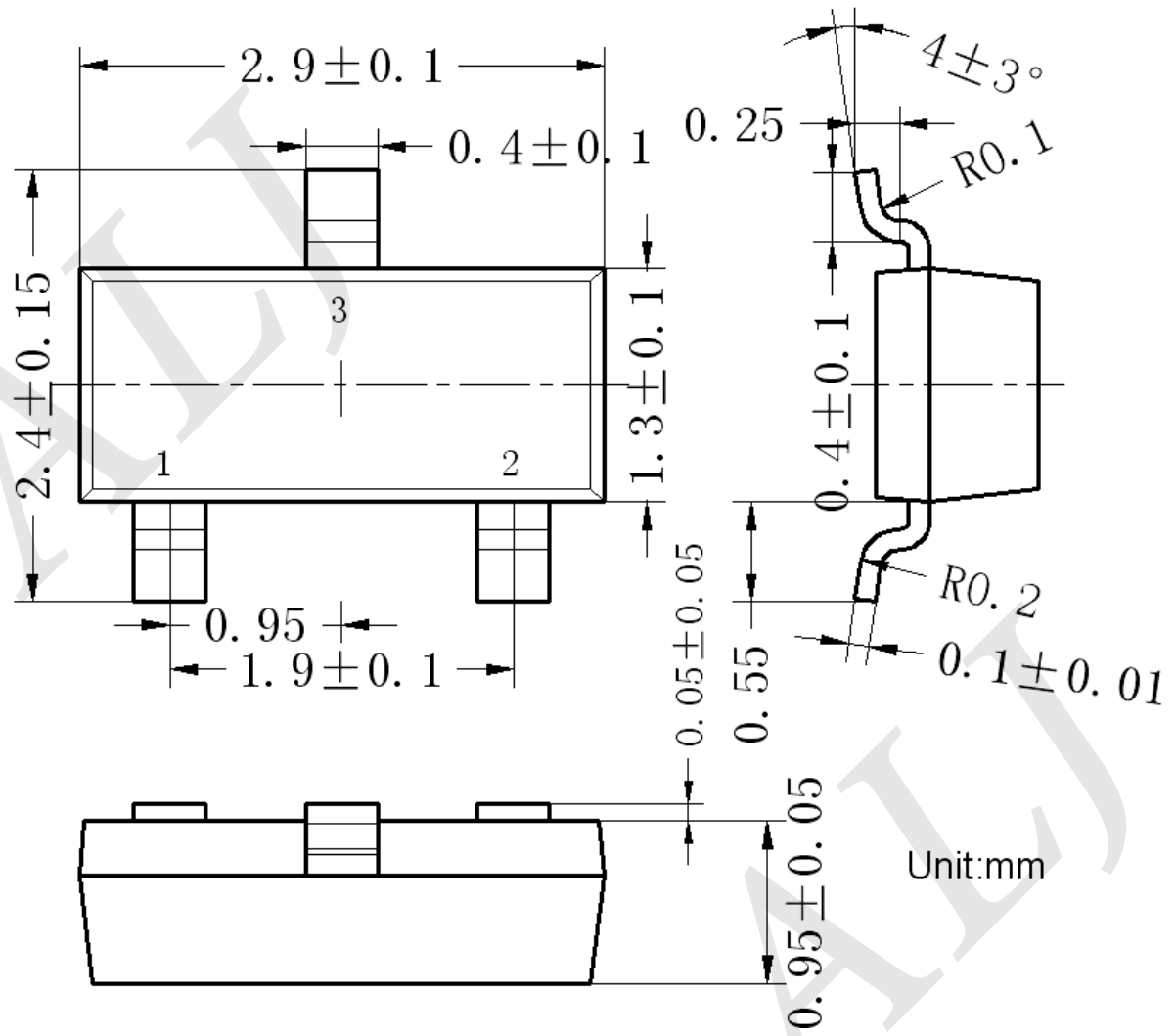
Typical Characteristics



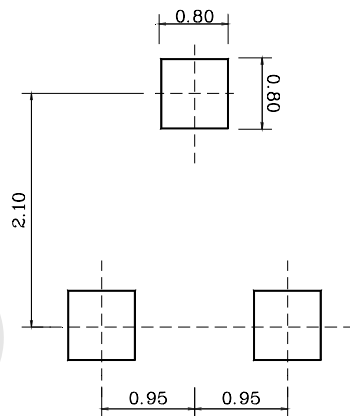
Typical Characteristics



Outline Dimension

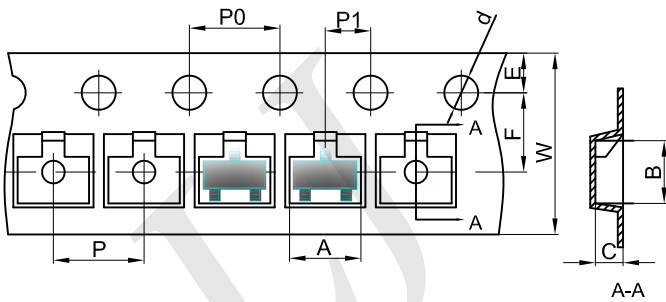


Recommend PCB solder land [Unit: mm]



SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

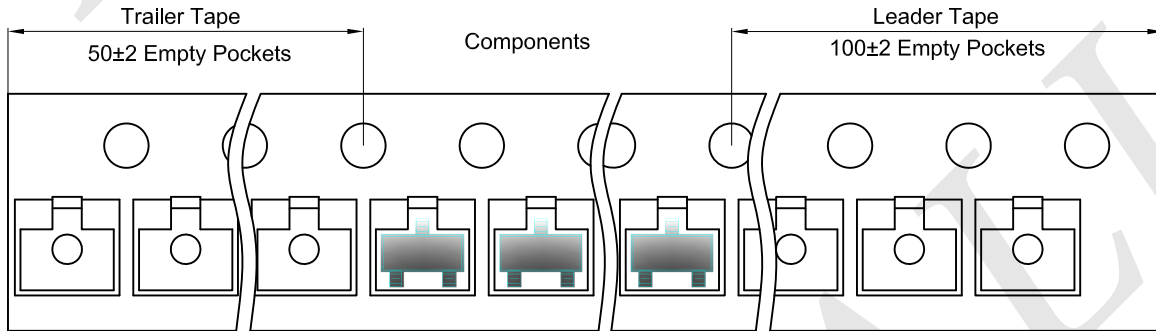


Packaging Description:

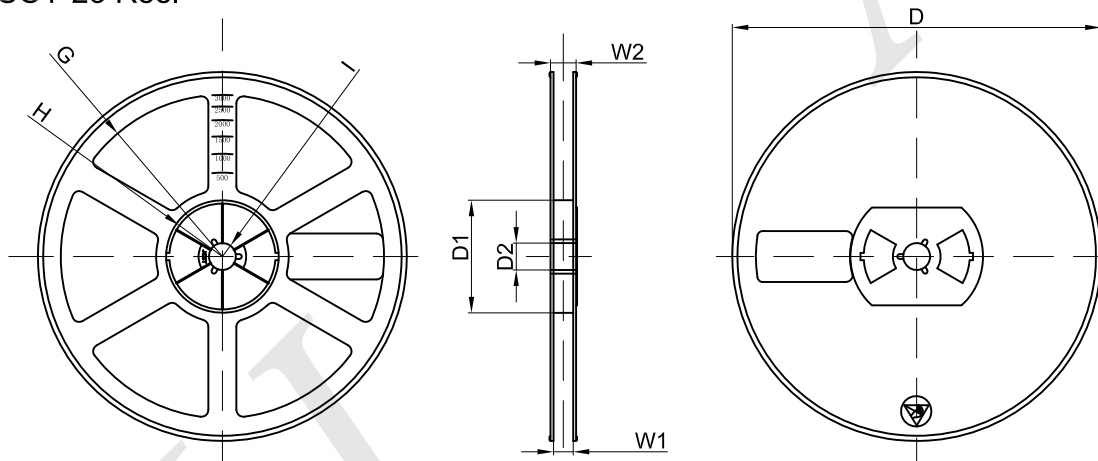
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in 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



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	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

