

/ Descriptions

Silicon NPN transistor in a SOT-23 Plastic Package.

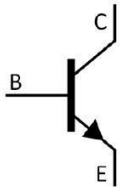
/ Features

Excellent h_{FE} linearity, high h_{FE} , low noise. HF Product.

/ Applications

General amplifier and switching application.

/ Equivalent Circuit



/ Pinning



PIN 1 Base PIN 2 Emitter PIN 3 Collector

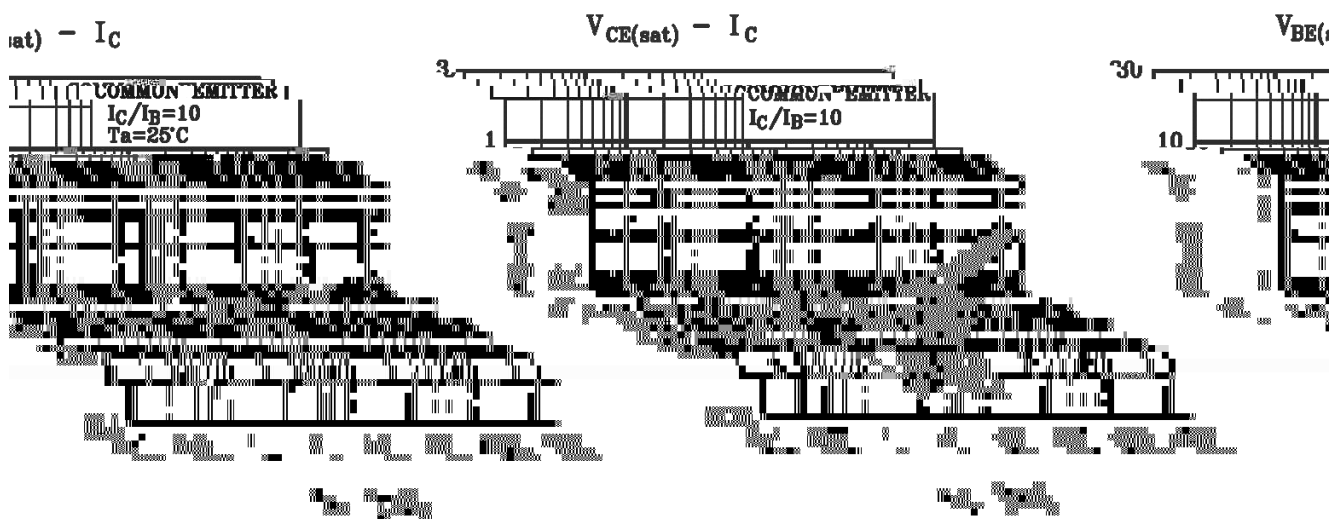
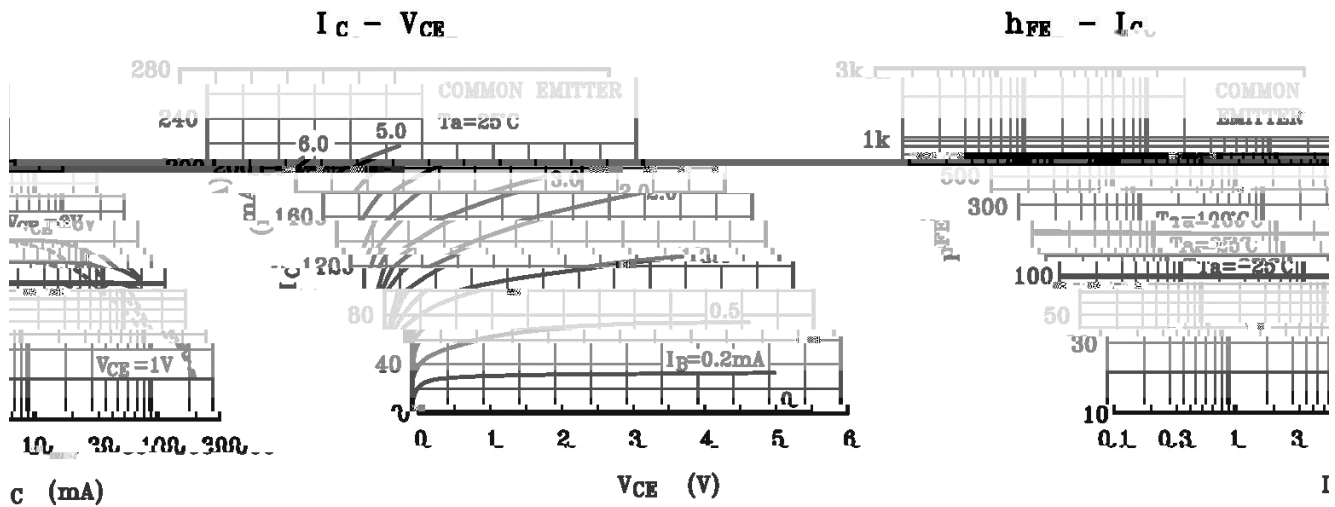
/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	O	Y	GR	BL
h_{FE} Range	70 140	120 240	200 400	350 700
Marking	HALO	HALY	HALG	HALB

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	50	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current	I_C	150	mA
Base Current	I_B	30	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Emitter Breakdown Voltage	V_{CBO}	I_C $I_E=0$	60			V
Collector to Base Breakdown Voltage	V_{CEO}	I_C $I_B=0$	50			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E $I_C=0$	5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=60V$ $I_E=0$			0.1	
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5.0V$ $I_C=0$			0.1	
DC Current Gain	h_{FE}	$V_{CE}=6.0V$ $I_C=2.0mA$	70		700	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100mA$ $I_B=10mA$		0.1	0.25	V
Transition Frequency	f_T	$V_{CE}=10V$ $I_C=1.0mA$	80			MHz
Collector output capacitance	C_{ob}	V_C				

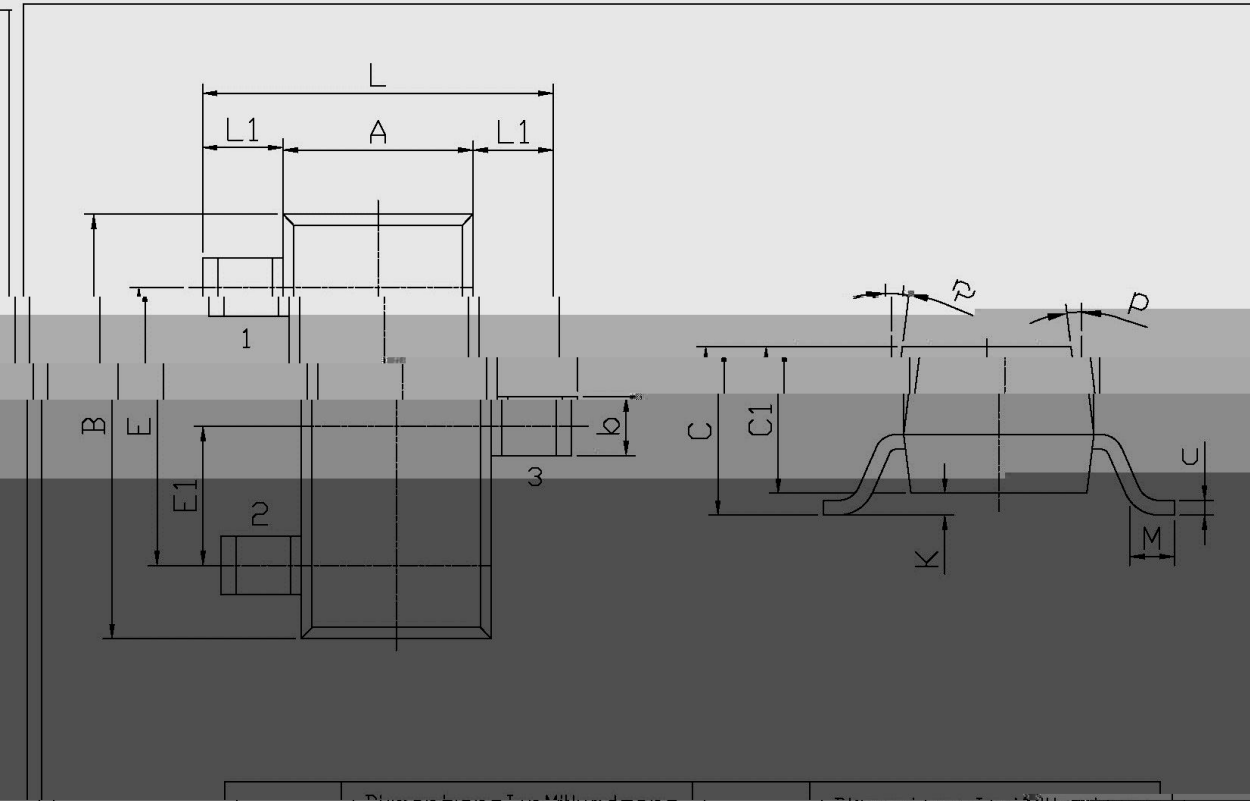
/ Electrical Characteristic Curve



/ Package Dimensions

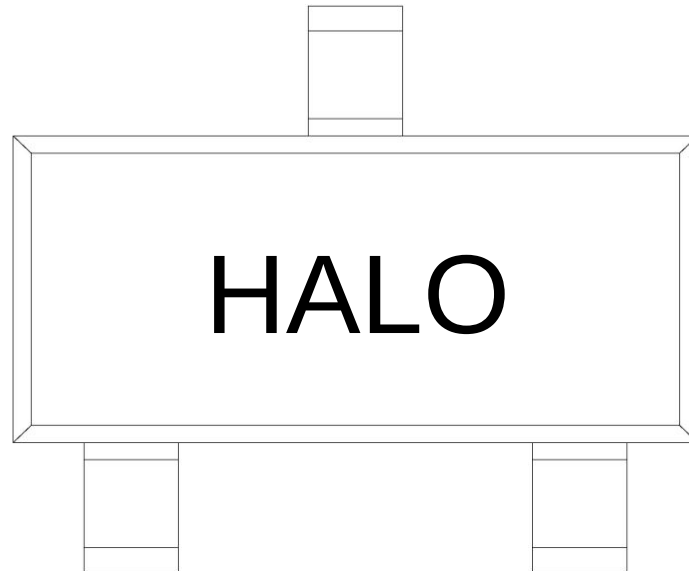
SOT-23

单位: mm



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
L	2.2	2.7	P	Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.05	1.50	q	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.27	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.50			

/ Marking Instructions



Note:

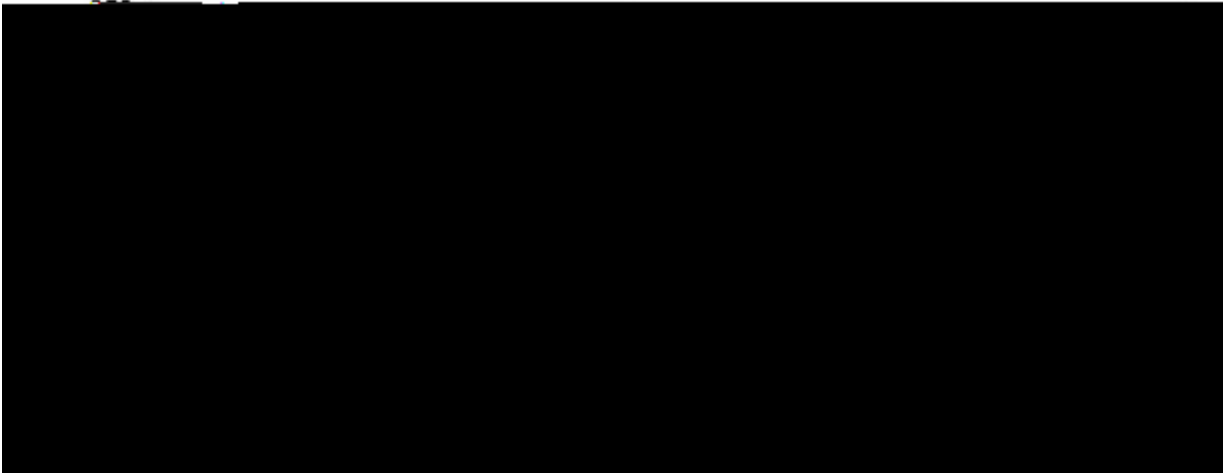
Company Code

AL

Product Type

h_{FE} Classifications Symbol

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Note:

- 1

25 150

60 90sec;
- 2

245 5

5 0.5sec;
- 3

2 10

/sec.
- 1.Preheating:25~150

, Time:60~90sec.
- 2.Peak Temp.:245 5

, Duration:5 0.5sec.
3. Cooling Speed: 2~10

/sec.

/ Resistance to Soldering Heat Test Conditions

260 5

10 1 sec.

Temp.:260 5

Time:10 1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装 式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	只 卷盘	卷盘 盒	只 盒	盒 箱	只 箱		盒	箱

/ Notices