Descriptions

This is Silicon NPN transistor in a SOT-23 Plastic Package.

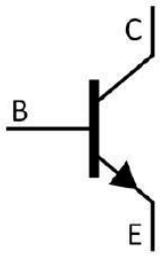
Features

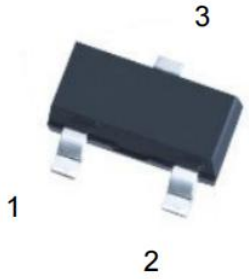
- Low Cob
- Halogen-free Product

Applications

General amplifier

Equivalent Circuit & Pinning





PIN1：Base　　PIN 2：Emitter　　PIN 3：Collector

Marking

h_{FE} Classifications Symbol	Q	R	S
h_{FE} Range	120 ~ 270	180 ~ 390	270 ~ 560
Marking	HBQ	HBR	HBS

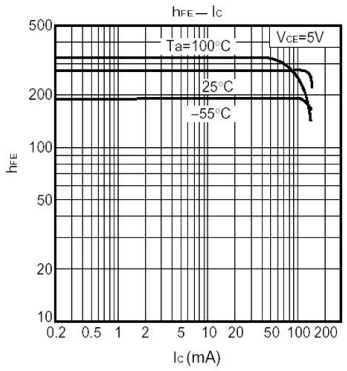
Absolute Maximum Ratings(Ta=25℃)

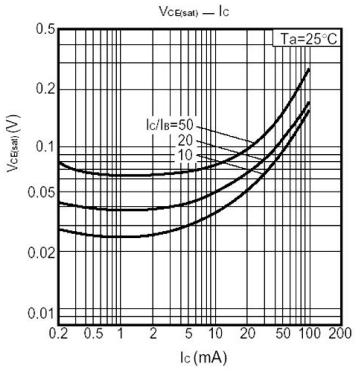
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	50	V
Emitter to Base Voltage	V_{EBO}	7.0	V
Collector Current	I_C	150	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

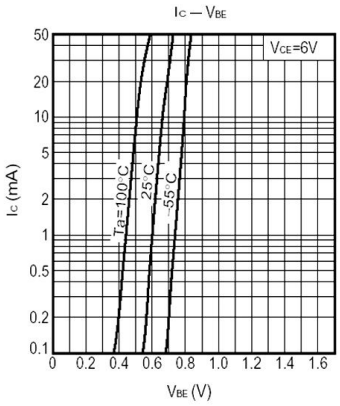
Electrical Characteristics(Ta=25℃)

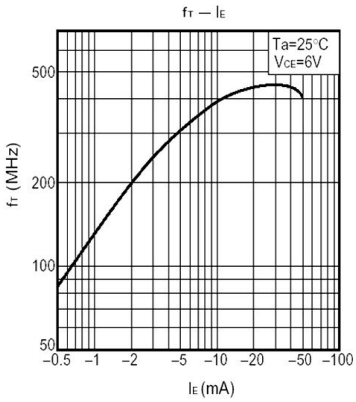
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- Base Breakdown Voltage	V_{CBO}	I_C=50μA	60			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA	50			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=50μA	7.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=60V			0.1	μA
Emitter Base Cut-Off Current	I_{EBO}	V_{EB}=7.0V			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=6.0V I_c=1.0mA	120		560	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=50mA I_B=5.0mA			0.4	V
Transition Frequency	f_T	V_{CE}=12V I_E=-2.0mA f=100MHz		180		MHz
Collector Output Capacitance	C_{ob}	V_{CB}=12V I_E=0 f=1.0MHz		2.0	3.5	pF

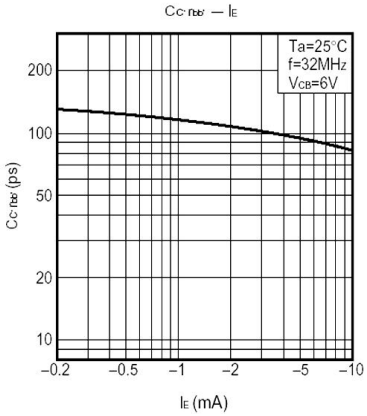
Electrical Characteristic Curve

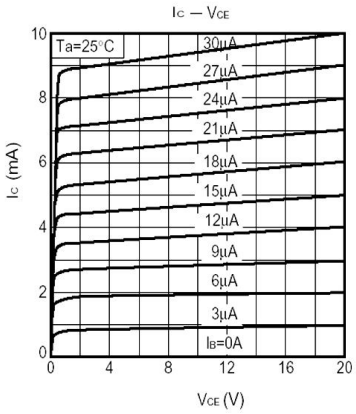












Marking Instructions

Note:

H: Company Code

B: Product Type Code

S: h_{FE} Classifications Symbol

h_{FE} Classifications Symbol	Q	R	S
h_{FE} Range	120 ~ 270	180 ~ 390	270 ~ 560
Marking	HBQ	HBR	HBS

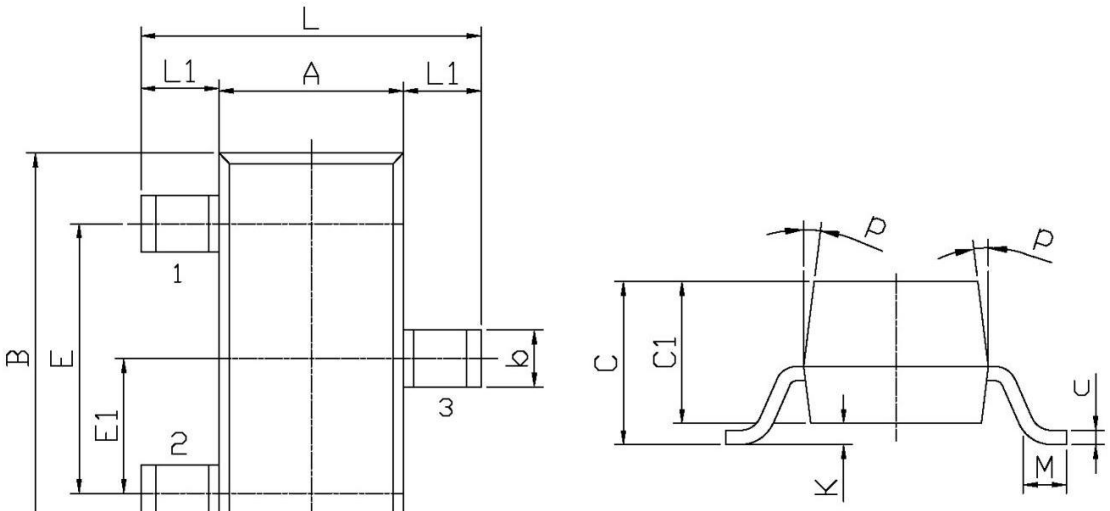
Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit: mm^3)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT-23	3,000	10	30,000	6	180,000	7″ ×8	180×120×180	390×385×205

Package Outline Dimensions

SOT-23 单位：mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			