

Description

Silicon NPN transistor in a SOT-23 Plastic Package

Features

- Small reverse transfer capacitance
- low noise figure
- Halogen-free Product

Applications

High frequency low noise amplifier

Symbol	Parameter	Max	Unit
V_{CEO}	collector-emitter voltage	30	V
I_c	collector current (DC)	20	mA

Equivalent Circuit & Pinning



PIN1: Base

PIN 2: Emitter

PIN 3: Collector

hFE Classifications & Marking

hFE Classifications Symbol	R	O	Y
hFE Range	40~80	70~140	100~200
Marking	HAQR	HAQO	HAQY

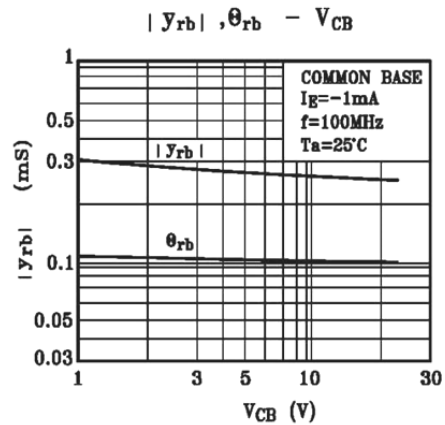
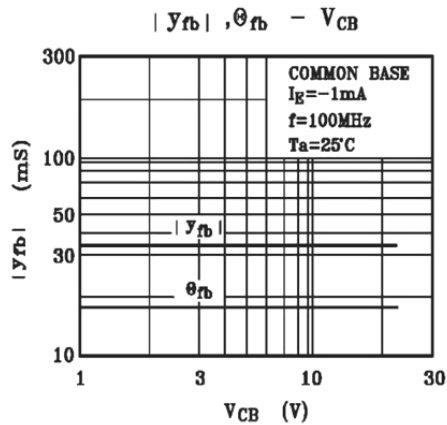
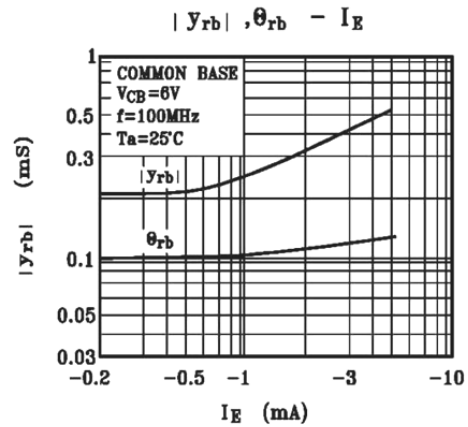
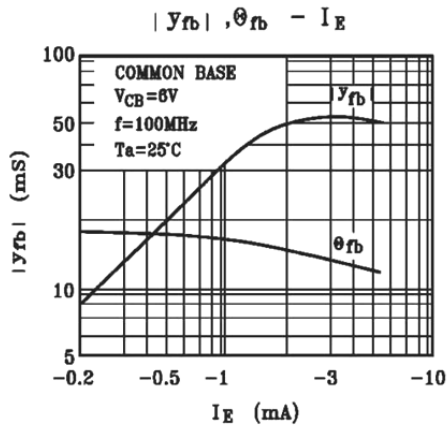
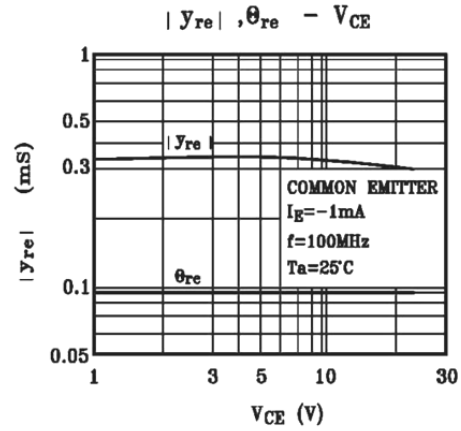
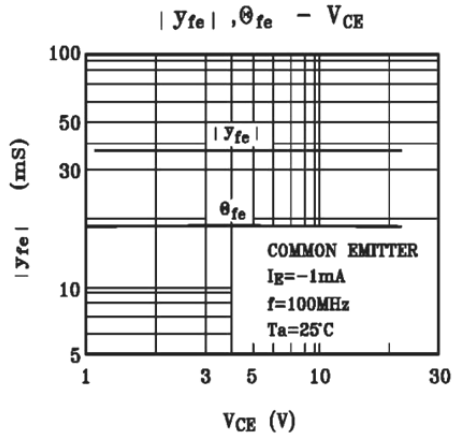
Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CB0}	40	V
Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Base Voltage	V_{EBO}	4.0	V
Collector Current	I_C	20	mA
Emitter Current	I_E	-20	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

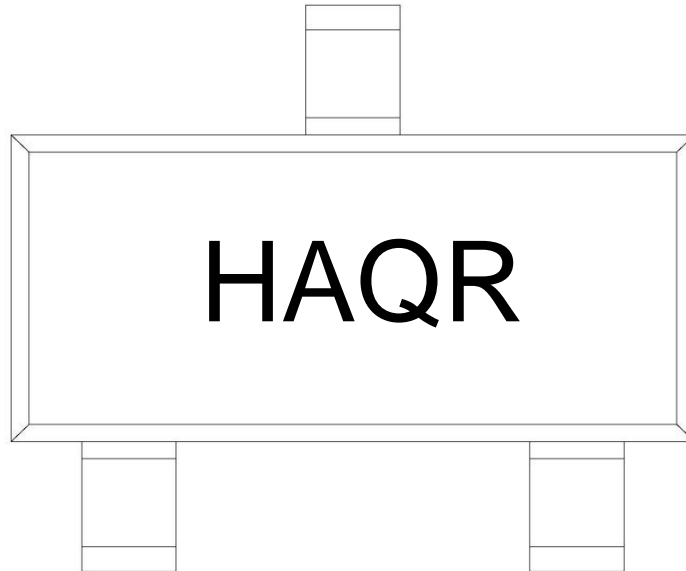
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CB0}	$V_{CB}=18V$ $I_E=0$			0.5	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4.0V$ $I_C=0$			0.5	μA
DC Current Gain	h_{FE}	$V_{CE}=6.0V$ $I_C=1.0mA$	40		200	
Reverse Transfer Capacitance	C_{re}	$V_{CE}=6.0V$ $f=1.0MHz$		0.7		pF
Transition Frequency	f_T	$V_{CE}=6.0V$ $I_C=1.0mA$		550		MHz
Collector- Base Time Constant	$C_{c.rbb}$	$V_{CE}=6.0V$ $I_E=1.0mA$ $f=30MHz$			30	pS
Noise Figure	NF	$V_{CE}=6.0V$ $I_C=0.1mA$ $f=100MHz$		2.5	5.0	dB
Power Gain	G_{pe}	$V_{CE}=6.0V$ $I_C=0.1mA$ $f=100MHz$	15	18		dB

Electrical Characteristic Curve



Marking Instructions



Note:

- H: Company Code
- AQ: Product Type
- R: h_{FE} Classifications Symbol

h_{FE} Classifications Symbol	R	O	Y
h_{FE} Range	40~80	70~140	100~200
Marking	HAQR	HAQO	HAQY

Packaging SPEC.

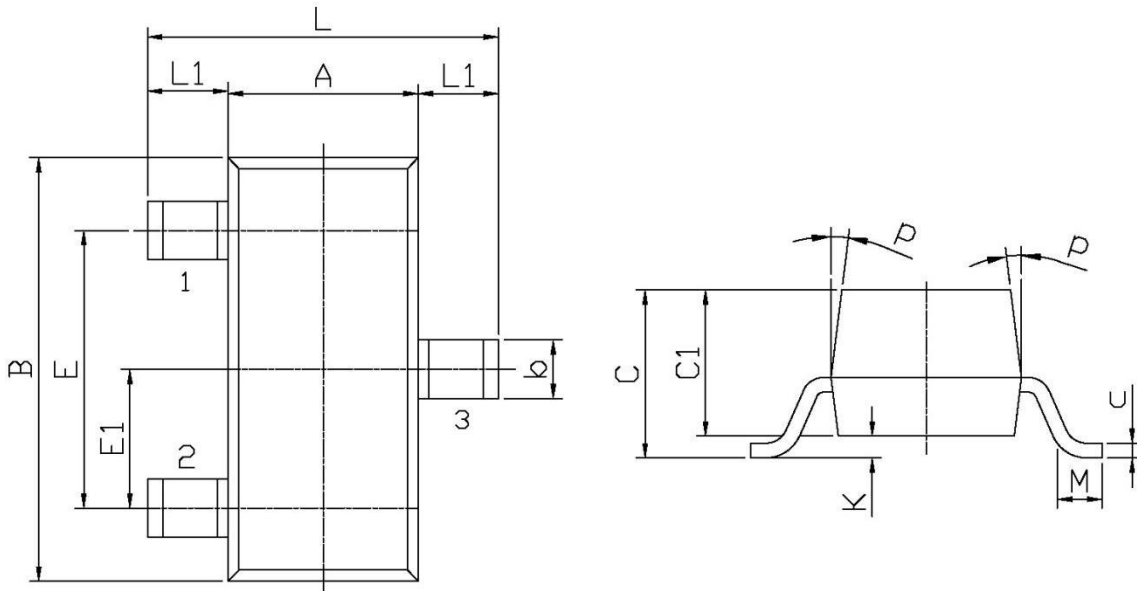
REEL INFORMATION

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" x8	180x120x180	390x385x205

Package Outline Dimensions

SOT-23

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	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			