

**/ Descriptions**

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

**/ Features**

Small reverse transfer capacitance, low noise figure.

**/ Applications**

High frequency amplifier applications.

**/ Equivalent Circuit**



**/ Pinning**



PIN1 Base          PIN 2 Emitter          PIN 3 Collector

**/ h<sub>FE</sub> Classifications & Marking**

h <sub>FE</sub> Classifications Symbol	R	O	Y
h <sub>FE</sub> Range	40~80	70~140	100~200
Marking	HQR	HQO	HQY

**/ Absolute Maximum Ratings(Ta=25 )**

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	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	$P_C$	100	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

**/ Electrical Characteristics(Ta=25 )**

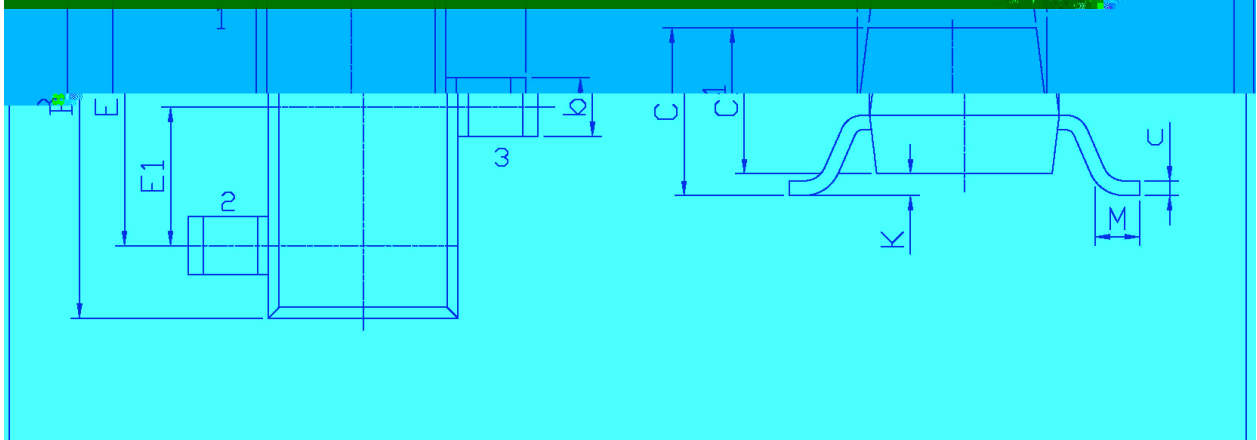
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=18V$ $I_E=0$			0.5	$\mu A$
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=4.0V$ $I_C=0$			0.5	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=6.0V$ $I_C=1.0mA$	40		200	
Transition Frequency	$f_T$	$V_{CE}=6.0V$ $I_C=1.0mA$		550		MHz
Conversion gain	$G_{pe}$	$V_{CE}=6.0V$ $I_E=-1.0mA$ $f=100MHz$	15	18		dB
Noise Figure	NF	$V_{CE}=6.0V$ $I_E=-1.0mA$ $f=100MHz$		2.5	5.0	dB
Collector to Base Time Constant	$C_{c-rbb'}$	$V_{CE}=6.0V$ $I_E=-1.0mA$ $f=30MHz$			30	ps
Reverse Transfer Capacitance (Common emitter)	$C_{re}$	$V_{CE}=6.0V$ $f=1.0MHz$		0.70		pF



/ Package Dimensions

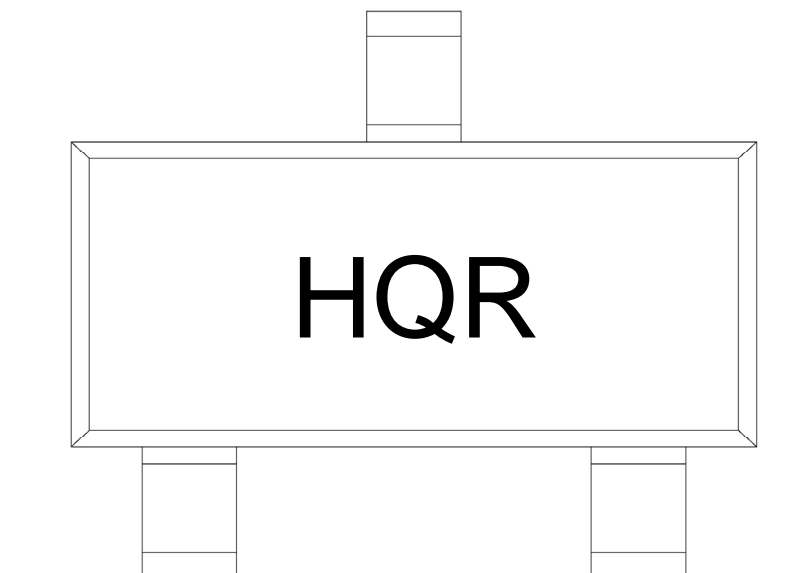
SOT-23

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	3.00	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

/ Marking Instructions



H

Q

R             $h_{FE}$

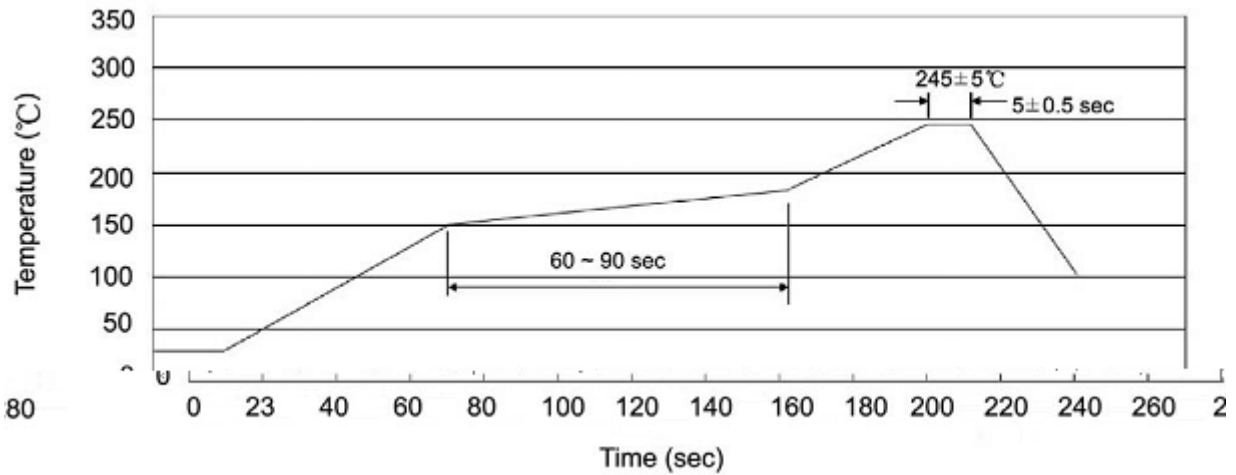
Note:

H            Company Code

Q            Product Type Code

R             $h_{FE}$  Classifications Symbol Code

( ) /



Note:

- |   |       |     |    |           |   |
|---|-------|-----|----|-----------|---|
| 1 | 25    | 150 | 60 | 90sec;    | 1.Preheating:25~150 , Time:60~90sec.    |
| 2 | 245±5 |     |    | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 |       |     | 2  | 10 /sec.  | 3. Cooling Speed: 2~10 /sec.            |

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5°C                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

/ Notices