

/ 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_{FE} Classifications & Marking

h_{FE} Classifications Symbol	R	O	Y
h_{FE} 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

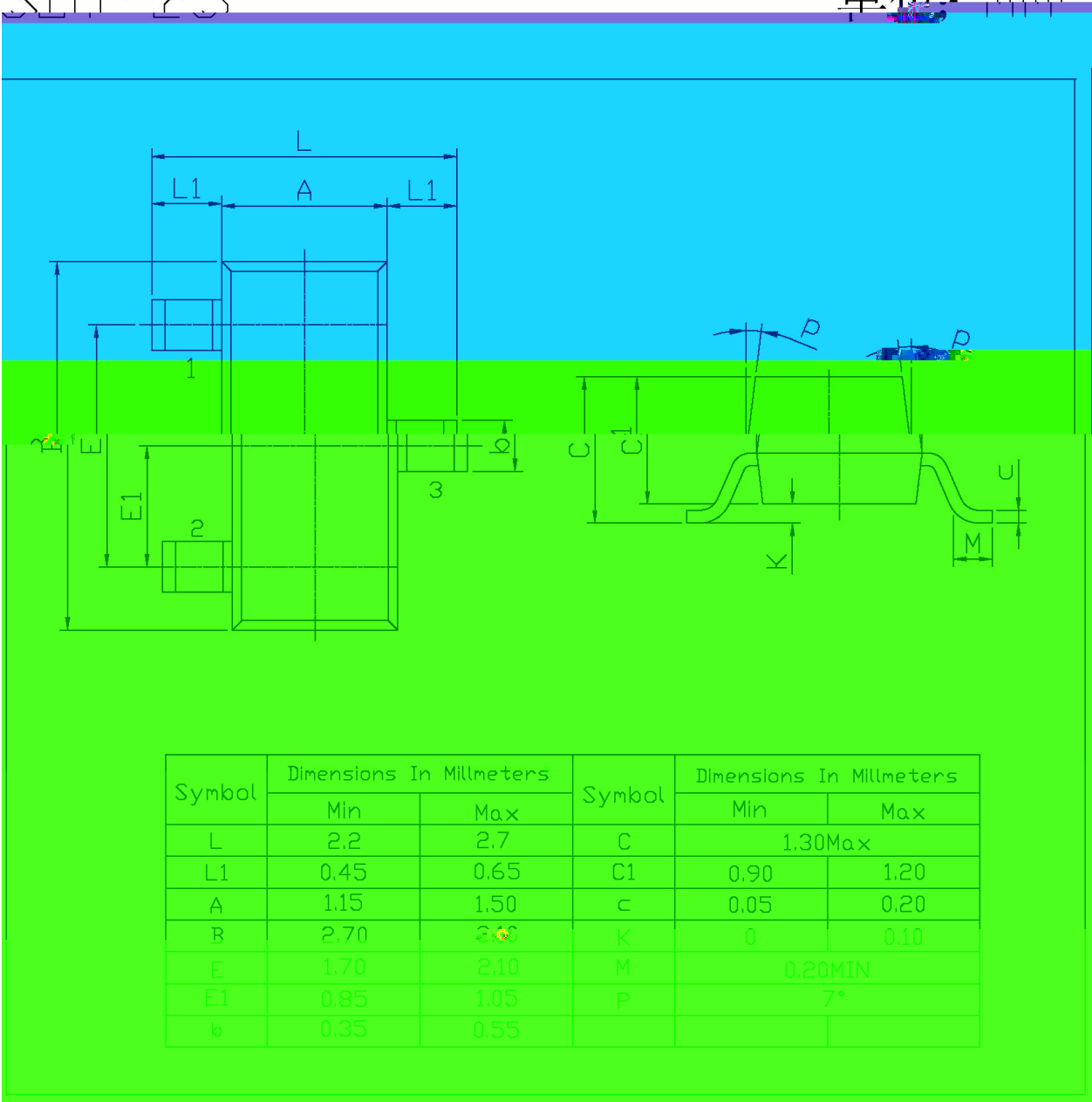
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB}=18V$ $I_E=0$			0.5	μA
Emitter Base 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	
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	$C_{c,rb\bar{b}'}$	$V_{CE}=6.0V$ $I_E=-1.0mA$ $f=30MHz$			30	ps
Reverse Transfer Capacitance (Common emitter)	C_{re}	$V_{CE}=6.0V$ $f=1.0MHz$		0.70		pF

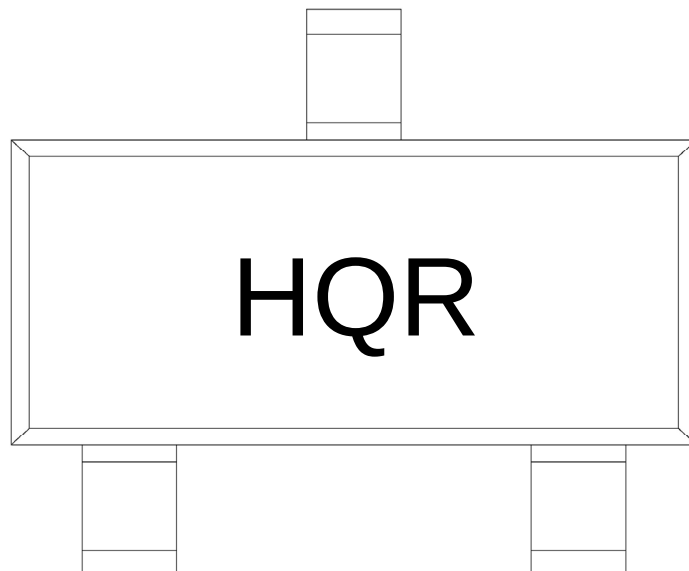
/ Package Dimensions

SOT-23

单位: mm



/ **Marking Instructions**



H

Q

R h_{FE}

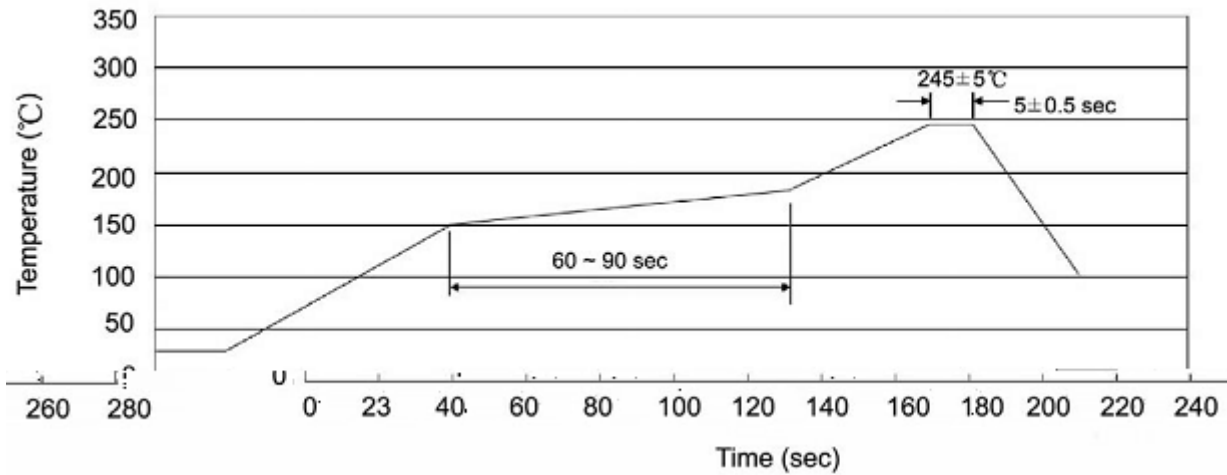
Note:

H Company Code

Q Product Type Code

R h_{FE} Classifications Symbol Code

() / **Temperature Profile for IR Reflow Soldering(Pb-Free)**



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℃ 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 ³)		
	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" x8	180×120×180	390×385×205

/ **Notices**