

/ Descriptions

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

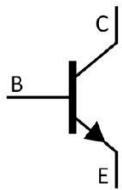
/ Features

Small reverse transfer capacitance, low noise figure.

/ Applications

High frequency low noise amplifier.

/ Equivalent Circuit



/ Pinning



PIN 1 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	HAQR	HAQO	HAQY

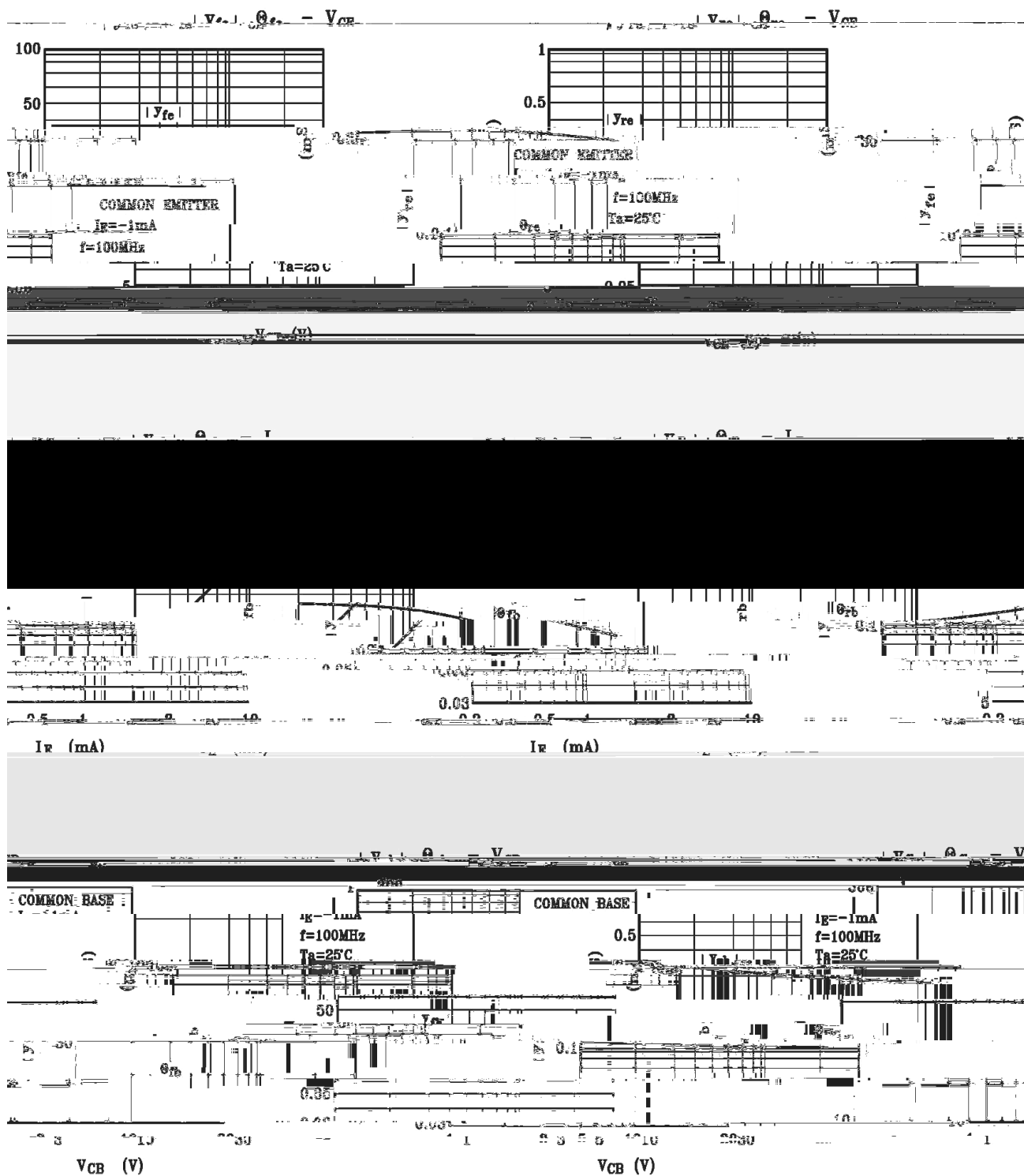
/ Absolute Maximum Ratings(Ta=25)

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	150	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 Cut-Off Current	I_{CBO}	$V_{CB}=18V$ $I_E=0$			0.5	A
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4.0V$ $I_C=0$			0.5	A
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	$C_{c.rbb}$	$V_{CE}=6.0V$ $f=30MHz$ $I_E=1.0mA$			30	pS
Noise Figure	NF	$V_{CE}=6.0V$ $f=100MHz$ $I_C=0.1mA$		2.5	5.0	dB
Power Gain	G_{pe}	$V_{CE}=6.0V$ $f=100MHz$ $I_C=0.1mA$	15	18		dB

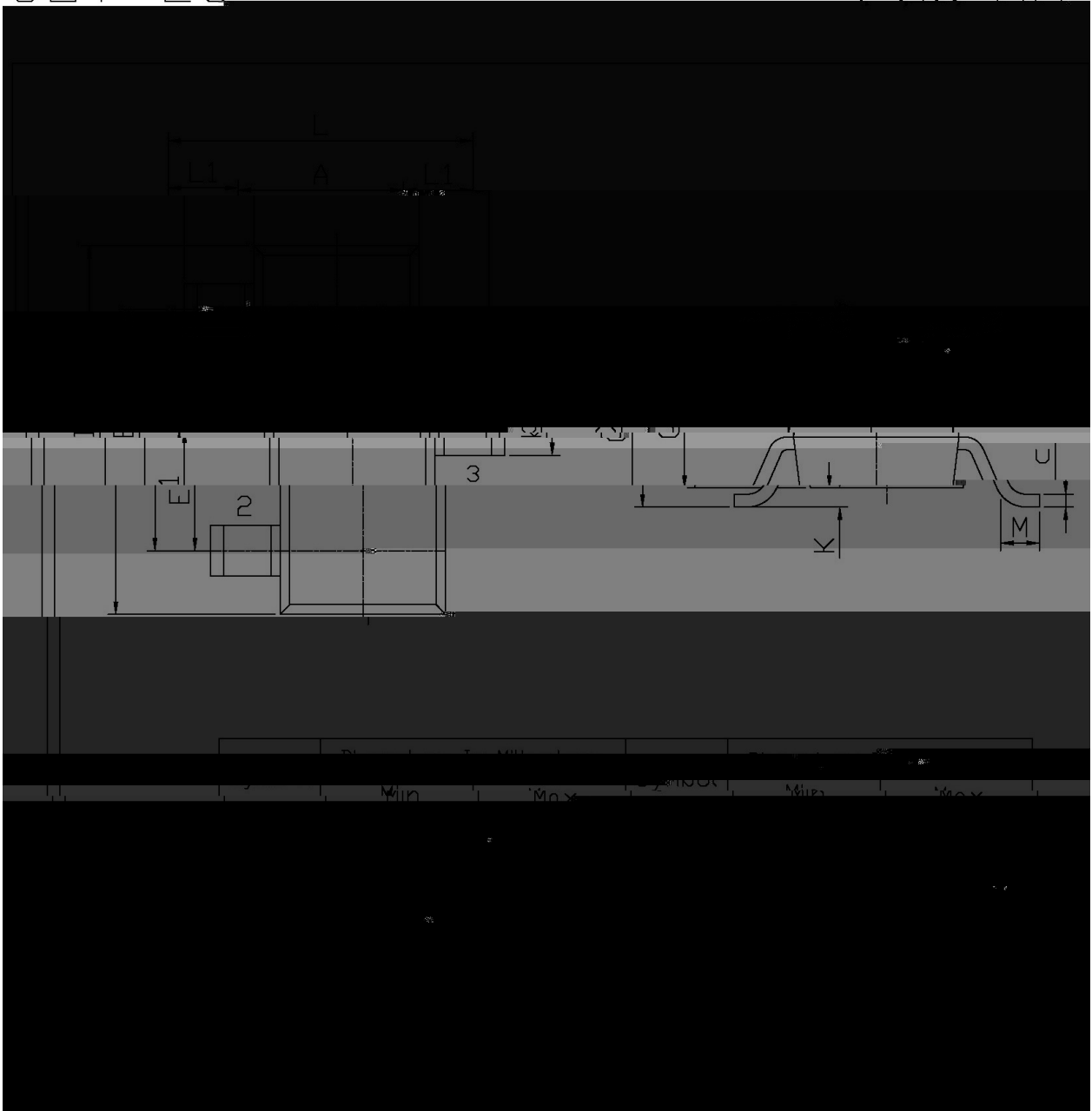
/ Electrical Characteristic Curve



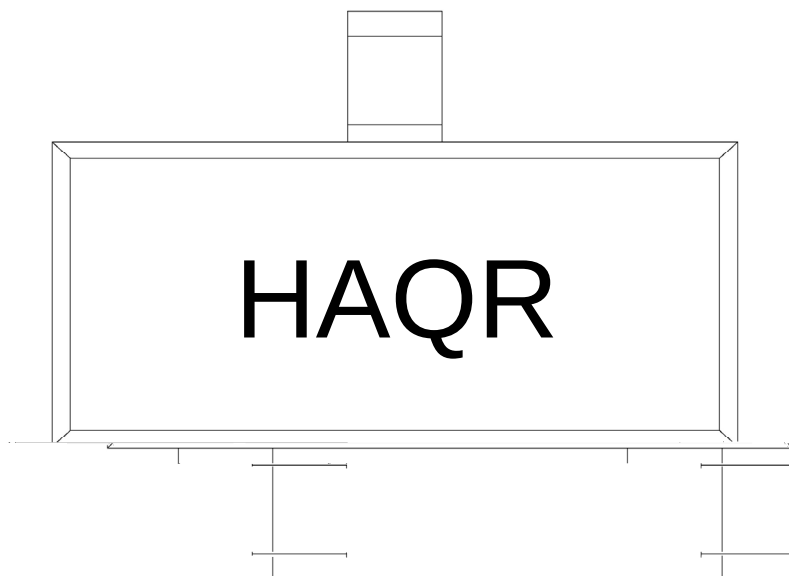
/ Package Dimensions

SOT-23

单位: mm



/ Marking Instructions



H

AQ

R h_{FE}

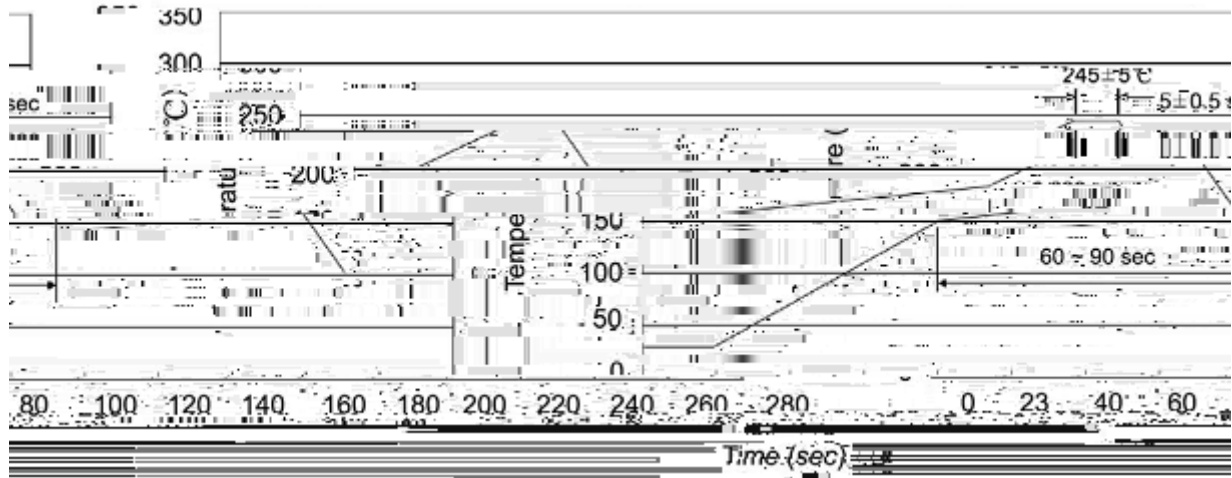
Note:

H Company Code

AQ Product Type

R h_{FE} Classifications Symbol

() / 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 r À b À 260±5 12-Tj75D