

**/ Descriptions**

JF K\$/O      GE G      Silicon PNP transistor in a SOT-89 Plastic Package.

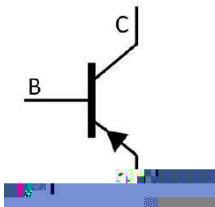
**/ Features**

Low  $V_{CE(sat)}$ , excellent DC current gain characteristics.

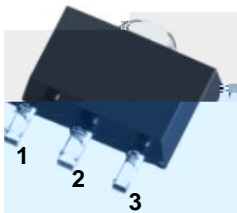
**/ Applications**

General purpose amplifier.

**/ Equivalent Circuit**



**/ Pinning**



PIN1 Base      PIN 2 Collector      PIN 3 Emitter

**/ Marking**

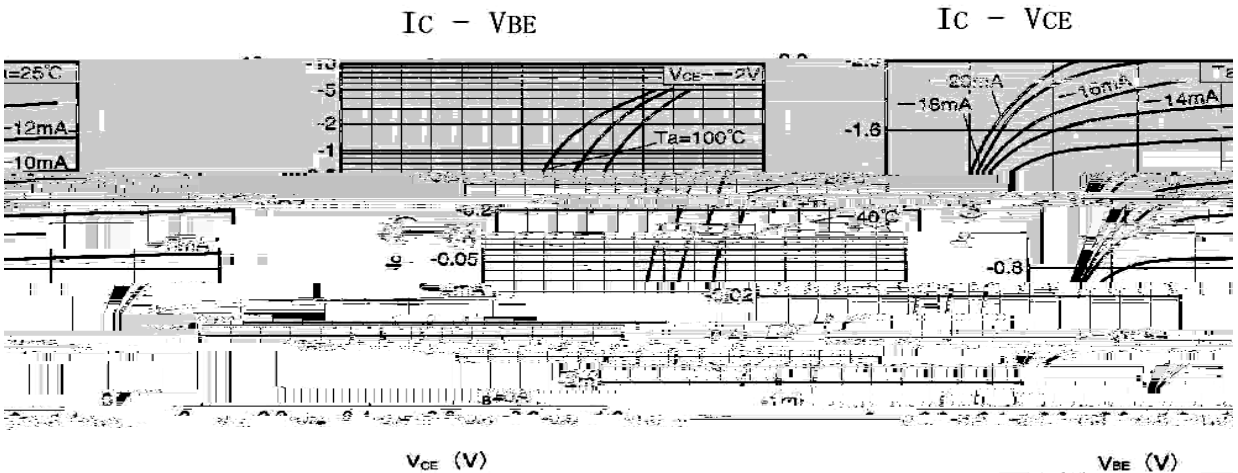
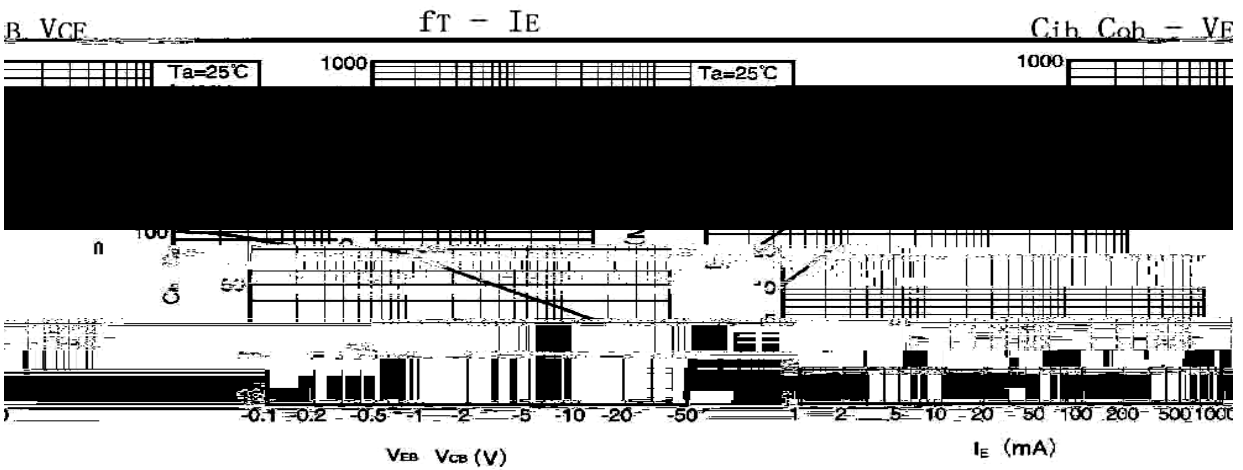
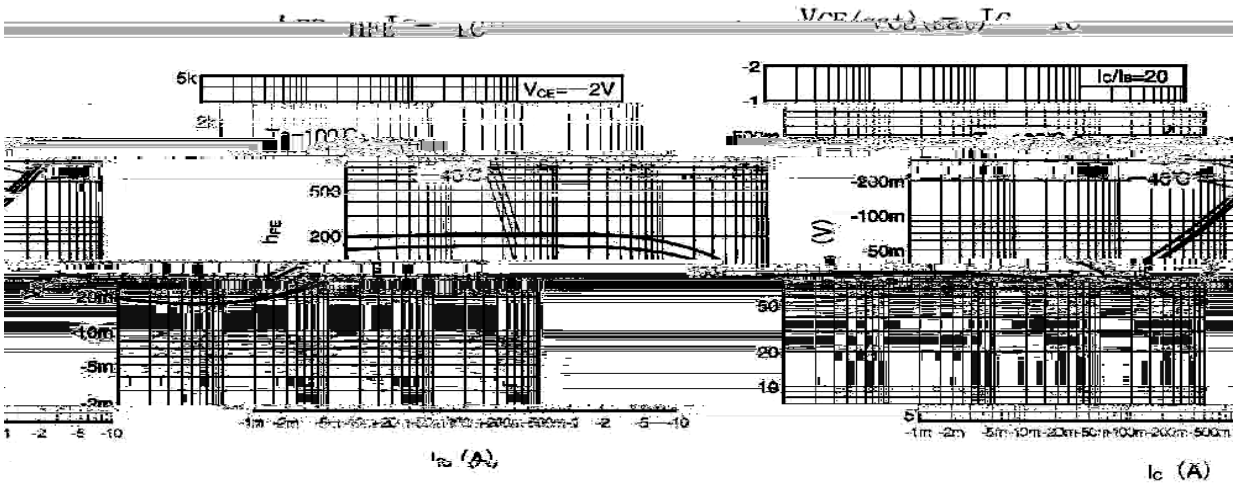
$h_{FE}$ Classifications Symbol	Q	R
$h_{FE}$ Range	120 270	180 390
Marking	HAEQ <sup>※</sup>	HAER <sup>※</sup>

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	-20	V
Collector to Emitter Voltage	$V_{CEO}$	-20	V
Emitter to Base Voltage	$V_{EBO}$	-6.0	V
Collector Current-Continuous	$I_C$	-3.0	A
Collector Current -Continuous(Pulse)	$I_{CP}$	-5.0	A
Collector Power Dissipation	$P_C$	0.6	W
Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=-50\mu A$ $I_E=0$	-20			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=-1.0mA$ $I_B=0$	-20			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=-50\mu A$ $I_C=0$	-6.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-20V$ $I_E=0$			-0.1	$\mu A$
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=-5.0V$ $I_C=0$			-0.1	$\mu A$
DC Current Gain	$\beta_{DC}$	$V_{CE}=-2.0V$ $I_C=-0.1A$	120		390	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-2.0A$ $I_B=-0.1A$			-0.5	V
Transition Frequency	$f_k$	$V_{CE}=-2.0V$ $I_C=-0.5A$ $f=100MHz$		240		MHz

Collector

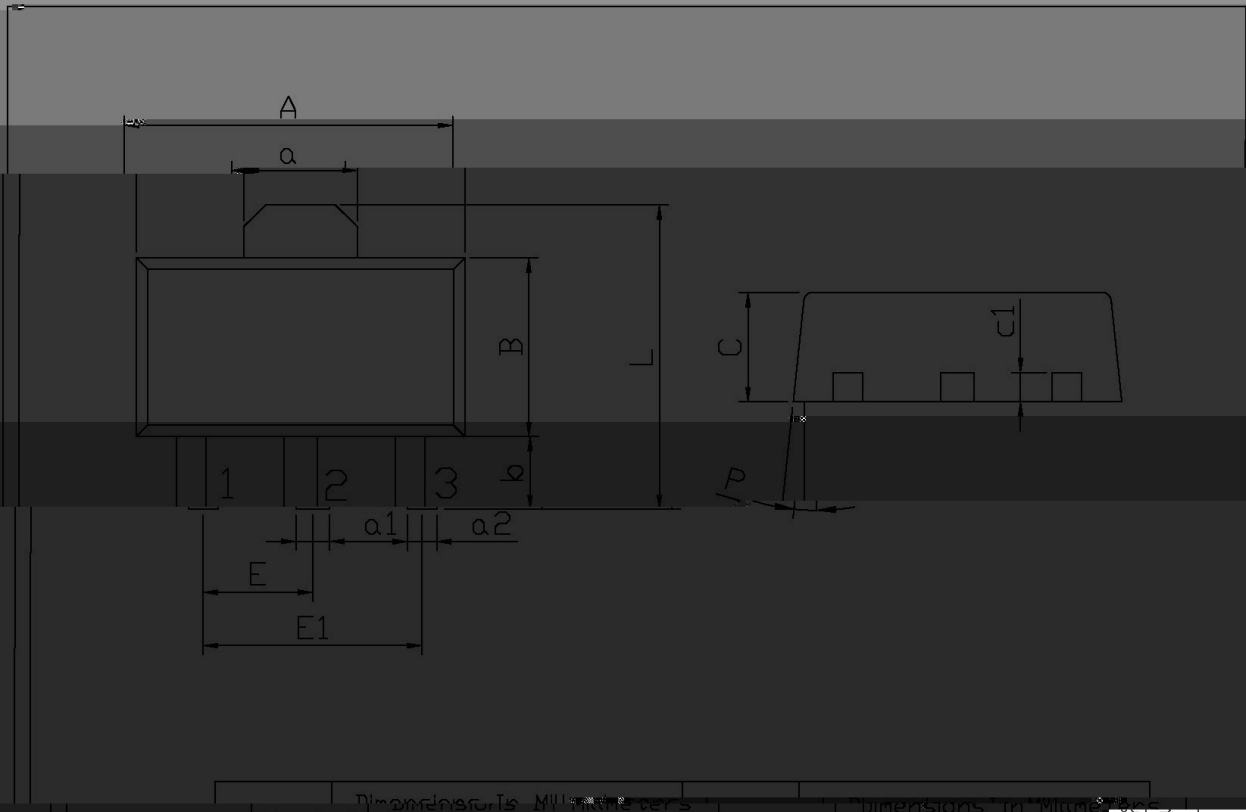
/ Electrical Characteristic Curve



/ Package Dimensions

SOT-89

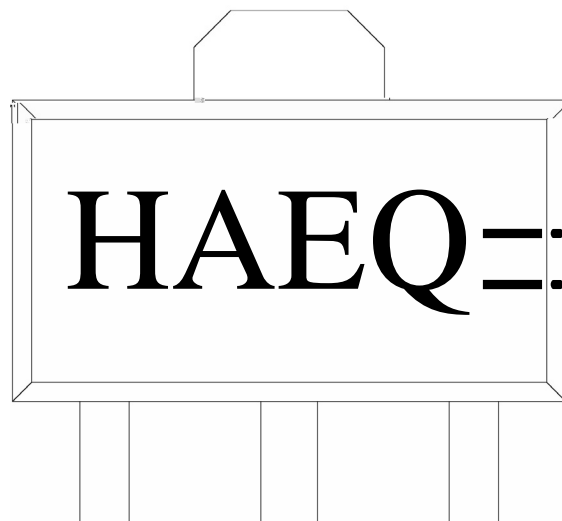
单位: mm



Dimensions in Millimeters		Symbol		Dimensions in Millimeters	
	MIN	Max		MIN	Max
A	4.4	4.7	a	0.8	0.9
B	1.2	1.4	B	0.8	0.9
L	2.5	2.8	L	0.8	0.9
C	0.8	0.9	C	0.8	0.9
P	0.1	0.15	P	0.1	0.15
1	0.5	0.6	1	0.5	0.6
2	0.5	0.6	2	0.5	0.6
3	0.5	0.6	3	0.5	0.6
a1	0.2	0.3	a1	0.2	0.3
a2	0.2	0.3	a2	0.2	0.3
E	1.2	1.4	E	1.2	1.4
E1	1.2	1.4	E1	1.2	1.4



/ Marking Instructions



H

AE

Q:  $h_{FE}$

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Note:

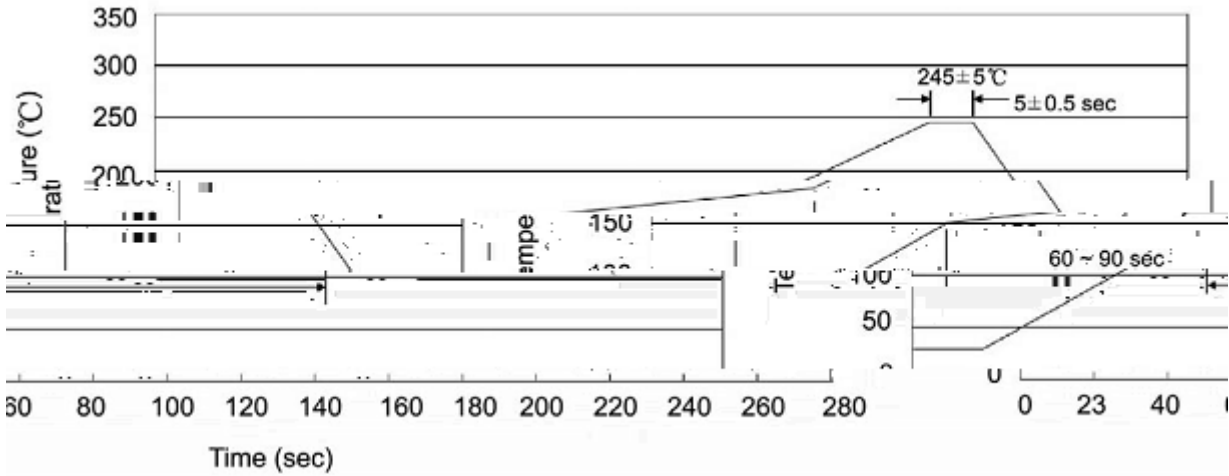
H: Company Code.

AE: Product Type.

Q:  $h_{FE}$  Classifications Symbol

\*\* : Lot No. Code, code change with Lot No.

( ) /



Note:

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

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ REEL

Package Type	Units				Dimension (unit mm <sup>3</sup> )		

/ Notices