

/ Descriptions

SOT23-3

PNP

Silicon PNP transistor in a SOT23-3 Plastic Package.

/ Features

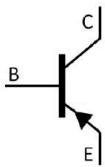
, BR2SD1782MC

High breakdown, low $V_{CE(sat)}$, complements the BR2SD1782MC, HF Product.

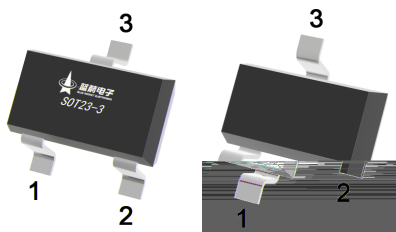
/ Applications

Medium power amplifier applications.

/ Equivalent Circuit



/ Pinning



PIN1 Base

PIN 2 Emitter

PIN 3 Collector

/ h_{FE} Classifications & Marking

h _{FE} Classifications Symbol	Q	R
h _{FE} Range	120~270	180~390
Marking	HAKQ	HAKR

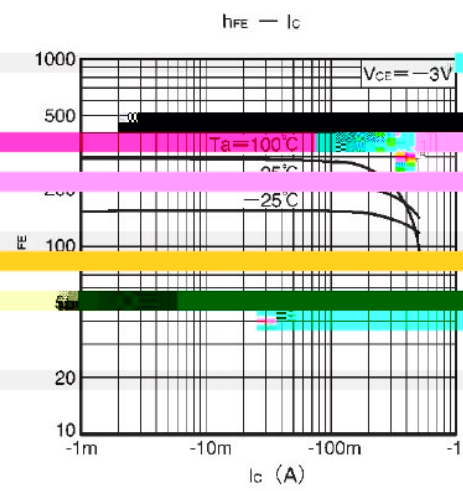
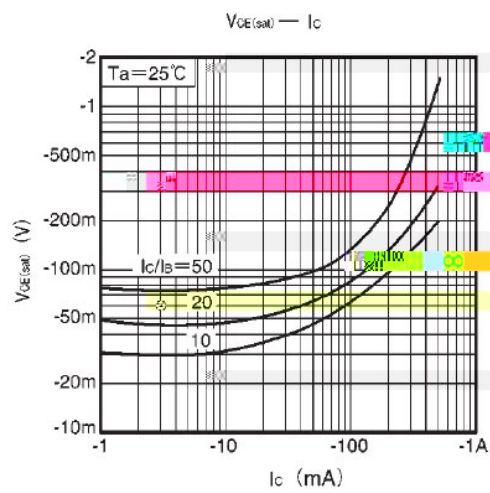
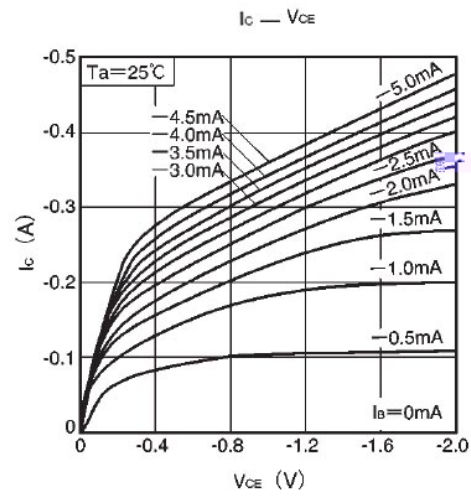
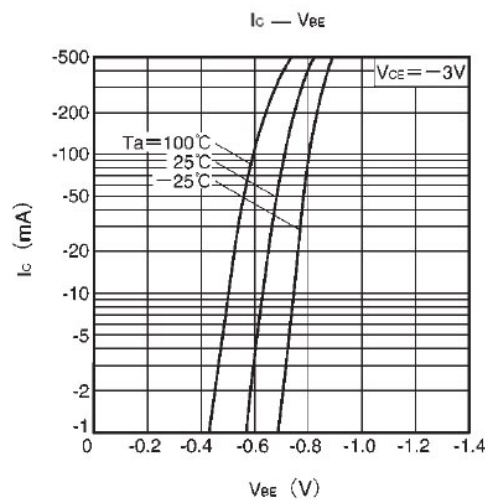
/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-80	V
Collector to Emitter Voltage	V_{CEO}	-80	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-500	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

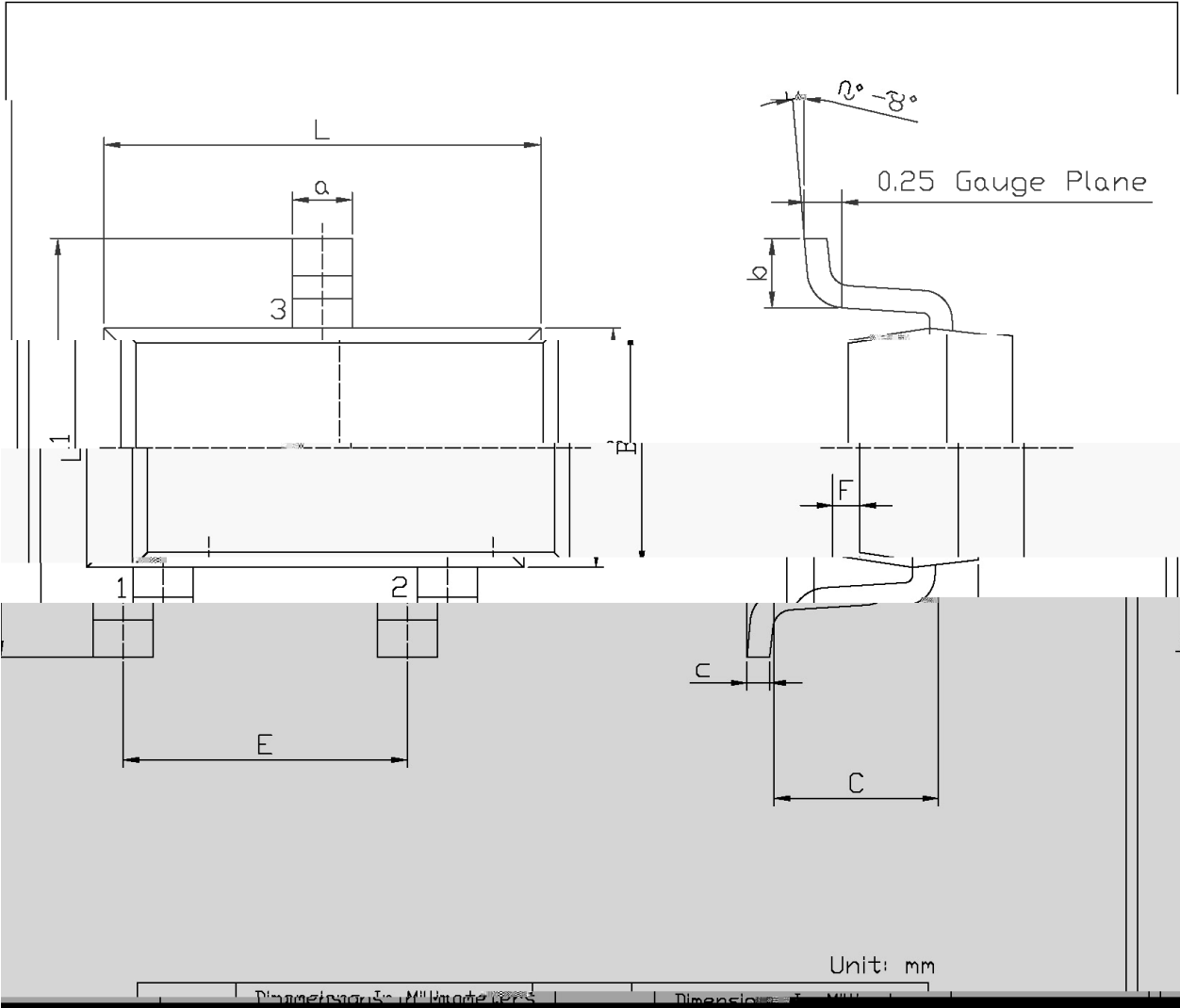
/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=-50\mu\text{A}$	-80			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=-2\text{mA}$	-80			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=-50\mu\text{A}$	-5			V
Collector Base Cut-Off Current	I_{CBO}	$V_{CB}=-50\text{V}$ $I_E=0$			-0.5	μA
Collector Emitter Cut-Off Current	I_{CEO}	$V_{CE}=-65\text{V}$ $I_B=0$			-5	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=-4.0\text{V}$ $I_C=0$			-0.5	μA
DC Current Gain	h_{FE}	$V_{CE}=-3.0\text{V}$ $I_C=-100\text{mA}$	120		390	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500\text{mA}$ $I_B=-50\text{mA}$			-0.5	V
Transition Frequency	f_T	$I_C=-50\text{mA}$ $f=100\text{MHz}$ $V_{CE}=-10\text{V}$		180		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10\text{V}$ $I_E=0$ $f=1.0\text{MHz}$		11		pF

/ Electrical Characteristic Curve

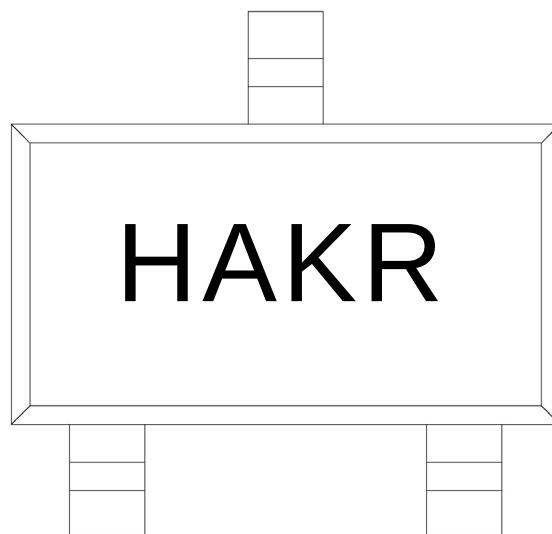


/ Package Dimensions



Dimension in Millimeters		Dimension in Mil	
	2.92	2.00	0.25
			0.50

/ Marking Instructions



H

AK

R h_{FE}

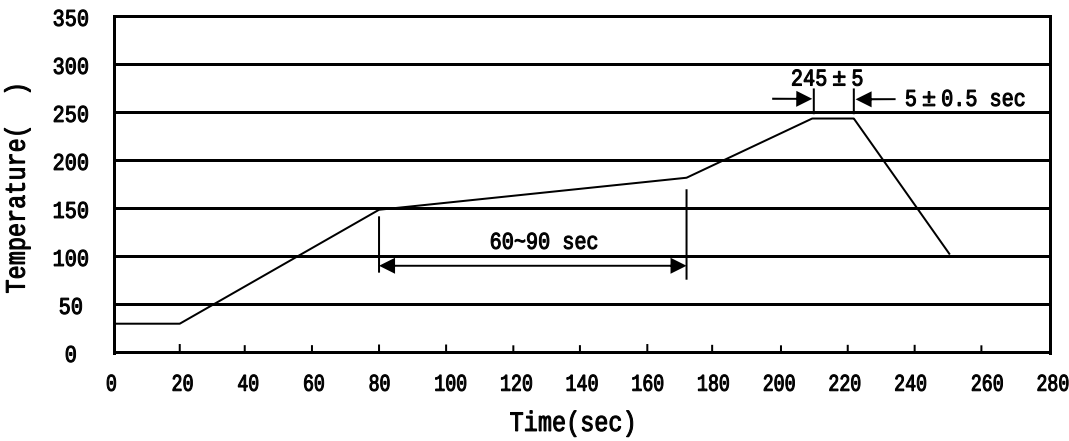
Note:

H: Company Code

AK: Product Type Code

R: h_{FE} Classifications Symbol Code

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



Note:

- 1

150 180

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- 1.Preheating:150~180

, Time:60~90sec.
- 2.Peak Temp.:245±5

, Duration:5±0.5sec.
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	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	3,000	10	30,000	4	120,000	7 ×8	210×205×205	445×230×435

/ Notices