

/ Descriptions

Silicon NPN transistor in a TO-92 Plastic Package.

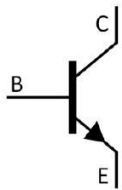
/ Features

High P_C .

/ Applications

AM converter, FM low noise figure high frequency amplifier.

/ Equivalent Circuit



/ Pinning



PIN1 Collector PIN 2 Base PIN 3 Emitter

/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	D	E	F	G	H	I
h_{FE} Range	28~45	39~60	54~80	72~108	97~146	132~198

/ Absolute Maximum Ratings(Ta=25)

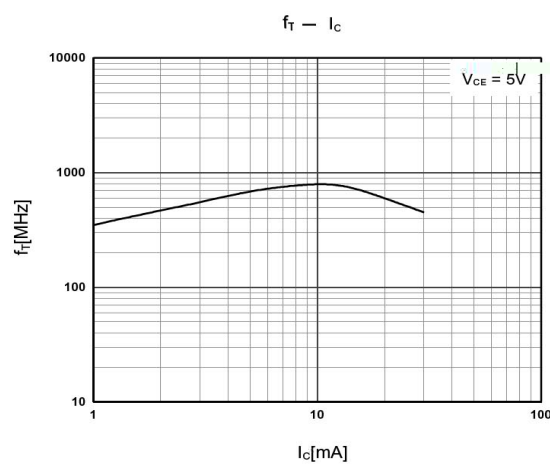
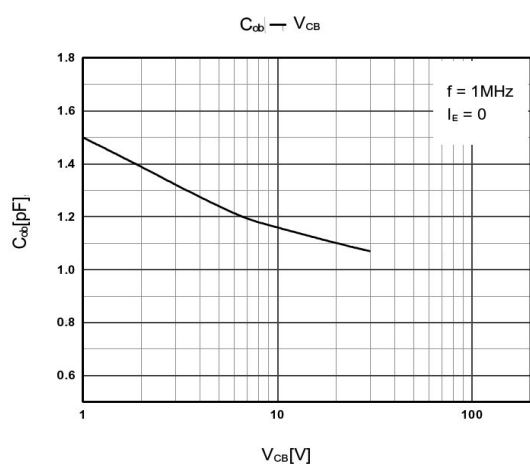
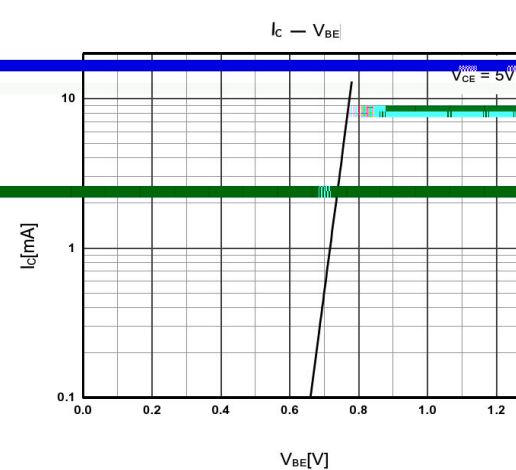
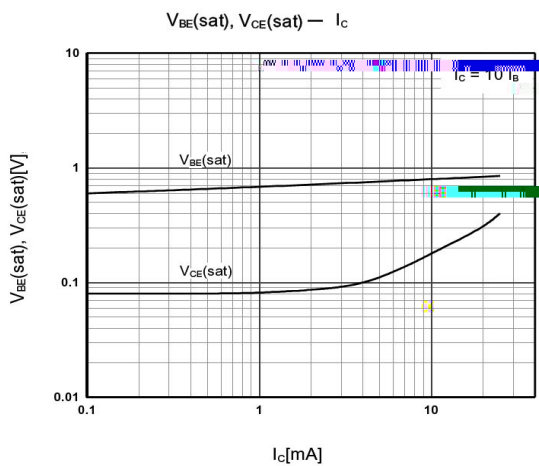
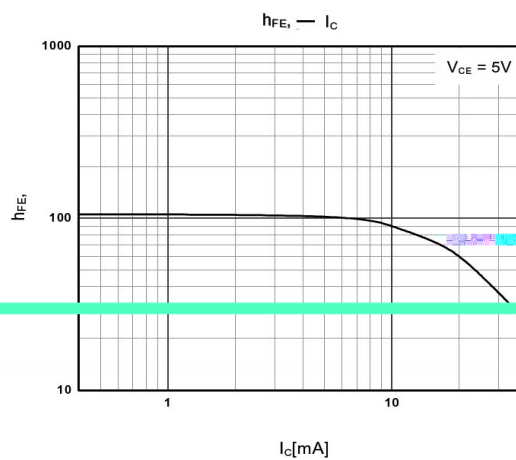
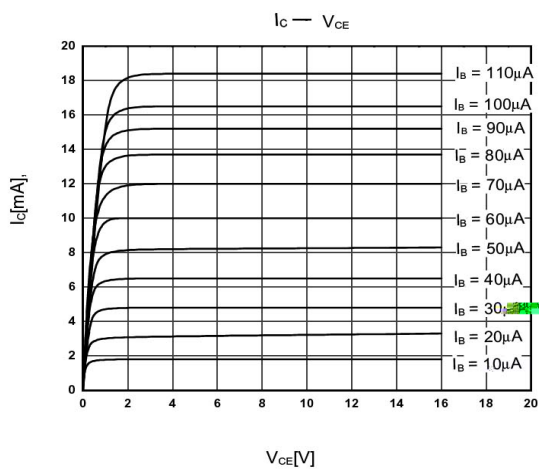
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	20	V
Emitter to Base Voltage	V_{EBO}	4.0	V
Collector Current - Continuous	I_C	25	mA
Base Current - Continuous	I_B	5.0	mA
Collector Power Dissipation	P_C	400	mW
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-55 150	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=0.1mA$ $I_E=0$	30			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	20			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=30V$ $I_E=0$			0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=3.0V$ $I_C=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=5.0V$ $I_C=1.0mA$	28		198	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA$ $I_B=1.0mA$		0.1	0.3	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=5.0V$ $I_C=1.0mA$		0.72		V
Transition Frequency	f_T	$V_{CE}=5.0V$ $I_C=1.0mA$	400	620		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10V$ $I_E=0$ $f=1.0MHz$		1.2	1.6	pF
Noise Figure	NF	$V_{CE}=5.0V$ $R_g=50\Omega$ $I_C=1.0mA$ $f=100MHz$		3.0	5.0	dB



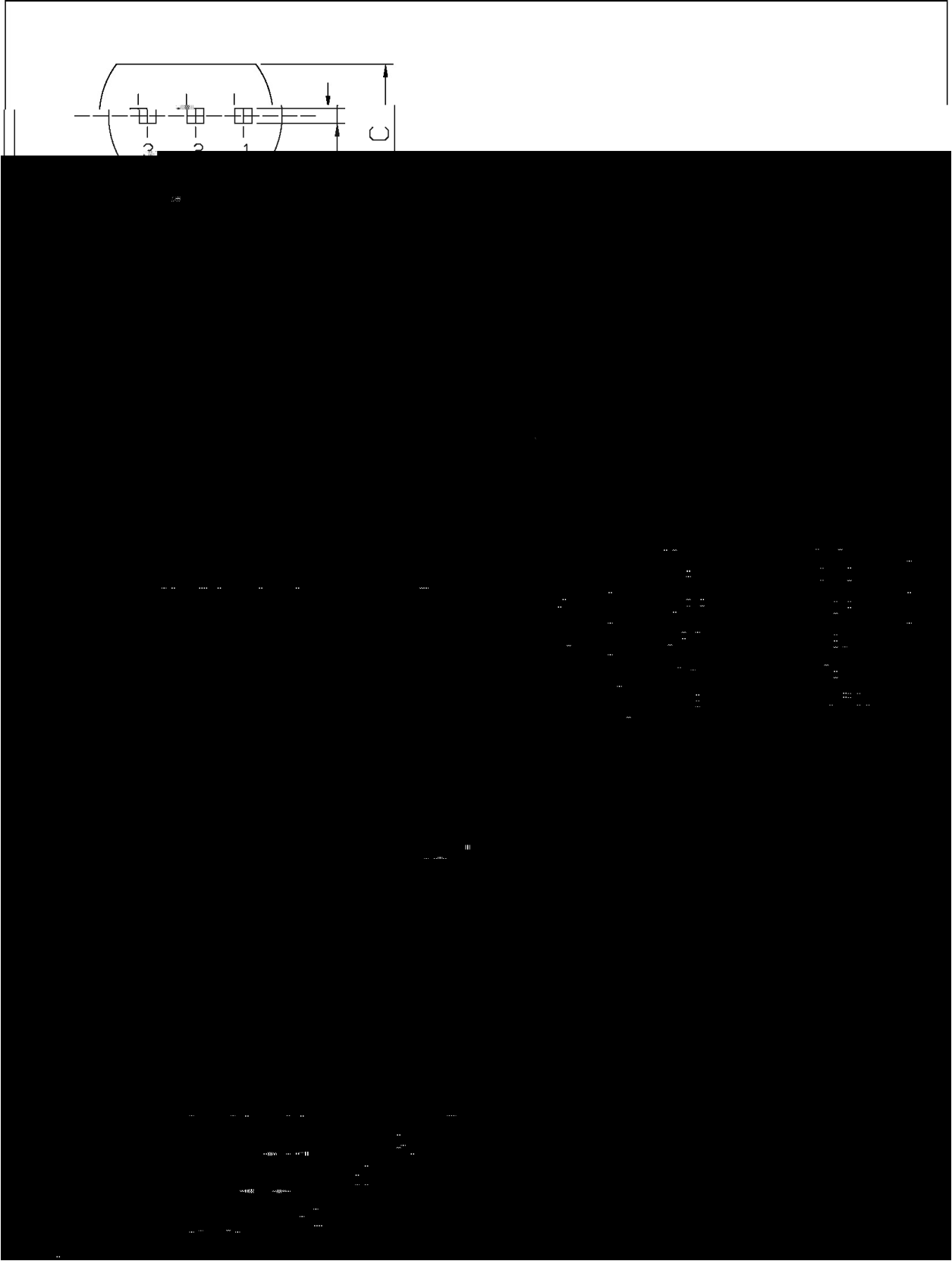
Electrical Characteristic Curve



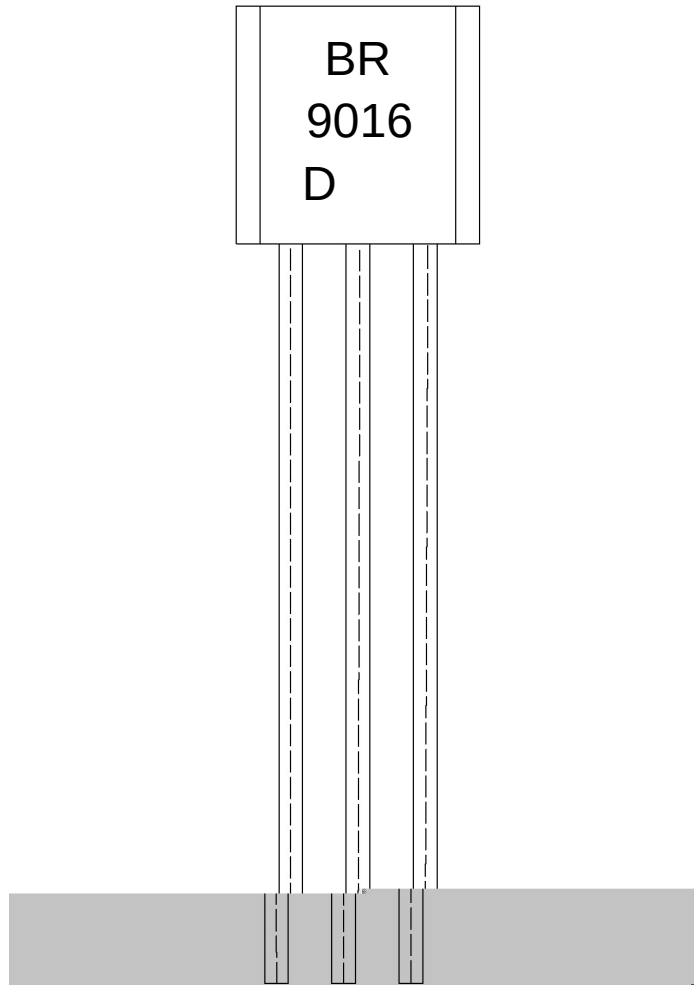
/ Package Dimensions

TO-92

Unit: mm



/ Marking Instructions



Note:

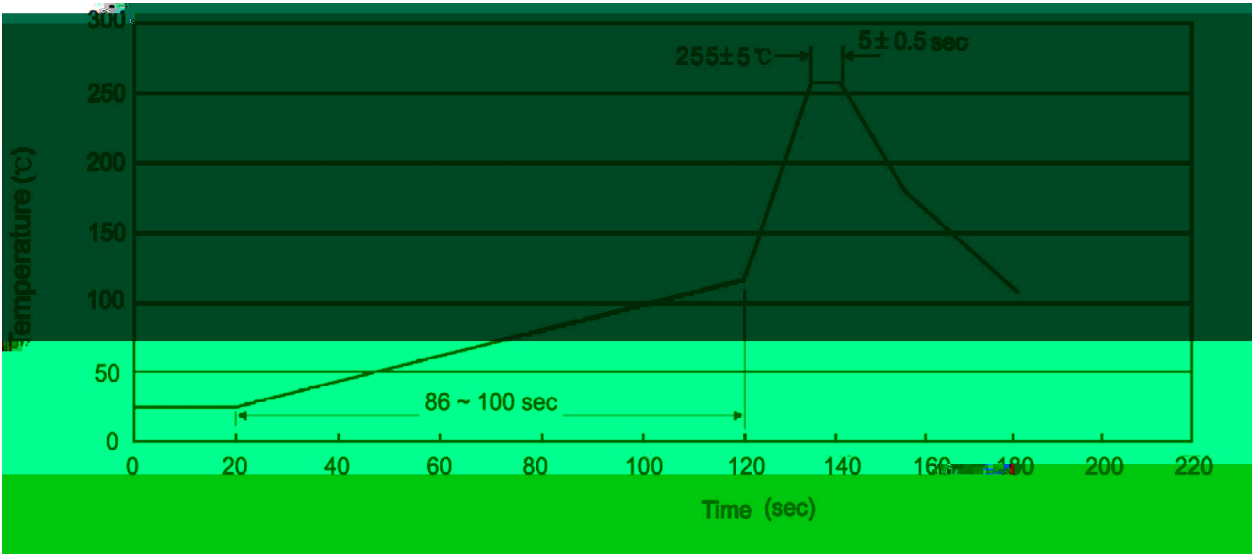
BR: Company Code.

9016: Product Type.

D: h_{FE} Classifications Symbol.

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

() / Temperature Profile for Dip Soldering(Pb-Free)



Note:

- 1

25 150

60 90sec;
- 2

255 5

5 0.5sec;
- 3

2 10

/sec.
- 1.Preheating:25~150

, Time:60~90sec.
- 2.Peak Temp.:255 5

, Duration:5 0.5sec.
3. Cooling Speed: 2~10

/sec.

/ Resistance to Soldering Heat Test Conditions

270 5 10 1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

/ BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	只 袋	袋 盒	只 盒	盒 箱	只 箱	袋	盒	箱

/ AMMO

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	只 纸带	纸带 盒	纸带层 盒	盒 箱	只 箱	盒	箱
							小箱 , 大箱

/ Notices