

**/ Descriptions**

KF \$( ) - = GE G Silicon PNP transistor in a TO-126F Plastic Package.

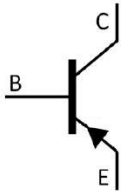
**/ Features**

) J; -- 0žž  
Complementary pair with 2SD669(A).

**/ Applications**

Low frequency power amplifier.

**/ Equivalent Circuit**



**/ Pinning**



PIN1 Emitter      PIN 2 Collector      PIN 3 Base

**/ h<sub>FE</sub> Classifications & Marking**

h <sub>FE</sub> Classifications Symbol	B	C	D
h <sub>FE</sub> Range	60~120	100~200	160~320

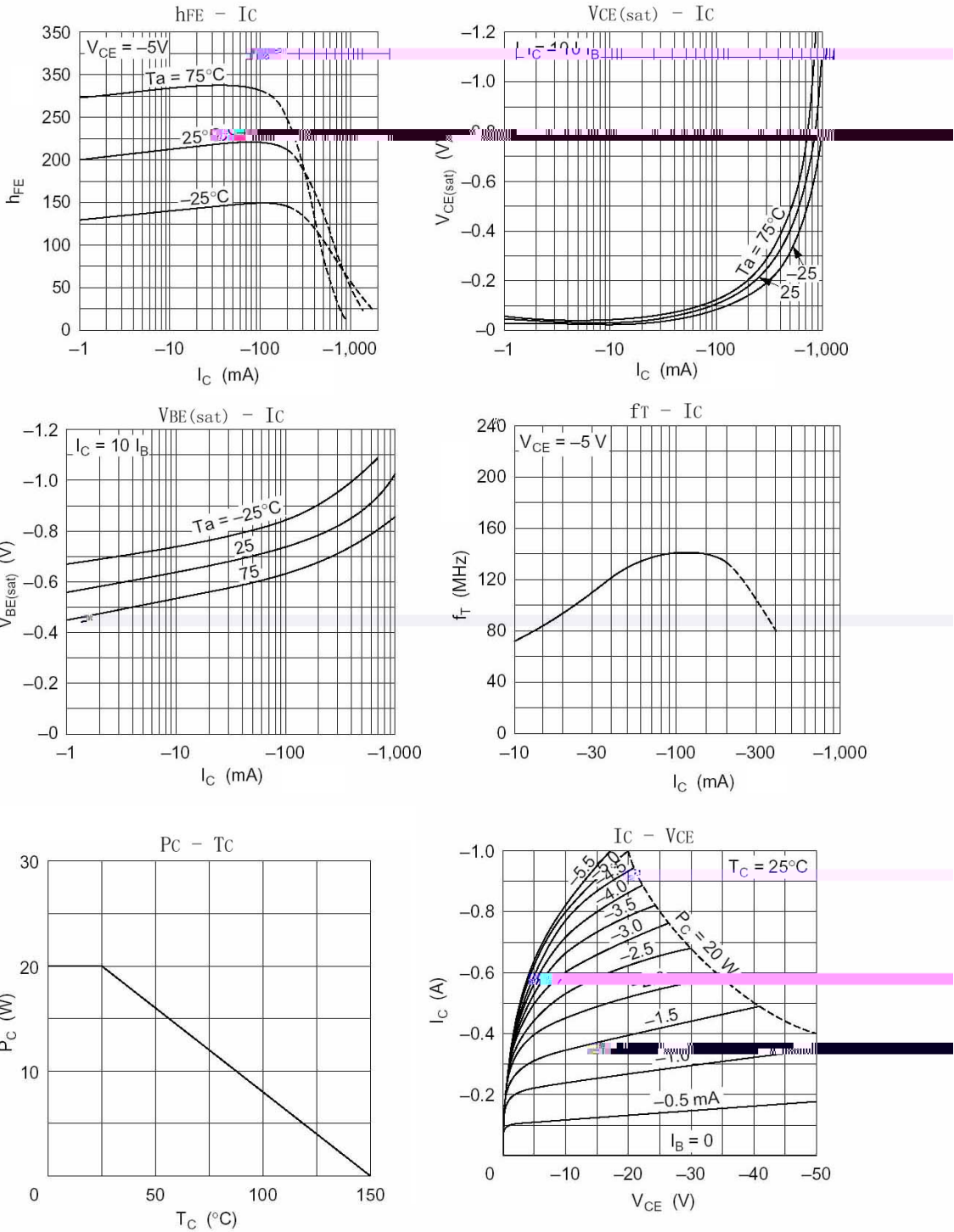
**/ Absolute Maximum Ratings(Ta=25 )**

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	-180	V
Collector to Emitter Voltage	$V_{CEO}$	2SB649	-120
		2SB649A	-160
Emitter to Base Voltage	$V_{EBO}$	-5.0	V
Collector Current - Continuous	$I_C$	-1.5	A
Collector Current(Pulse)	$I_{CP}$	-3.0	A
Collector Power Dissipation	$P_C$	1.0	W
Collector Power Dissipation	$P_C(T_C=25^{\circ}C)$	20	W
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-55~150	$^{\circ}C$

**/ Electrical Characteristics(Ta=25 )**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=-1.0mA$ $I_E=0$	-180			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	2SB649	$I_C=-10mA$ $R_{BE}=\infty$			V
		2SB649A				
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=-1.0mA$ $I_C=0$	-5.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-160V$ $I_E=0$			-10	$\mu A$
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-5.0V$ $I_C=-150mA$	60		320	
	$h_{FE(2)}$	$V_{CE}=-5.0V$ $I_C=-500mA$	30			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-500mA$ $I_B=-50mA$			-1.0	V
Base to Emitter Voltage	$V_{BE}$	$V_{CE}=-5.0V$ $I_C=-150mA$			-1.5	V
Transition Frequency	$f_T$	$V_{CE}=-5.0V$ $I_C=-150mA$		140		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=-10V$ $I_E=0$ $f=1.0MHz$		27		pF

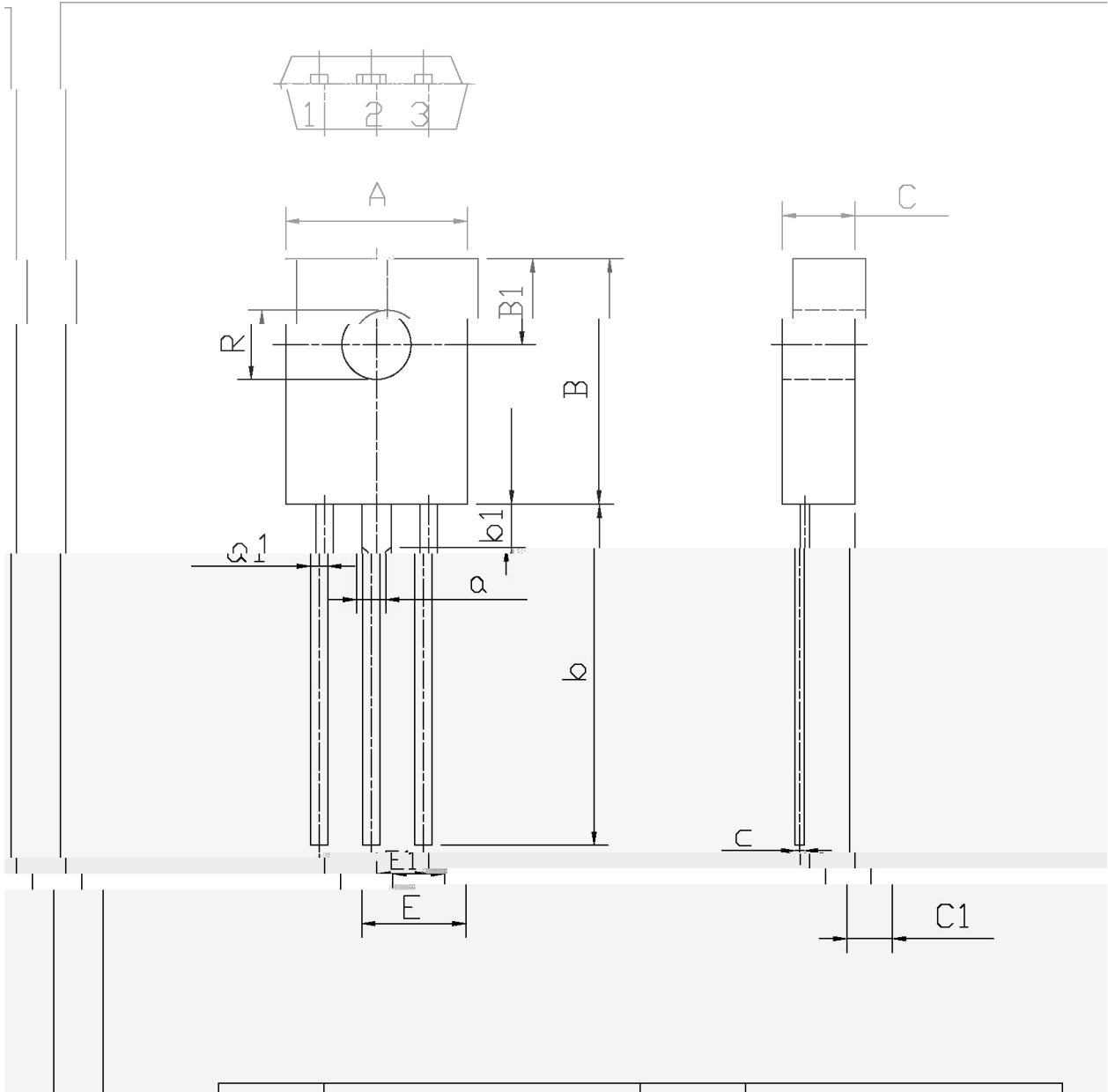
**/ Electrical Characteristic Curve**



/ Package Dimensions

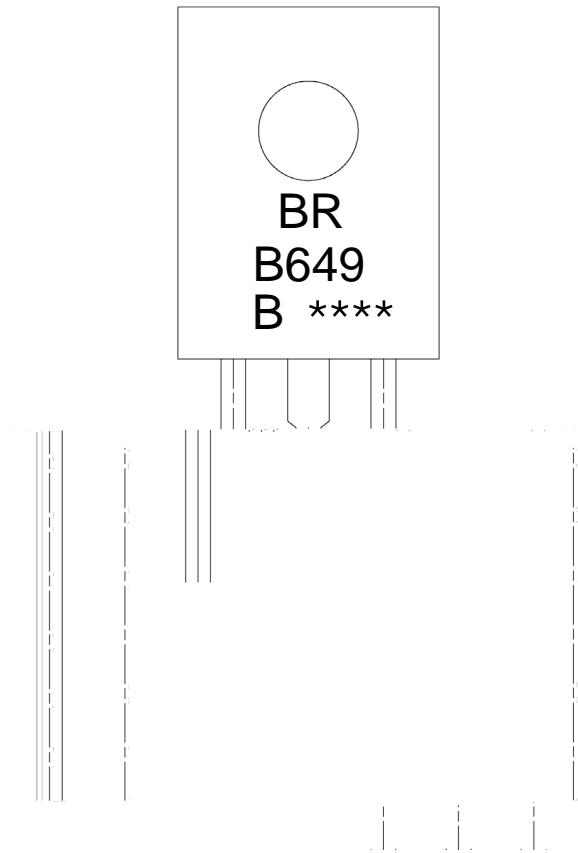
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单位: mm



Symbol	Dimensions in Millimeters		Symbol	Dimensions in Millimeters	
	Min	Max		Min	Max
A	7.8	8.2	a1	0.65	0.85
B	10.8	11.2	E	4.4	4.8
B1	3.8	4.2	C	3.1	3.3
R	2.05	3.15	C1	1.9	2.1
b	14	16	c	0.3	0.6
b1	1.9		a	1.27	
E1	2.1	2.5			

/ Marking Instructions



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Note:

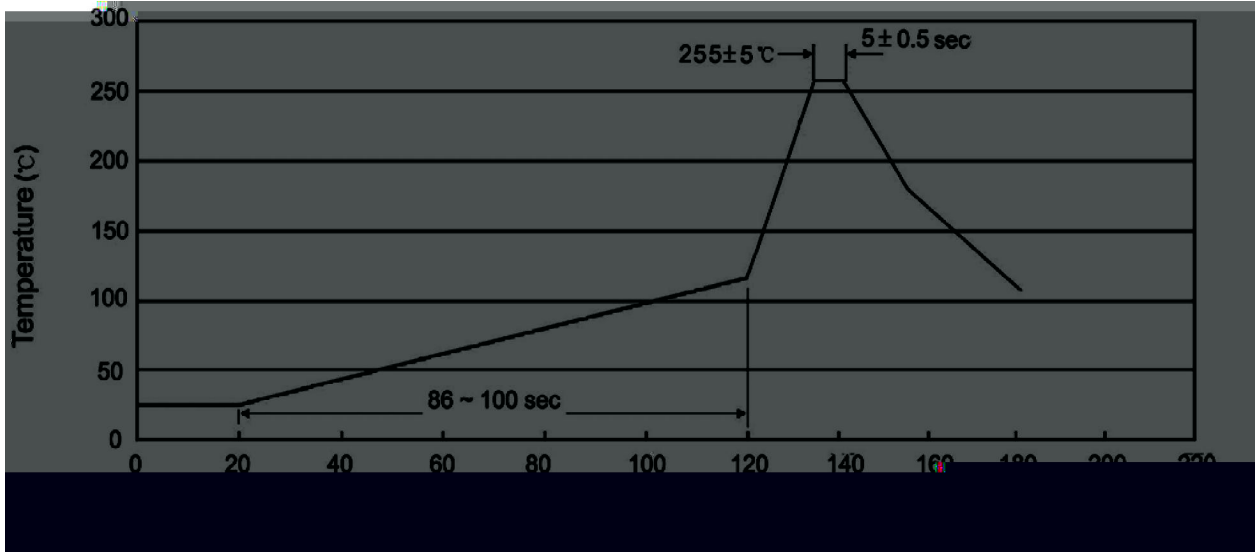
BR: Company Code

B649 : Product Type.

B:  $h_{FE}$  Classifications Symbol

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

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



Note:

- |   |        |     |            |        |   |
|---|--------|-----|------------|--------|---|
| 1 | 25     | 150 | 60         | 90sec; | 1.Preheating:25~150 , Time:60~90sec.      |
| 2 | 255..5 |     | 5..0.5sec; |        | 2.Peak Temp.:255..5 , Duration:5..0.5sec. |
| 3 |        | 2   | 10         | /sec.  | 3. Cooling Speed: 2~10 /sec.              |

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ BULK

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-126/F	500	6	3,000	5	15,000	135×190	237×172×102	560×245×195

/ TUBE

Package Type	Units					Dimension (unit mm <sup>3</sup> )		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-126/F	65	26	1,690	5	8,450	532×31×5.6	555×164×50	575×290×180

/ Notices