

/ Descriptions

WR0459I ММ SQS æ Ñ ç s ll 1 Silicon PNP transistor in a TO-126F Plastic Package.

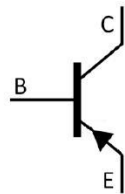
/ Features

лъ 5VG99<+D, Ы
Complementary pair with 2SD669(A).

/ Applications

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Low frequency power amplifier.

/ Equivalent Circuit



/ Pinning



PIN1 χ Emitter PIN 2 χ Collector PIN 3 χ Base

/ h_{FE} Classifications & Marking

h _{FE} Classifications Symbol	B	C	D
h _{FE} Range	60~120	100~200	160~320

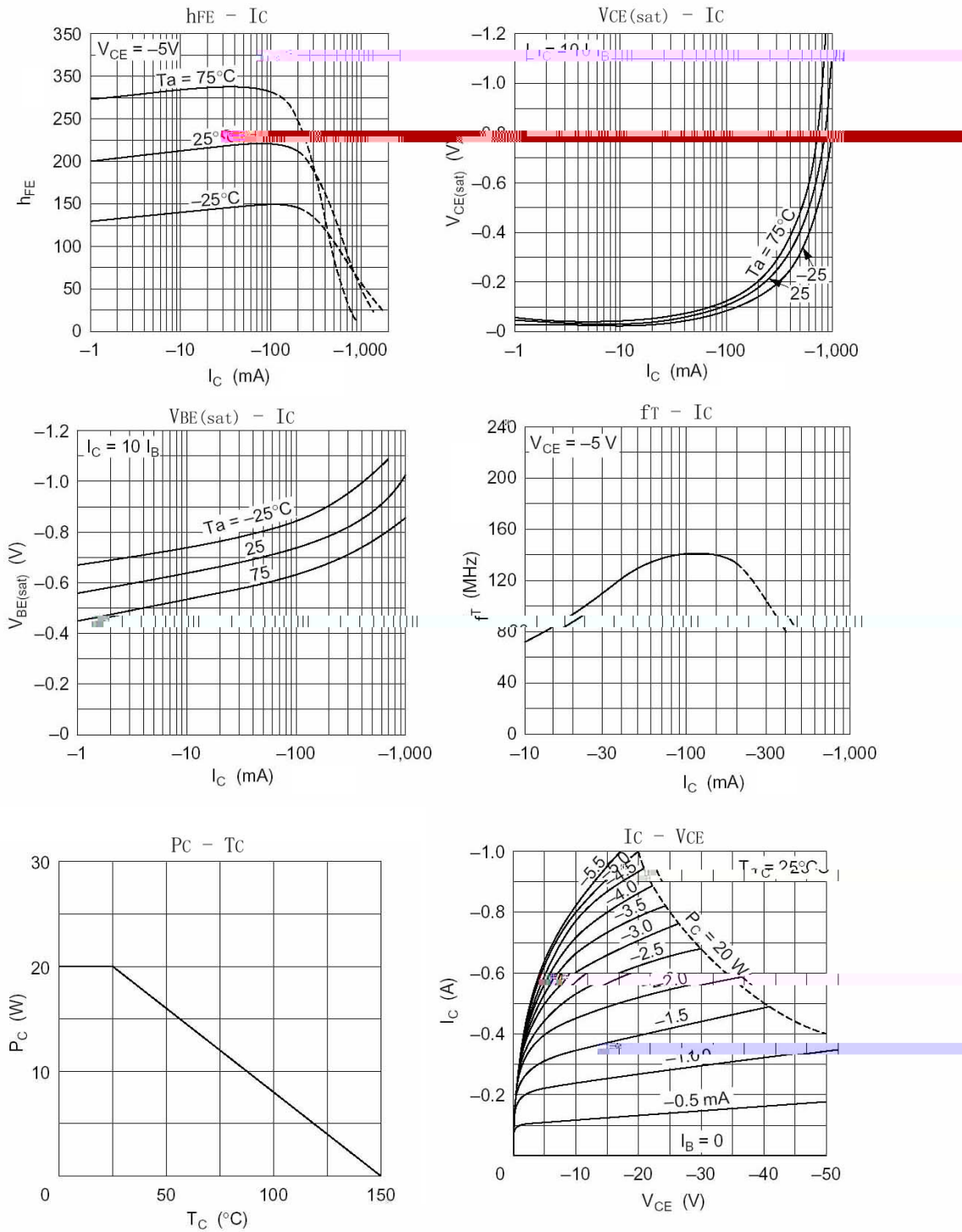
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-180	V
Collector to Emitter Voltage	V_{CEO}	2SB649 -120	V
		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}	$I_C=-10mA$ $R_{BE}=\quad$	-120			V
			-160			
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	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

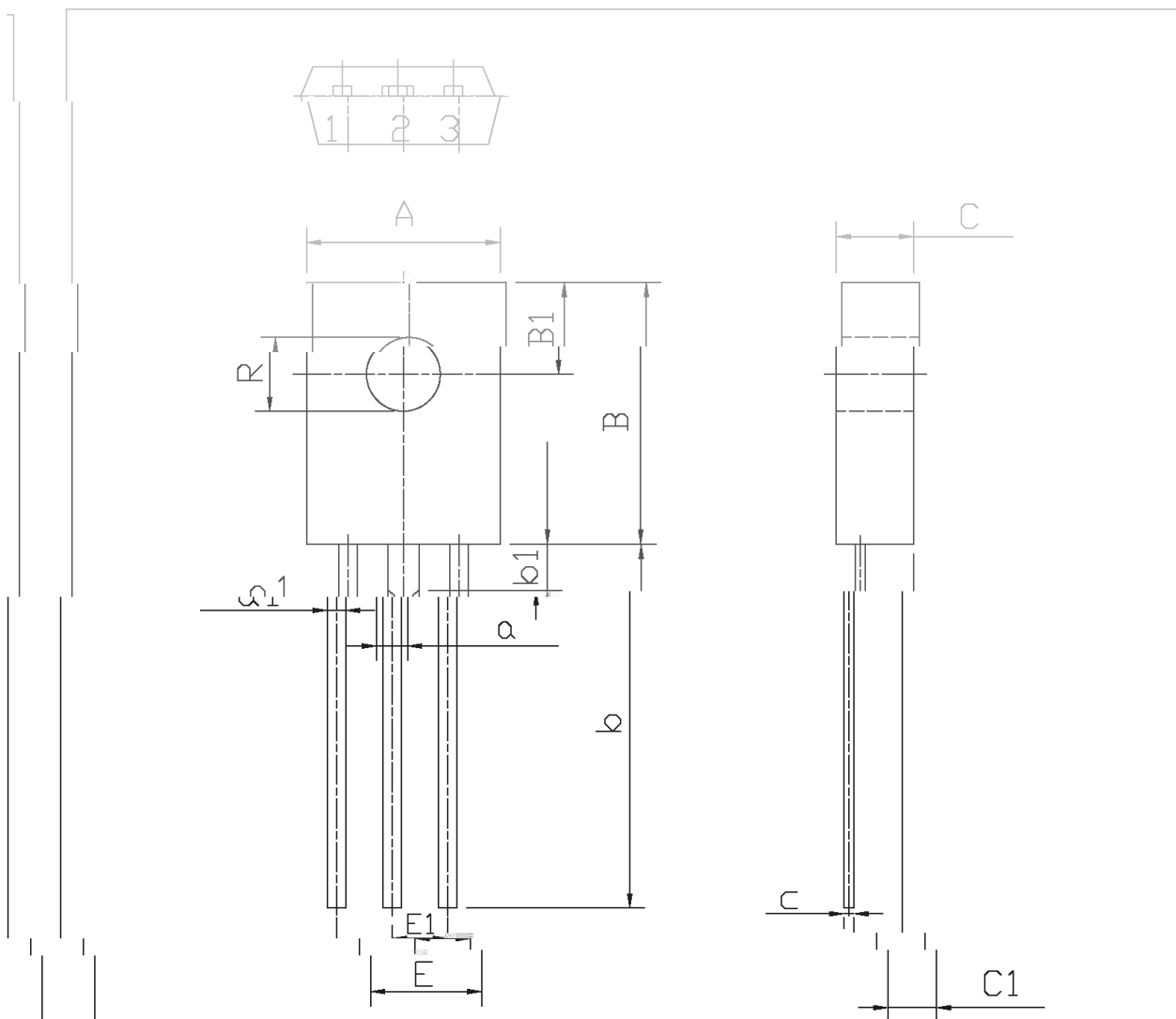
I Electrical Characteristic Curve



/ Package Dimensions

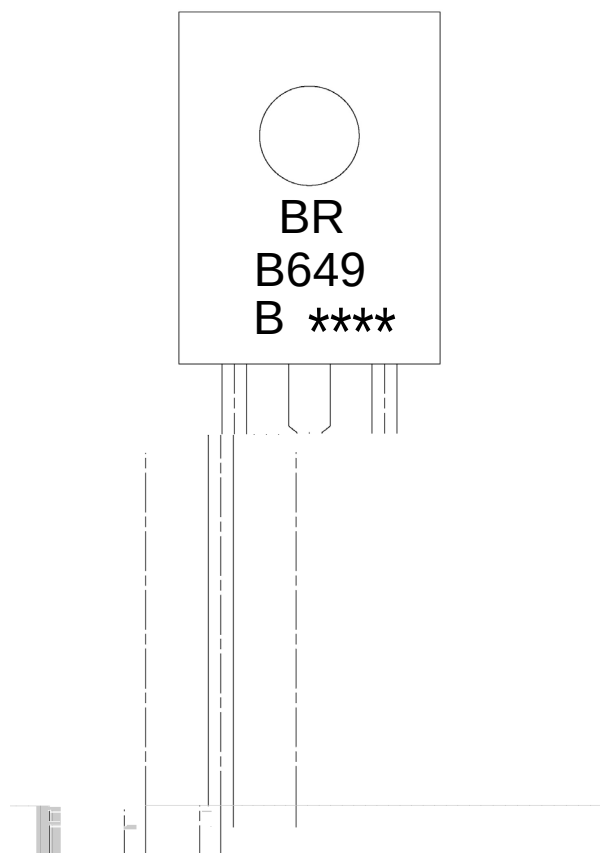
1U-125T

单位: mm



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
A	7.8	8.2	a1	0.55	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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$$E = \frac{1}{2} k_{IH} \epsilon^2 \quad (6)$$
$$----\chi \quad \mathbb{H} \vdash f \checkmark^N \Gamma_D \quad \vdash \quad \vdash f \checkmark^N \Psi \rho$$

Note:

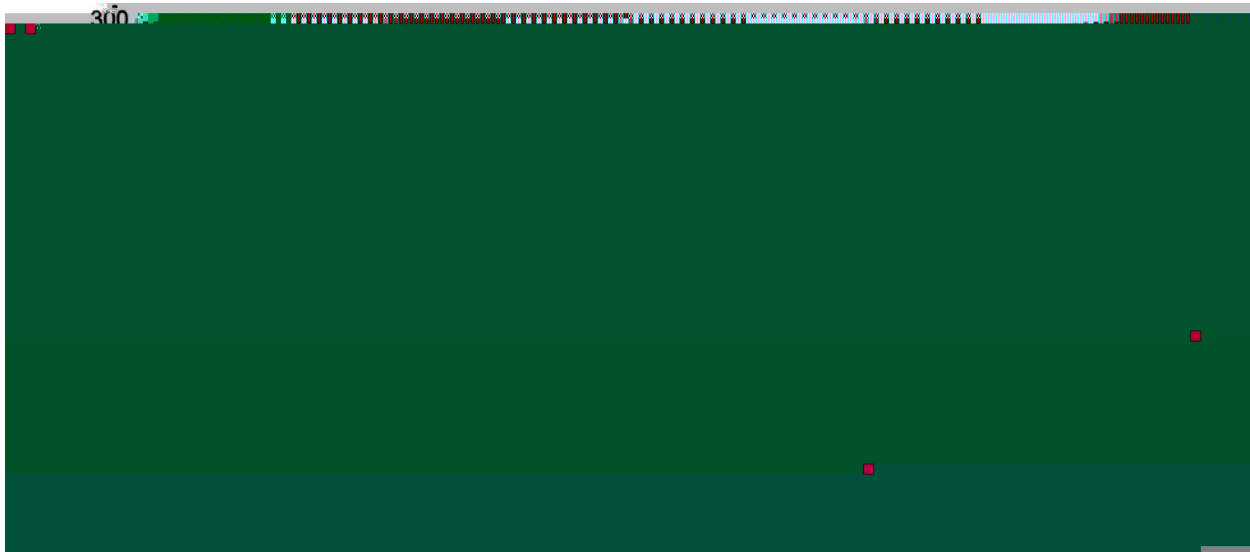
BR: Company Code

B649 : Product Type.

B: h_{FE} Classifications Symbol

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

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



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

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

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

□ / BULK

Package Type	Units					Dimension (unit mm ³)		
	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 ³)		
	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