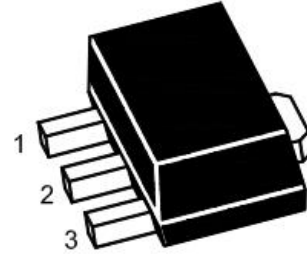


### Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

**FEATURE**

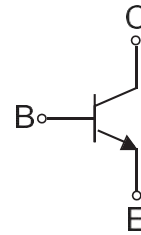
- Low Frequency Power Amplifier Complementary Pair with 2SB649



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

- MARKING:D669

**Equivalent Circuit**



**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector- Base Voltage	180	V
V <sub>CEO</sub>	Collector-Emitter Voltage	160	V
V <sub>EBO</sub>	Emitter-Base Voltage	5	V
I <sub>C</sub>	Collector Current -Continuous	1.5	A
P <sub>C</sub>	Collector Dissipation	0.75	W
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	167	°C/ W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55 ~+ 150	°C

### ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$  unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1\text{mA}, I_E=0$	180			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	160			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\text{mA}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=160\text{V}, I_E=0$			10	$\mu\text{A}$
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}, I_C=150\text{mA}$	60		320	
	$h_{FE(2)}$	$V_{CE}=5\text{V}, I_C=500\text{mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=600\text{mA}, I_B=50\text{mA}$			1	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=5\text{V}, I_C=150\text{mA}$			1.5	V
Transition frequency	$f_T$	$V_{CE}=5\text{V}, I_C=150\text{mA}$		140		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		14		pF

### CLASSIFICATION of $h_{FE(1)}$

Rank	B	C	D
Range	60-120	100-200	160-320



**CHINA BASE**  
INTERNATIONAL

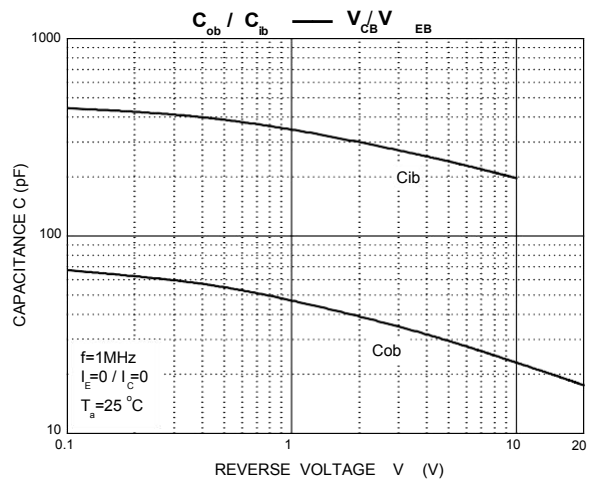
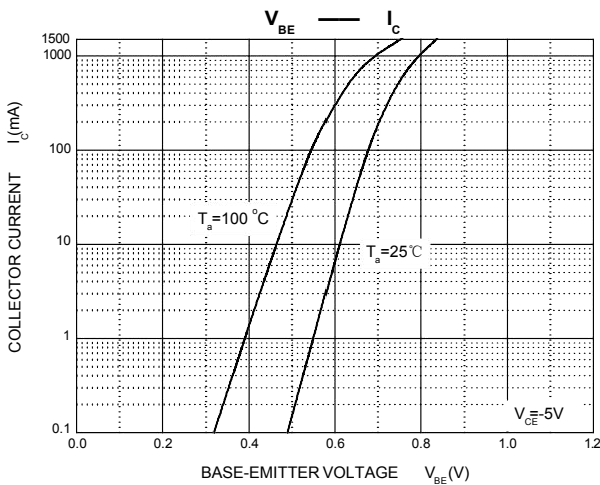
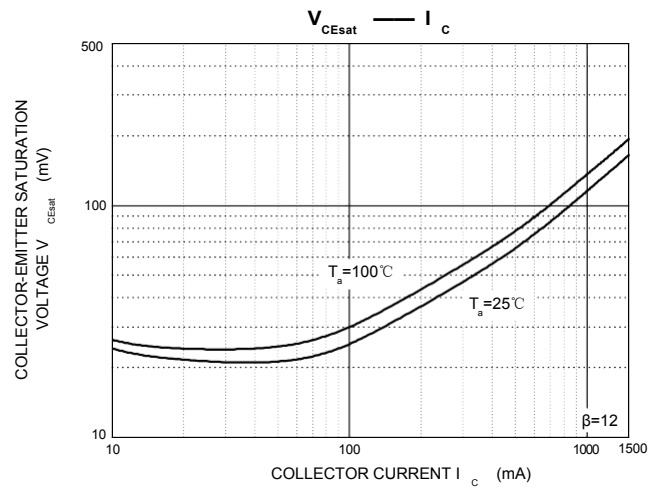
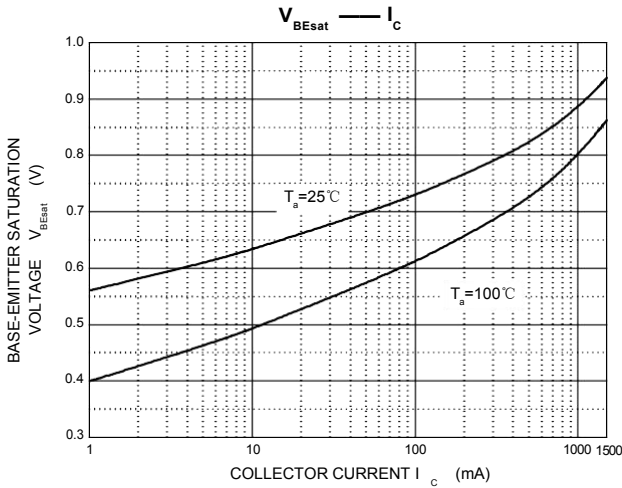
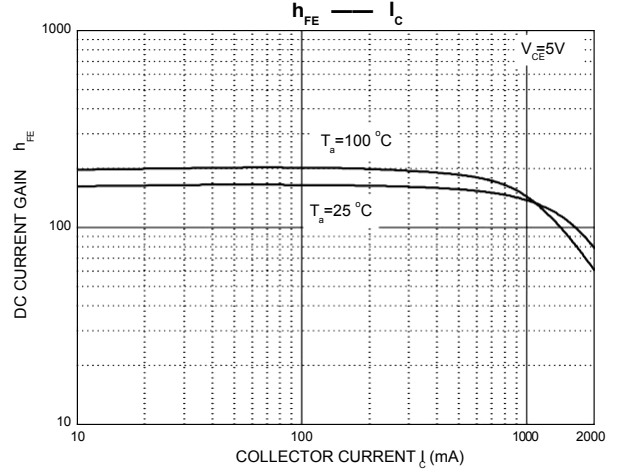
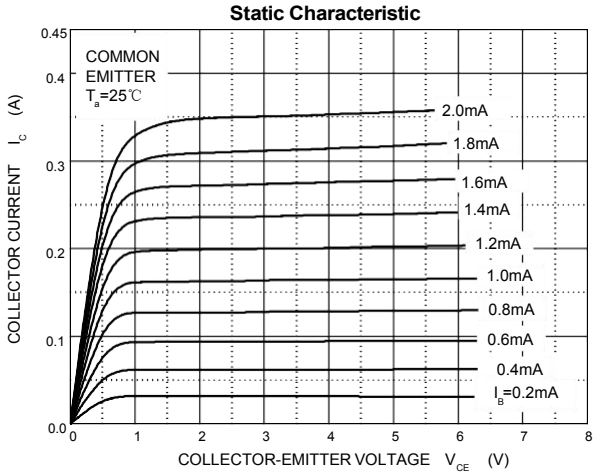
**SOT-89**

**2SD669U**



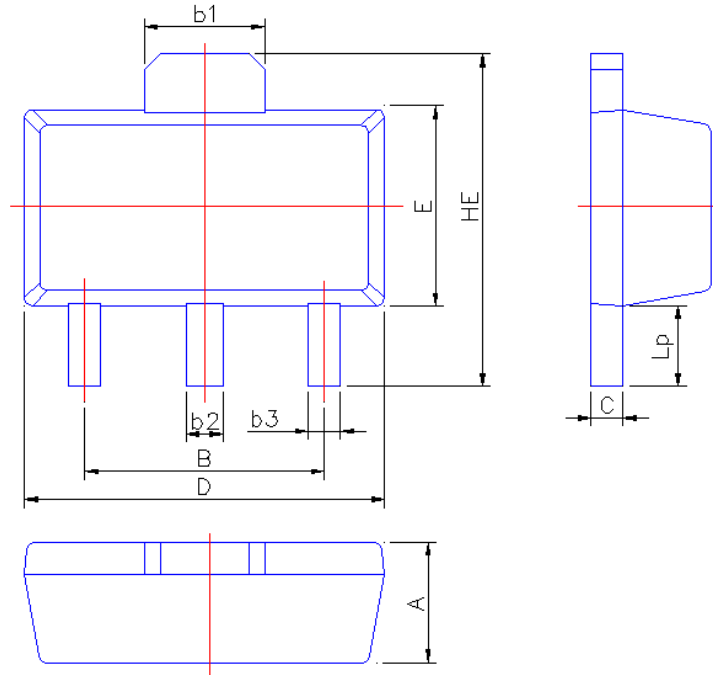
www.china-base.com.hk

**Typical Characteristics**



$P_c \text{ — } T_a$

### SOT-89 Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	2.95	3.05
b1	1.45	1.70
b2	0.45	0.56
b3	0.35	0.50
C	0.35	0.50
D	4.40	4.60
E	2.35	2.55
HE	3.90	4.40
Lp	0.90	1.10