

2SC3052

FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

DESCRIPTION

2SC3052 is a super mini silicon NPN epitaxial type transistor designed for low frequency voltage amplify application.

FEATURE

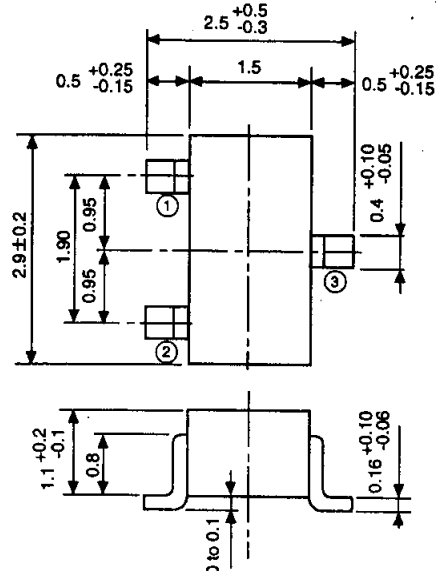
- Low collector to emitter saturation voltage
 $V_{CE(sat)}=0.3V$ max (@ $I_C=100mA, I_B=10mA$)
- Excellent linearity of DC forward current gain
- Super mini package for easy mounting

APPLICATION

For hybrid IC, small type machine low frequency voltage amplify application.

OUTLINE DRAWING

Unit:mm



TERMINAL CONNECTOR

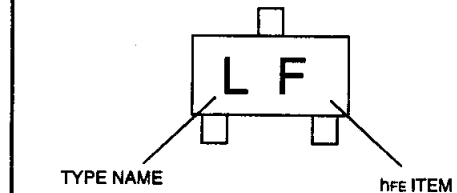
- ① : BASE
 - ② : EMITTER
 - ③ : COLLECTOR
- EIAJ : SC-59
JEDEC : TO-236 resemblance

Note) The dimension without tolerance represent central value.

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V _{CB0}	Collector to Base voltage	50	V
V _{EB0}	Emitter to Base voltage	6	V
V _{CEO}	Collector to Emitter voltage	50	V
I _C	Collector current	200	mA
P _C	Collector dissipation (Ta=25°C)	150	mW
T _j	Junction temperature	+125	°C
T _{stg}	Storage temperature	-55 to +125	°C

MARKING



ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V _{(BR)CEO}	C to E break down voltage	I _C =100 μA, R _{BE} =∞	50			V
I _{CB0}	Collector cut off current	V _{CB} =50V, I _E =0			0.1	μA
I _{EB0}	Emitter cut off current	V _{EB} =6V, I _C =0			0.1	μA
h _{FE} *	DC forward current gain	V _{CE} =6V, I _C =1mA	150		800	—
h _{FE}	DC forward current gain	V _{CE} =6V, I _C =0.1mA	90			—
V _{CE(sat)}	C to E saturation voltage	I _C =100mA, I _B =10mA			0.3	V
f _t	Gain band width product	V _{CE} =6V, I _E =-10mA		200		MHz
C _{ob}	Collector output capacitance	V _{CB} =6V, I _E =0, f=1MHz		2.5		pF
NF	Noise figure	V _{CE} =6V, I _E =-0.1mA, f=1kHz, R _G =2kΩ			15	dB

* : It shows hFE classification in right table.

Item	E	F	G
hFE	150 to 300	250 to 500	400 to 800
Marking	LE	LF	LG

〈SMALL-SIGNAL TRANSISTOR〉

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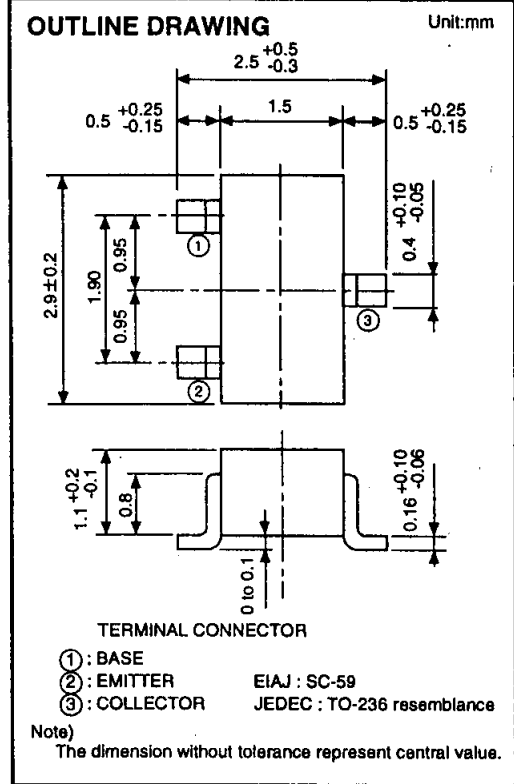
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APPLICATION

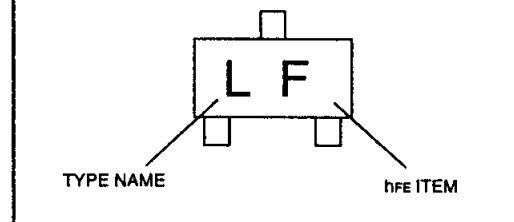
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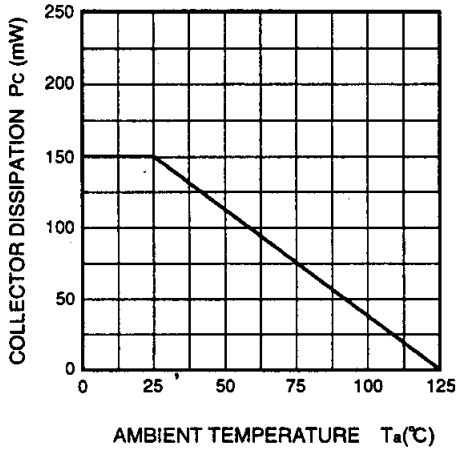
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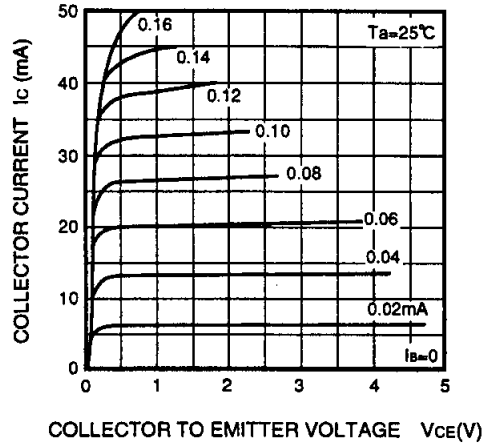
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TYPICAL CHARACTERISTICS

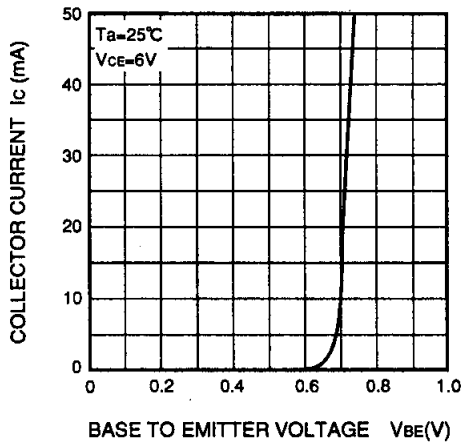
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



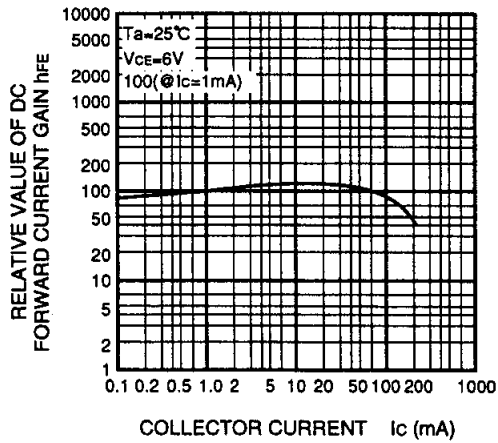
COMMON EMITTER OUTPUT



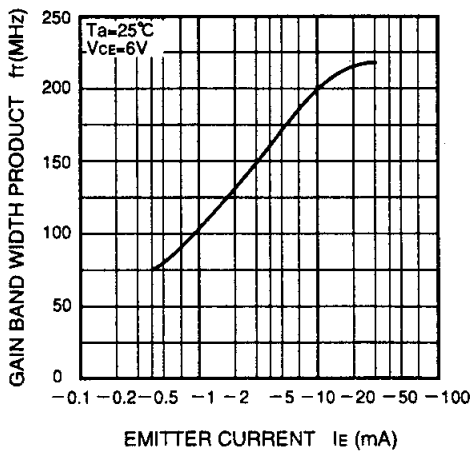
COMMON EMITTER TRANSFER



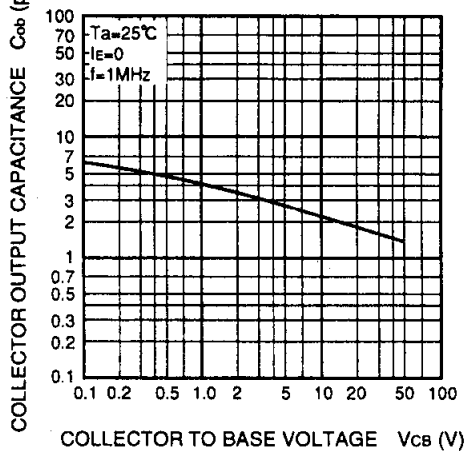
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



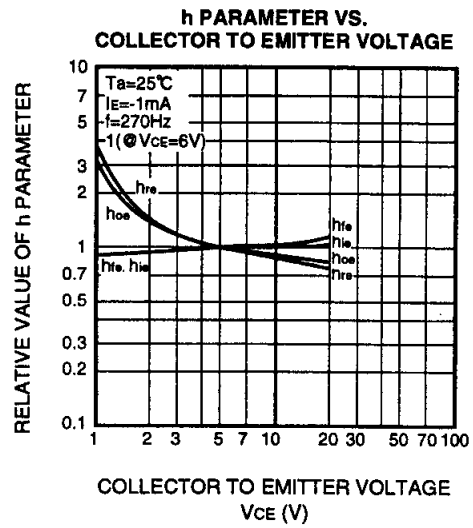
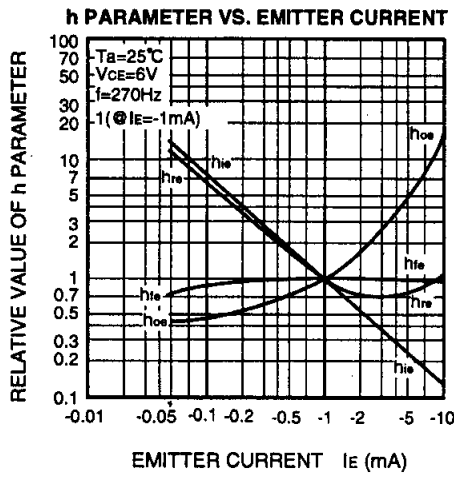
GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



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COMMON EMITTER h PARAMETER (TYPICAL VALUE)

Symbol	Parameter	Test conditions	Limits	Unit
h_{ie}	Closed loop small signal input impedance	$T_a=25^\circ\text{C}$ $V_{CE}=6\text{V}$ $I_E=-1\text{mA}$ $f=270\text{Hz}$	8.5	$\text{k}\Omega$
h_{re}	Open loop small signal reverse voltage amplification factor		0.1	$\times 10^{-3}$
h_{fe}	Closed loop small signal forward current amplification factor		300	—
h_{oe}	Open loop small signal output admittance		5.5	μS

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