

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

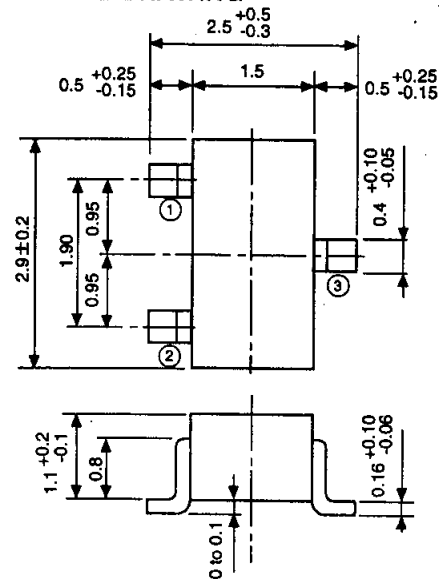
- Low collector to emitter saturation voltage  
 $V_{CE(sat)} = 0.3V$  max (@  $I_C = 100mA$ ,  $I_B = 10mA$ )
- Excellent linearity of DC forward current gain
- Super mini package for easy mounting

## 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

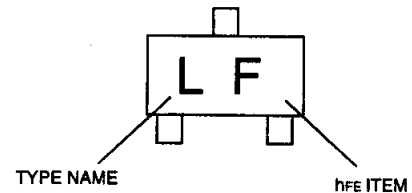
Note)

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
$V_{CE0}$	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	$I_C = 100 \mu A, R_{BE} = \infty$	50			V
$I_{CBO}$	Collector cut off current	$V_{CB} = 50V, I_E = 0$			0.1	$\mu A$
$I_{EBO}$	Emitter cut off current	$V_{EB} = 6V, I_C = 0$			0.1	$\mu A$
$h_{FE}^*$	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	$V_{CE} = 6V, I_E = -0.1mA, f = 1kHz, R_G = 2k\Omega$			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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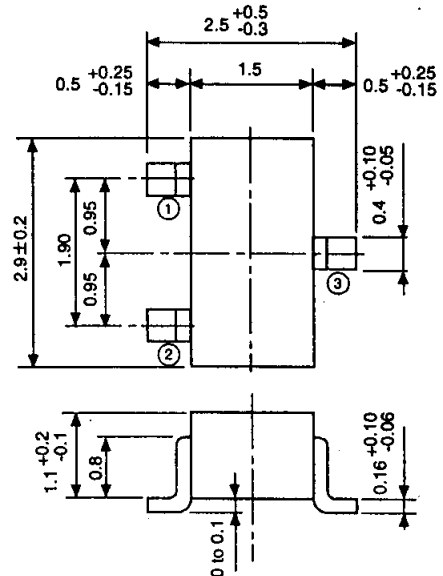
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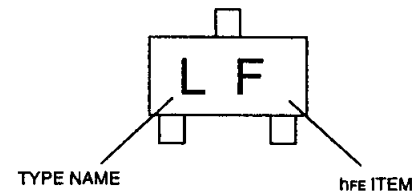
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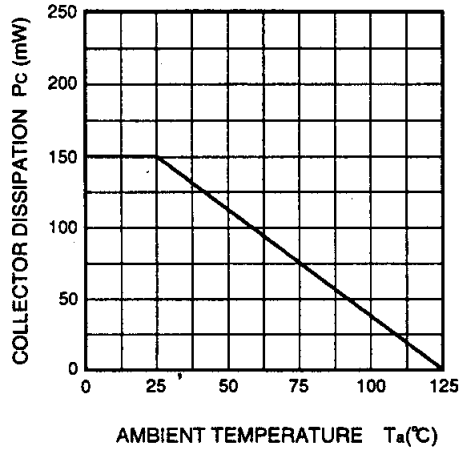
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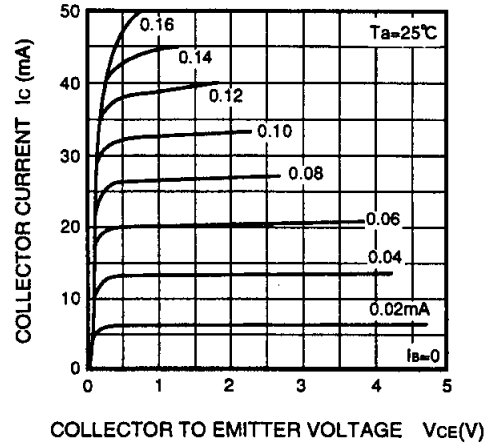
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**TYPICAL CHARACTERISTICS**

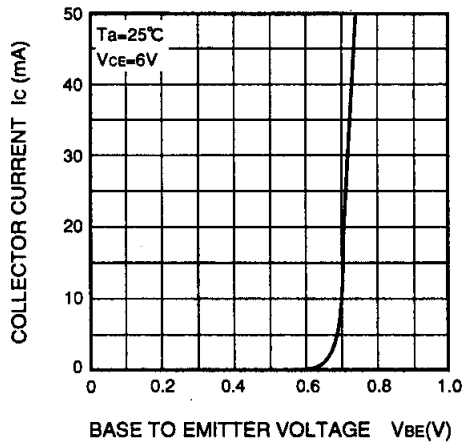
**COLLECTOR DISSIPATION VS.  
AMBIENT TEMPERATURE**



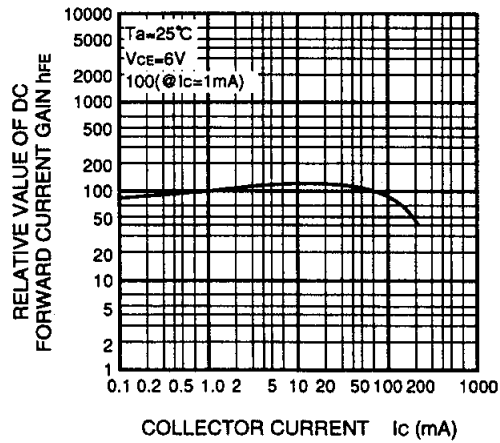
**COMMON EMITTER OUTPUT**



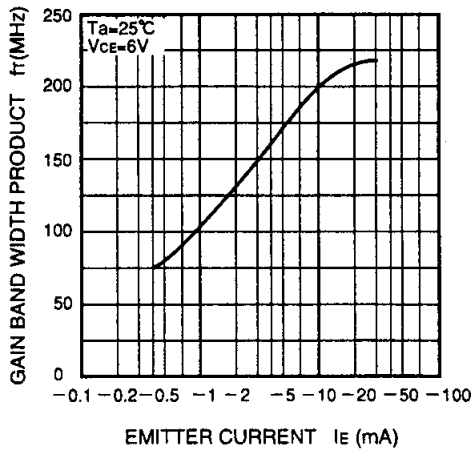
**COMMON EMITTER TRANSFER**



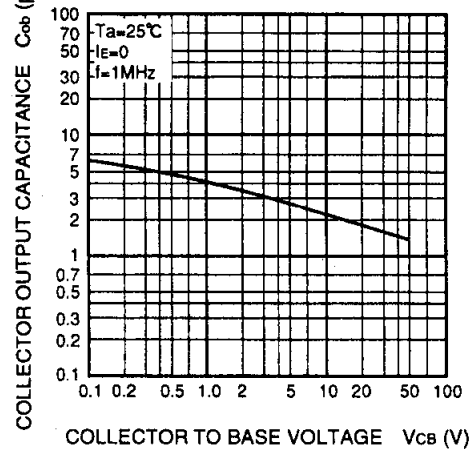
**DC FORWARD CURRENT GAIN  
VS. COLLECTOR CURRENT**



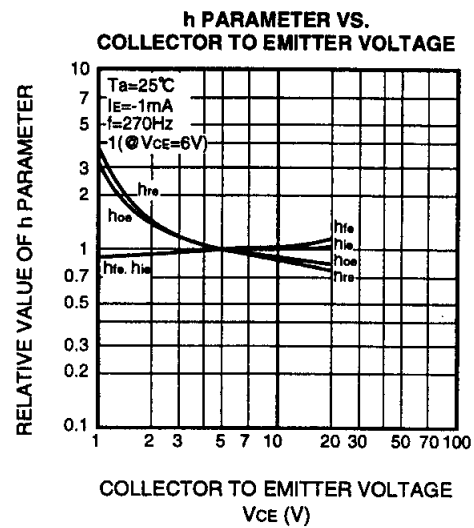
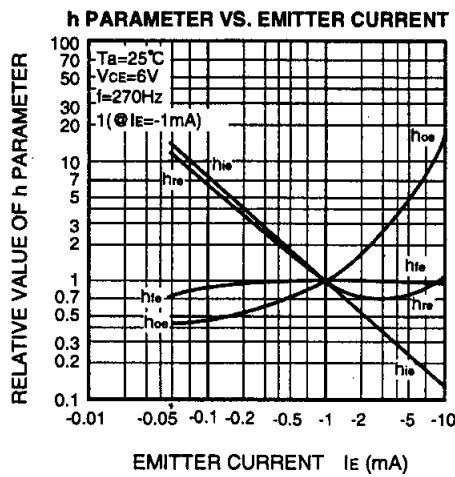
**GAIN BAND WIDTH PRODUCT  
VS. EMITTER CURRENT**



**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	Ta=25°C VCE=6V IE=-1mA f=270Hz	8.5	kΩ
$h_{re}$	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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