

<Transistor>

2SA1989

For Low Frequency Amplify Application
Silicon PNP Epitaxial Type Ultra Super Mini

DESCRIPTION

2SA1989 is a super mini resin sealed silicon PNP epitaxial type transistor. It is designed for low frequency voltage amplify application.

FEATURE

- Small collector to emitter saturation voltage.
 $V_{CE(sat)} = -0.3V$ max (@ $I_C = -30mA, I_B = -1.5mA$)
- Excellent linearity of DC forward current gain
- Super mini package for easy mounting

APPLICATION

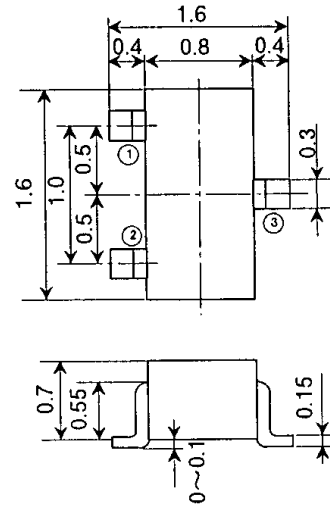
For hybrid IC, small type machine low frequency voltage amplify application.

MAXIMUM RATINGS ($T_a = 25^\circ C$)

SYMBOL	PARAMETER	RATINGS	UNIT
V_{CBO}	Collector to Base voltage	-50	V
V_{EBO}	Emitter to Base voltage	-6	V
V_{CEO}	Collector to Emitter voltage	-50	V
I_C	Collector current	-100	mA
P_C	Collector dissipation ($T_a = 25^\circ C$)	125	mW
T_j	Junction temperature	+125	$^\circ C$
T_{stg}	Storage temperature	-55 to +125	$^\circ C$

OUTLINE DRAWING

UNIT:mm



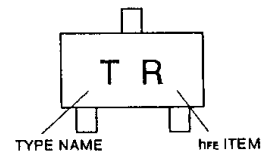
Terminal Connector

- ① : Base
 - ② : Emitter
 - ③ : Collector
- EIAJ : —
JEDEC : —

Note)

The dimension without tolerance represent central value.

MARKING



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

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	$V_{CB} = -50V, I_E = 0$			-0.5	μA
I_{EBO}	Emitter cut off current	$V_{EB} = -4V, I_C = 0$			-0.5	μA
h_{FE}^*	DC forward current gain	$V_{CE} = -6V, I_C = -1mA$	120		820	—
h_{FE}	DC forward current gain	$V_{CE} = -6V, I_C = -0.1mA$	70			—
$V_{CE(sat)}$	C to E saturation voltage	$I_C = -30mA, I_B = -1.5mA$			-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

ITEM	Q	R	S	T
h_{FE}	120~270	180~390	270~560	390~820

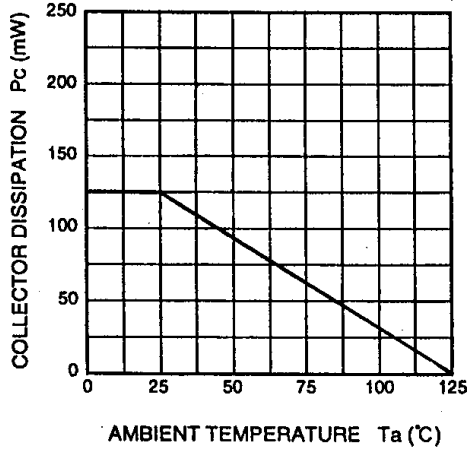
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2SA1989

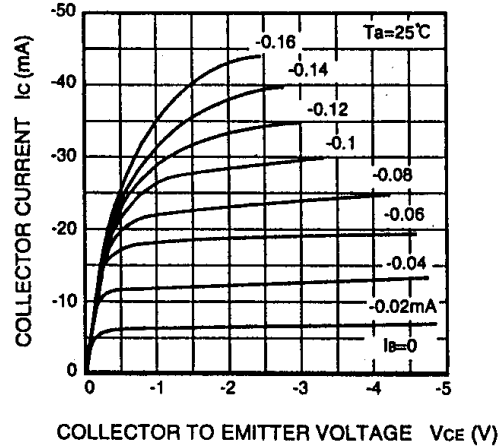
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Silicon PNP Epitaxial Type Ultra Super Mini

TYPICAL CHARACTERISTICS

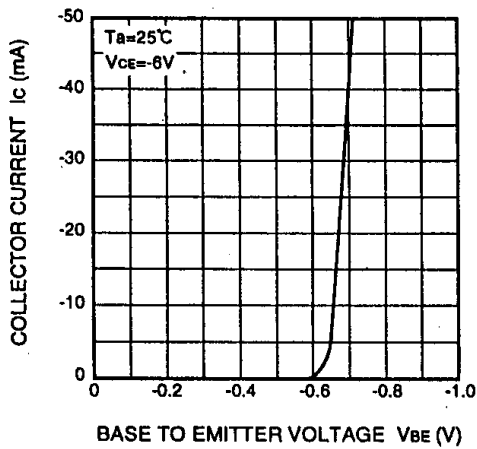
COLLECTOR DISSIPATION VS. AMBIENT TEMPERATURE



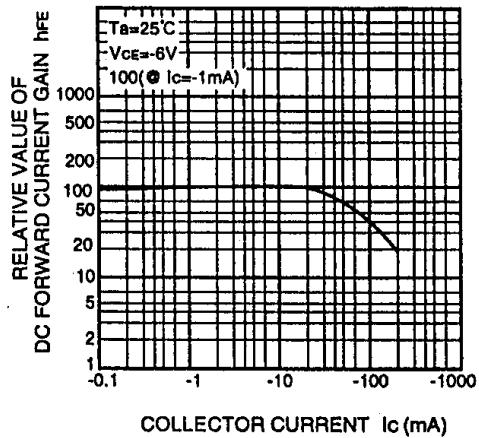
COMMON EMITTER OUTPUT



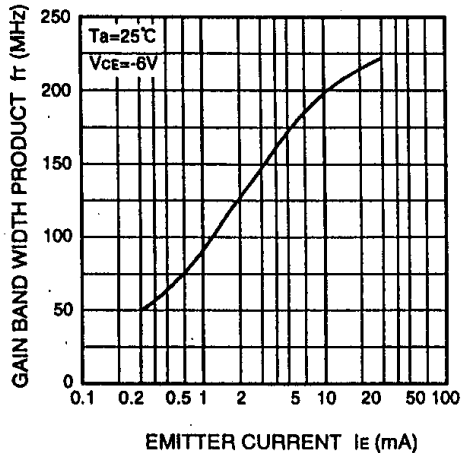
COMMON EMITTER TRANSFER



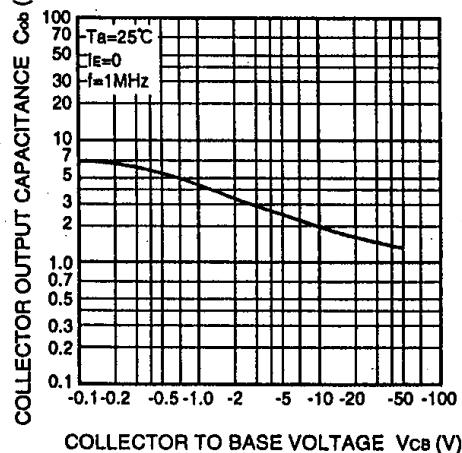
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



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