

ISA1235AC1 ISA1602AM1

FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE

DESCRIPTION

ISA1235AC1 ISA1602AM1 is super mini package resin sealed silicon PNP epitaxial type transistor.

These are designed for low frequency voltage amplify application .

FEATURE

- Excellent linearity of DC forward current gain.
- Small collector to emitter saturation voltage
 $V_{CE(sat)}=-0.3V_{max}$

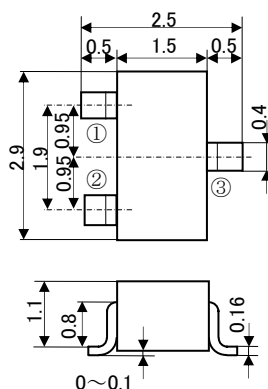
APPLICATION

For small type machine low frequency voltage amplify application.

OUTLINE DRAWING

UNIT : mm

ISA1235AC1



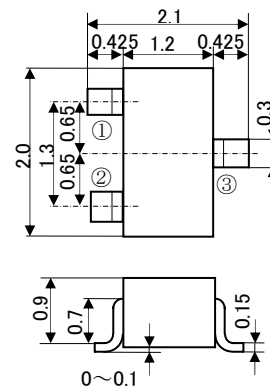
JEITA: SC-59

JEDEC: TO-236 resemblance

TERMINAL CONNECTOR

- ①: BASE
②: EMITTER
③: COLLECTOR

ISA1602AM1



JEITA: SC-70

JEDEC: —

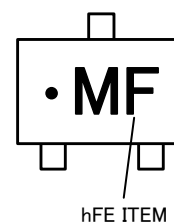
TERMINAL CONNECTOR

- ①: BASE
②: EMITTER
③: COLLECTOR

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings		UNIT
		ISA1235AC1	ISA1602AM1	
V_{CBO}	Collector to Base voltage	-60		V
V_{EBO}	Collector to Emitter voltage	-6		V
V_{CEO}	Emitter to Base voltage	-50		V
I_C	Collector current	-200		mA
P_C	Collector dissipation	200		mW
T_j	Junction temperature	+150		°C
T_{stg}	Storage temperature	-55~+150		°C

MARKING



ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			UNIT
			Min	Ave	Max	
$V_{(BR)CEO}$	Collector to Emitter Breakdown voltage	$I_C = -100 \mu A, R_{BE} = \infty$	-50			V
I_{CBO}	Collector cut off current	$V_{CB} = -60V, I_E = 0$			-0.1	μA
I_{EBO}	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		500	—
h_{FE}	DC forward current gain	$V_{CE} = -6V, I_C = -0.1mA$	90			—
$V_{CE(sat)}$	Collector to Emitter saturation voltage	$I_C = -100mA, I_B = -10mA$			-0.3	V
f_T	Gain bandwidth product	$V_{CE} = -6V, I_E = 10mA$		200		MHz
Cob	Collector output capacitance	$V_{CB} = -6V, I_E = 0, f = 1MHz$		4.0		pF
NF	Noise Figure	$V_{CE} = -6V, I_E = 0.3mA, f = 100Hz, R_G = 10k\Omega$			20	dB

*:It shows hFE classification in below table.

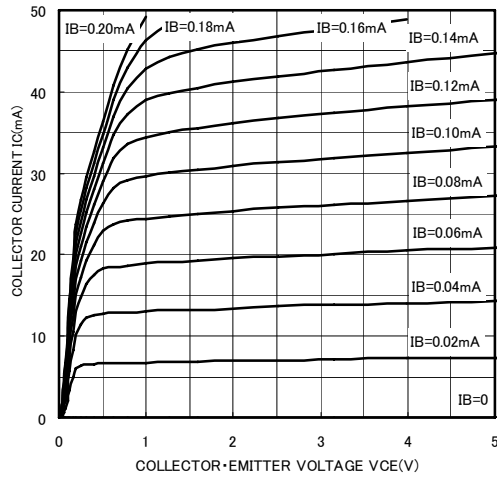
	E	F
hFE	150~300	250~500

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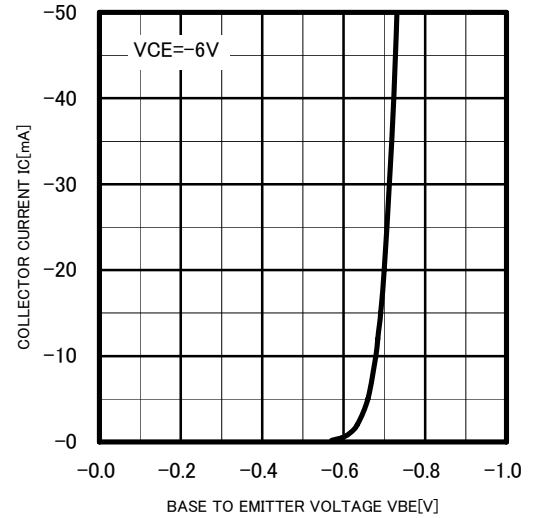
FOR LOW FREQUENCY AMPLIFY APPLICATION
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TYPICAL CHARACTERISTICS

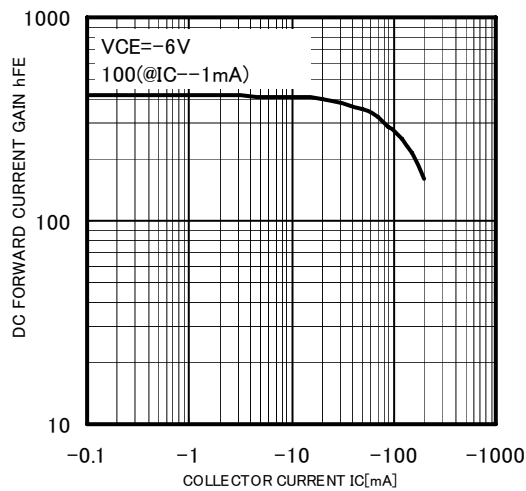
COMMON EMITTER OUTPUT



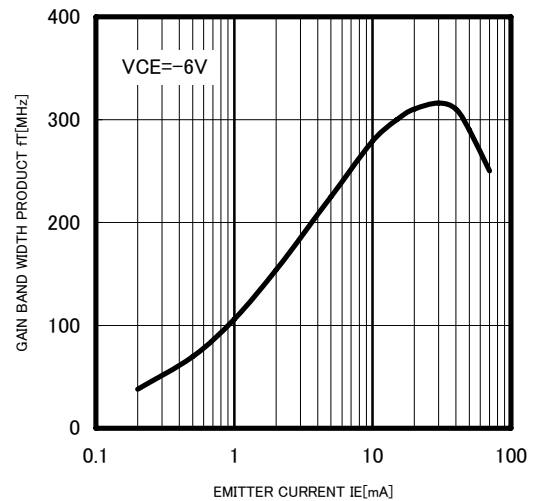
COMMON EMITTER TRANSFER



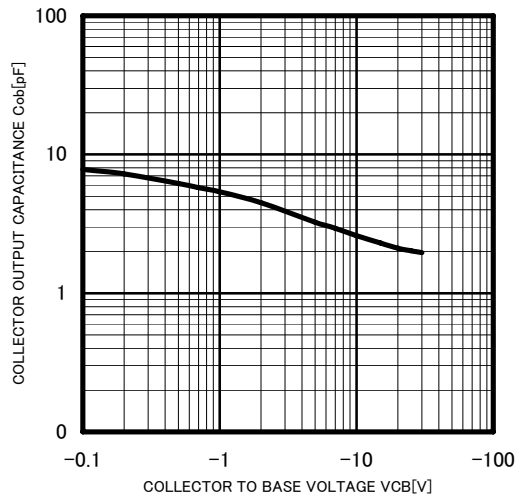
DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



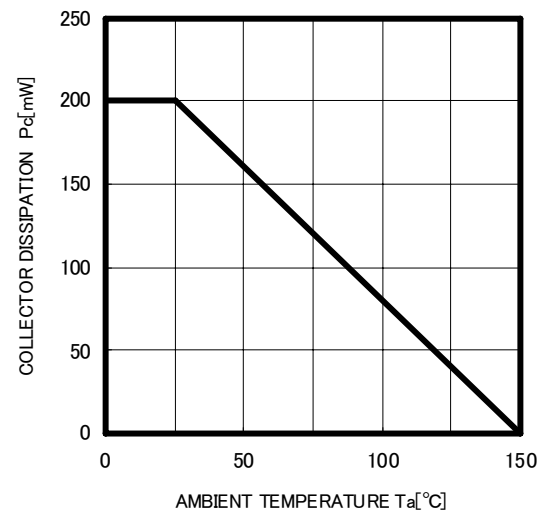
GAIN BAND WIDTH PRODUCT VS. EMITTER CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE

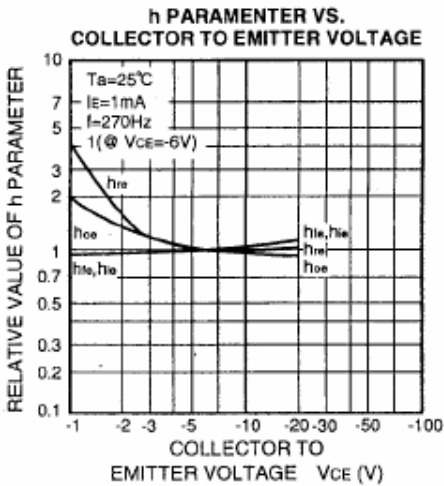
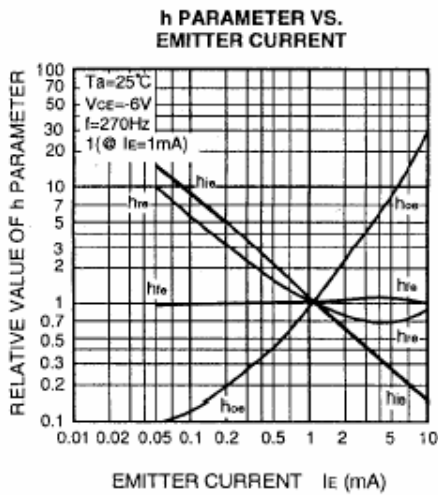


COLLECTOR DISSIPATION VS AMBIENT TEMPERATURE



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COMMON EMITTER h PARAMETER (TYPICAL VALUE)

Symbol	Parameter	Test conditions	Limits	Unit
h_{ie}	Closed loop small signal input impedance	$T_a=25^\circ\text{C}$ $V_{CE}=-6\text{V}$ $I_E=1\text{mA}$ $f=270\text{Hz}$	7.0	k Ω
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		250	—
h_{oe}	Open loop small signal output admittance		18	μS



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