# INA5002AC1

FOR LOW FREQUENCY AMPLIFY APPLICATION
SILICON PNP EPITAXIAL TYPE

## DESCRIPTION

INA5002AC1 is a silicon PNP epitaxial transistor designed for relay drive or Power supply application.

## FEATURE

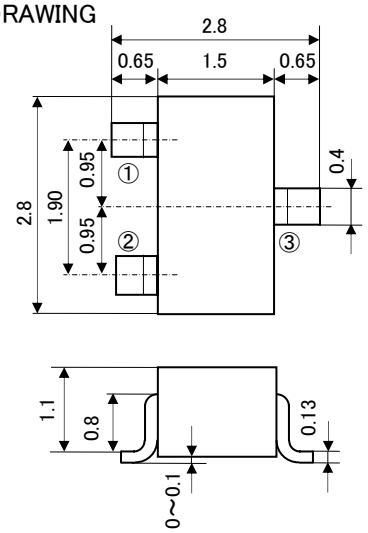
- Super mini package for easy mounting
- High voltage $V_{CEO}$=−60V
- High collector current $I_C$=−3A
- Low collector saturation voltage
  ($V_{CE(sat)}$<−0.6$V_{max}$; $I_C$=−3A、$I_B$=−300mA)

## APPLICATION

DC/DC convertor, Relay drive, Motor drive

## OUTLINE DRAWING

UNIT:mm




Terminal Connector
①:Base
②:Emitter
③:Collector

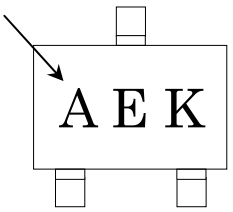
JEITA:SC-59
JEDEC:Similar to TO-236

## MAXIMUM RATING(Ta=25℃)

| SYMBOL | PARAMETER | RATING | UNIT |
|---|---|---|---|
| $V_{CEO}$ | Collector to Emitter voltage | −80 | V |
| $V_{EBO}$ | Emitter to Base voltage | −6 | V |
| $V_{CBO}$ | Collector to Base voltage | −60 | V |
| $I_C$ | Collector current | −3 | A |
| $I_{CM}$ | Peak collector current | −6 | |
| $P_C$ | Collector dissipation(Ta=25℃) | 200 | mW |
| $T_j$ | Junction temperature | +150 | ℃ |
| $T_{stg}$ | Storage temperature | −55～+150 | ℃ |

## MARKING

Type Name

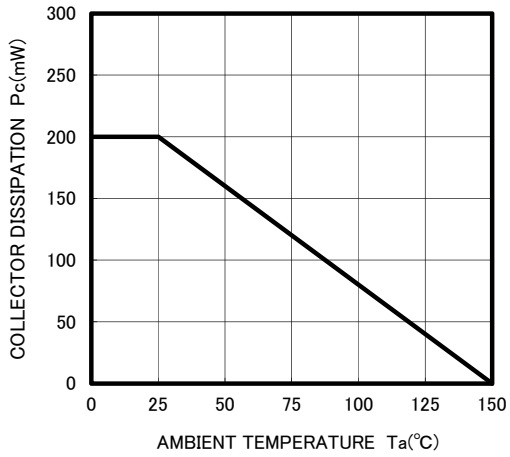



## ELECTRICAL CHARACTERISTICS(Ta=25℃)

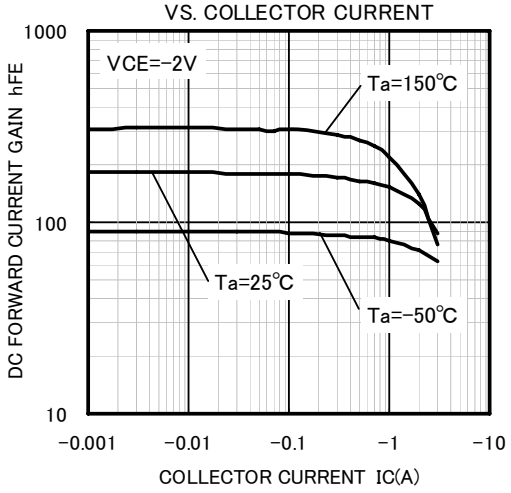
| SYMBOL | PARAMETER | TEST CONDITIONS | LIMITS | | | UNIT |
|---|---|---|---|---|---|---|
| | | | MIN | TYP | MAX | |
| $V_{(BR)CBO}$ | C to B breakdown voltage | $I_C$=−100μA, $I_E$=0mA | −80 | − | − | V |
| $V_{(BR)EBO}$ | E to B breakdown voltage | $I_E$=−100μA, $I_C$=0mA | −6 | − | − | V |
| $V_{(BR)CEO}$ | C to E breakdown voltage | $I_C$=−1mA, $R_{BE}$=∞ | −60 | − | − | V |
| $I_{CBO}$ | Collector cut off current | $V_{CB}$=−60V, $I_E$=0mA | − | − | −1.0 | μA |
| $I_{EBO}$ | Emitter cut off current | $V_{EB}$=−4V, $I_C$=0mA | − | − | −1.0 | μA |
| $h_{FE}$ | DC forward current gain | $V_{CE}$=−2V, $I_C$=−0.5A | 100 | − | 300 | − |
| $V_{CE(sat)}$ | C to E saturation voltage | $I_C$=−3A, $I_B$=−300mA | − | − | −0.6 | V |
| $f_T$ | Gain bandwidth product | $V_{CE}$=−5V, $I_E$=100mA, f=100MHz | − | 150 | − | MHz |
| Cob | Collector output capacitance | $V_{CB}$=−10V, $I_E$=0mA, f=1MHz | − | 25 | − | pF |

TYPICIAL CHARACTERISTICS

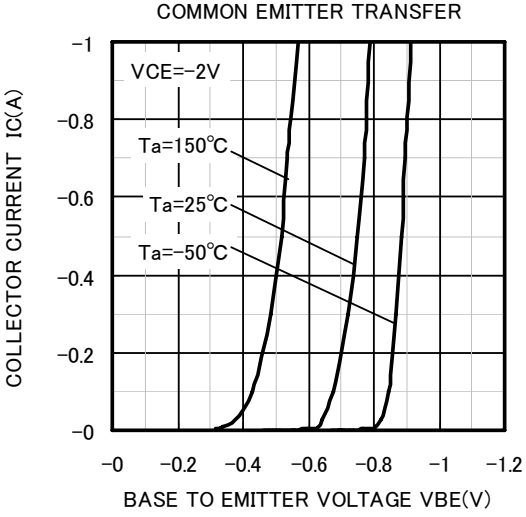
COLLECTOR DISSIPATION
VS. AMBIENT TEMPERATURE



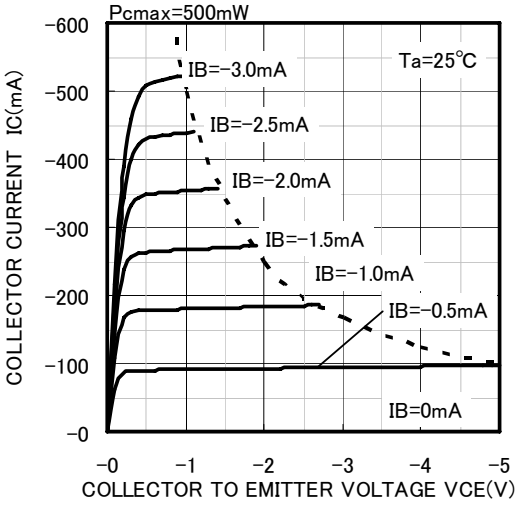

DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



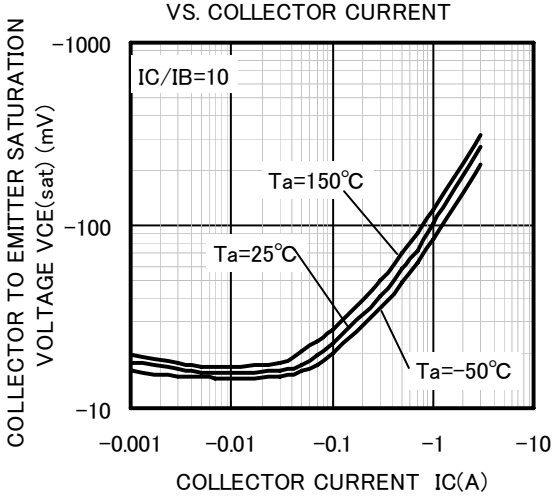

COMMON EMITTER TRANSFER



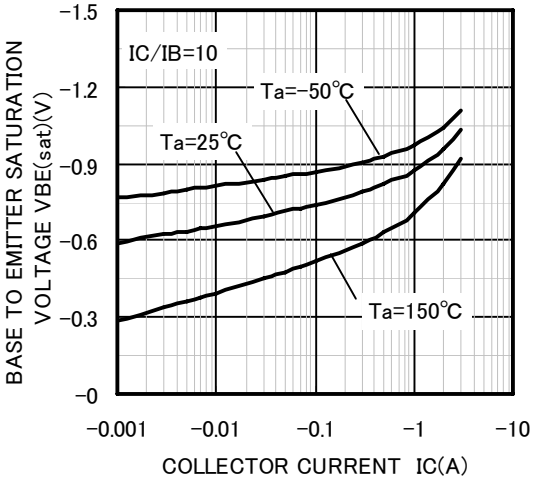

COMMON EMITTER OUTPUT

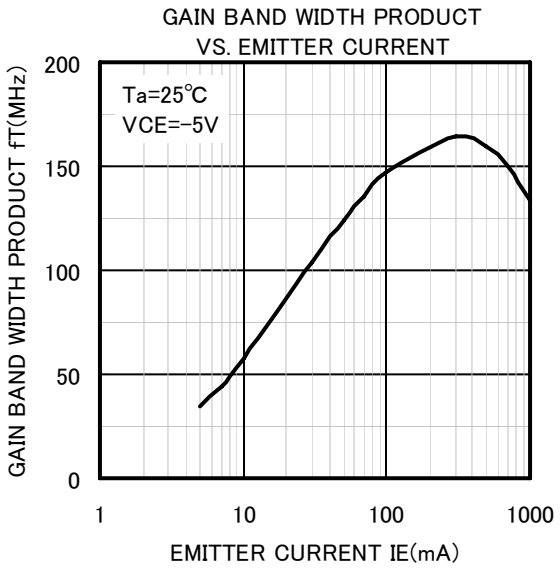


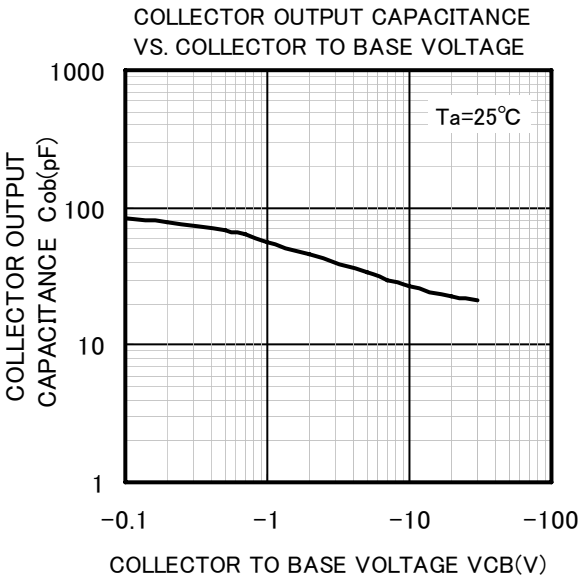

COLLECTOR TO EMITTER SATURATION VOLTAGE
VS. COLLECTOR CURRENT




BASE TO EMITTER SATURATION VOLTAGE
VS. COLLECTOR CURRENT




GAIN BAND WIDTH PRODUCT
VS. EMITTER CURRENT
Ta=25℃
VCE=−5V
GAIN BAND WIDTH PRODUCT fT(MHz)
200
150
100
50
0
1
10
100
1000
EMITTER CURRENT IE(mA)


COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE
Ta=25℃
COLLECTOR OUTPUT
CAPACITANCE Cob(pF)
1000
100
10
1
−0.1
−1
−10
−100
COLLECTOR TO BASE VOLTAGE VCB(V)

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