INA5002AP1

For low frequency power amplify
Silicon PNP Epitaxial

DESCRIPTION

INA5002AP1 is a silicon PNP epitaxial transistor designed for relay drive or Power supply application.

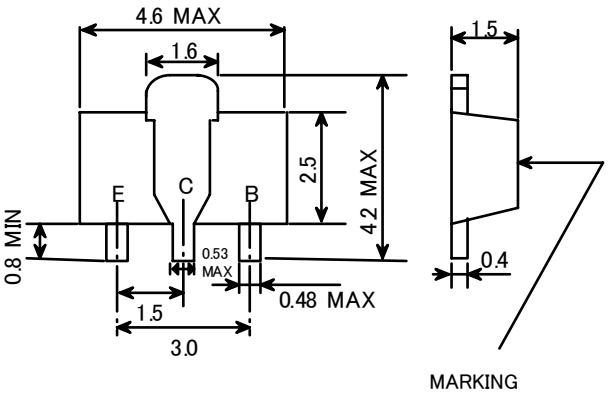
FEATURE

- Small package for easy mounting.
- High voltage V_{CEO}=−60V
- High collector current I_C=−3A
- Low VCE(sat) VCE(sat)=−0.6V max(@I_C=−3A/ I_B=−300mA)
- High collector dissipation P_C=500mW

APPLICATION

DC･DC converter, Relay drive, Motor drive etc

OUTLINE DRAWING UNIT:mm



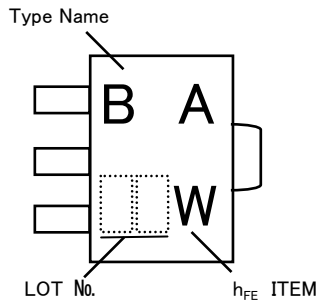
TERMINAL CONNECTOR

E:EMITTER JEITA:SC-62
C:COLLECTOR JEDEC:SOT-89
B:BASE

MAXIMUM RATING(Ta=25℃)

SYMBOL	PARAMETER	RATING	UNIT
V_{CBO}	Collector to Base voltage	−80	V
V_{EBO}	Emitter to Base voltage	−6	V
V_{CEO}	Collector to Emitter voltage	−60	V
I_C	Collector current	−3	A
I_{CM}	Peak Collector current	−6	
P_C	Collector dissipation(Ta=25℃)	500	mW
T_j	Junction temperature	+150	℃
T_{stg}	Storage temperature	−55～+150	℃

MARKING

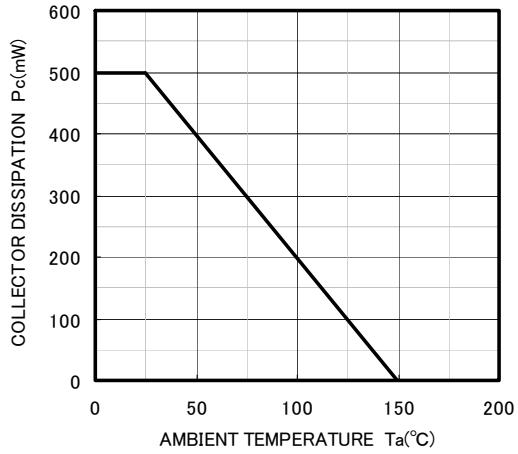


ELECTRICAL CHARACTERISTICS(Ta=25℃)

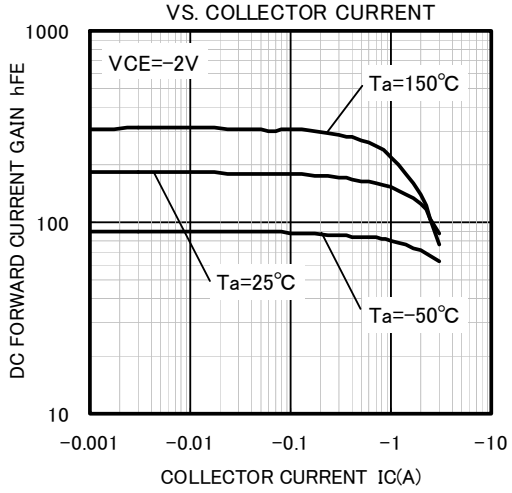
SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
$V_{(BR)CBO}$	C to B break down voltage	I_C=−100μA, I_E=0mA	−80	−	−	V
$V_{(BR)EBO}$	E to B break down voltage	I_E=−100μA, I_C=0mA	−6	−	−	V
$V_{(BR)CEO}$	C to E break down voltage	I_C=−1mA, R_{BE}=∞	−60	−	−	V
I_{CBO}	Collector cut off current	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	−	−	−0.5	V
f_T	Gain band width product	V_{CE}=−5V, I_E=100mA	−	200	−	MHz
Cob	Collector output capacitance	V_{CB}=−10V, I_E=0mA, f=1MHz	−	25	−	pF

TYPICIAL CHARACTERISTICS

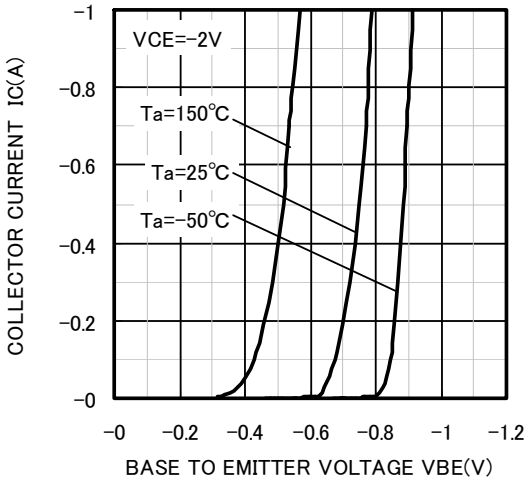
COLLECTOR DISSIPATION
VS. AMBIENT TEMPERATURE



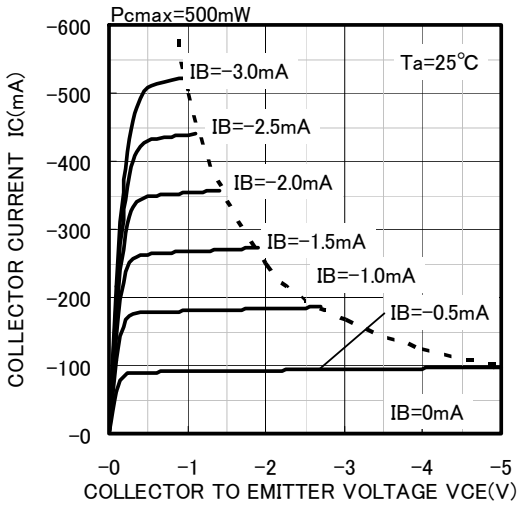
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



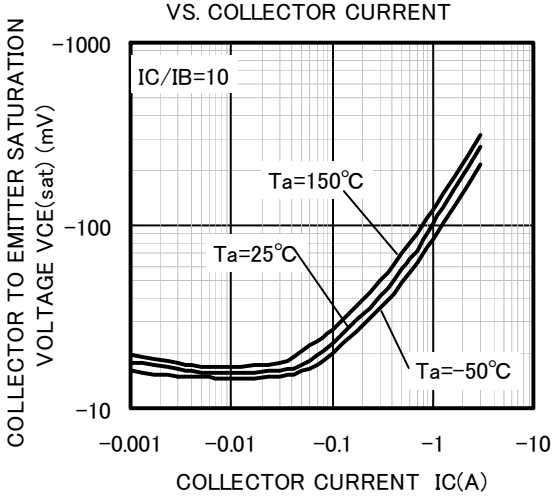
COMMON EMITTER TRANSFER



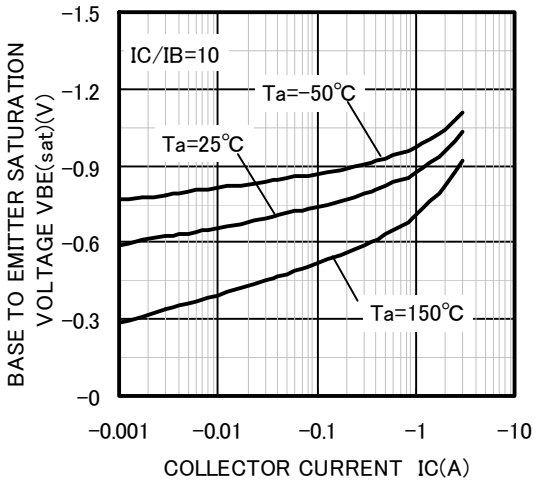
COMMON EMITTER OUTPUT

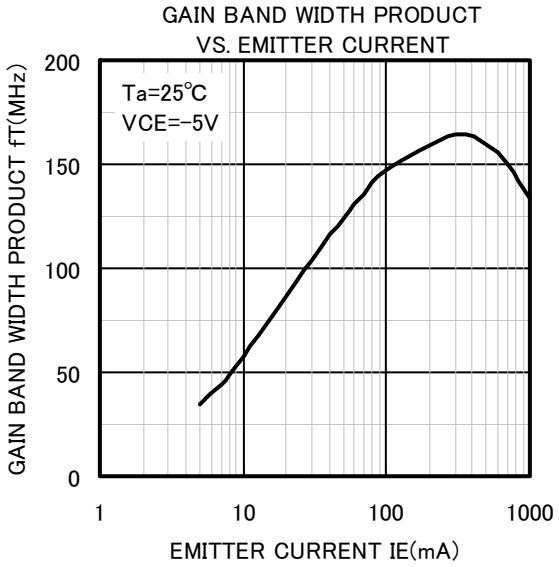


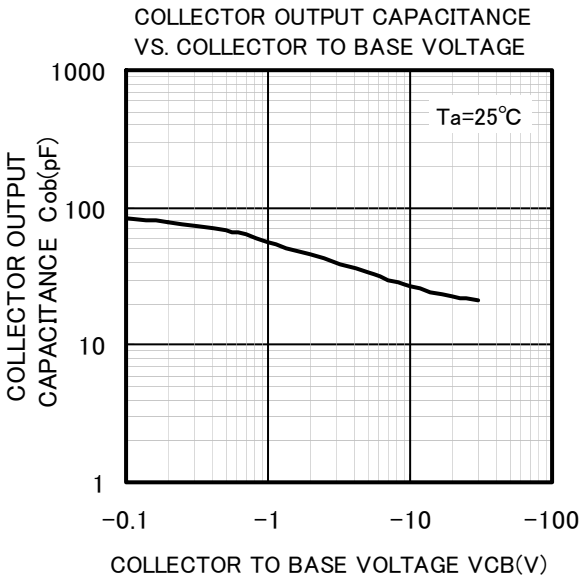
COLLECTOR TO EMITTER SATURATION VOLTAGE
VS. COLLECTOR CURRENT

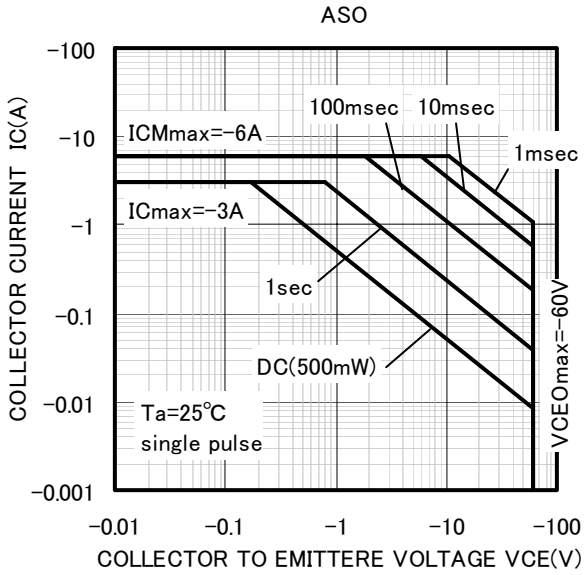


BASE TO EMITTER SATURATION VOLTAGE
VS. COLLECTOR CURRENT




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)


ASO
COLLECTOR CURRENT IC(A)
−100
−10
−1
−0.1
−0.01
−0.001
ICMmax=−6A
ICmax=−3A
100msec
10msec
1msec
1sec
DC(500mW)
Ta=25℃
single pulse
VCEOmax=−60V
−0.01
−0.1
−1
−10
−100
COLLECTOR TO EMITTERE VOLTAGE VCE(V)

ISAHAYA ELECTRONICS CORPORATION

6-41 Tsukuba, Isahaya, Nagasaki, 854-0065 Japan

Keep safety first in your circuit designs!

·ISAHAYA Electronics Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary, (2) use of non-farmable material or (3) prevention against any malfunction or mishap.

Notes regarding these materials

·These materials are intended as a reference to our customers in the selection of the ISAHAYA products best suited to the customer's application; they don't convey any license under any intellectual property rights, or any other rights, belonging ISAHAYA or third party.

·ISAHAYA Electronics Corporation assumes no responsibility for any damage, or infringement of any third party's rights, originating in the use of any product data, diagrams, charts or circuit application examples contained in these materials.

·All information contained in these materials, including product data, diagrams and charts, represent information on products at the time of publication of these materials, and are subject to change by ISAHAYA Electronics Corporation without notice due to product improvements or other reasons. It is therefore recommended that customers contact ISAHAYA Electronics Corporation or an authorized ISAHAYA products distributor for the latest product information before purchasing product listed herein.

·ISAHAYA Electronics Corporation products are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact ISAHAYA electronics corporation or an authorized ISAHAYA products distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.

·The prior written approval of ISAHAYA Electronics Corporation is necessary to reprint or reproduce in whole or in part these materials.

·If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination. Any diversion or re-export contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.

·Please contact ISAHAYA Electronics Corporation or authorized ISAHAYA products distributor for further details on these materials or the products contained therein.

Mar.2013