

General purpose amplification(-12V,-4A)

Parameter	Value		
V _{CEO}	-12V		
I _C	-4A		

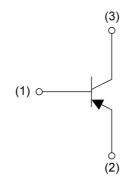
Outline



Features

- 1) Collector current is large. (4A)
- 2) $V_{CE(sat)} \le -250 \text{mV}$ at $I_C = -2 \text{A} / I_B = -40 \text{mA}$
- 3) Complementary NPN Types: 2SD2672

•Inner circuit



- (1) Base
- (2) Emitter
- (3) Collector

Application

LOW FREQUENCY AMPLIFIER

Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Quantity (pcs)	Marking
2SB1707	SOT-346T (TSMT3)	2928	TL	180	8	3000	YW

● Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	-15	V
Collector-emitter voltage	V _{CEO}	-12	V
Emitter-base voltage	V _{EBO}	-6	V
Oallandar account	I _C	-4	Α
Collector current	I _{CP} *1	-8	Α
	P _D *2	0.5	W
Power dissipation	P _D *3	1.0	W
Junction temperature	Tj	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

● Electrical characteristics (T_a = 25°C)

Darameter	Symbol	Conditions	Values			l leit	
Parameter	Symbol Conditions		Min.	Тур.	Max.	Unit	
Collector-base breakdown voltage	BV _{CBO}	I _C = -10μA	-15	-	-	V	
Collector-emitter breakdown voltage	BV _{CEO}	I _C = -1mA	-12	-	-	V	
Emitter-base breakdown voltage	BV _{EBO}	I _E = -10μA	-6	-	-	٧	
Collector cut-off current	I _{CBO}	V _{CB} = -15V	-	-	-100	nA	
Emitter cut-off current	I _{EBO}	V _{EB} = -6V	ı	1	-100	nA	
Collector-emitter saturation voltage	V _{CE(sat)}	$I_C = -2A$, $I_B = -40mA$	-	-150	-250	mV	
DC current gain	h _{FE}	$V_{CE} = -2V, I_{C} = -200 \text{mA}$	270	-	680	-	
Transition frequency	f _T	$V_{CE} = -2V, I_{E} = 200 \text{mA},$ f = 100MHz	-	250	-	MHz	
Output capacitance	C _{ob}	$V_{CB} = -10V, I_{E} = 0A,$ f = 1MHz		60	-	pF	

^{*1} Pw=1ms Single Pulse

^{*2} Each terminal mounted on a reference land.

^{*3} Mounted on a ceramic board(25×25×0.8 mm).

● Electrical characteristic curves(T_a = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

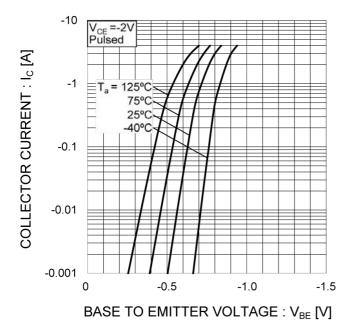
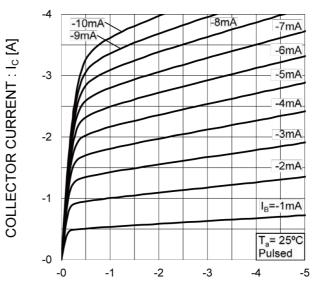


Fig.2 Typical Output Characteristics



COLLECTOR TO EMITTER VOLTAGE: V_{CE} [V]

Fig.3 DC Current Gain vs. Collector Current (I)

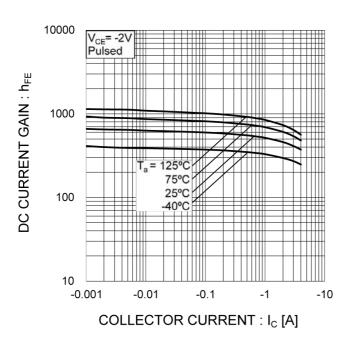
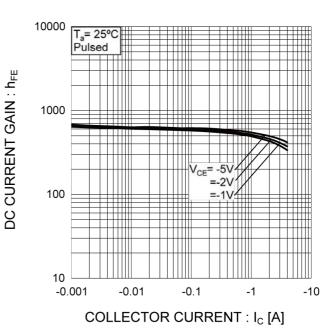


Fig.4 DC Current Gain vs. Collector Current (II)



● Electrical characteristic curves(T_a = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

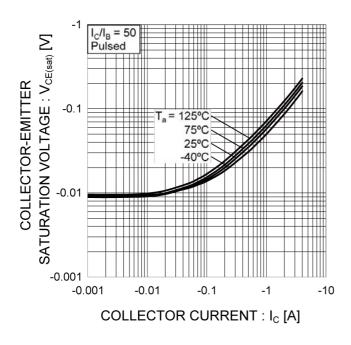


Fig.6 Collector-Emitter Saturation
Voltage vs. Collector Current (II)

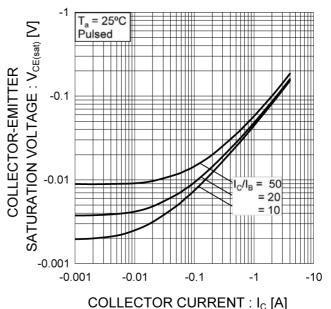


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

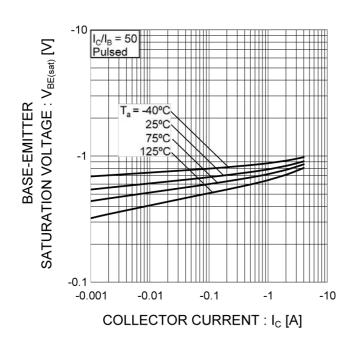
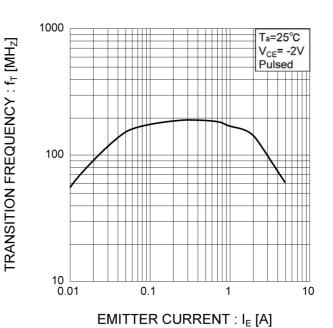


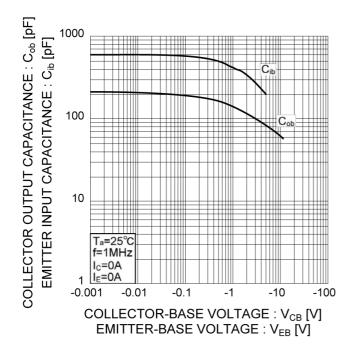
Fig.8 Gain Bandwidth Product vs. Emitter Current

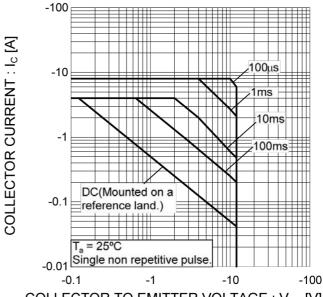


● Electrical characteristic curves(T_a = 25°C)

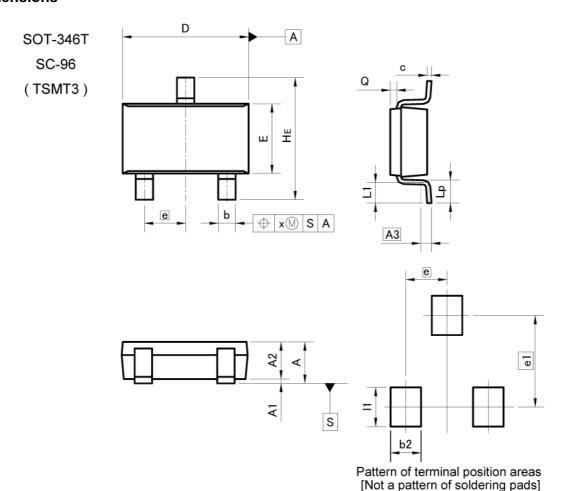
Fig.9 Emitter Input Capacitance vs.
Emitter-Base Voltage
Collector Output Capacitance vs.
Collector-Base Voltage

Fig.10 Safe Operating Area





Dimensions



MILIMETERS **INCHES** DIM MIN MIN MAX MAX 0.039 1.00 Α 0.00 0.000 0.004 A1 0.10 A2 0.75 0.95 0.030 0.037 0.25 0.010 A3 0.35 0.50 0.014 0.020 b C 0.10 0.26 0.004 0.010 D 2.80 3.00 0.110 0.118 Ε 1.50 1.80 0.059 0.071 е HE 2.60 3.00 0.102 0.118 L1 0.30 0.60 0.012 0.024 0.40 0.70 0.016 0.028 Lp Q 0.05 0.25 0.002 0.010 0.20 0.008

DIM -	MILIMETERS		INCHES		
DIM	MIN	MAX	MIN	MAX	
b2		0.70	57/2	0.028	
e1	2.10		0.0	083	
11	=1	0.90	77 2	0.035	

Dimension in mm/inches

X



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JAPAN	USA	EU	CHINA
CLASSⅢ	CL ACC III	CLASS II b	CL ACCTI
CLASSIV	CLASSⅢ	CLASSⅢ	CLASSIII

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 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- 5. Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- 7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

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- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
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Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- Even under ROHM recommended storage condition, solderability of products out of recommended storage time period
 may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is
 exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

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A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

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Rev.001