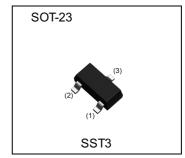


## NPN General Purpose Transistor

Parameter	Value		
V <sub>CES</sub>	80V		
IC	300mA		

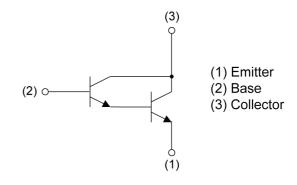
## Outline



#### Features

- 1)BV<sub>CES</sub>> $80V(I_C=100\mu A)$
- 2)Darlington connection

## ●Inner circuit



## Application

AUDIO FREQUENCY SMALL SIGNAL AMPLIFIER

## Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
SSTA28	SOT-23 (SST3)	2924	T116	180	8	3000	RAT

# ● Absolute maximum ratings (T<sub>a</sub> = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V <sub>CBO</sub>	80	V
Collector-emitter voltage	V <sub>CES</sub>	80	V
Emitter-base voltage	V <sub>EBO</sub>	12	V
Collector current	I <sub>C</sub>	300	mA
Power dissipation	P <sub>D</sub> *1	200	mW
Junction temperature	T <sub>j</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-55 to +150	°C

# ● Electrical characteristics (T<sub>a</sub> = 25°C)

Downwortow	Cymahal	Conditions	Values			Unit	
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Offic	
Collector-base breakdown voltage	$BV_CBO$	I <sub>C</sub> = 100μA	80	-	-	V	
Collector-emitter breakdown voltage	BV <sub>CES</sub>	I <sub>C</sub> = 100μA	80	-	-	V	
Emitter-base breakdown voltage	BV <sub>EBO</sub>	I <sub>E</sub> = 10μA	12	-	1	V	
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = 60V	1	-	100	nA	
Collector cut-on current	I <sub>CES</sub>	V <sub>CE</sub> = 10V	-	-	500	nA	
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = 10V	-	-	100	nA	
Collector emitter estimation voltage	V <sub>CE(sat)</sub> 1	I <sub>C</sub> = 10mA, I <sub>B</sub> = 10μA	-	0.7	1.2	V	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> 2	I <sub>C</sub> = 100mA, I <sub>B</sub> = 100μA	-	0.8	1.5	V	
Base-emitter turn on voltage	V <sub>BE(on)</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 100mA	-	1.4	2.0	V	
DC augment gain	h <sub>FE</sub> 1	V <sub>CE</sub> = 5V, I <sub>C</sub> = 10mA	10k	-	-		
DC current gain	h <sub>FE</sub> 2	V <sub>CE</sub> = 5V, I <sub>C</sub> = 100mA	10k	-	-	-	
Transition frequency	f <sub>T</sub>	$V_{CE} = 5V, I_{E} = -10mA,$ f = 100MHz	125	200	-	MHz	
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0A, f = 1MHz	-	5.0	8.0	pF	

<sup>\*1</sup> Each terminal mounted on a reference land.



## ● Electrical characteristic curves(T<sub>a</sub> = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

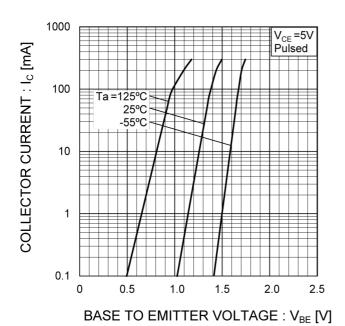
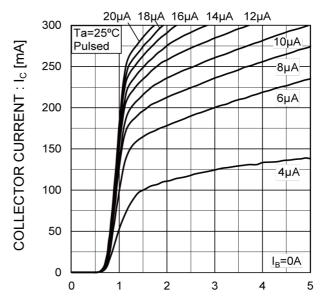


Fig.2 Grounded Emitter Output Characteristics



COLLECTOR TO EMITTER VOLTAGE: V<sub>CE</sub> [V]

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

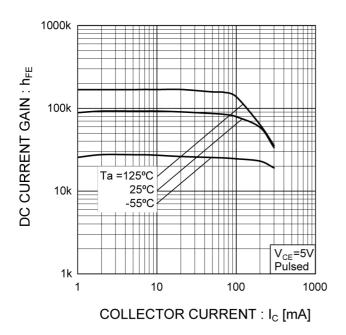
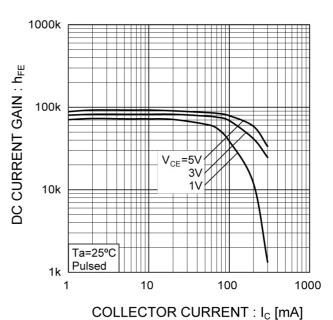


Fig.4 DC Current Gain vs. Collector Current (II)



## ● Electrical characteristic curves(T<sub>a</sub> = 25°C)

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

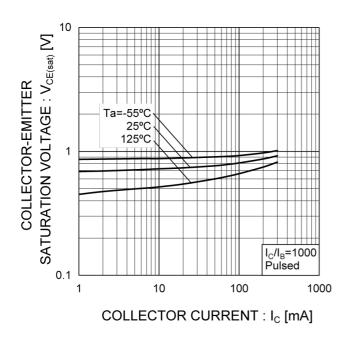


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current(II)

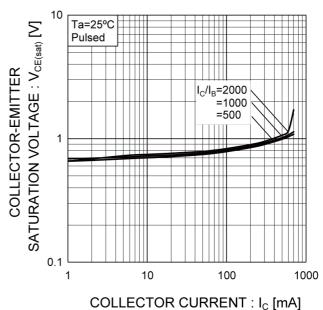


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current (I)

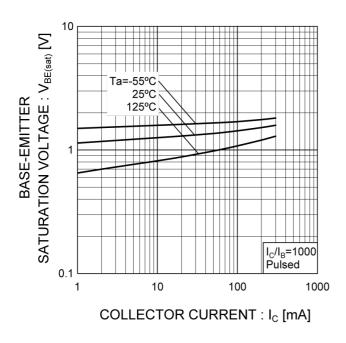
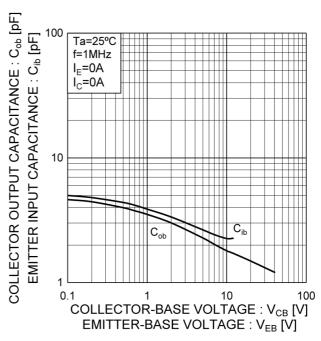
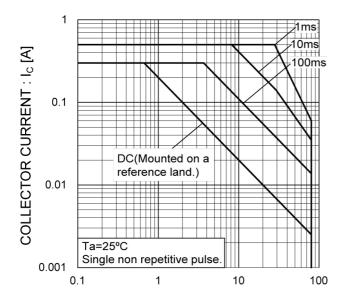


Fig.8 Collector Output Capacitance vs.
Collector-Base Voltage
Emitter Input Capacitance vs.
Emitter-Base Voltage



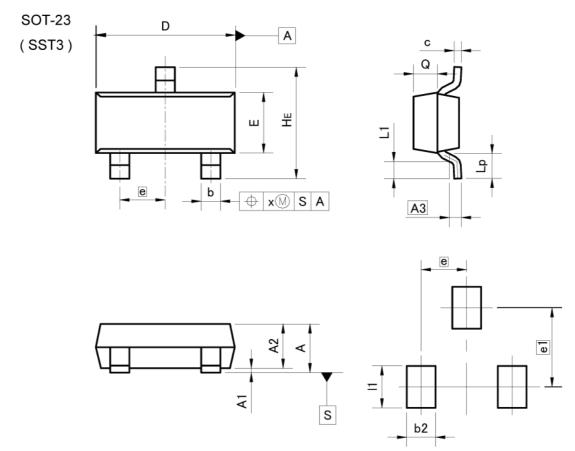
## • Electrical characteristic curves( $T_a = 25$ °C)

Fig.9 Safe Operating Area



COLLECTOR TO EMITTER VOLTAGE : V<sub>CE</sub> [V]

## Dimensions



Pattern of terminal position areas [Not a pattern of soldering pads]

DIM	MILIMETERS II		INC	CHES	
DIM	MIN	MAX	MIN	MAX	
Α	0.90	1.20	0.035	0.047	
A1	0.00	0.10	0.000	0.004	
A2	0.85	1.15	0.033	0.045	
A3	0.3	25	0.0	10	
b	0.35	0.50	0.014	0.020	
С	0.09	0.25	0.004	0.010	
D	2.70	3.10	0.106	0.122	
E	1.20	1.50	0.047	0.059	
е	0.9	95	0.0	37	
HE	2.20	2.60	0.087	0.102	
L1	0.20	00	0.008	_	
Lp	0.30	2,-3	0.012	_	
Q	0.40	0.60	0.016	0.024	
х	- ,	0.10	c=	0.004	

	DIM	MILIMETERS		INCHES		
DIM		MIN	MAX	MIN	MAX	
	b2	-	0.60	_	0.024	
	e1	1.	70	0.067		
	11	- 0.90		-	0.035	

Dimension in mm/inches



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(Note1) Medical Equipment Classification of the Specific Applications

JÁPAN	USA	EU	CHINA
CLASSIII	OL ACOM	CLASS II b	ОГУСОШ
CLASSIV	CLASSⅢ	CLASSIII	CLASSⅢ

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  - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
  - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, and NO<sub>2</sub>
  - [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 (even if you use no-clean type fluxes, cleaning residue of flux is recommended); 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

#### **Precautions Regarding Application Examples and External Circuits**

- 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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