

# 2SD1306

Silicon NPN Epitaxial

R07DS0280EJ0400

Rev.4.00

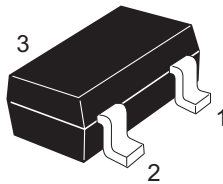
Jan 10, 2014

## Application

Low frequency amplifier, Muting

## Outline

RENESAS Package code: PLSP0003ZB-A  
(Package name: MPAK)



- 1. Emitter
- 2. Base
- 3. Collector

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	30	V
Collector to emitter voltage	$V_{CEO}$	15	V
Emitter to base voltage	$V_{EBO}$	5	V
Collector current	$I_c$	0.7	A
Collector power dissipation	$P_C$	150	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

## Electrical Characteristics

(Ta = 25°C)

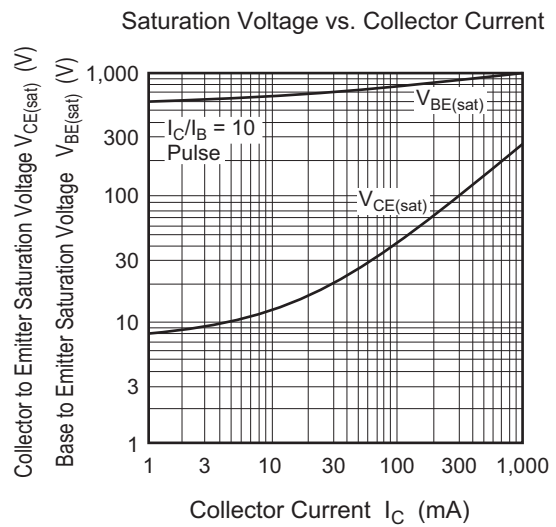
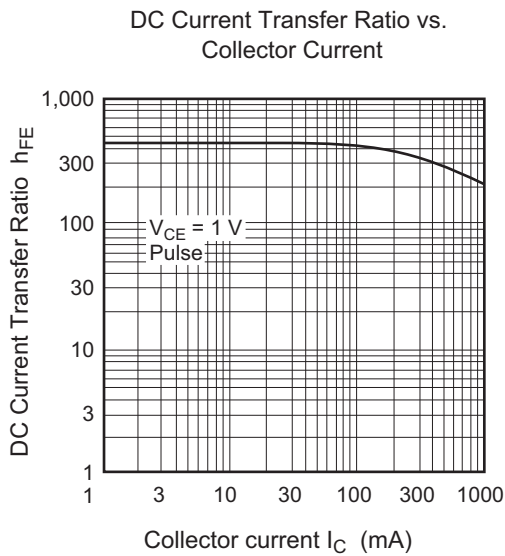
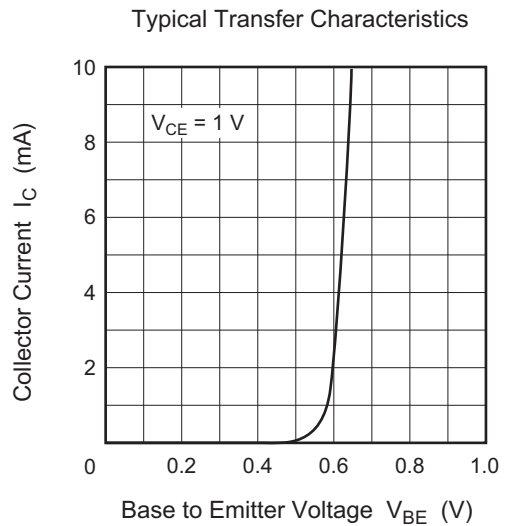
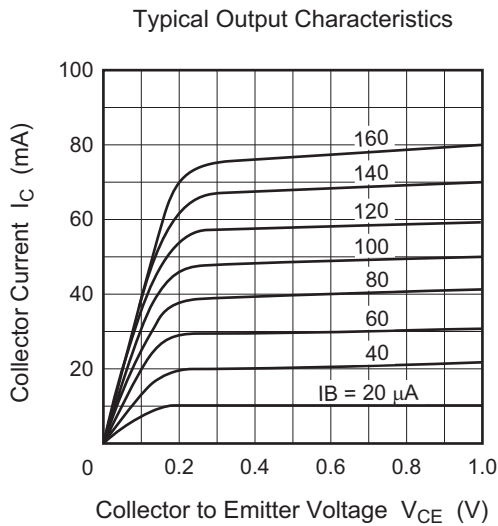
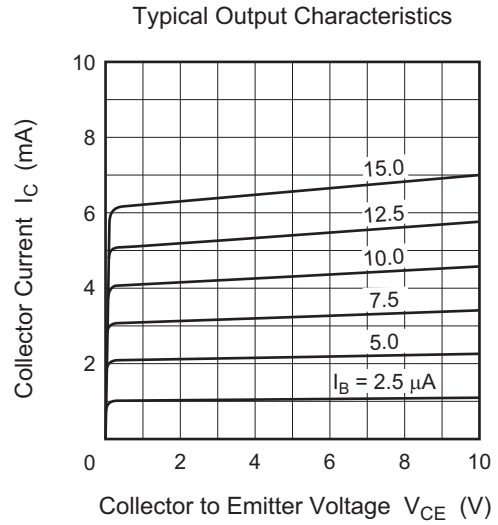
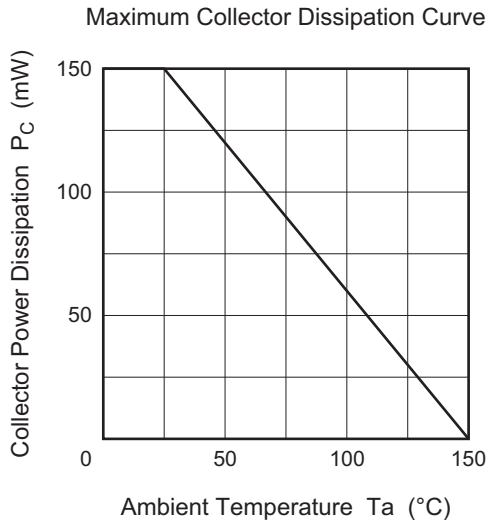
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	15	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	1.0	$\mu A$	$V_{CB} = 20 \text{ V}, I_E = 0$
DC current transfer ratio	$h_{FE}^{*1}$	250	—	800		$V_{CE} = 1 \text{ V}, I_C = 150 \text{ mA}^{*2}$
Base to emitter voltage	$V_{BE}$	—	—	1.0	V	$V_{CE} = 1 \text{ V}, I_C = 150 \text{ mA}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.5	V	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{*2}$
Gain bandwidth product	$f_T$	—	250	—	MHz	$V_{CE} = 1 \text{ V}, I_C = 150 \text{ mA}^{*2}$

Notes: 1. The 2SD1306 is grouped by  $h_{FE}$  as follows.

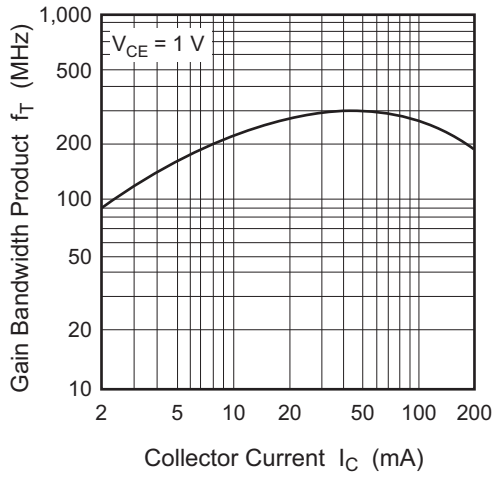
2. Pulse test

Grade	D	E
Mark	ND	NE
$h_{FE}$	250 to 500	400 to 800

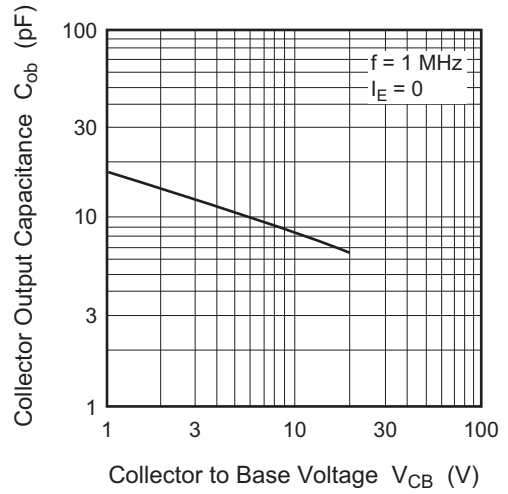
### Main Characteristics



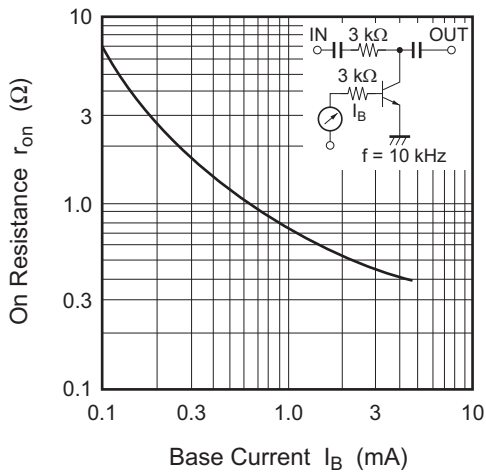
Gain Bandwidth Product vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage

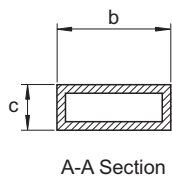
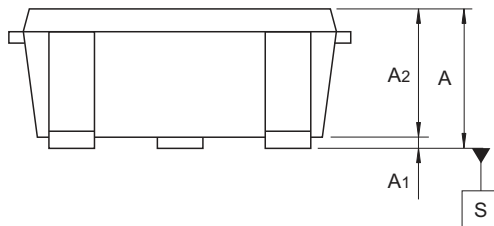
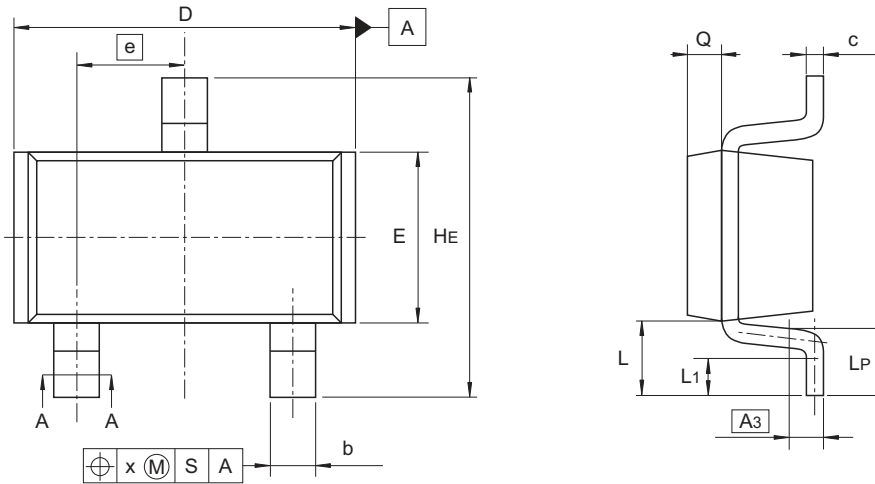


On Resistance vs. Base Current



Package Dimensions

JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
SC-59A	PLSP0003ZB-A	MPAK(T) / MPAK(T)V	0.011



Reference Symbol	Dimensions in millimeters		
	Min	Nom	Max
A	1.0	—	1.3
A1	0	—	0.1
A2	1.0	1.1	1.2
A3	—	0.25	—
b	0.35	0.4	0.5
c	0.1	0.16	0.26
D	2.7	—	3.1
E	1.35	1.5	1.65
e	—	0.95	—
HE	2.2	2.8	3.0
L	0.35	—	0.75
L1	0.15	—	0.55
LP	0.25	—	0.65
x	—	—	0.05
Q	—	0.3	—

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**Ordering Information**

Orderable Part Number	Quantity	Shipping Container
2SD1306NDTL-E 2SD1306NETL-E 2SD1306NDTL-H 2SD1306NETL-H	3000	φ 178 mm Reel, 8 mm Emboss Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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