



# 2SD1306

Silicon NPN Epitaxial

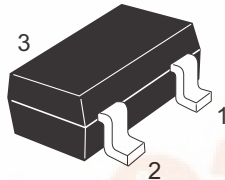
REJ03G0784-0200  
 (Previous ADE-208-1144)  
 Rev.2.00  
 Aug.10.2005

## 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)

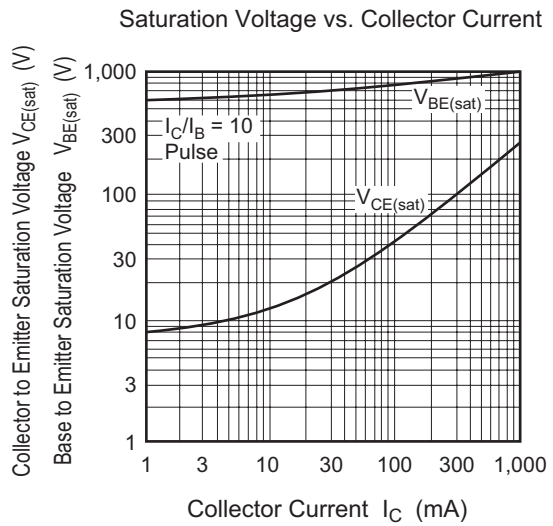
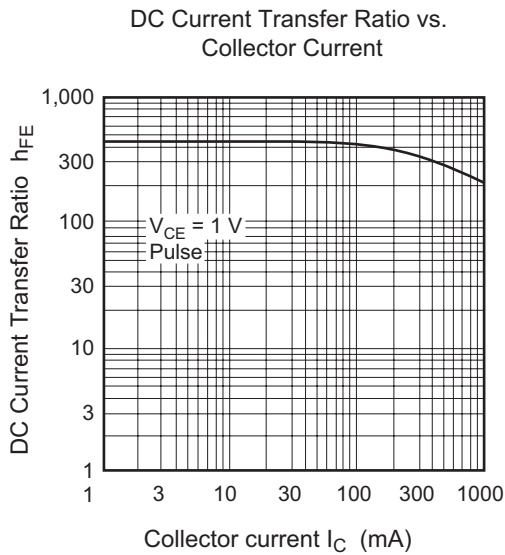
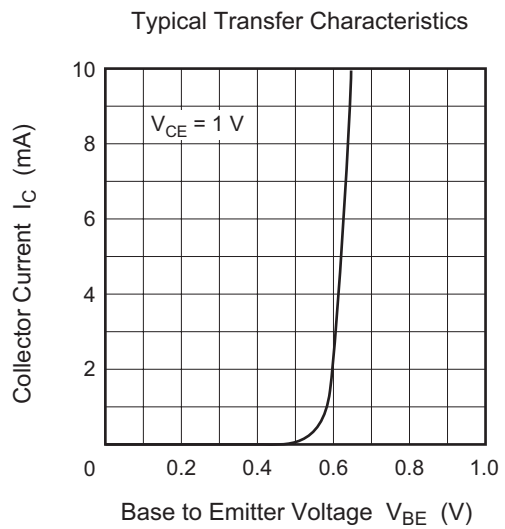
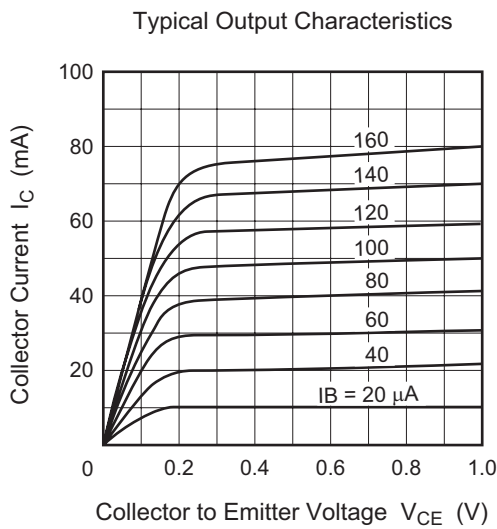
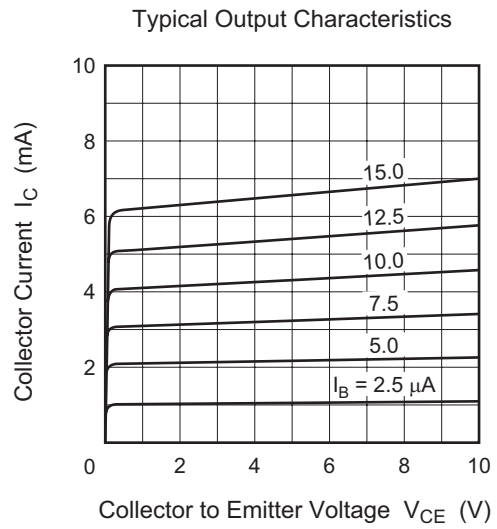
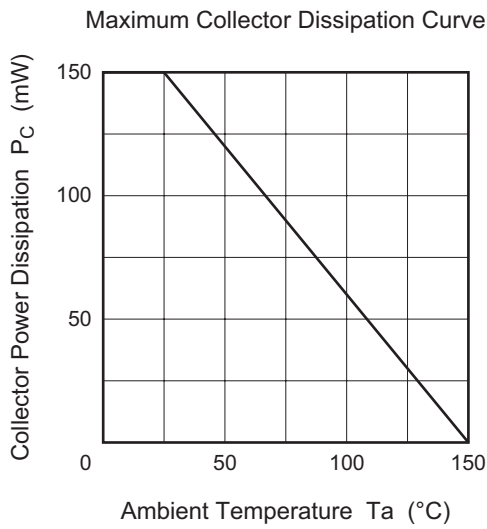
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	15	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
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.

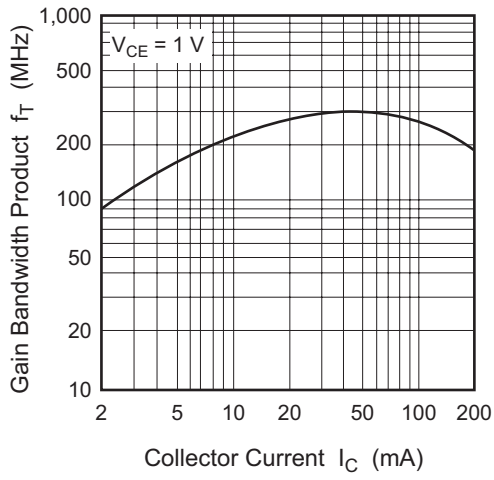
2. Pulse test

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

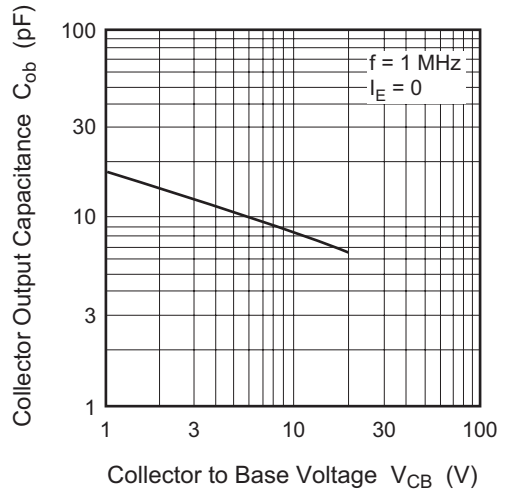
Main Characteristics



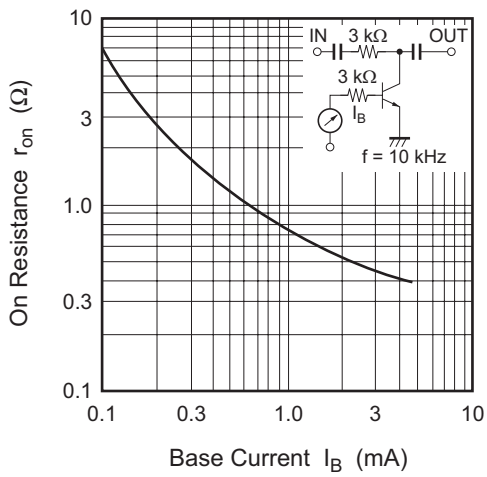
Gain Bandwidth Product vs. Collector Current



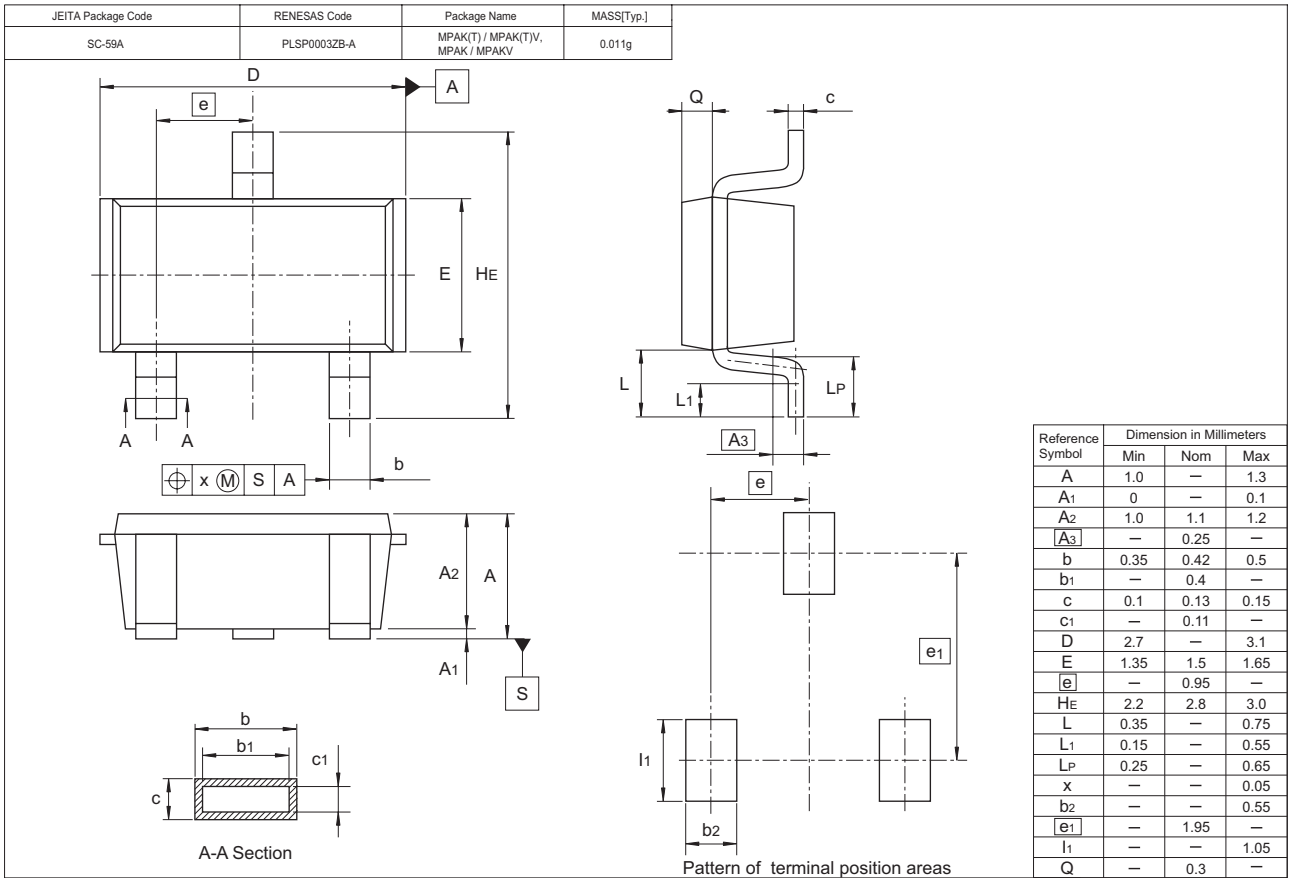
Collector Output Capacitance vs. Collector to Base Voltage



On Resistance vs. Base Current



### Package Dimensions



### Ordering Information

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

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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