

# 2SD1306

Silicon NPN Epitaxial

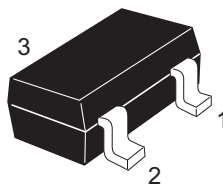
REJ03G0784-0200  
(Previous ADE-208-1144)  
Rev.2.00  
Aug.10.2005

## 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)

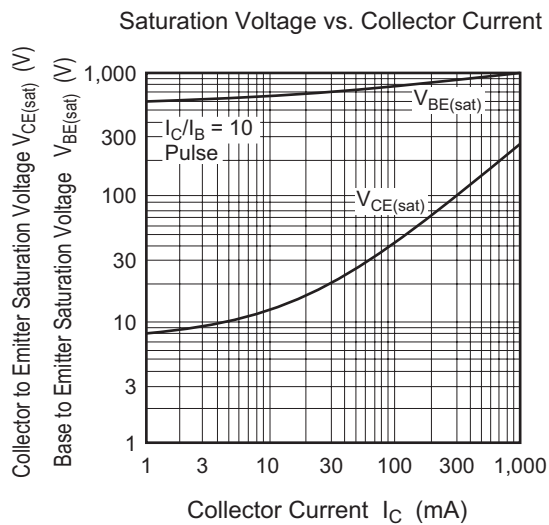
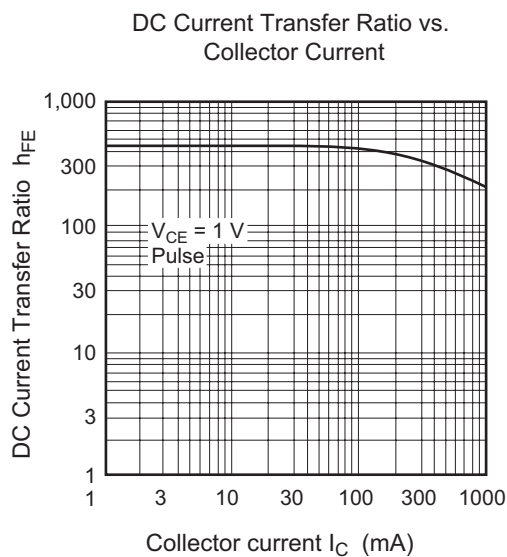
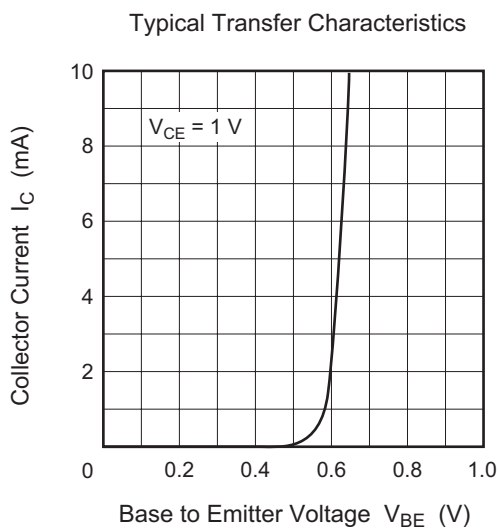
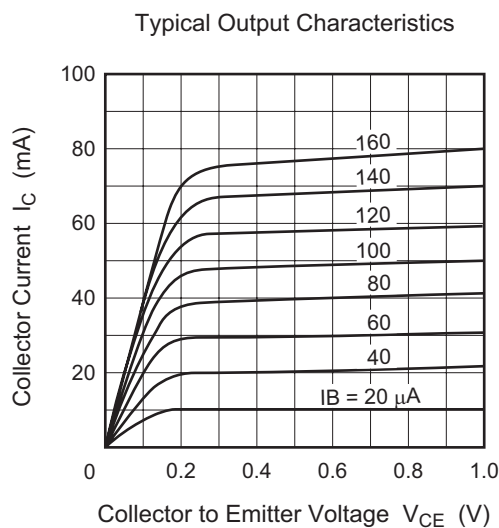
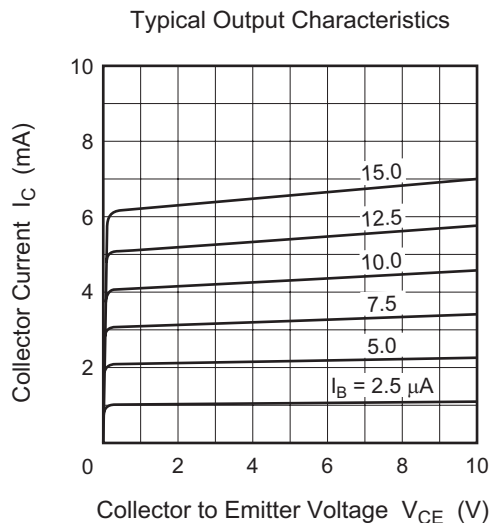
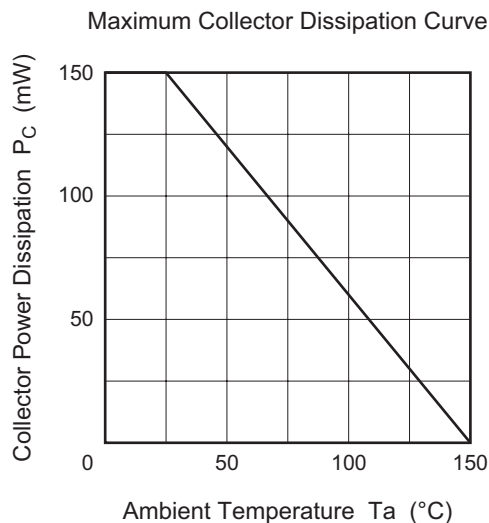
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	15	—	—	V	$I_C = 1\ mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 10\ \mu A, I_C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

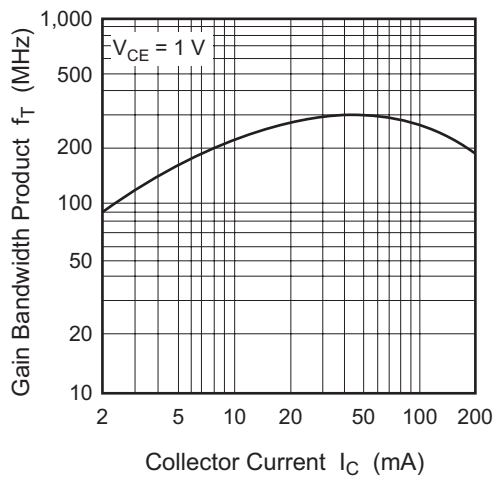
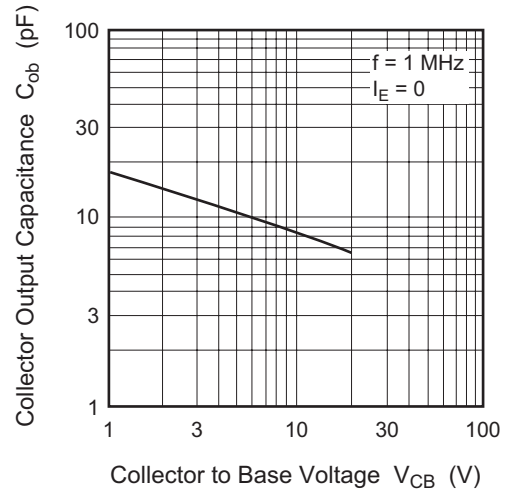
Notes: 1. The 2SD1306 is grouped by  $h_{FE}$  as follows.

2. Pulse test

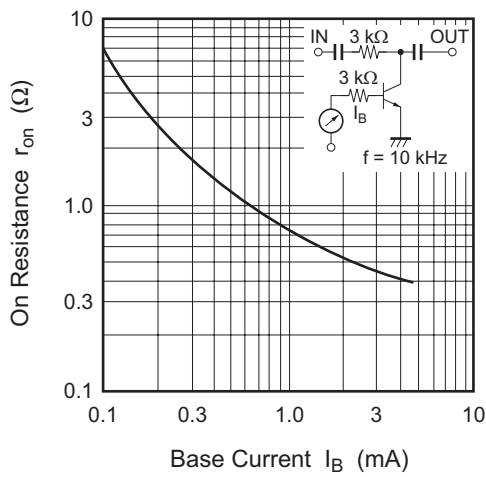
Grade	D	E
Mark	ND	NE
$h_{FE}$	250 to 500	400 to 800

## Main Characteristics



Gain Bandwidth Product vs.  
Collector CurrentCollector Output Capacitance vs.  
Collector to Base Voltage

On Resistance vs. Base Current





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