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# 2SD1306

Silicon NPN Epitaxial

# HITACHI

ADE-208-1144 (Z)  
1st. Edition  
Mar. 2001

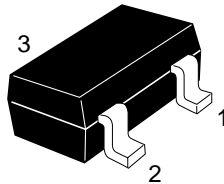
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## Application

Low frequency amplifier, Muting

## Outline

MPAK



1. Emitter
2. Base
3. Collector

**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{\text{CBO}}$	30	V
Collector to emitter voltage	$V_{\text{CEO}}$	15	V
Emitter to base voltage	$V_{\text{EBO}}$	5	V
Collector current	$I_{\text{C}}$	0.7	A
Collector power dissipation	$P_{\text{C}}$	150	mW
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

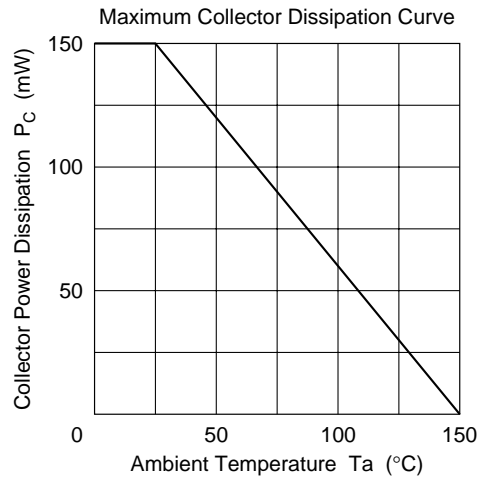
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	30	—	—	V	$I_{\text{C}} = 10 \mu\text{A}$ , $I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	15	—	—	V	$I_{\text{C}} = 1 \text{ mA}$ , $R_{\text{BE}} = \infty$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

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

2. Pulse test

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

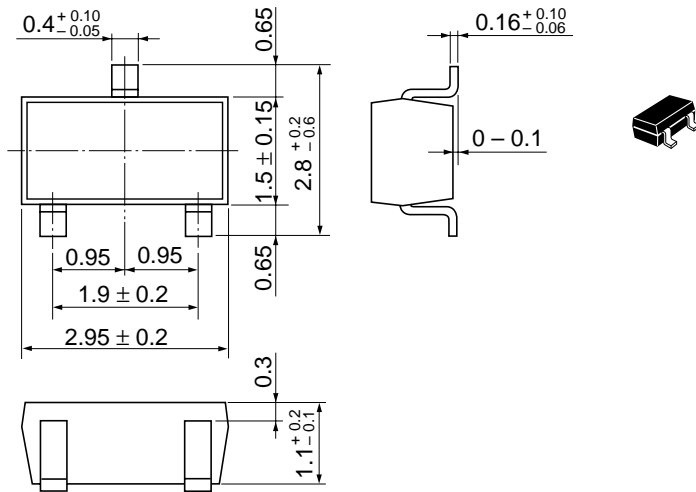
See characteristic curves of 2SD1504.



## Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	MPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.011 g

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