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# 2SB738, 2SB739

Silicon PNP Epitaxial

# HITACHI

ADE-208-1030 (Z)  
1st. Edition  
Mar. 2001

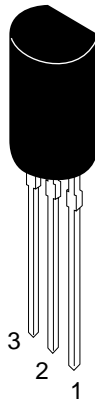
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## Application

- Low frequency power amplifier
- Complementary pair with 2SD787 and 2SD788

## Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

## 2SB738, 2SB739

### Absolute Maximum Ratings (Ta = 25°C)

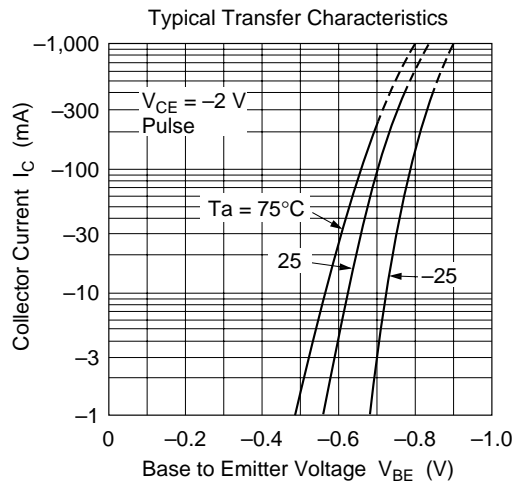
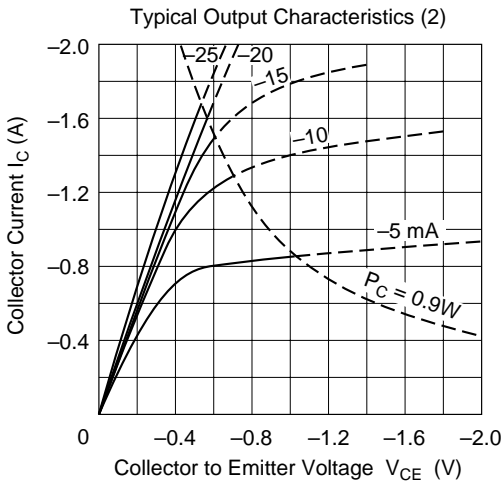
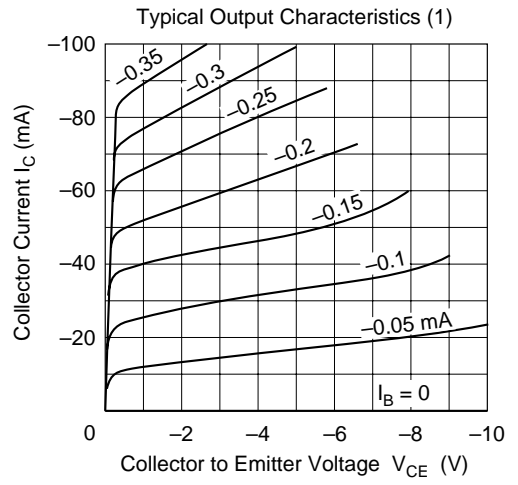
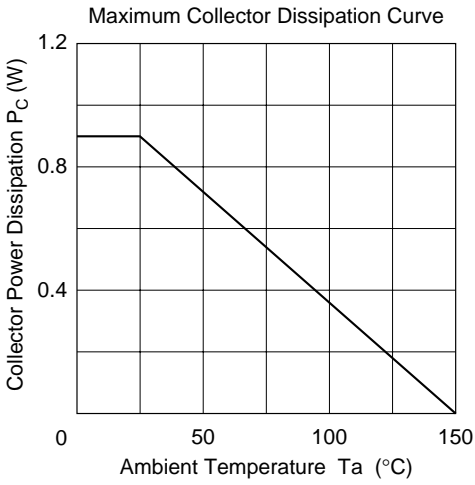
Item	Symbol	2SB738	2SB739	Unit
Collector to base voltage	$V_{CBO}$	-20	-20	V
Collector to emitter voltage	$V_{CEO}$	-16	-20	V
Emitter to base voltage	$V_{EBO}$	-6	-6	V
Collector current	$I_C$	-2	-2	A
Collector power dissipation	$P_C$	0.9	0.9	W
Junction temperature	$T_j$	150	150	°C
Storage temperature	$T_{stg}$	-55 to +150	-55 to +150	°C

### Electrical Characteristics (Ta = 25°C)

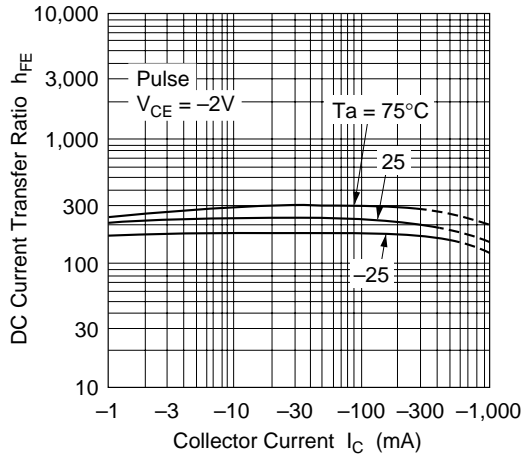
Item	Symbol	2SB738			2SB739			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-20	—	—	-20	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-16	—	—	-20	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	-6	—	—	-6	—	—	V	$I_E = -10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	-2	—	—	-2	$\mu A$	$V_{CB} = -16 \text{ V}, I_E = 0$
Emitter cutoff current	$I_{EBO}$	—	—	-0.2	—	—	-0.2	$\mu A$	$V_{EB} = -6 \text{ V}, I_C = 0$
DC current transfer ratio	$h_{FE}^{*1}$	100	—	320	100	—	320		$V_{CE} = -2 \text{ V}, I_C = -0.1 \text{ A}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	-0.3	—	—	-0.3	V	$I_C = -1 \text{ A}, I_B = -0.1 \text{ A}$
Gain bandwidth product	$f_T$	—	150	—	—	150	—	MHz	$V_{CE} = -2 \text{ V}, I_C = -10 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	50	—	—	50	—	pF	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$

Note: 1. The 2SB738 and 2SB739 are grouped by  $h_{FE}$  as follows.

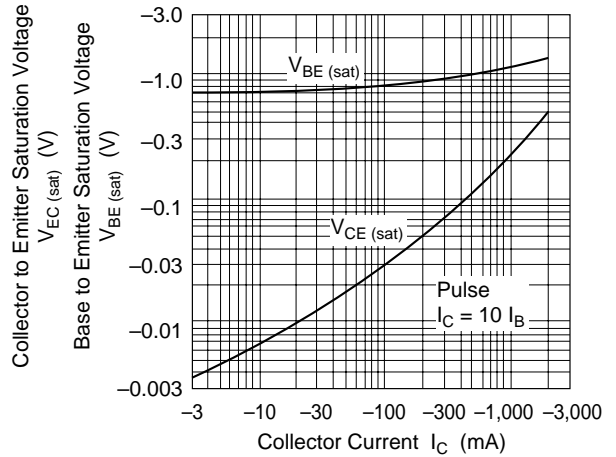
B	C
100 to 200	160 to 320



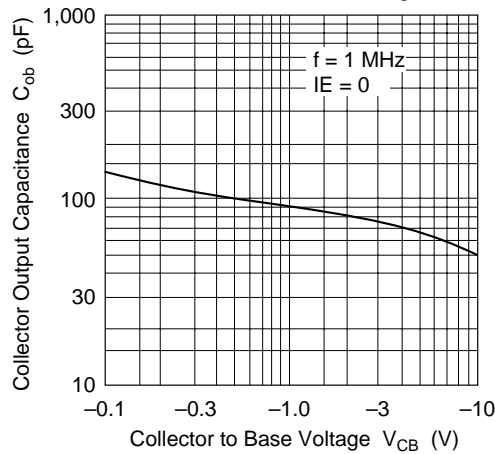
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current

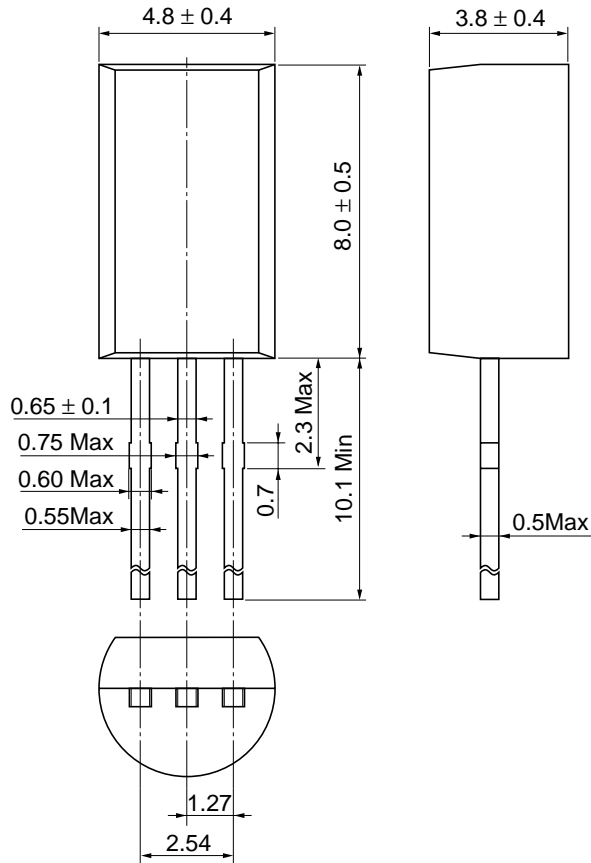


Collector Output Capacitance vs. Collector to Base Voltage



Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 g

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