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# 2SB738, 2SB739

Silicon PNP Epitaxial

# HITACHI

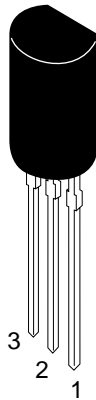
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## Application

- 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)

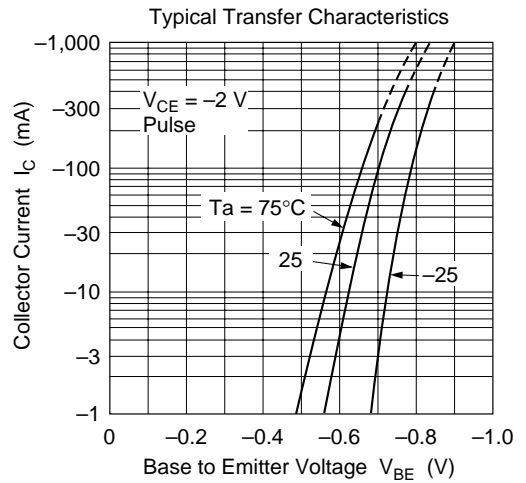
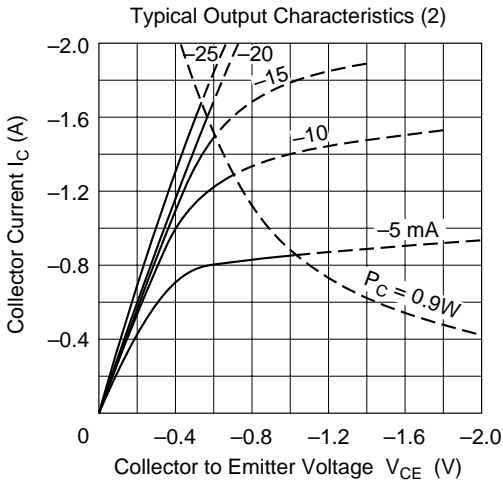
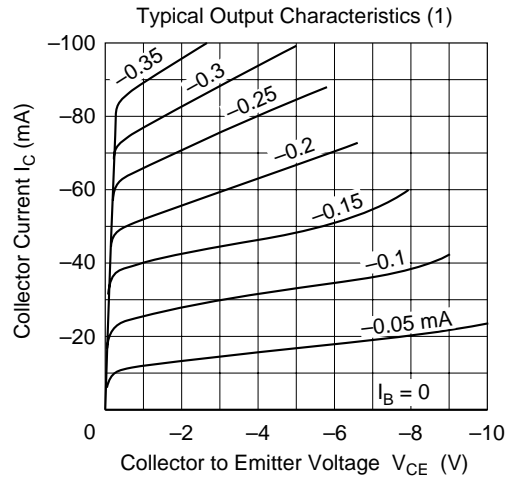
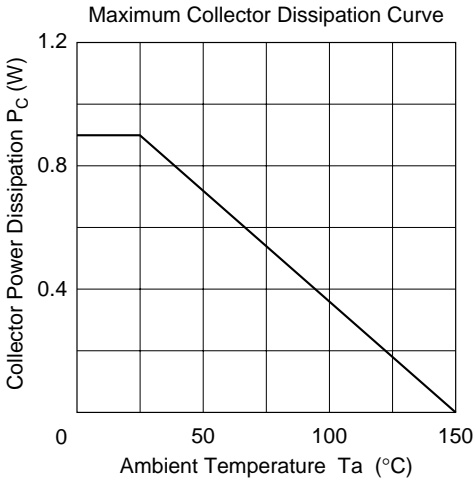
Item	Symbol	2SB738	2SB739	Unit
Collector to base voltage	$V_{CBO}$	-20	-20	V
Collector to emitter voltage	$V_{CEO}$	-16	-20	V
Emitter to base voltage	$V_{EBO}$	-6	-6	V
Collector current	$I_C$	-2	-2	A
Collector power dissipation	$P_C$	0.9	0.9	W
Junction temperature	$T_j$	150	150	°C
Storage temperature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

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

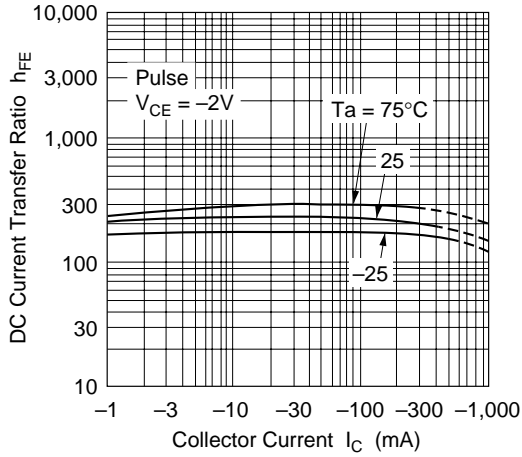
Item	Symbol	2SB738			2SB739			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	-20	—	—	-20	—	—	V	$I_C = -10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	-16	—	—	-20	—	—	V	$I_C = -1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown 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.

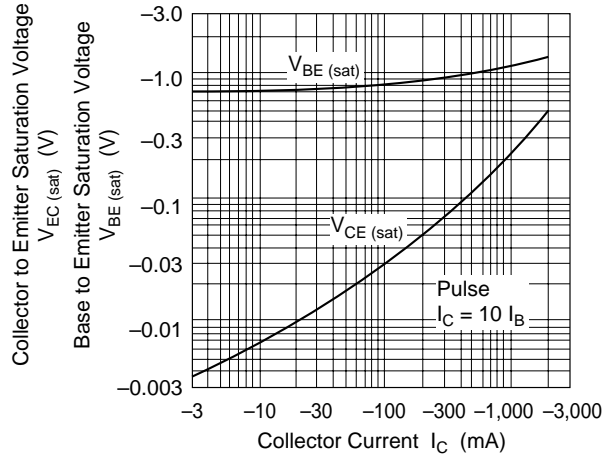
B	C
100 to 200	160 to 320



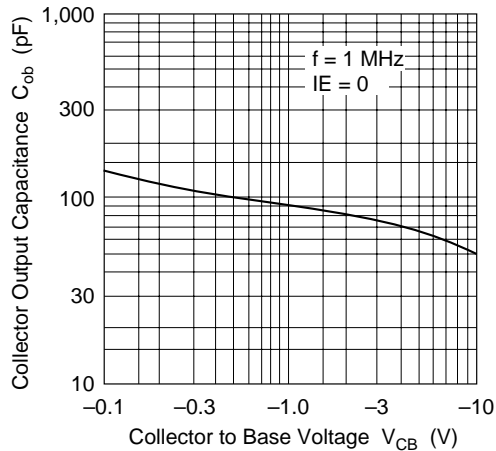
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



Collector Output Capacitance vs. Collector to Base Voltage





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

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