To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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2SD1868, 2SD1869

Silicon NPN Epitaxial

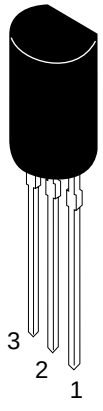
ADE-208-1159 (Z)
1st. Edition
Mar. 2001

Application

Low frequency high voltage amplifier

Outline

TO-92MOD



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1868	2SA1869	Unit
Collector to base voltage	V_{CBO}	160	200	V
Collector to emitter voltage	V_{CEO}	160	200	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

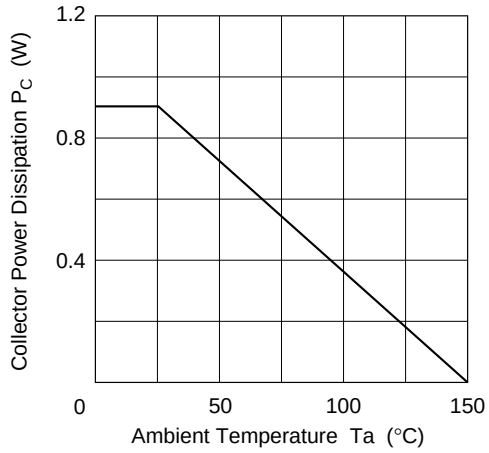
Electrical Characteristics (Ta = 25°C)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	2SD1868	$V_{(BR)CBO}$	160	—	—	V	I_C = 10 µA, I_E = 0
	2SD1869		200				
Collector to emitter breakdown voltage	2SD1868	$V_{(BR)CEO}$	160	—	—	V	I_C = 1 mA, R_{BE} = ∞
	2SD1869		200				
Emitter to base breakdown voltage		$V_{(BR)EBO}$	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	2SD1868	I_{CBO}	—	—	10	µA	V_{CB} = 140 V, I_E = 0
	2SD1869						V_{CB} = 160 V, I_E = 0
DC current transfer ratio		h_{FE1}*[1]	60	—	320		V_{CE} = 5 V, I_C = 10 mA
		h_{FE2}	30	—	—		V_{CE} = 5 V, I_C = 1 mA
Base to emitter voltage		V_{BE}	—	—	1.5	V	V_{CE} = 5 V, I_C = 10 mA
Collector to emitter saturation voltage		$V_{CE(sat)}$	—	—	2	V	I_C = 30 mA, I_B = 3 mA
Gain bandwidth product		f_T	—	140	—	MHz	V_{CE} = 5 V, I_C = 10 mA
Collector output capacitance		C_{ob}	—	3.8	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz

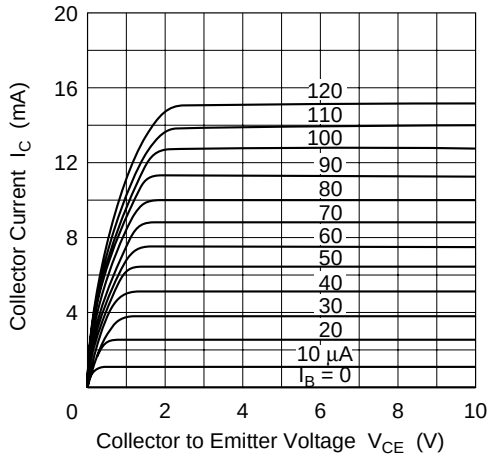
Note: 1. The 2SD1868 and 2SD1869 are grouped by h_{FE1} as follows.

Grade	B	C	D
h_{FE1}	60 to 120	100 to 200	160 to 320

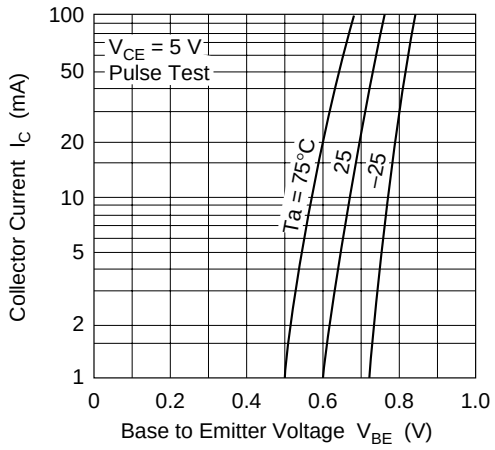
Maximum Collector Dissipation Curve



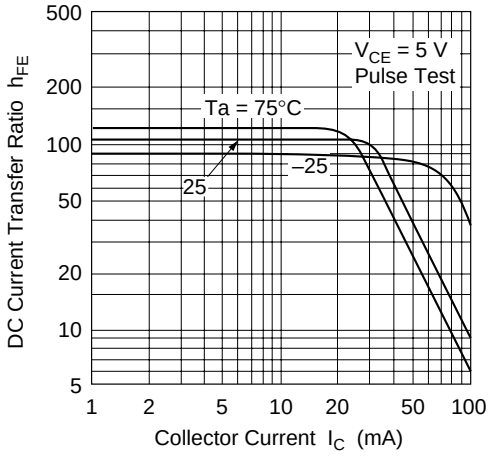
Typical Output Characteristics



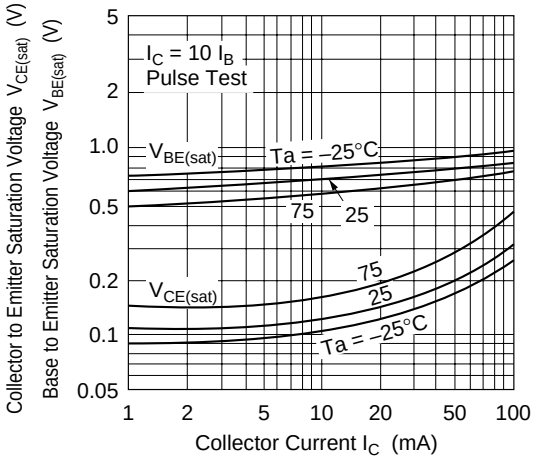
Typical Transfer Characteristics



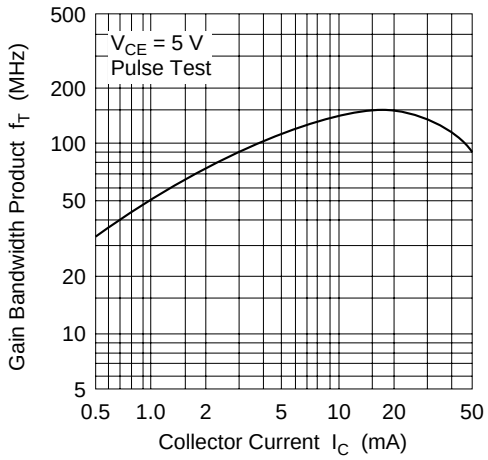
DC Current Transfer Ratio vs. Collector Current



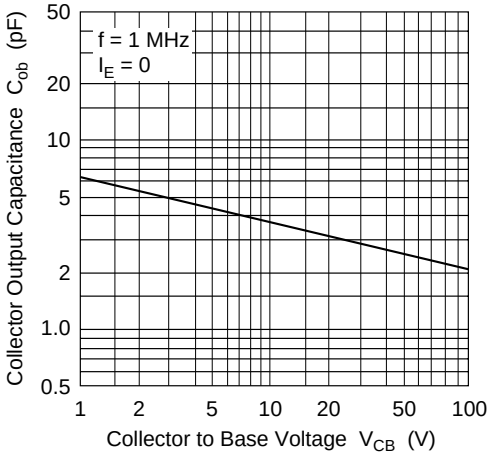
Saturation Voltage vs. Collector Current



Gain Bandwidth Product vs. Collector Current



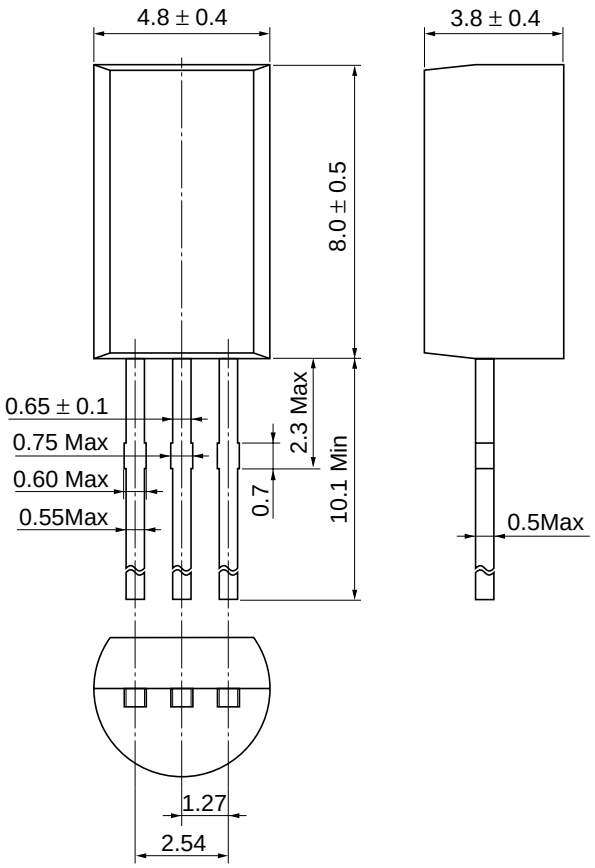
Collector Output Capacitance vs. Collector to Base Voltage



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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