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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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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SC2855, 2SC2856

Silicon NPN Epitaxial

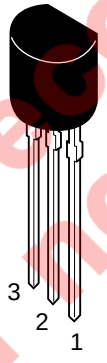
ADE-208-1079 (Z)
1st. Edition
Mar. 2001

Application

- Low frequency low noise amplifier
- Complementary pair with 2SA1190 and 2SA1191

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SC2855	2SC2856	Unit
Collector to base voltage	V_{CBO}	90	120	V
Collector to emitter voltage	V_{CEO}	90	120	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Emitter current	I_E	–100	–100	mA
Collector power dissipation	P_C	400	400	mW
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C

Electrical Characteristics (Ta = 25°C)

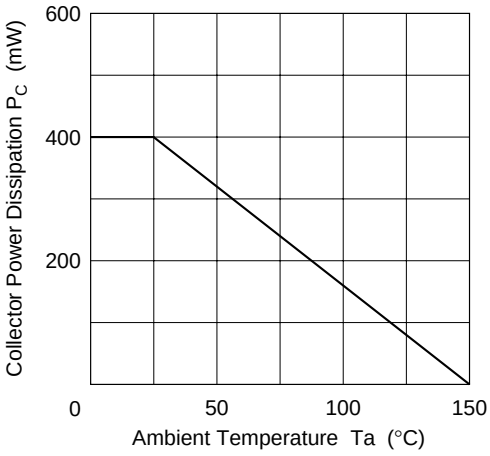
Item	Symbol	2SC2855 Min	2SC2855 Typ	2SC2855 Max	2SC2856 Min	2SC2856 Typ	2SC2856 Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	90	—	—	120	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	90	—	—	120	—	—	V	I_C = 1 mA, R_{BE} =
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.1	—	—	0.1	µA	V_{CB} = 70 V, I_E = 0
Emitter cutoff current	I_{EBO}	—	—	0.1	—	—	0.1	µA	V_{EB} = 2 V, I_C = 0
DC current transfer ratio	h_{FE}*[1]	250	—	800	250	—	800		V_{CE} = 12 V, I_C = 2 mA*[2]
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.05	0.10	—	0.05	0.10	V	I_C = 10 mA, I_B = 1 mA*[2]
Base to emitter saturation voltage	$V_{BE(sat)}$	—	0.7	1.0	—	0.7	1.0	V	
Gain bandwidth product	f_T	—	310	—	—	310	—	MHz	V_{CE} = 6 V, I_C = 10 mA
Collector output capacitance	Cob	—	3	—	—	3	—	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz
Noise figure	NF	—	0.15	1.5	—	0.15	1.5	dB	V_{CE} = 6 V, I_C = 0.1 mA, R_g = 10 kΩ, f = 1 kHz
		—	0.2	2.0	—	0.2	2.0	dB	V_{CE} = 6 V, I_C = 0.1 mA, R_g = 10 kΩ, f = 10 Hz
Noise voltage referred to input	e_n	—	0.7	—	—	0.7	—	nV/√Hz	V_{CE} = 6 V, I_C = 10 mA, R_g = 0, f = 1 kHz

Notes: 1. The 2SC2855 and 2SC2856 are grouped by h_{FE} as follows.

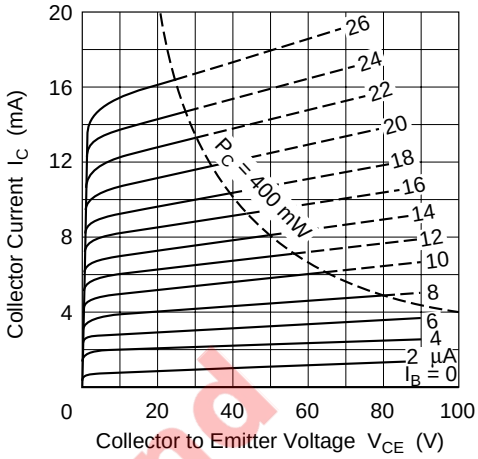
2. Pulse test

D	E
250 to 500	400 to 800

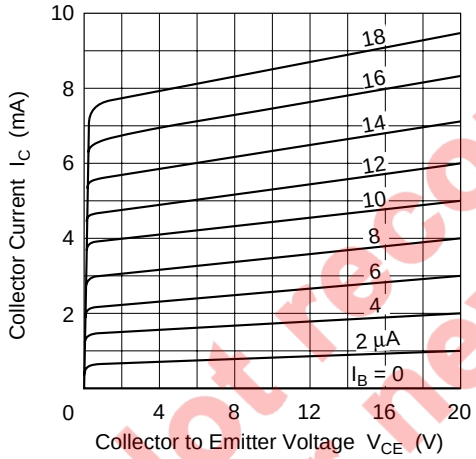
Maximum Collector Dissipation Curve



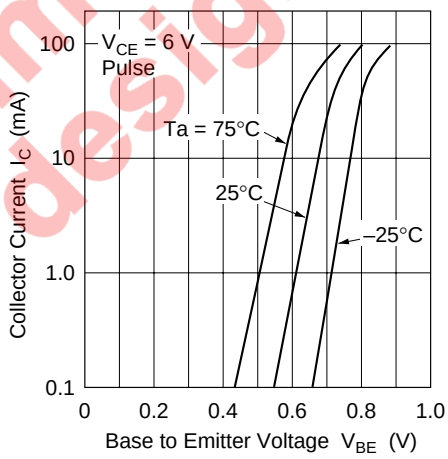
Typical Output Characteristics



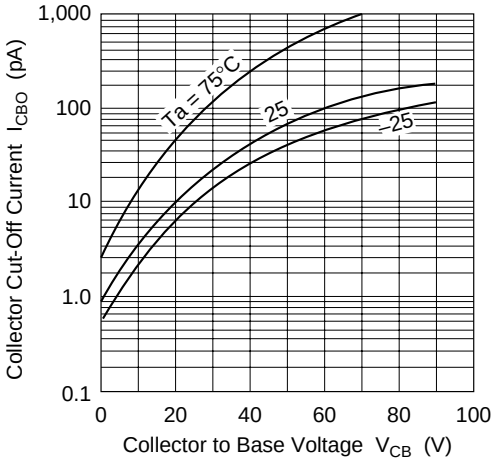
Typical Output Characteristics



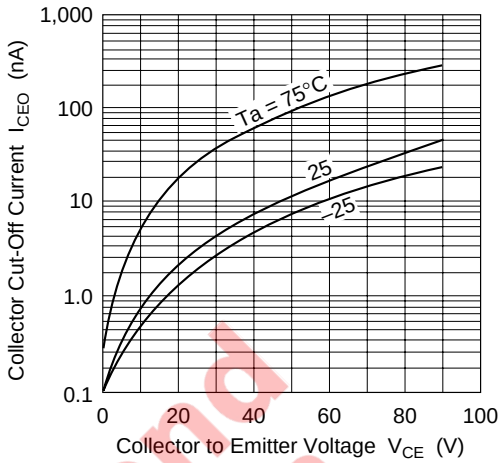
Typical Transfer Characteristics



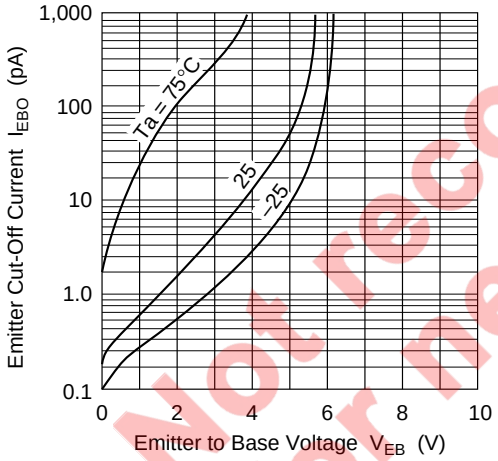
Collector Cut-Off Current vs. Collector to Base Voltage



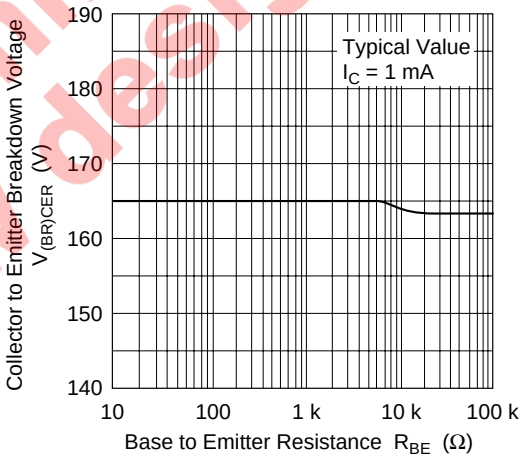
Collector Cut-Off Current vs. Collector to Emitter Voltage



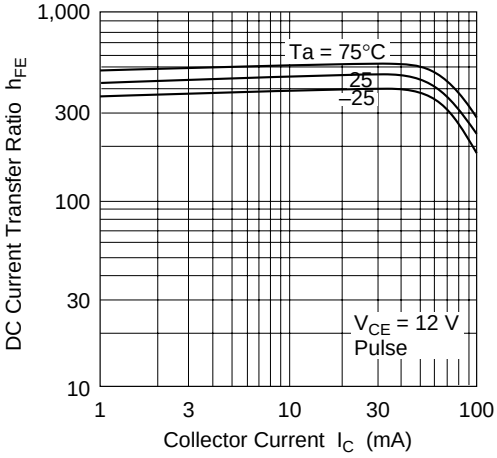
Emitter Cut-Off Current vs.Emitter to Base Voltage



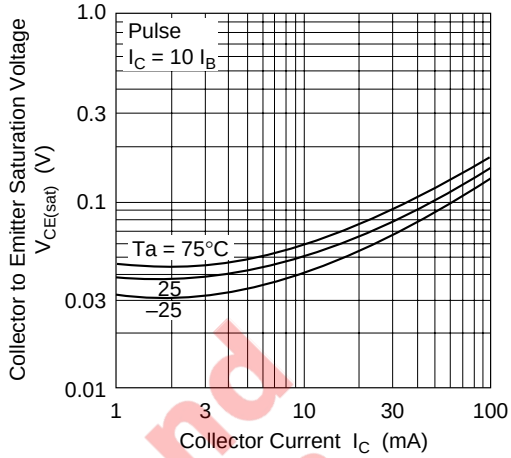
Collector to Emitter Breakdown Voltage vs. Base to Emitter Resistance



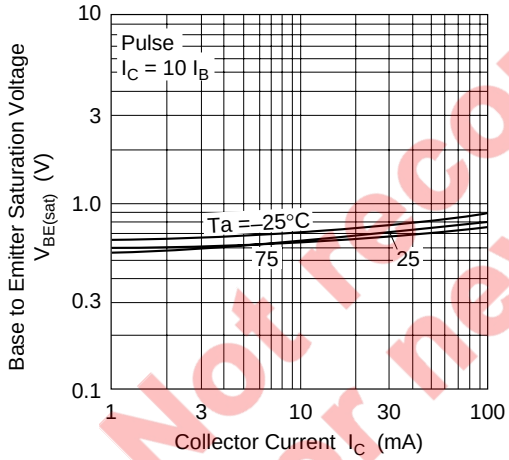
DC Current Transfer Ratio vs. Collector Current



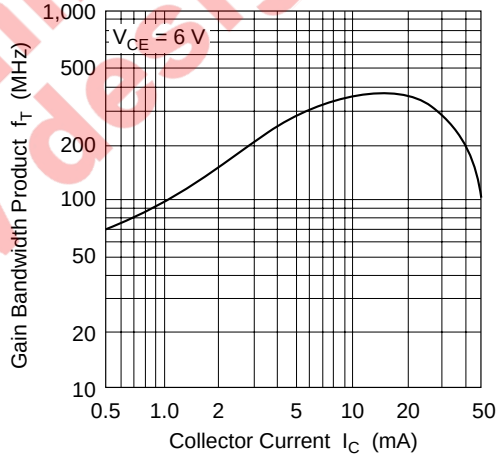
Collector to Emitter Saturation Voltage vs. Collector Current



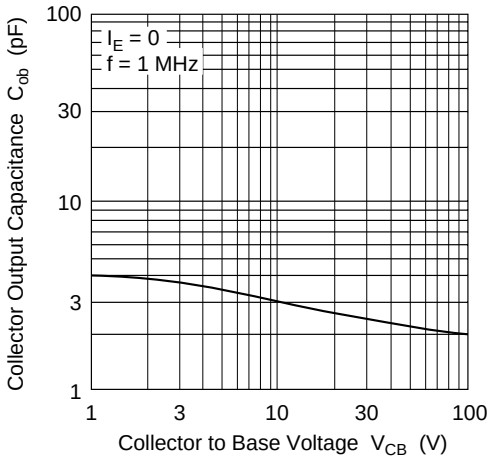
Base to Emitter Saturation Voltage vs. Collector Current



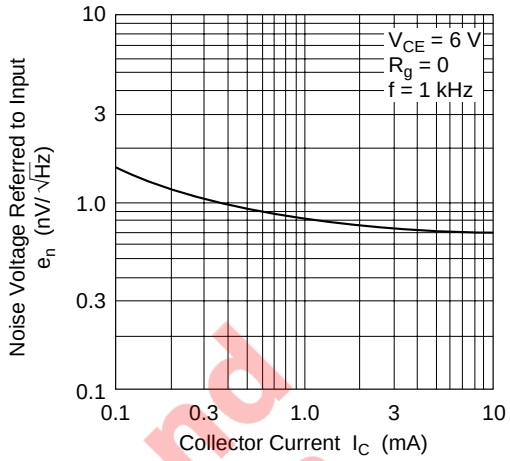
Gain Bandwidth Product vs. Collector Current



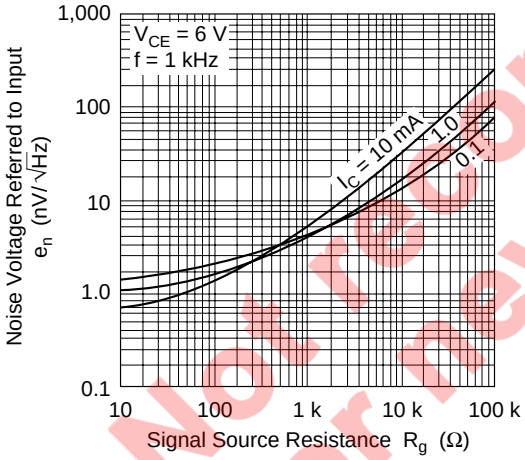
Collector Output Capacitance vs. Collector to Base Voltage



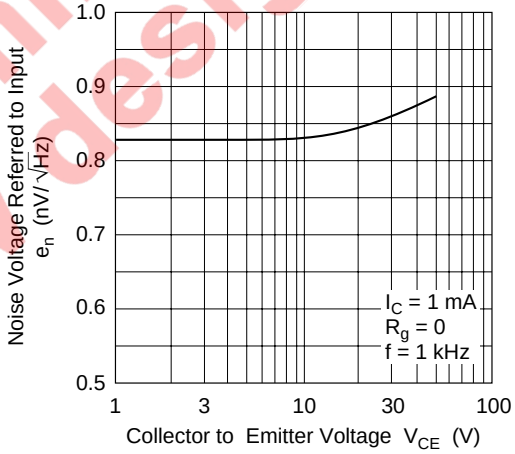
Noise Voltage Referred to Input vs. Collector Current



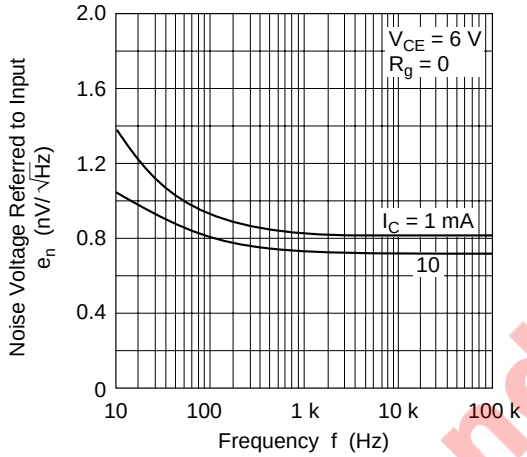
Noise Voltage Referred to Input vs. Signal Source Resistance



Noise Voltage Referred to Input vs. Collector to Emitter Voltage



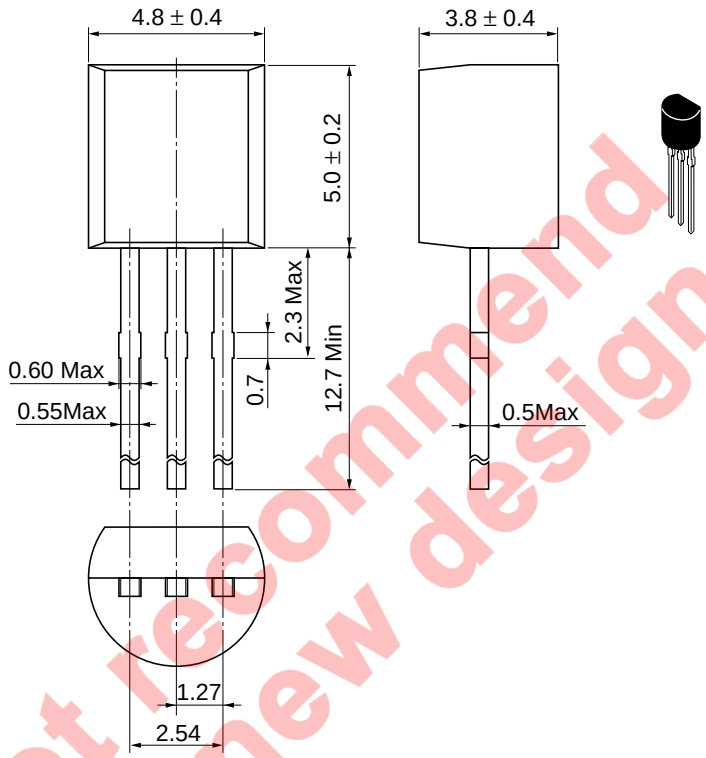
Noise Voltage Referred to Input vs. Frequency



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

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