
2SC2855, 2SC2856

Silicon NPN Epitaxial

HITACHI

ADE-208-1079 (Z)

1st. Edition

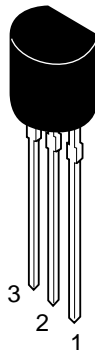
Mar. 2001

Application

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

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

2SC2855, 2SC2856

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	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

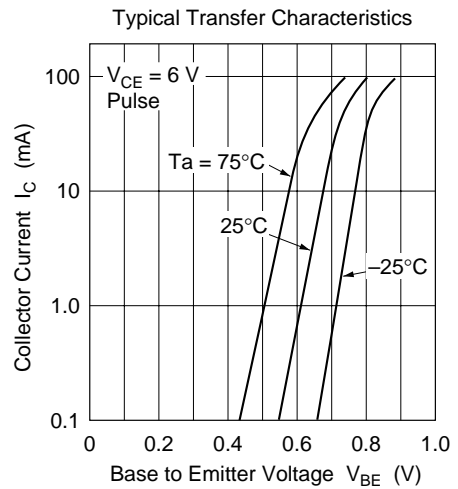
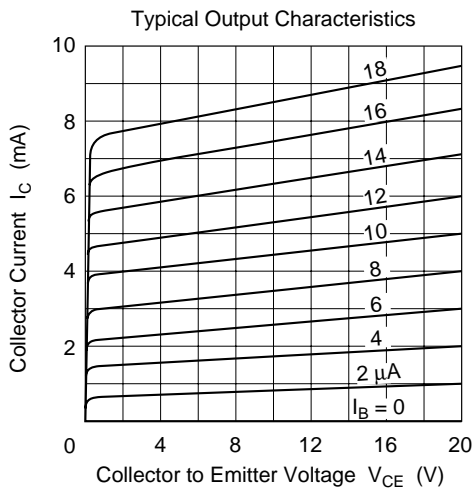
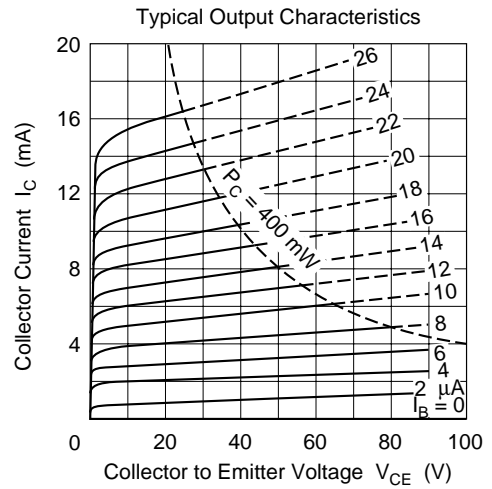
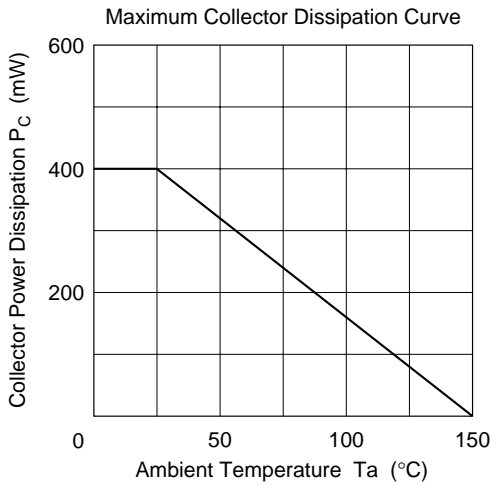
Electrical Characteristics (Ta = 25°C)

Item	Symbol	2SC2855			2SC2856			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	90	—	—	120	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	90	—	—	120	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.1	—	—	0.1	μA	$V_{CB} = 70 \text{ V}, I_E = 0$
Emitter cutoff current	I_{EBO}	—	—	0.1	—	—	0.1	μA	$V_{EB} = 2 \text{ V}, I_C = 0$
DC current transfer ratio	h_{FE}^{*1}	250	—	800	250	—	800		$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}^{*2}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.05	0.10	—	0.05	0.10	V	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}^{*2}$
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	$V_{CE} = 6 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	3	—	—	3	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Noise figure	NF	—	0.15	1.5	—	0.15	1.5	dB	$V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, R_g = 10 \text{ k}\Omega, f = 1 \text{ kHz}$
		—	0.2	2.0	—	0.2	2.0	dB	$V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, R_g = 10 \text{ k}\Omega, f = 10 \text{ Hz}$
Noise voltage referred to input	e_n	—	0.7	—	—	0.7	—	nV/\sqrt{Hz}	$V_{CE} = 6 \text{ V}, I_C = 10 \text{ mA}, R_g = 0, f = 1 \text{ kHz}$

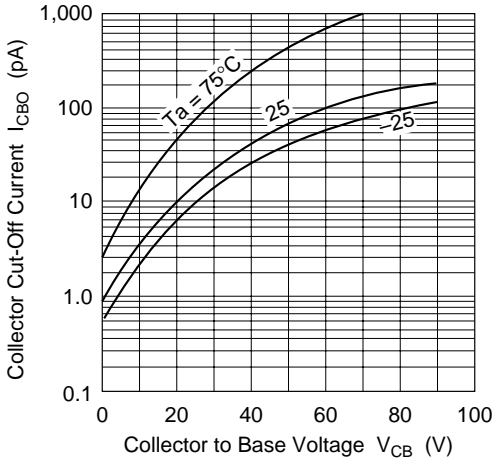
Notes: 1. The 2SC2855 and 2SC2856 are grouped by h_{FE} as follows.

2. Pulse test

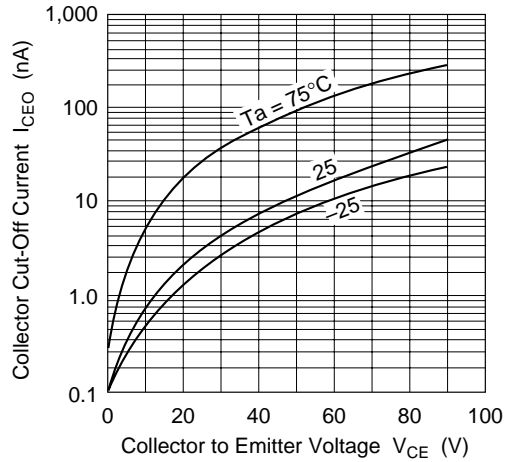
D	E
250 to 500	400 to 800



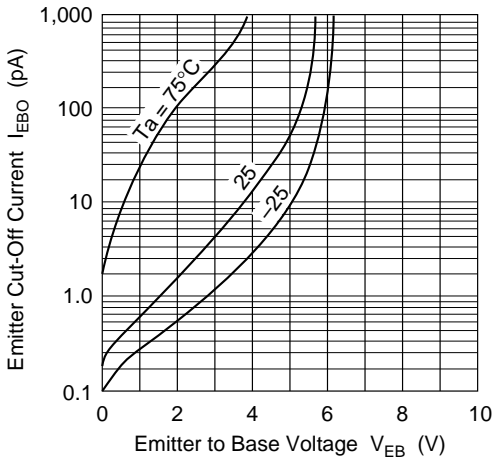
Collector Cut-Off Current vs. Collector to Base Voltage



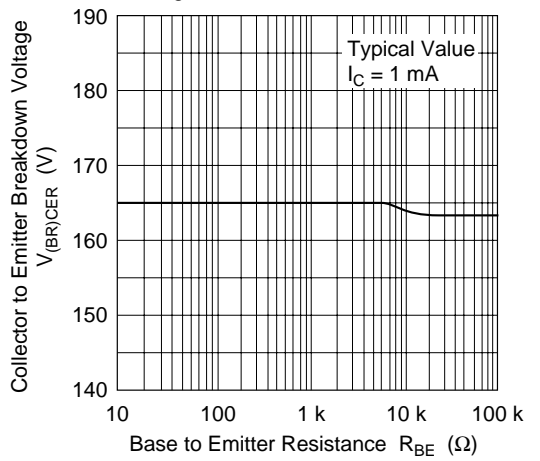
Collector Cut-Off Current vs. Collector to Emitter Voltage

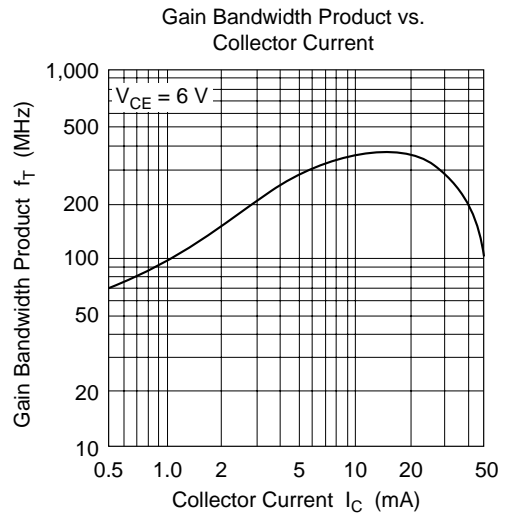
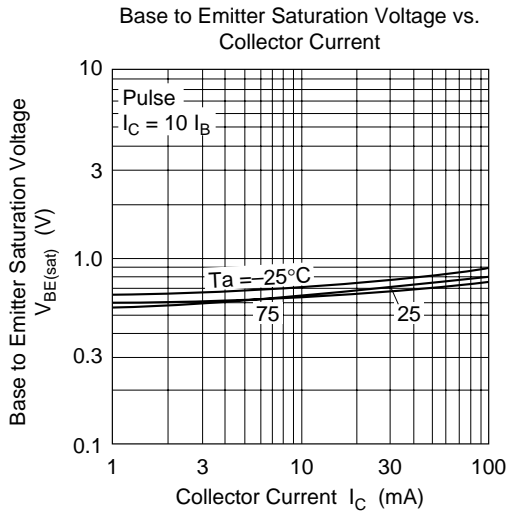
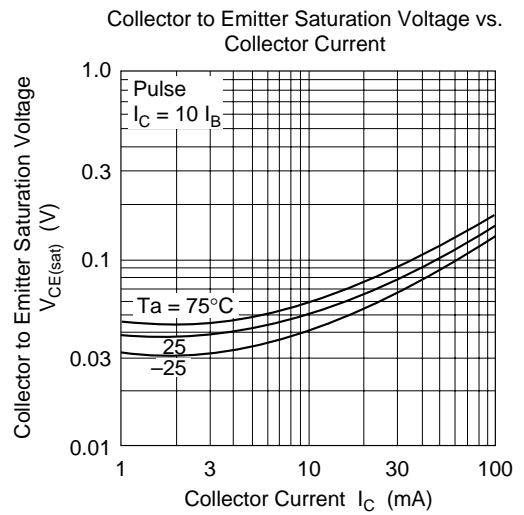
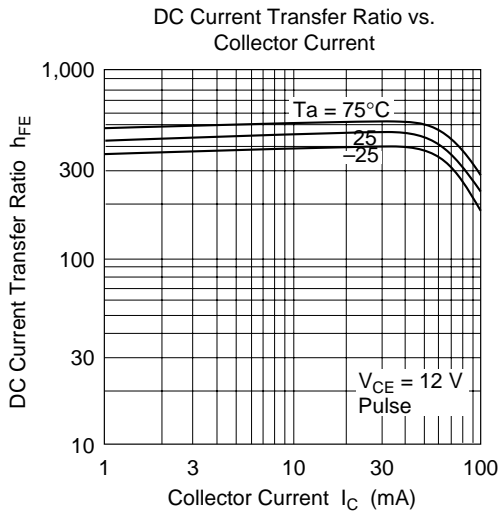


Emitter Cut-Off Current vs. Emitter to Base Voltage

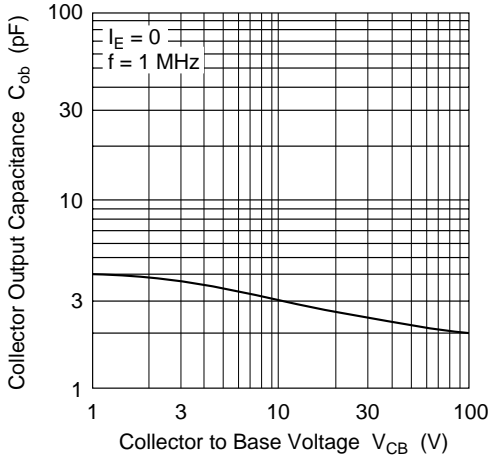


Collector to Emitter Breakdown Voltage vs. Base to Emitter Resistance

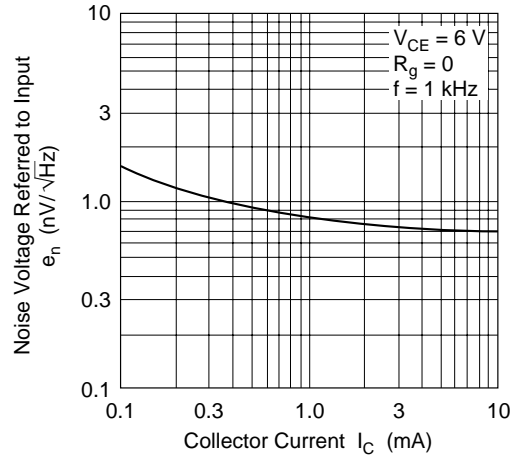




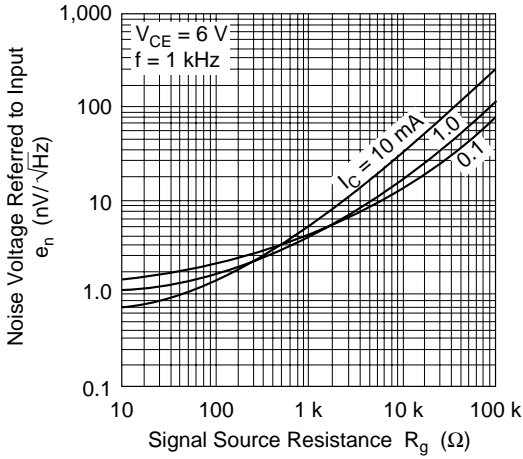
Collector Output Capacitance vs. Collector to Base Voltage



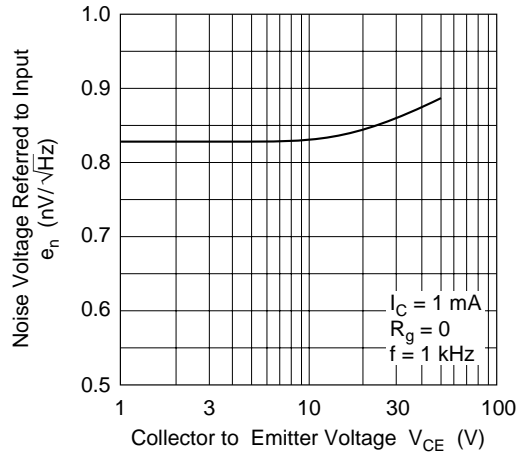
Noise Voltage Referred to Input vs. Collector Current

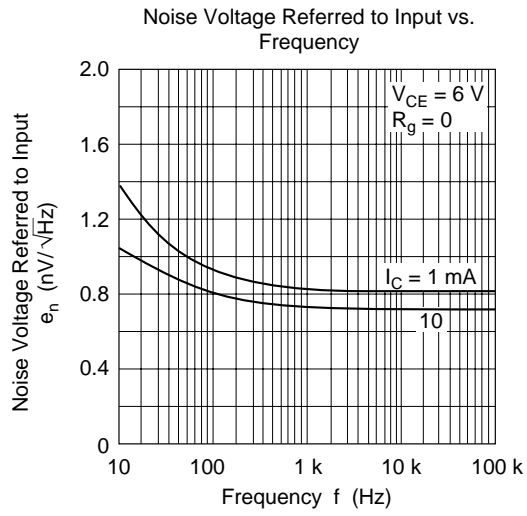


Noise Voltage Referred to Input vs. Signal Source Resistance



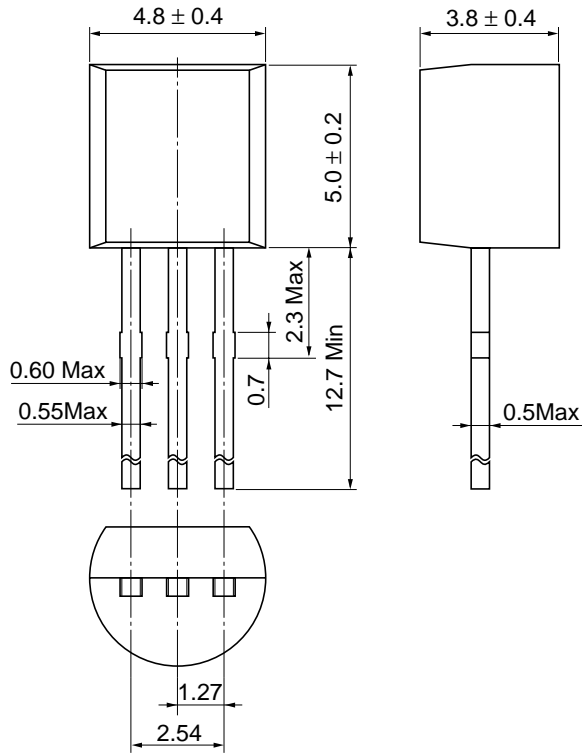
Noise Voltage Referred to Input vs. Collector to Emitter Voltage





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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