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# 2SC2545, 2SC2546, 2SC2547

Silicon NPN Epitaxial

# HITACHI

ADE-208-1067A (Z)  
2nd. Edition  
Mar. 2001

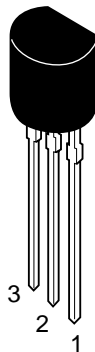
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## Application

- Low frequency low noise amplifier

## Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

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**2SC2545, 2SC2546, 2SC2547**

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**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

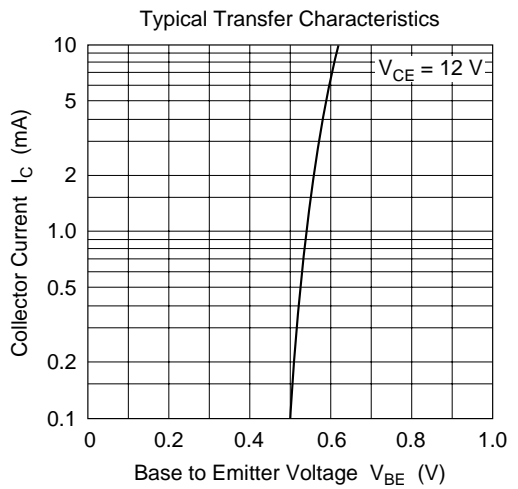
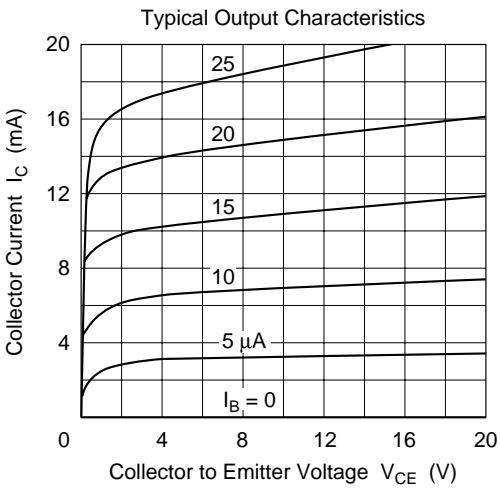
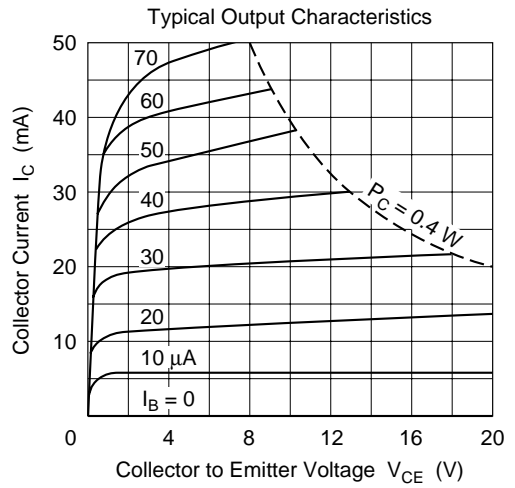
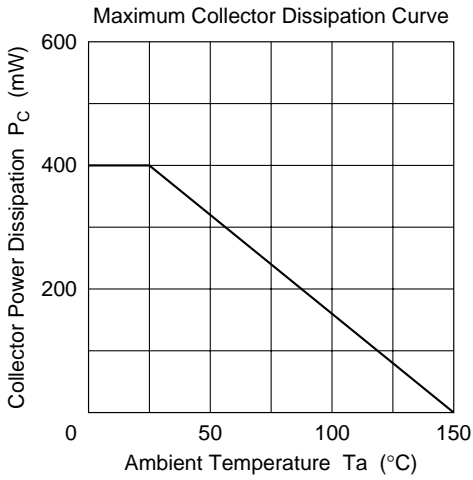
<b>Item</b>	<b>Symbol</b>	<b>2SC2545</b>	<b>2SC2546</b>	<b>2SC2547</b>	<b>Unit</b>
Collector to base voltage	$V_{CBO}$	60	90	120	V
Collector to emitter voltage	$V_{CEO}$	60	90	120	V
Emitter to base voltage	$V_{EBO}$	5	5	5	V
Collector current	$I_C$	100	100	100	mA
Emitter current	$I_E$	-100	-100	-100	mA
Collector power dissipation	$P_C$	400	400	400	mW
Junction temperature	$T_j$	150	150	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	-55 to +150	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Ta = 25°C)

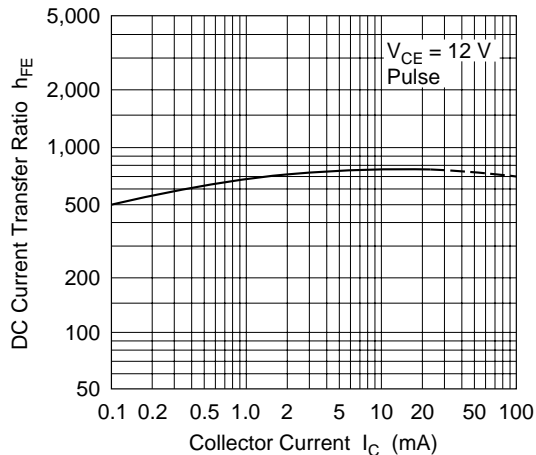
Item	Symbol	2SC2545			2SC2546			2SC2547			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	$V_{(BR)CBO}$	60	—	—	90	—	—	120	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	60	—	—	90	—	—	120	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	5	—	—	5	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.1	—	—	0.1	—	—	0.1	$\mu A$	$V_{CB} = 50 \text{ V}, I_E = 0$
Emitter cutoff current	$I_{EBO}$	—	—	0.1	—	—	0.1	—	—	0.1	$\mu A$	$V_{EB} = 2 \text{ V}, I_C = 0$
DC current transfer ratio	$h_{FE}^{*1}$	250	—	1200	250	—	1200	250	—	800		$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.2	—	—	0.2	—	—	0.2	V	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$
Base to emitter voltage	$V_{BE}$	—	0.6	—	—	0.6	—	—	0.6	—	V	$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Gain bandwidth product	$f_T$	—	90	—	—	90	—	—	90	—	MHz	$V_{CE} = 12 \text{ V}, I_C = 2 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	3.0	—	—	3.0	—	—	3.0	—	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Noise voltage referred input	$e_n$	—	0.5	—	—	0.5	—	—	0.5	—	nV/ $\sqrt{\text{Hz}}$	$V_{CE} = 6 \text{ V}, I_C = 10 \text{ mA}, f = 1 \text{ kHz}, R_g = 0, \Delta f = 1 \text{ Hz}$

Note: 1. The 2SC2545, 2SC2546 and 2SC2547 are grouped by  $h_{FE}$  as follows.

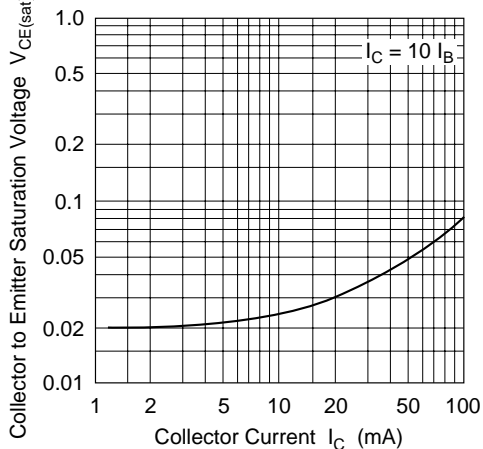
	D	E	F
2SC2545, 2SC2546	250 to 500	400 to 800	600 to 1200
2SC2547	250 to 500	400 to 800	—



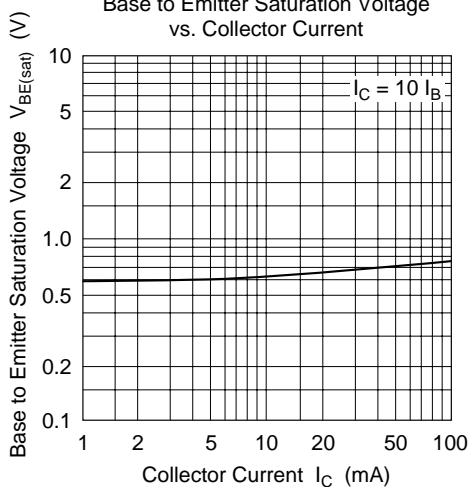
DC Current Transfer Ratio vs. Collector Current



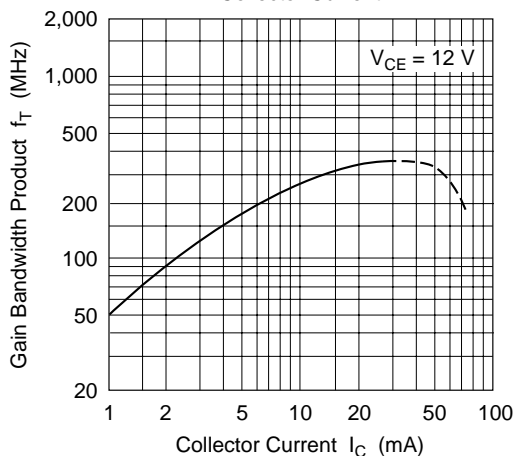
Collector to Emitter Saturation Voltage vs. Collector Current



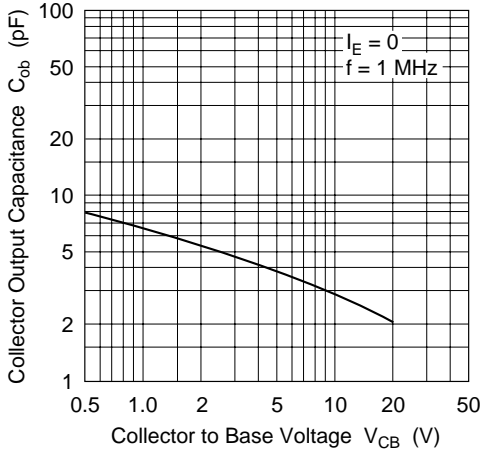
Base to Emitter Saturation Voltage vs. Collector Current



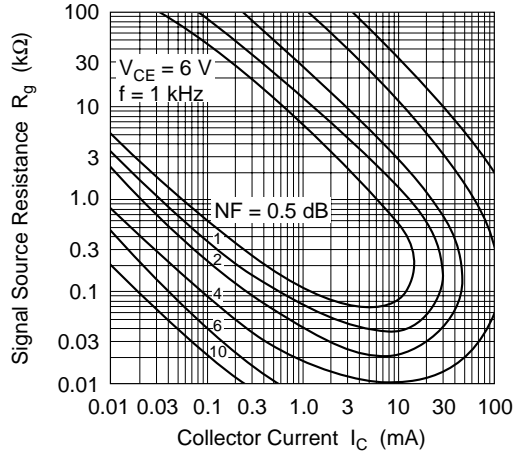
Gain Bandwidth Product vs. Collector Current



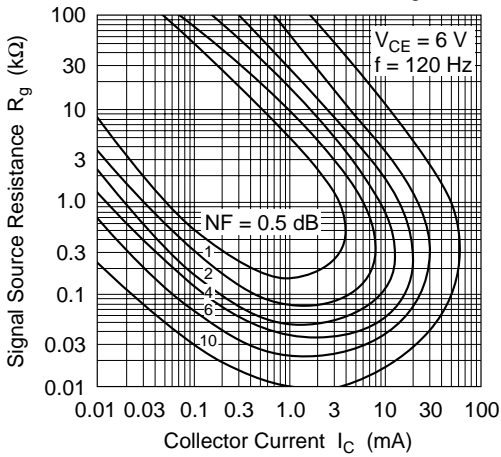
Collector Output Capacitance vs. Collector to Base Voltage



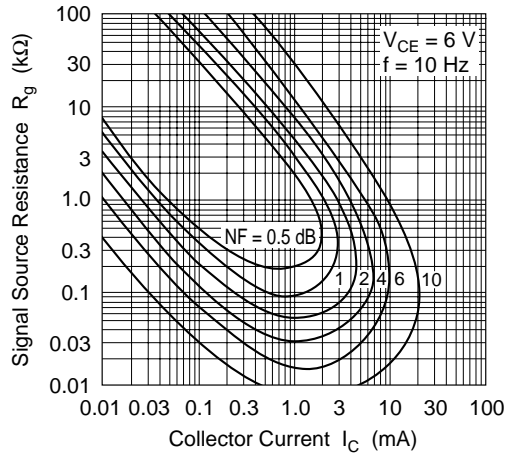
Contours of Constant Noise Figure



Contours of Constant Noise Figure

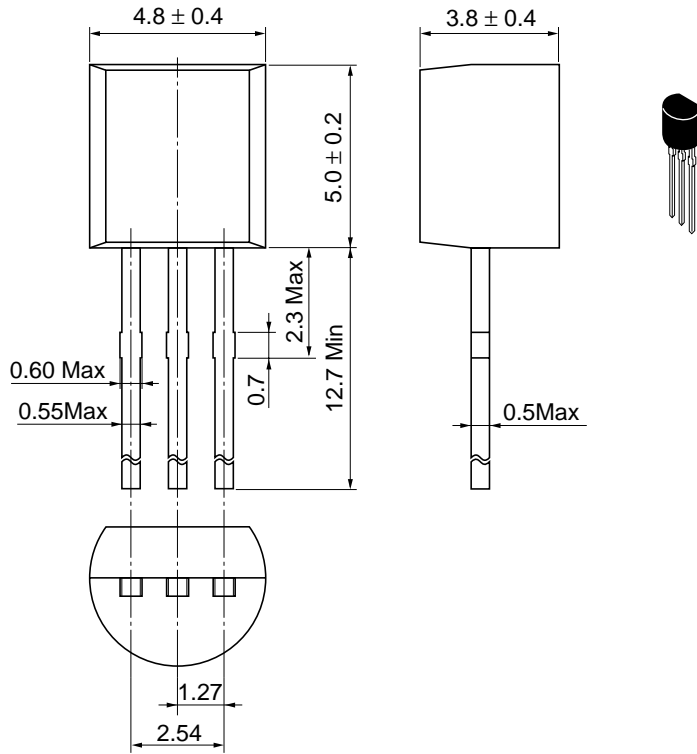


Contours of Constant Noise Figure



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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