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勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

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

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2SC535

Silicon NPN Epitaxial Planar

RENESAS

ADE-208-1047 (Z)

1st. Edition

Mar. 2001

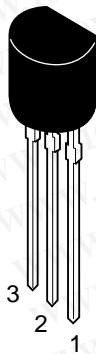
Application

VHF amplifier, mixer, local oscillator

Outline

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TO-92 (2)



1. Emitter
2. Collector
3. Base

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	30	V
Collector to emitter voltage	V _{CEO}	20	V
Emitter to base voltage	V _{EBO}	4	V
Collector current	I _C	20	mA
Collector power dissipation	P _C	100	mW
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

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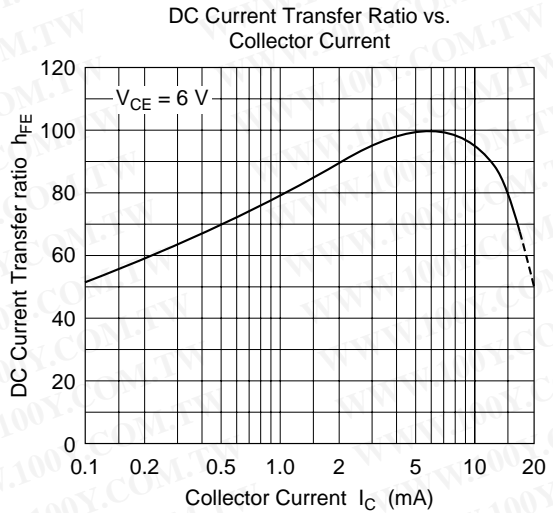
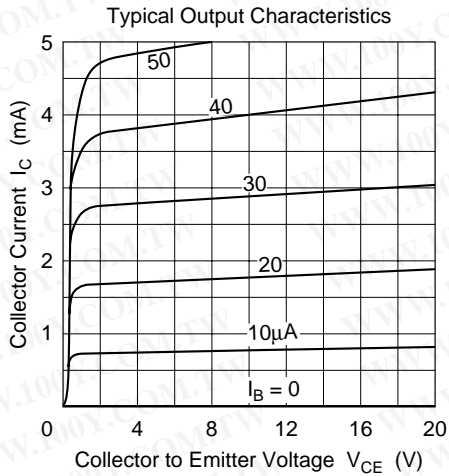
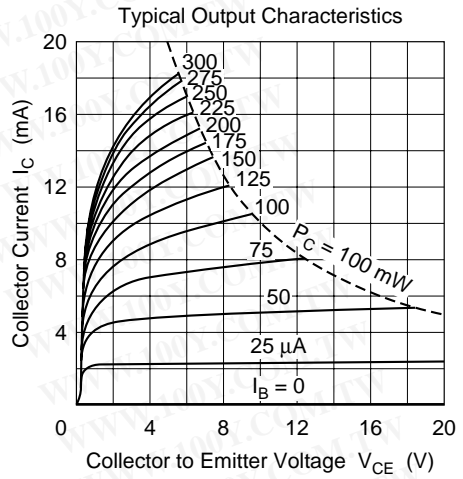
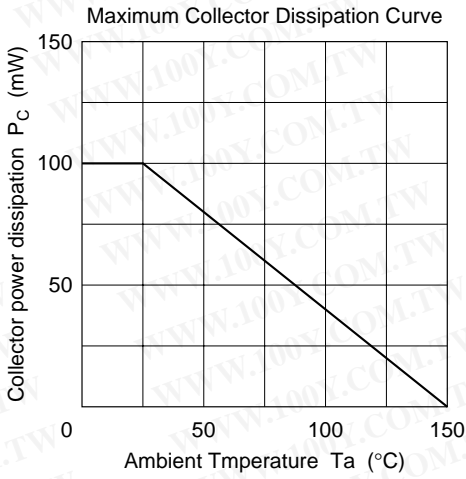
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}, R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_E = 0$
DC current transfer ratio	h_{FE}^{*1}	60	—	200		$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	0.72	—	V	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.17	—	V	$I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$
Gain bandwidth product	f_T	450	940	—	MHz	$V_{CE} = 6 \text{ V}, I_C = 5 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.9	1.2	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Power gain	PG	17	20	—	dB	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$
Noise figure	NF	—	3.5	5.5	dB	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}, R_g = 50 \Omega$
Input admittance (typ)	y_{ie}	1.3 + j5.3			mS	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$
Reverse transfer admittance (typ)	y_{re}	-0.078 - j0.41			mS	
Foward transfer admittance (typ)	y_{fe}	32 - j10			mS	
Output admittance (typ)	y_{oe}	0.08 + j0.82			mS	

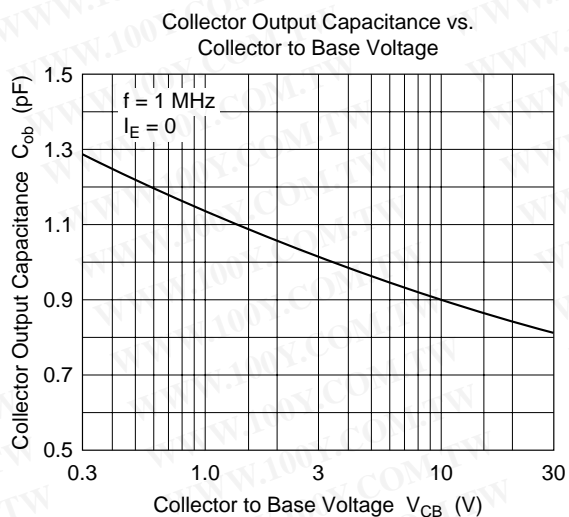
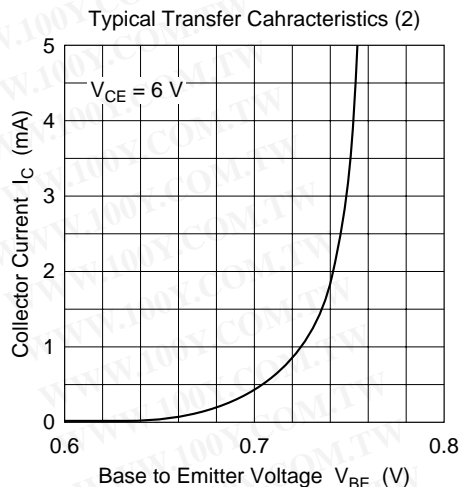
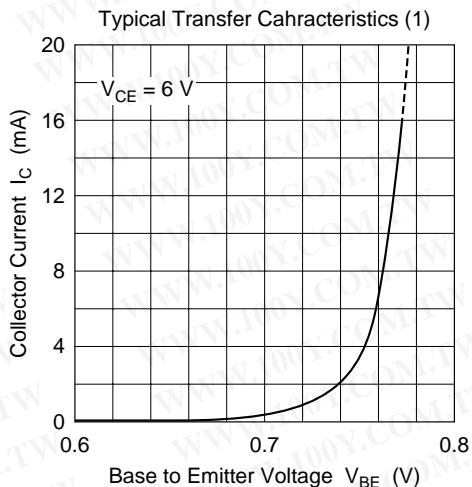
Note: 1. The 2SC535 is grouped by h_{FE} as follows.

B	C
60 to 120	100 to 200

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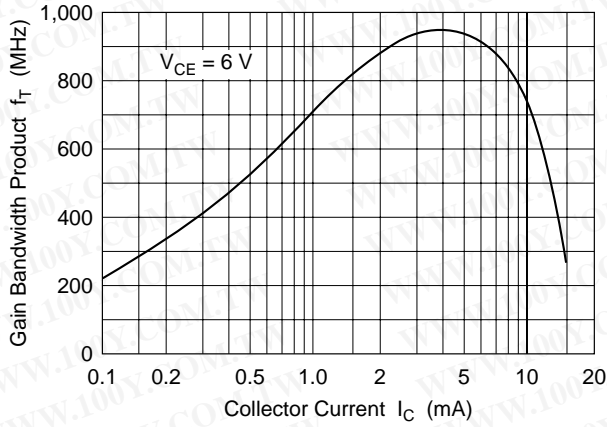


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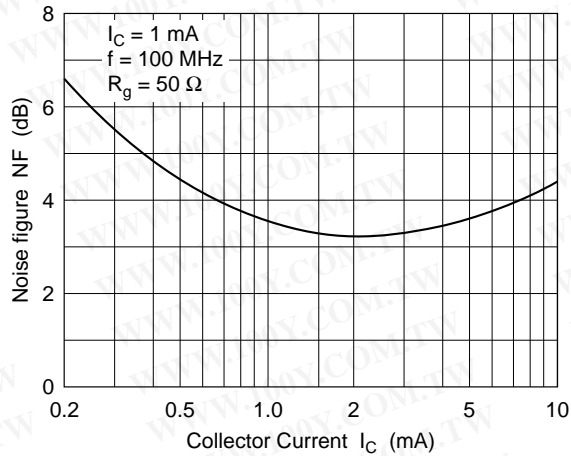


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Gain Bandwidth Product vs. Collector Current

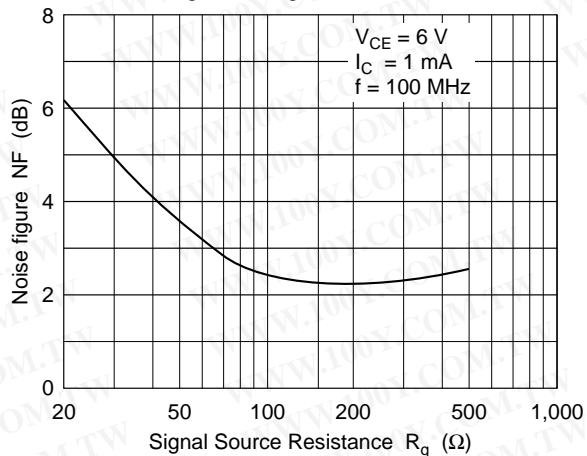


Noise Figure vs. Collector Current

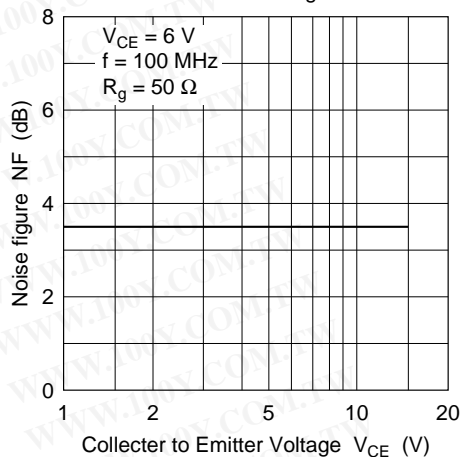


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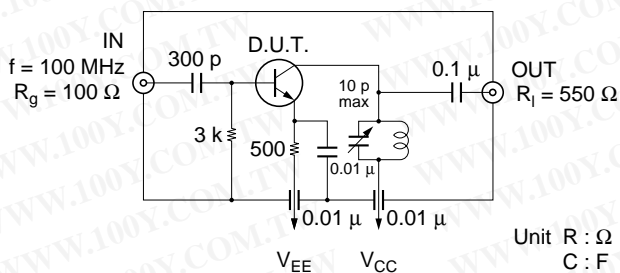
Noise Figure vs. Signal Source Resistance



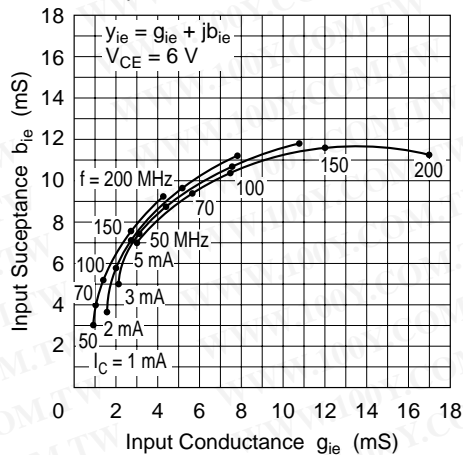
Noise Figure vs. Collector to Emitter Voltage



100 MHz Power Gain Test Circuit



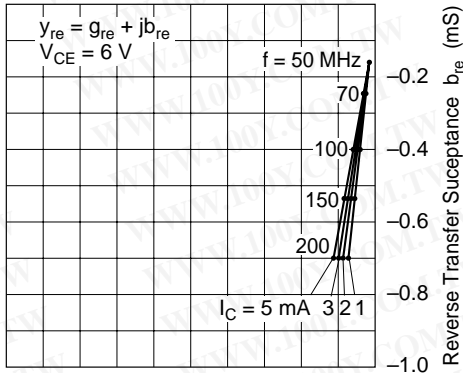
Input Admittance Characteristics



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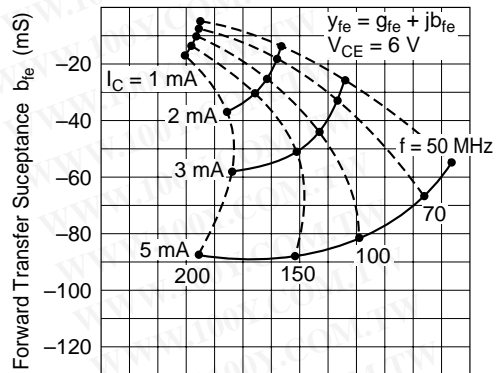
Reverse Transfer Admittance Characteristics

Reverse Transfer Conductance g_{re} (mS)
 -0.20 -0.16 -0.12 -0.08 -0.04 0

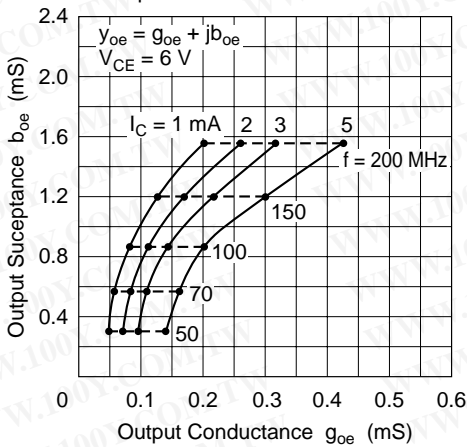


Forward Transfer Admittance Characteristics

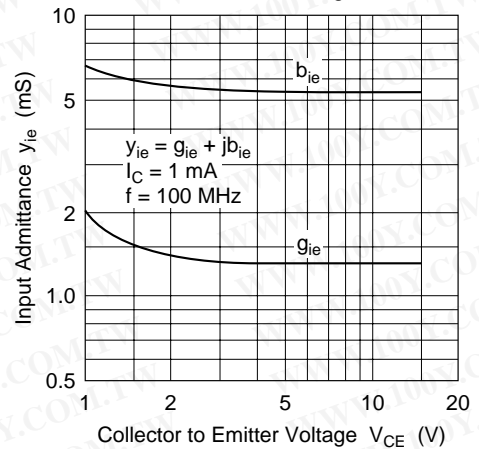
Forward Transfer Conductance g_{fe} (mS)
 0 20 40 60 80 100 120



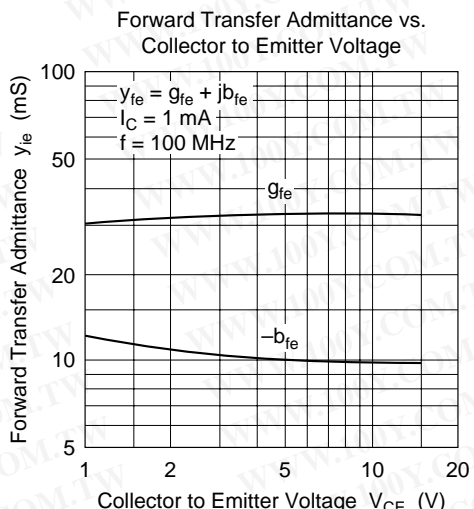
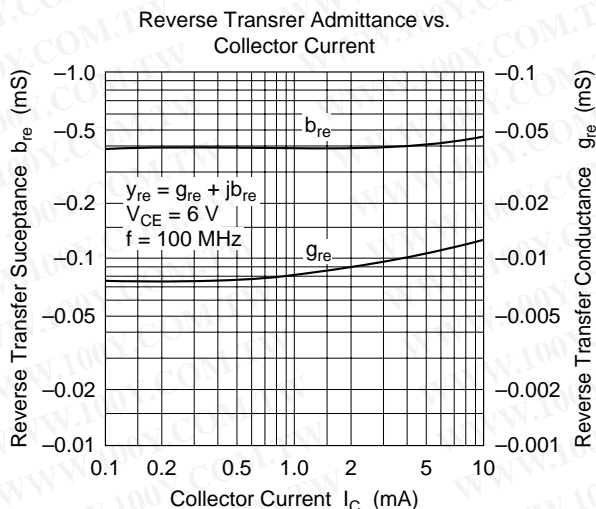
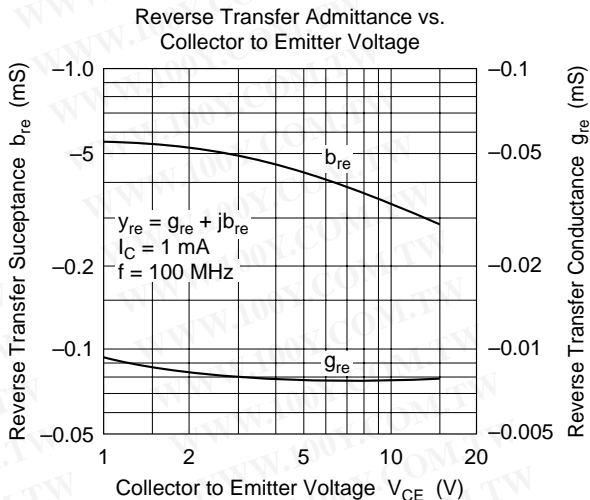
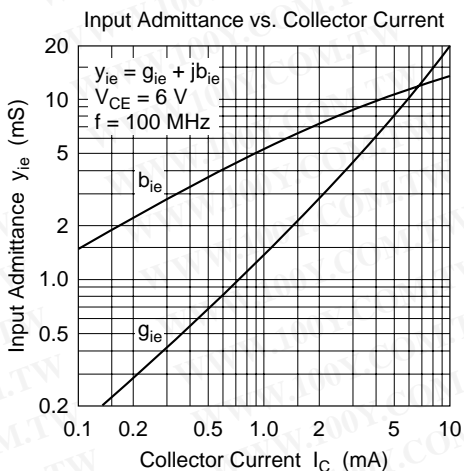
Output Admittance Characteristics



Input Admittance vs. Collector to Emitter Voltage

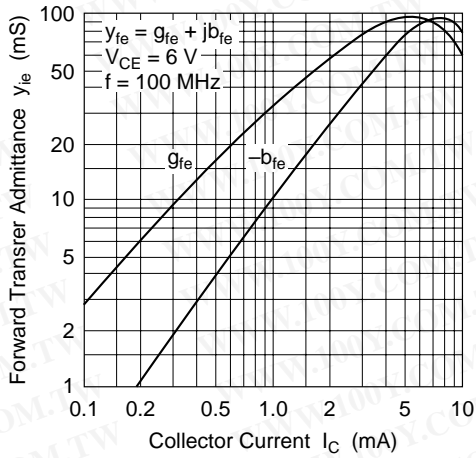


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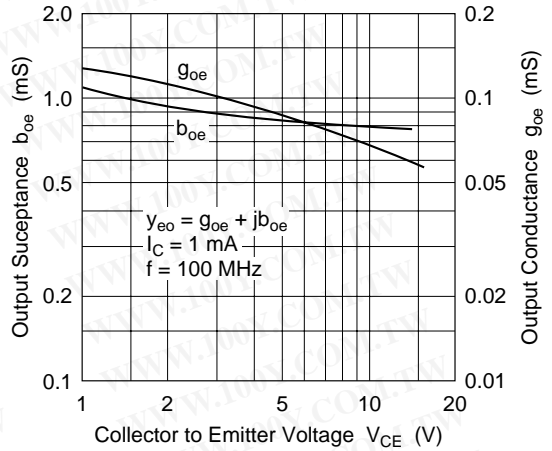


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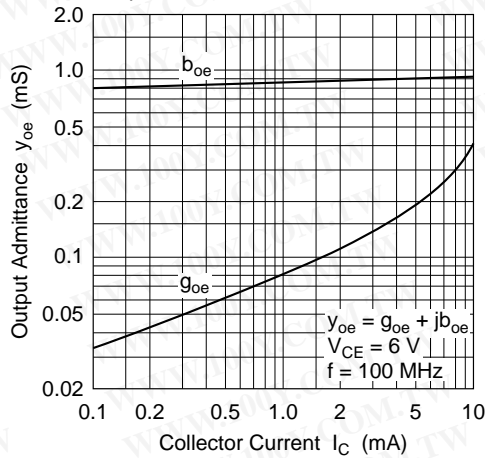
Forward Transfer Admittance vs. Collector Current



Output Admittance vs. Collector to Emitter Voltage



Output Admittance vs. Collector Current

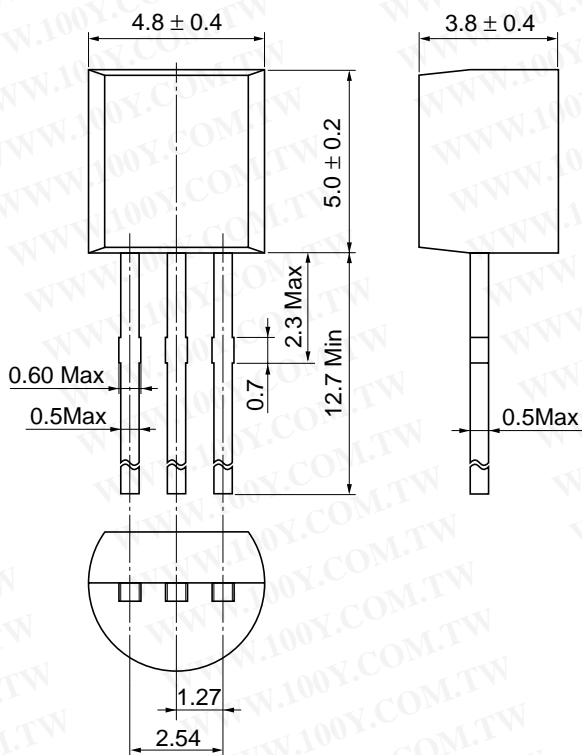


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Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-92 (2)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

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