2SC2512

Silicon NPN Triple Diffused

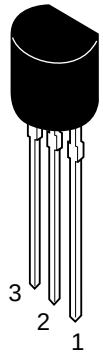
HITACHI

Application

- VHF Amplifier
- VHF TV Tuner, Mixer

Outline

TO-92 (2)



1. Base
2. Emitter
3. Collector

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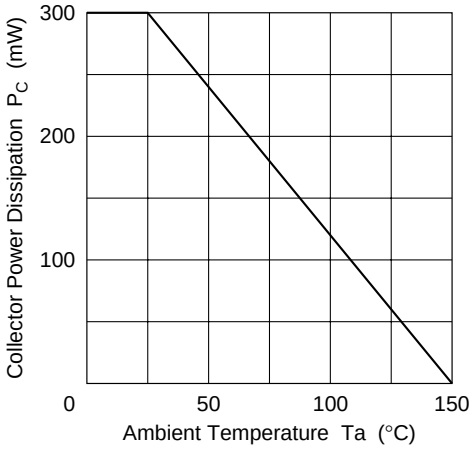
Absolute Maximum Ratings (Ta = 25°C)

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}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	300	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

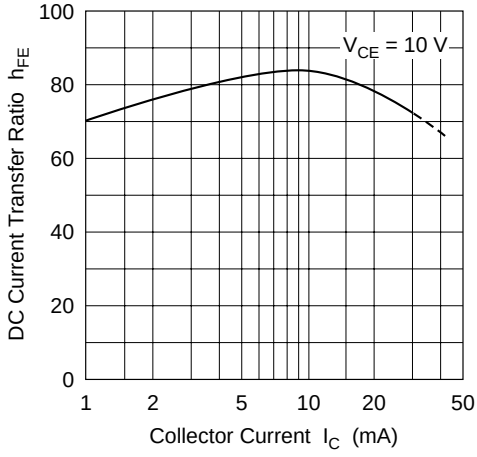
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	I_C = 10 µA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	I_C = 1 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	I_E = 10 µA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	0.5	µA	V_{CB} = 10 V, I_E = 0
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1	V	I_C = 20 mA, I_B = 4 mA
DC current transfer ratio	h_{FE}	30	—	—		V_{CE} = 10 V, I_C = 10 mA
Reverse transfer capacitance	Cre	—	0.35	0.45	pF	V_{CB} = 10 V, Emitter common, f = 1 MHz
Gain bandwidth product	f_T	600	900	—	MHz	V_{CE} = 10 V, I_C = 10 mA
Base time constant	$r_{bb'} \cdot C_C$	—	—	20	ps	V_{CB} = 10 V, I_C = 5 mA, f = 31.8 MHz
Conversion gain	CG	16	20	—	dB	V_{CC} = 12 V, I_C = 2 mA, f_{in} = 200 MHz, f_{OSC} = 260 MHz, f_{out} = 60 MHz
Noise figure	NF	—	3.8	5.5	dB	V_{CC} = 12 V, I_C = 2 mA, f_{OSC} = 260 MHz, R_g = 50 Ω, f_{in} = 200 MHz

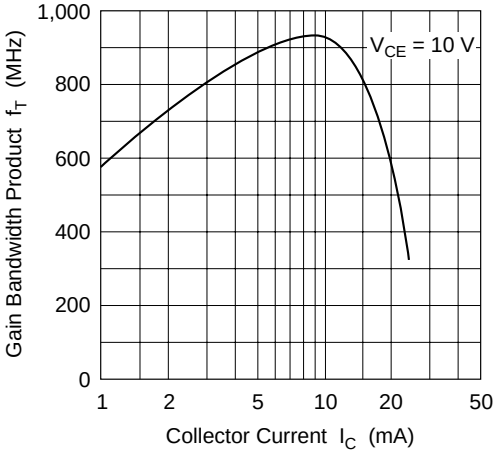
Maximum Collector Dissipation Curve



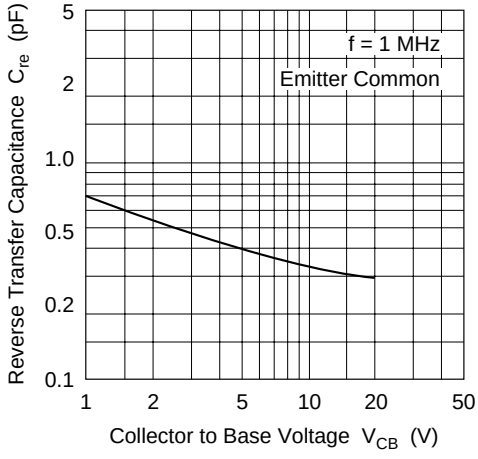
DC Current Transfer Ratio vs. Collector Current



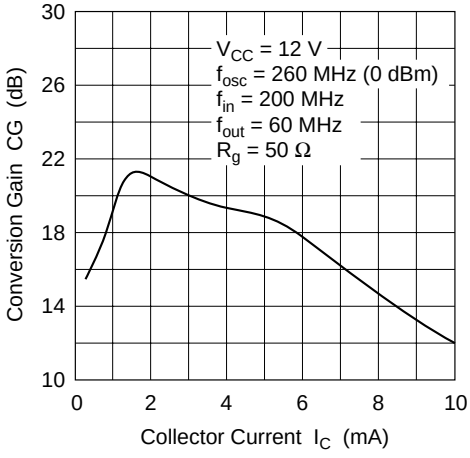
Gain Bandwidth Product vs. Collector Current



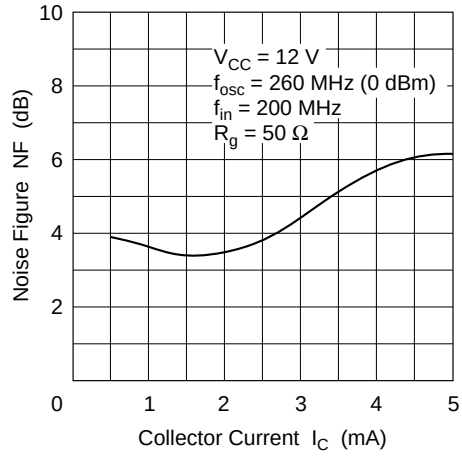
Reverse Transfer Capacitance vs. Collector to Base Voltage



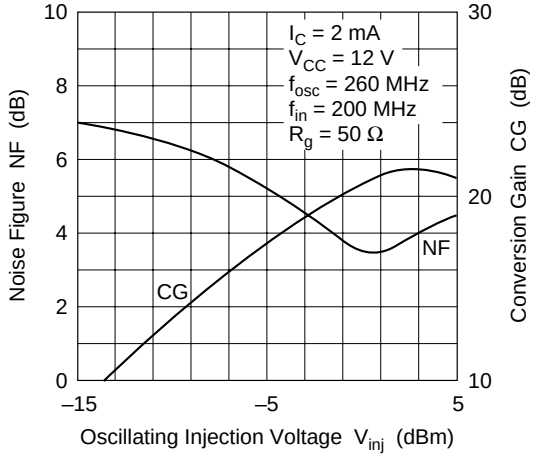
Conversion Gain vs. Collector Current



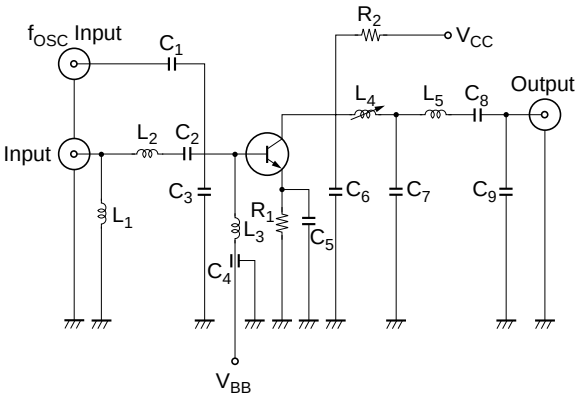
Noise Figure vs. Collector Current



Noise Figure, Conversion Gain vs. Oscillating Injection Voltage



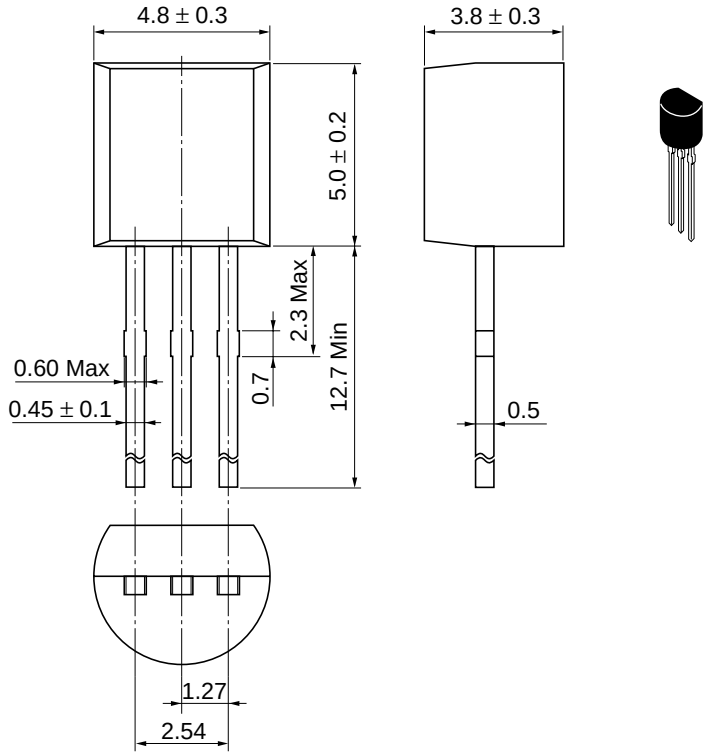
Conversion Gain, Noise Figure Test Circuit



R_1 : 330 Ω (1/4 W)
R_2 : 560 Ω (1/4 W)
L_1 : ϕ0.8 mm Copper wire with Enamel 8 Turns inside dia ϕ3 mm
L_2 : ϕ0.8 mm Copper wire with Enamel 5 Turns inside dia ϕ3 mm
L_3 : ϕ0.5 mm Copper wire with Enamel 3.5 Turns inside dia ϕ3 mm
L_4 : Outside dia ϕ5 mm used Ferrite Core, ϕ0.2 mm Copper wire with Enamel 6.5 Turns
L_5 : ϕ0.2 mm Copper wire with Enamel 13 Turns inside dia ϕ5 mm

Parts Specification
C_1 : 1.5 pF
C_2 : 57 pF
C_3 : 17 pF
C_4 : 1000 pF
C_5 : 2200 pF
C_6 : 22 pF
C_7 : 80 pF
C_8 : 18 pF
C_9 : 20 pF

Unit: mm



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

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