
2SC2512

Silicon NPN Triple Diffused

HITACHI

Application

- VHF Amplifier
- VHF TV Tuner, Mixer

Outline

TO-92 (2)



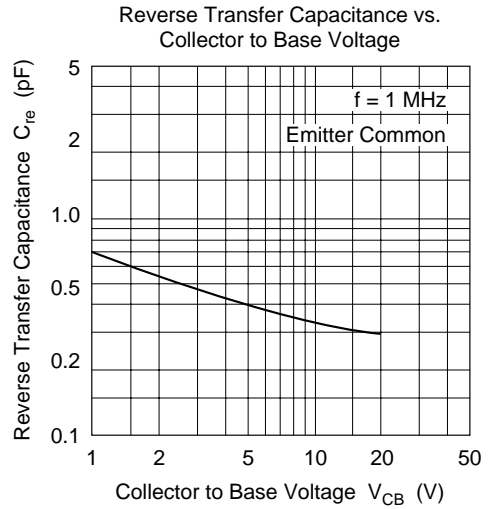
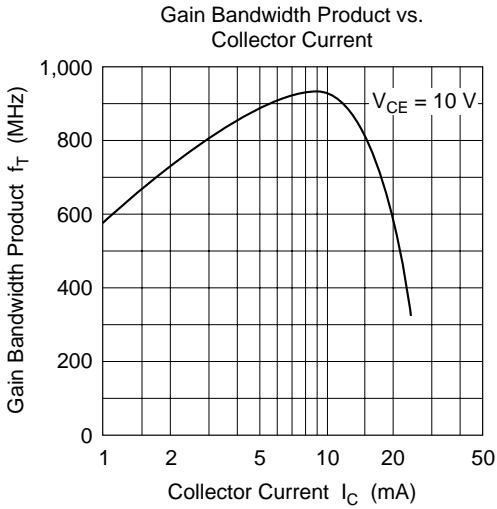
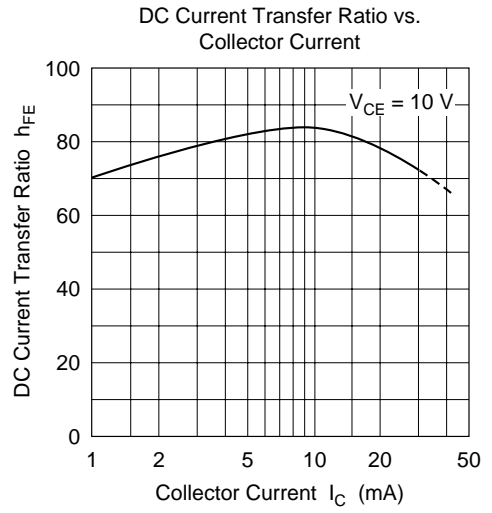
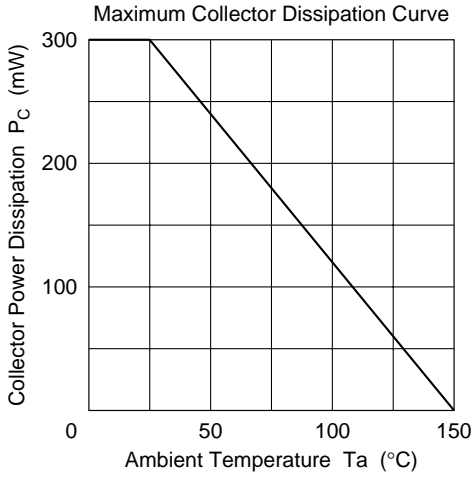
1. Base
2. Emitter
3. Collector

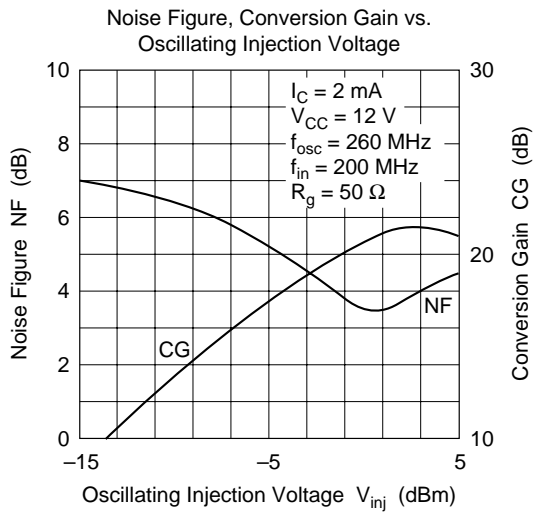
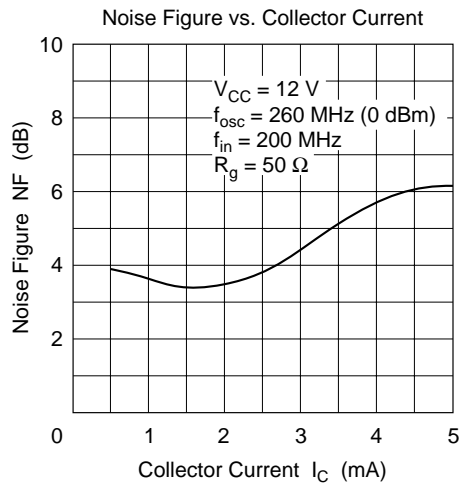
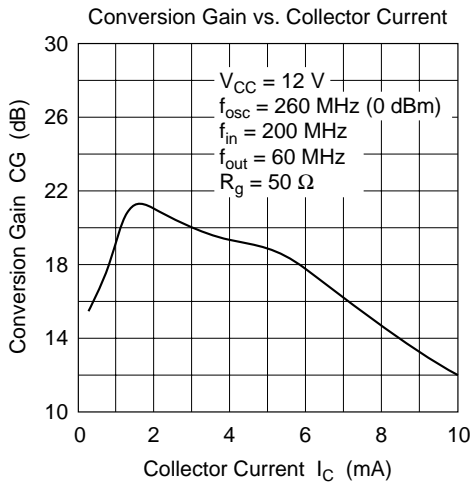
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

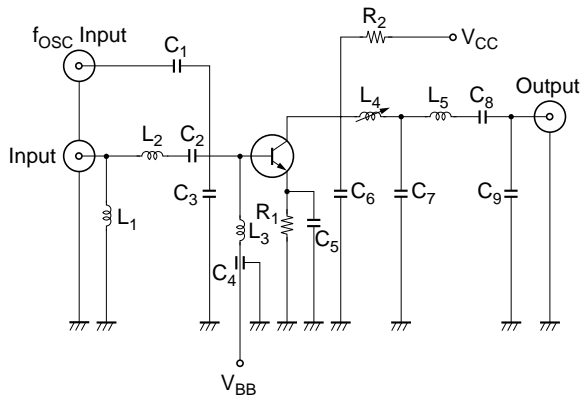
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

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





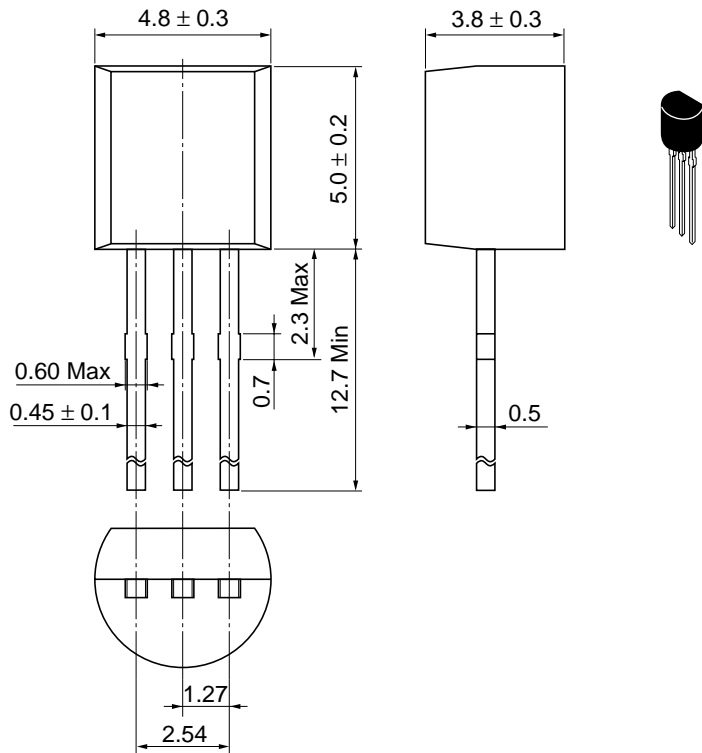
Conversion Gain, Noise Figure Test Circuit



- R_1 : 330 Ω (1/4 W)
 R_2 : 560 Ω (1/4 W)
 L_1 : $\phi 0.8$ mm Copper wire with Enamel 8 Turns
 inside dia $\phi 3$ mm
 L_2 : $\phi 0.8$ mm Copper wire with Enamel 5 Turns
 inside dia $\phi 3$ mm
 L_3 : $\phi 0.5$ mm Copper wire with Enamel 3.5 Turns
 inside dia $\phi 3$ mm
 L_4 : Outside dia $\phi 5$ mm used Ferrite Core, $\phi 0.2$ mm
 Copper wire with Enamel 6.5 Turns
 L_5 : $\phi 0.2$ mm Copper wire with Enamel 13 Turns
 inside dia $\phi 5$ 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



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

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