
2SC2733

Silicon NPN Epitaxial

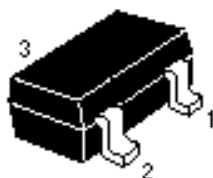
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Application

VHF frequency converter

Outline

MPAK



- 1. Emitter
- 2. Base
- 3. Collector

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Absolute Maximum Ratings (Ta = 25°C)

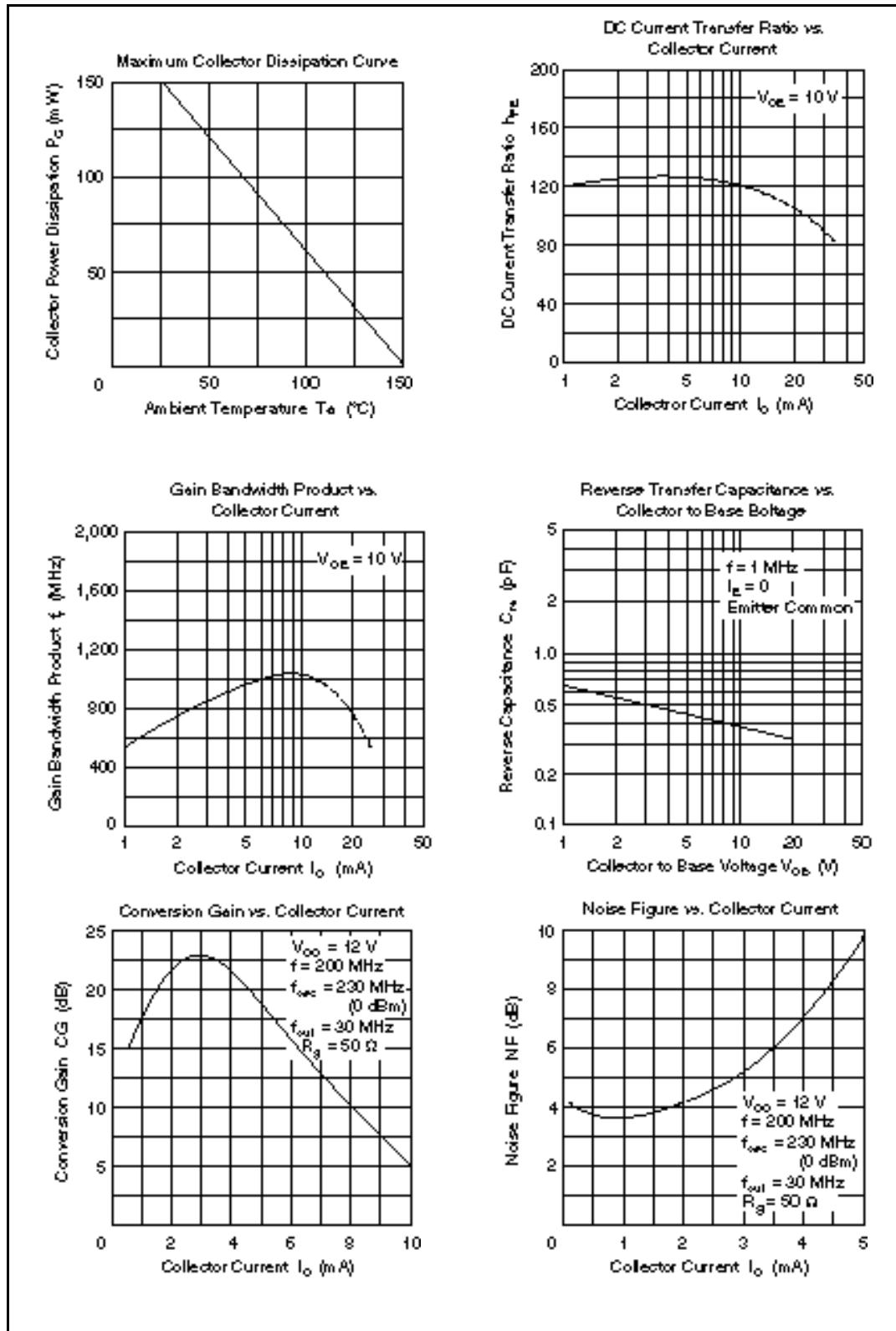
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

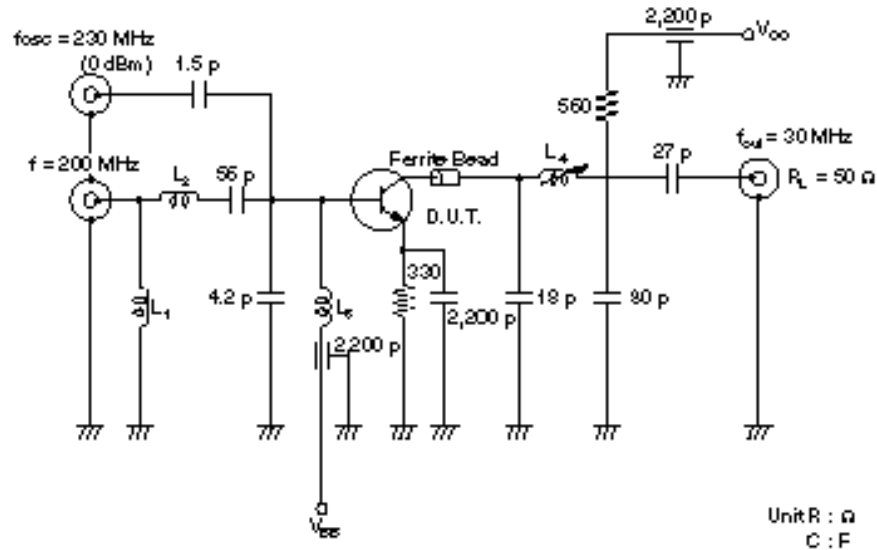
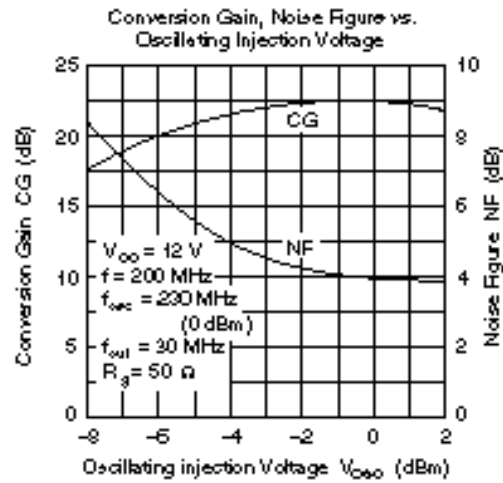
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}, R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_C = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$
DC current transfer ratio	h_{FE}	60	120	—		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Gain bandwidth product	f_T	600	1000	—	MHz	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.35	0.65	pF	$V_{CB} = 10 \text{ V}$, Emitter ground, $f = 1 \text{ MHz}$
Conversion gain	CG	—	21	—	dB	$V_{CC} = 12 \text{ V}, I_C = 2 \text{ mA}$, $f = 200 \text{ MHz}$, $f_{OSC} = 230 \text{ MHz (0dBm)}$, $f_{out} = 30 \text{ MHz}$
Noise figure	NF	—	4.0	—	dB	$V_{CC} = 12 \text{ V}, I_C = 2 \text{ mA}$, $f = 200 \text{ MHz}$, $f_{OSC} = 230 \text{ MHz (0dBm)}$, $f_{out} = 30 \text{ MHz}$

Note: Marking is "HC".

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- L_1 : $\phi 0.5$ mm Enamelled Copper wire 4 Turns inside dia $\phi 5$ mm
- L_2 : $\phi 0.5$ mm Enamelled Copper wire 4 Turns inside dia $\phi 4$ mm
- L_3 : $\phi 0.2$ mm Enamelled Copper wire 6 Turns inside dia $\phi 3$ mm
- L_4 : Outside dia $\phi 5$ mm Bobbin, $\phi 0.2$ mm Enamelled Copper wire 16 Turns, using Ferrite bead.

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