

SANYO	No.2760	2SC4407
		NPN Epitaxial Planar Silicon Transistor VHF/UHF Mixer, Local Oscillator Applications

Applications

- VHF/UHF mixers, frequency converters, local oscillators

Features

- High cutoff frequency : $f_T = 3.0\text{GHz typ}$
- High power gain : $PG = 12\text{dB typ (}f = 0.9\text{GHz)}$
- Small noise figure : $NF = 3.0\text{dB typ (}f = 0.9\text{GHz)}$
- Very small-sized package permitting 2SC4407-applied sets to be made smaller and slimmer

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

			unit
Collector to Base Voltage	V_{CB0}	25	V
Collector to Emitter Voltage	V_{CEO}	15	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Collector Dissipation	P_C	150	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	- 55 to + 150	$^\circ\text{C}$

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

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 15\text{V}, I_E = 0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 2\text{V}, I_C = 0$			10	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 5\text{mA}$	*40		*200	
Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 10\text{mA}$	1.5	3.0		GHz
Output Capacitance	c_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.7	1.0	pF
Reverse Transfer Capacitance	c_{re}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		0.45		pF
Power Gain	PG	$V_{CE} = 10\text{V}, I_C = 10\text{mA}, f = 0.9\text{GHz}$		12		dB
Noise Figure	NF	$V_{CE} = 10\text{V}, I_C = 3\text{mA}, f = 0.9\text{GHz}$		3.0		dB

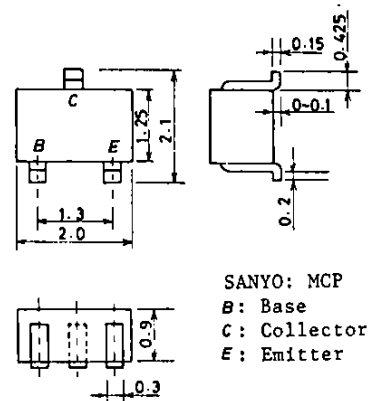
See specified Test Circuit.

* The 2SC4407 is classified by 5mA h_{FE} as follows:

40	2	80	60	3	120	100	4	200
----	---	----	----	---	-----	-----	---	-----

- (Note) Marking: KT
 h_{FE} rank: 2,3,4
 •For CP package version, use the 2SC4270.

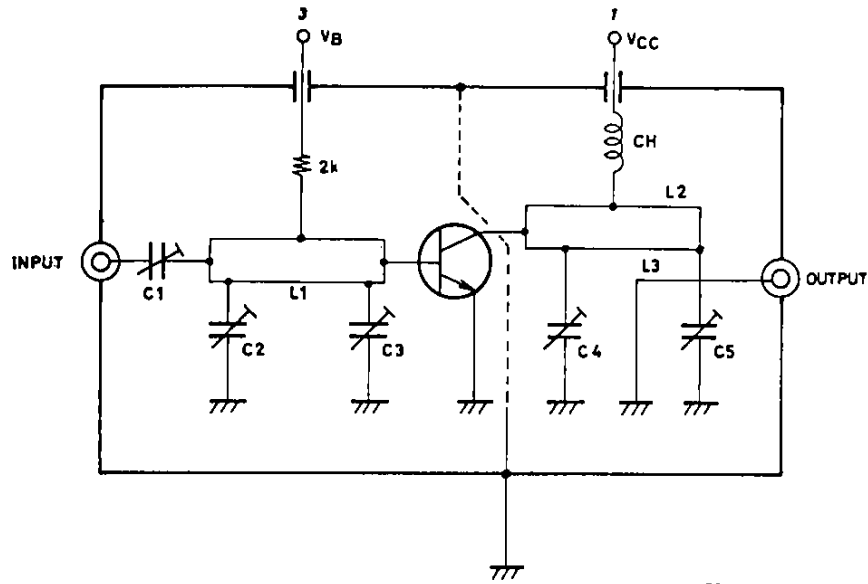
Package Dimensions 2059
(unit: mm)



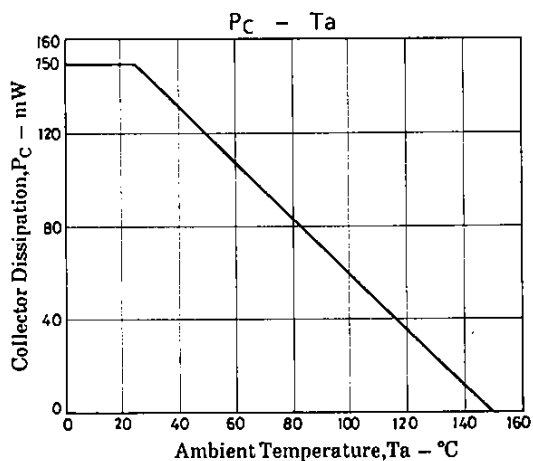
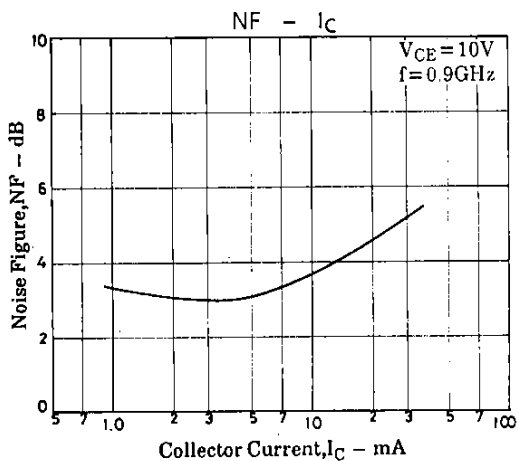
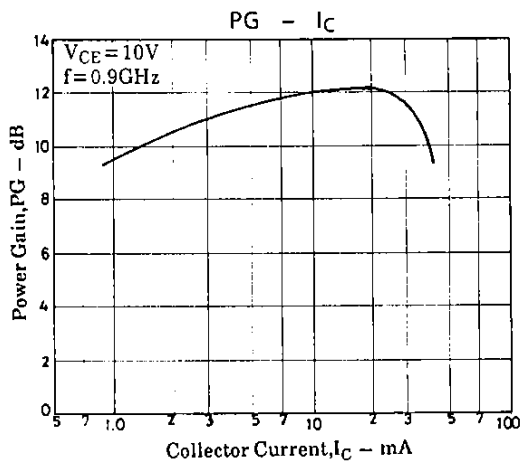
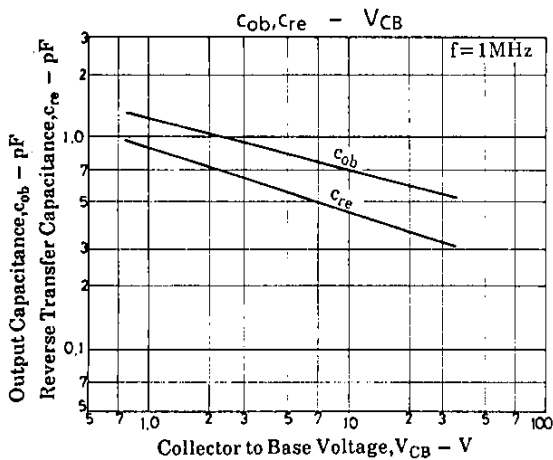
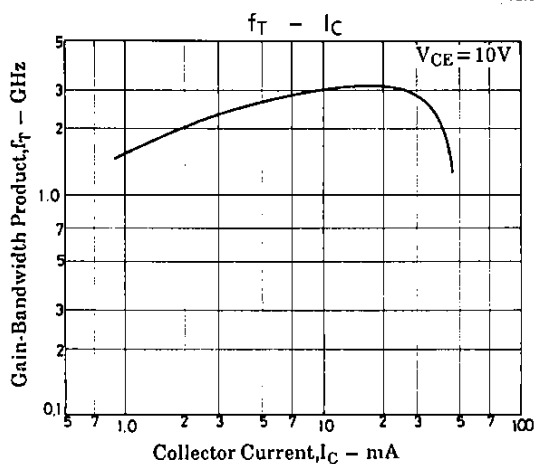
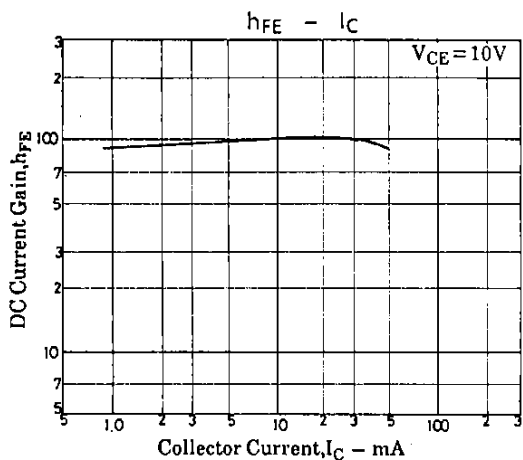
SANYO Electric Co., Ltd. Semiconductor Business Headquarters
 TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

4298TA, TS No.2760-1/4

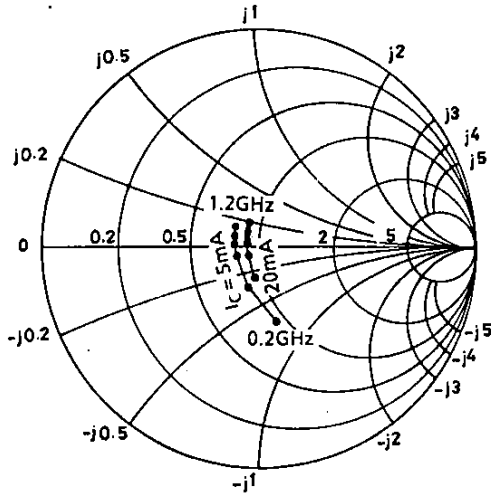
PG,NF Test Circuit

Unit (Resistance : Ω)

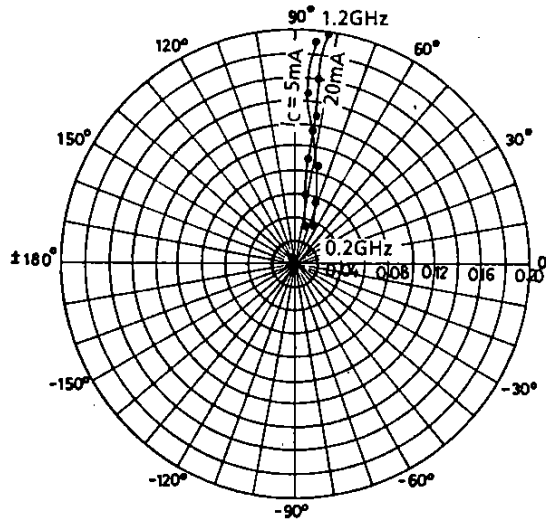
900MHz	
C1	~5 pF
C2	~10 pF
C3	~10 pF
C4	~10 pF
C5	~10 pF
L1	W \div 1.5 mm, l \div 25 mm strip line
L2	W \div 4 mm, l \div 25 mm strip line
L3	0.5 ϕ , l \div 40 mm
CH	2t + bead core



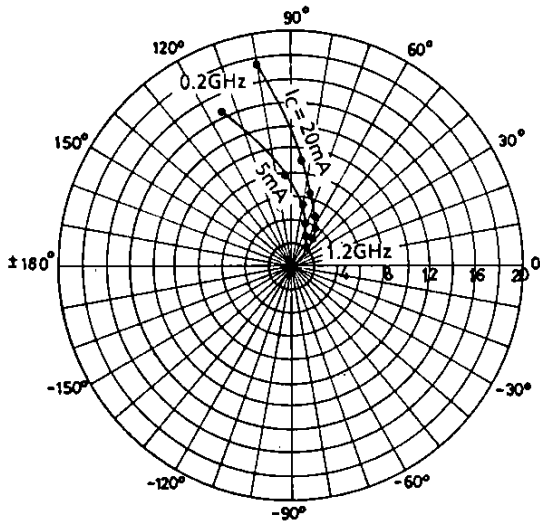
S11e: $V_{CE} = 10V$
 $f = 200MHz$ step



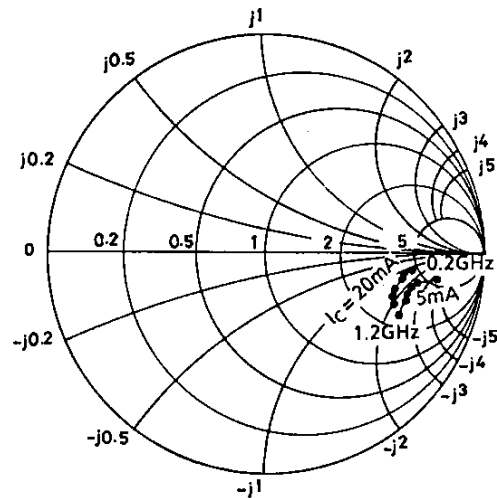
S12e: $V_{CE} = 10V$
 $f = 200MHz$ step



S21e: $V_{CE} = 10V$
 $f = 200MHz$ step



S22e: $V_{CE} = 10V$
 $f = 200MHz$ step



■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:

- ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
- ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.