NPN Epitaxial Planar Silicon Transistor



2SC4861

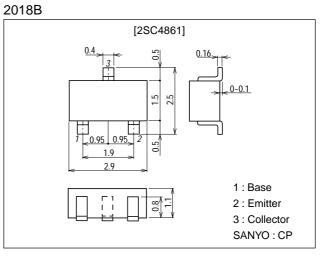
UHF Converter, Local Oscillator Applications

Features

- · High cutoff frequency : $f_T=6.5$ GHz typ.
- · High gain : $|S21e|^2=11.5dB$ typ (f=1GHz).
- \cdot Small Cob : NF=0.65pF typ.

Package Dimensions

unit:mm



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		20	V
Collector-to-Emitter Voltage	VCEO		10	V
Emitter-to-Base Voltage	VEBO		2	V
Collector Current	ι _C		30	mA
Collector Dissipation	PC		200	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

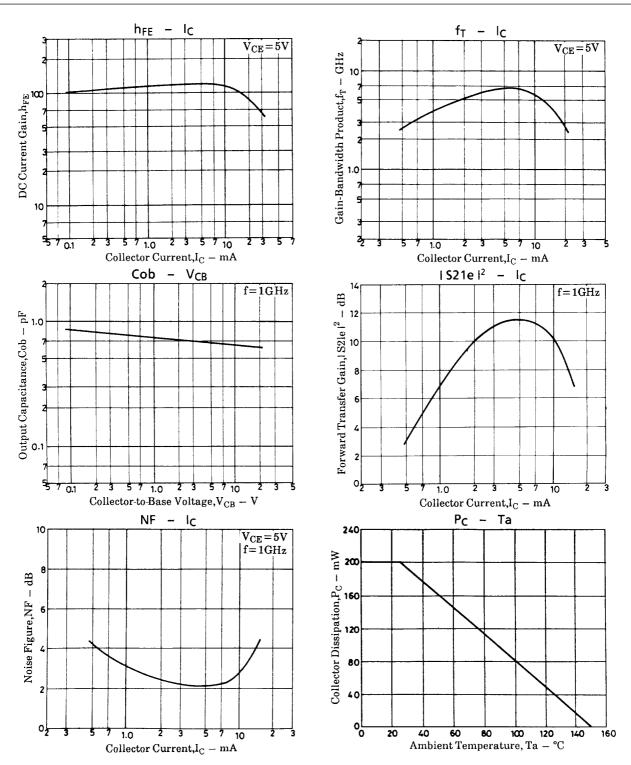
Conditions mi VV, IE=0 //, IC=0		max 1.0 10	Unit μA μA
/, I _C =0		10	•
-			μΑ
		0700	
/, I _C =5mA	60*	270*	
/, I _C =5mA	6.	5	GHz
DV, f=1MHz	0.6	5 1.1	pF
/ Io-5mA f-1GHz	8 11.	5	dB
, 10-011/2	2.1	2 4.0	dB
51	5V, I _C =5mA, f=1GHz 5V, I _C =5mA, f=1GHz		

* : The 2SC4861 is classified by 5mA h_{FE} as follows : 60 3 120 90 4 180 135 5 270 Marking : EN

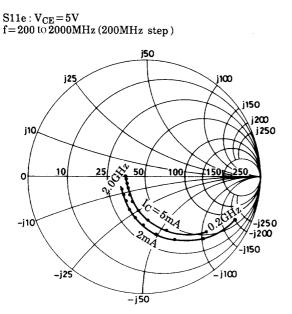
 h_{FE} rank : 3, 4, 5

- Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.
- SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges,or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

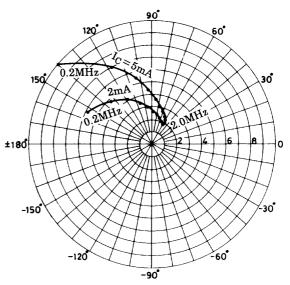
SANYO Electric Co., Ltd. Semiconductor Bussiness Headquaters TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN



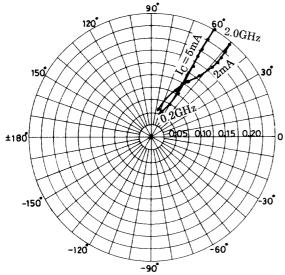
S parameter



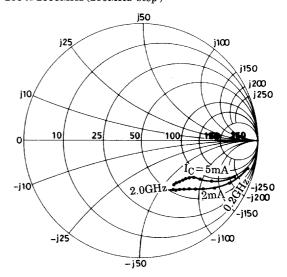
S21e : $V_{CE}\!=\!5V$ f=200 to 2000MHz (200MHz step)



 $\begin{array}{l} S12e: V_{CE}\!=\!5V \\ f\!=\!200 \, {\rm to} \, 2000 M {\rm Hz} \, (200 M {\rm Hz} \, {\rm step} \,) \end{array}$



 $S22e:V_{CE}\!=\!5V$ $f\!=\!200$ to 2000MHz (200MHz step)



S parameter (Common emitter)

 $V_{CE}=5V, I_C=2mA, Z_O=50\Omega$

Freq (MHz)	S ₁₁	∠ S ₁₁	S ₂₁	∠S ₂₁	S ₁₂	∠ S ₁₂	S ₂₂	$\angle S_{22}$
200	0.868	-25.9	5.790	153.2	0.048	73.9	0.944	-14.5
400	0.737	-46.6	4.868	133.9	0.084	62.5	0.839	-25.6
600	0.604	-64.1	4.170	118.7	0.107	55.8	0.747	-32.6
800	0.503	-78.5	3.570	106.4	0.125	52.0	0.672	-37.6
1000	0.420	-91.5	3.117	96.2	0.138	49.9	0.622	-41.5
1200	0.367	-103.8	2.731	87.6	0.151	48.8	0.583	-44.9
1400	0.312	-115.4	2.457	79.9	0.161	48.6	0.553	-48.0
1600	0.272	-128.6	2.232	72.5	0.170	48.9	0.534	-51.1
1800	0.254	-140.6	2.042	67.0	0.182	49.4	0.516	-54.5
2000	0.232	-150.6	1.906	61.5	0.196	50.2	0.511	-57.2

V_{CE}=5V, I_C=5mA, Z_O=50Ω

Freq (MHz)	S ₁₁	∠ s ₁₁	S ₂₁	∠S ₂₁	S ₁₂	∠ s ₁₂	S ₂₂	∠ S ₂₂
200	0.714	-41.8	10.073	140.4	0.042	68.2	0.858	-20.7
400	0.508	-67.9	7.241	118.0	0.066	60.2	0.693	-29.6
600	0.378	-86.7	5.499	104.1	0.084	58.5	0.603	-32.7
800	0.294	-101.5	4.414	93.7	0.100	58.9	0.550	-34.8
1000	0.245	-116.0	3.675	85.5	0.116	59.3	0.522	-37.5
1200	0.211	-130.0	3.167	78.3	0.132	59.6	0.503	-40.3
1400	0.185	-145.8	2.783	72.2	0.148	59.8	0.488	-43.2
1600	0.173	-158.5	2.481	66.2	0.164	59.8	0.479	-46.7
1800	0.180	-172.1	2.252	61.8	0.181	59.8	0.472	-50.3
2000	0.174	178.9	2.098	57.1	0.201	59.4	0.468	-53.3

- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- 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.

This catalog provides information as of January, 1999. Specifications and information herein are subject to change without notice.