



SANYO Semiconductors

## DATA SHEET

# 2SC5537A

NPN Epitaxial Planar Silicon Transistor

## Low-Voltage, Low-Current High-Frequency Amplifier Applications

### Features

- Low-voltage, low-current operation :  $f_T=5\text{GHz}$  typ.  
( $V_{CE}=1\text{V}$ ,  $I_C=1\text{mA}$ ) :  $|S_{21e}|^2=7\text{dB}$  typ ( $f=1\text{GHz}$ ).  
:  $NF=2.6\text{dB}$  typ ( $f=1\text{GHz}$ ).
- Ultrasmall, slim flat-lead package (1.4mm×0.8mm×0.6mm).
- Halogen free compliance.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		12	V
Collector-to-Emitter Voltage	$V_{CEO}$		6	V
Emitter-to-Base Voltage	$V_{EBO}$		1.5	V
Collector Current	$I_C$		15	mA
Collector Dissipation	$P_C$		90	mW
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=5\text{V}$ , $I_E=0\text{A}$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=1\text{V}$ , $I_C=0\text{A}$			10	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=1\text{V}$ , $I_C=1\text{mA}$	90		200	
Gain-Bandwidth Product	$f_T$	$V_{CE}=1\text{V}$ , $I_C=1\text{mA}$		5		GHz
Output Capacitance	$C_{ob}$	$V_{CB}=1\text{V}$ , $f=1\text{MHz}$		0.55	0.9	pF

Marking : CN

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# 2SC537A

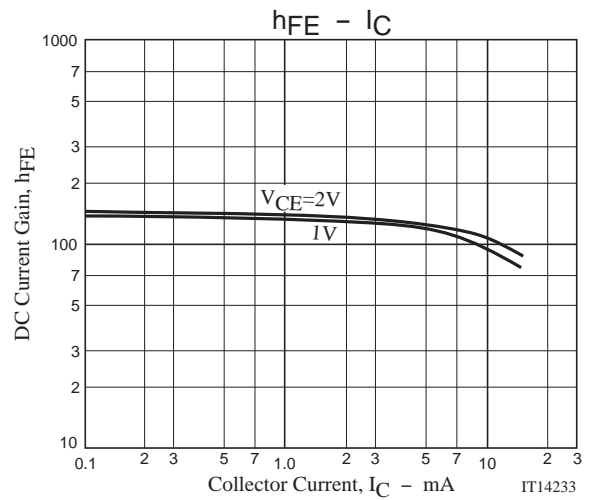
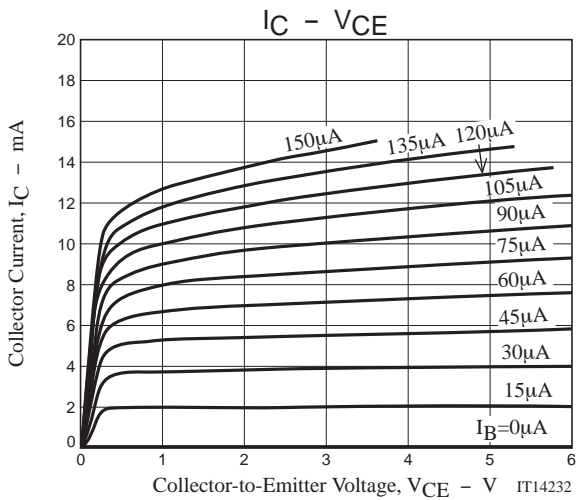
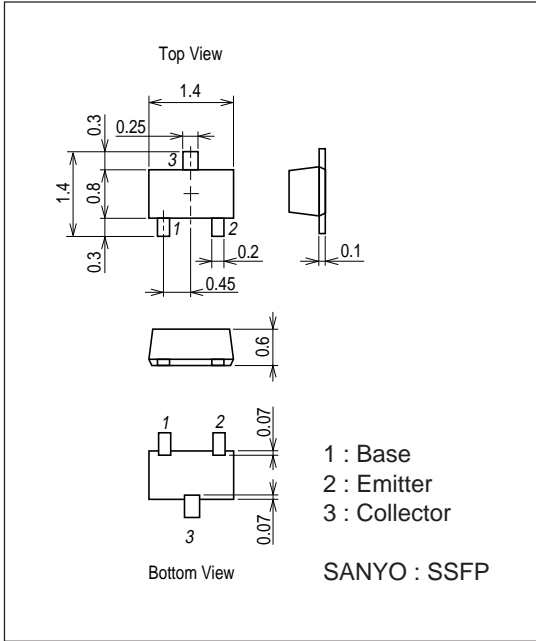
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	$ S_{21e} ^{21}$	$V_{CE}=1V, I_C=1mA, f=1GHz$	4.5	7		dB
	$ S_{21e} ^{22}$	$V_{CE}=2V, I_C=3mA, f=1GHz$		10.5		dB
Noise Figure	NF1	$V_{CE}=1V, I_C=1mA, f=1GHz$		2.6	4.5	dB
	NF2	$V_{CE}=2V, I_C=3mA, f=1GHz$		1.9		dB

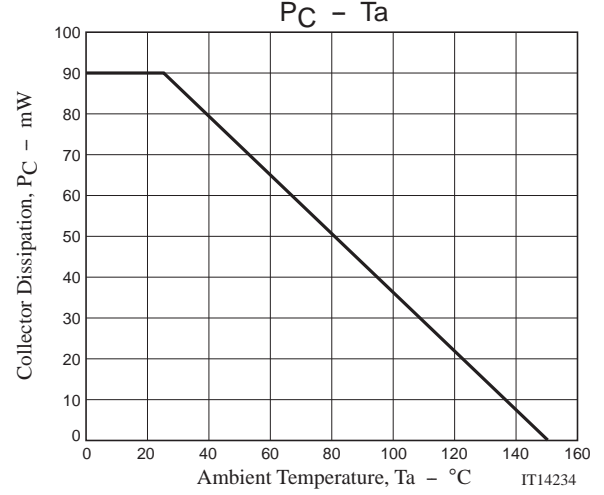
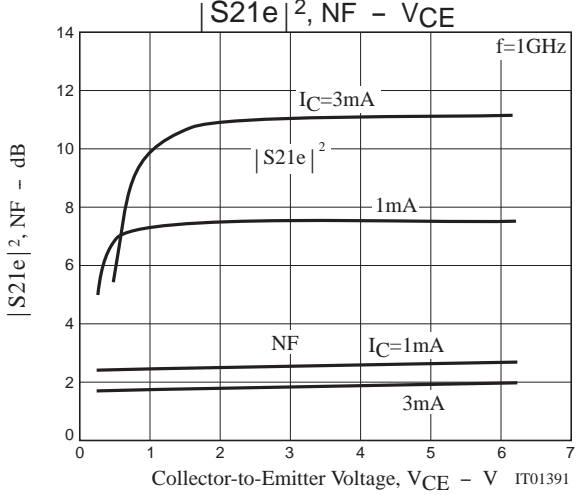
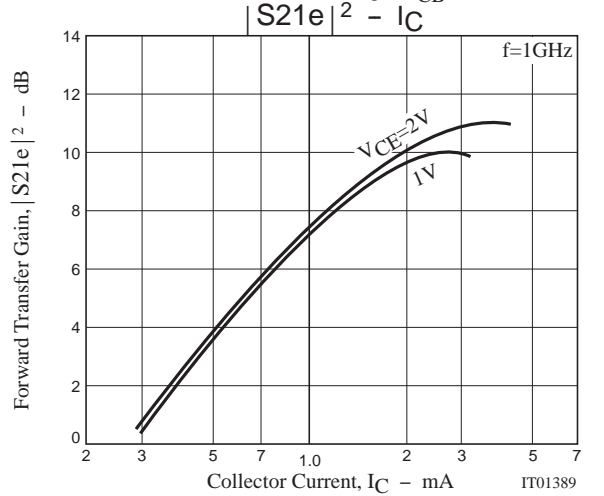
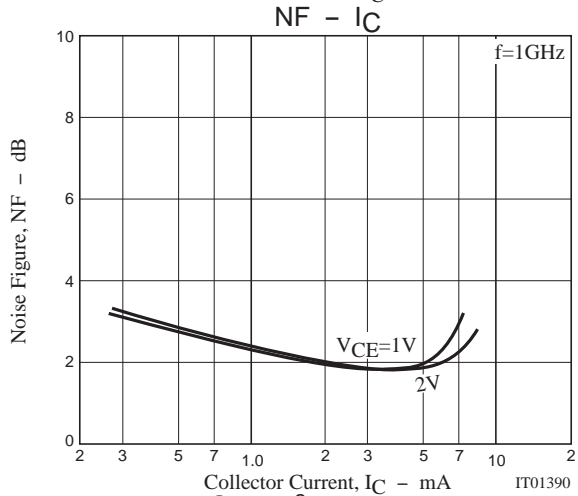
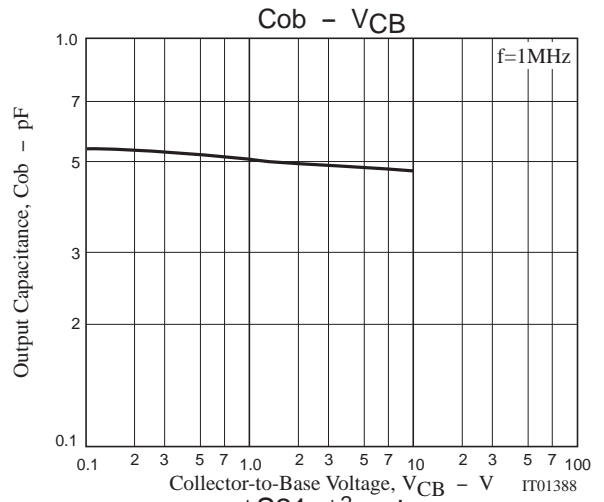
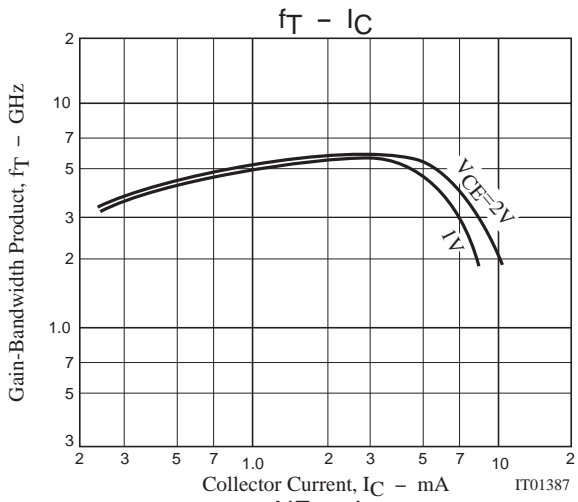
## Package Dimensions

unit : mm (typ)

7029-002



# 2SC5537A



## 2SC5537A

### S Parameters (Common emitter)

$V_{CE}=1V, I_C=1mA, Z_O=50\Omega$

Freq(MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.954	-15.8	3.282	164.4	0.045	78.4	0.981	-9.4
400	0.915	-29.6	3.242	150.4	0.086	69.7	0.942	-17.4
600	0.858	-42.9	2.869	138.0	0.116	60.4	0.886	-24.8
800	0.790	-55.2	2.655	126.4	0.139	54.0	0.830	-30.7
1000	0.711	-66.7	2.487	116.4	0.161	49.7	0.778	-35.4
1200	0.655	-75.3	2.292	107.1	0.175	45.7	0.739	-39.1
1400	0.610	-83.4	2.115	99.2	0.185	42.7	0.707	-42.7
1600	0.569	-90.5	1.974	92.2	0.194	40.3	0.681	-45.6
1800	0.554	-95.2	1.841	85.4	0.196	39.1	0.664	-48.3
2000	0.515	-101.8	1.714	79.9	0.198	38.3	0.645	-50.6

$V_{CE}=2V, I_C=3mA, Z_O=50\Omega$

Freq(MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.858	-29.0	8.051	154.9	0.040	73.1	0.932	-15.0
400	0.752	-51.3	6.938	134.7	0.067	61.9	0.829	-24.9
600	0.637	-70.7	5.659	121.1	0.085	55.4	0.722	-31.2
800	0.546	-85.5	4.769	109.8	0.097	52.7	0.648	-34.6
1000	0.484	-96.4	4.133	100.4	0.108	51.4	0.601	-36.9
1200	0.433	-106.1	3.589	92.9	0.116	51.3	0.568	-38.6
1400	0.394	-114.4	3.158	86.8	0.125	52.1	0.545	-40.2
1600	0.364	-121.7	2.839	81.4	0.134	53.3	0.532	-41.7
1800	0.338	-128.8	2.573	76.7	0.143	54.5	0.521	-43.1
2000	0.315	-135.2	2.355	72.3	0.152	55.3	0.516	-44.7

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