

<b>SANYO</b>	No.4759	<b>2SC4855</b>
		NPN Epitaxial Planar Silicon Transistor Low-Voltage, Low-Current & High-Frequency Amp Applications

**Features**

- Low-voltage, low-current operation :  $f_T = 5\text{GHz}$  typ.  
 ( $V_{CE} = 1\text{V}, I_C = 1\text{mA}$ ) :  $|S_{21e}|^2 = 7.5\text{dB}$  typ ( $f = 1\text{GHz}$ ).  
 :  $NF = 2.6\text{dB}$  typ ( $f = 1\text{GHz}$ ).

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

			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	$P_C$	80	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	$I_{CBO}$	$V_{CB} = 5\text{V}, I_E = 0$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 1\text{V}, I_C = 0$			10	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE} = 1\text{V}, I_C = 1\text{mA}$	60*		270*	
Gain-Bandwidth Product	$f_T$	$V_{CE} = 1\text{V}, I_C = 1\text{mA}$		5		GHz
Output Capacitance	$C_{ob}$	$V_{CB} = 1\text{V}, f = 1\text{MHz}$		0.6	1.0	pF
Forward Transfer Gain	$ S_{21e} ^2$	(1) $V_{CE} = 1\text{V}, I_C = 1\text{mA}, f = 1\text{GHz}$	5	7.5		dB
		(2) $V_{CE} = 2\text{V}, I_C = 3\text{mA}, f = 1\text{GHz}$		11.5		dB
Noise Figure	NF	(1) $V_{CE} = 1\text{V}, I_C = 1\text{mA}, f = 1\text{GHz}$		2.6	4.5	dB
		(2) $V_{CE} = 2\text{V}, I_C = 3\text{mA}, f = 1\text{GHz}$		1.9		dB

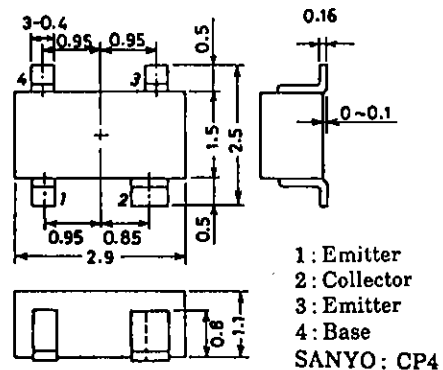
\* : The 2SC4855 are classified by 1mA  $h_{FE}$  as follows:

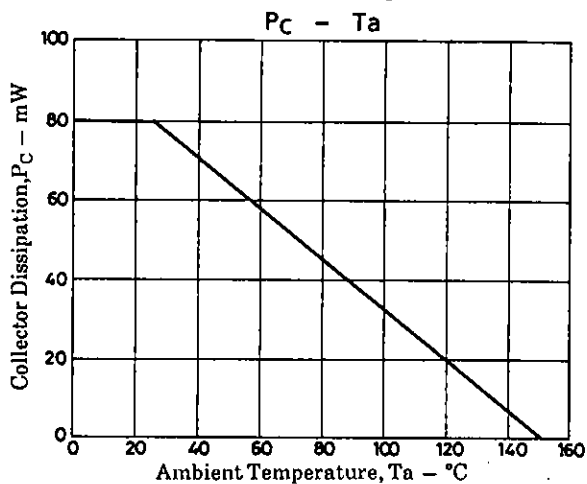
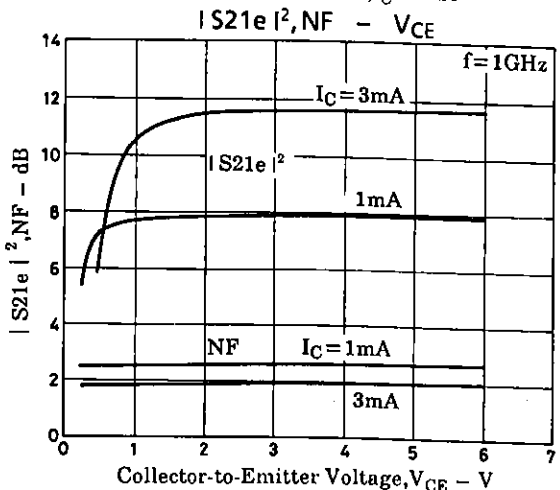
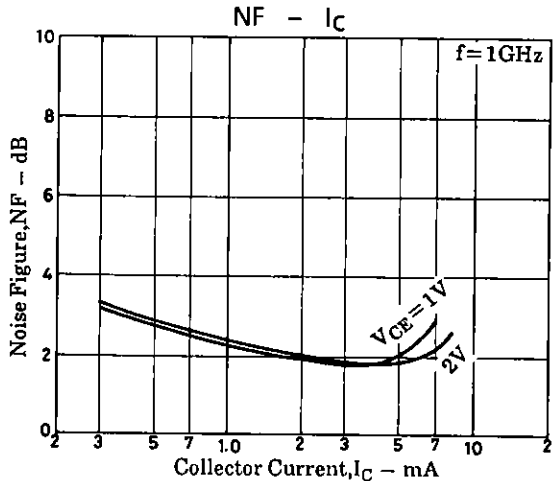
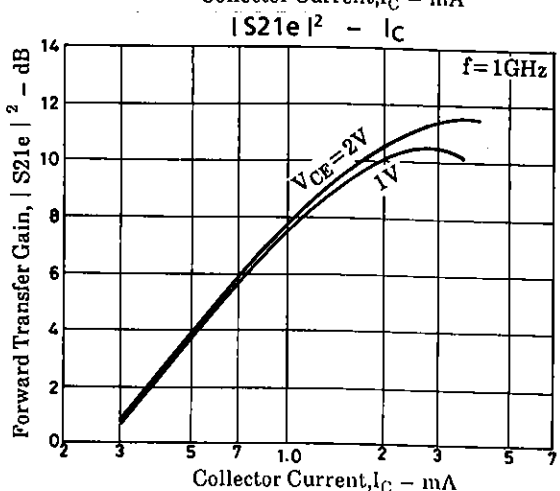
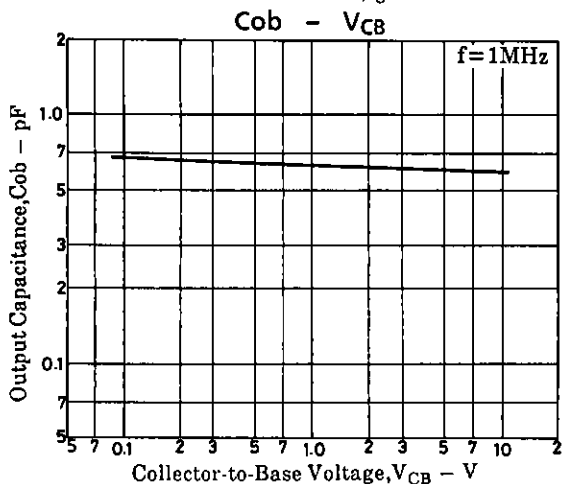
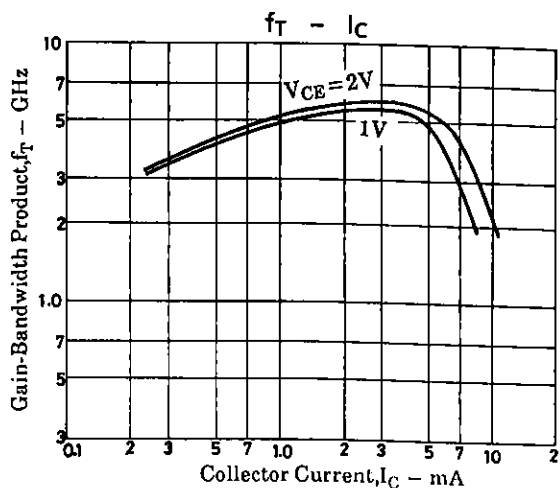
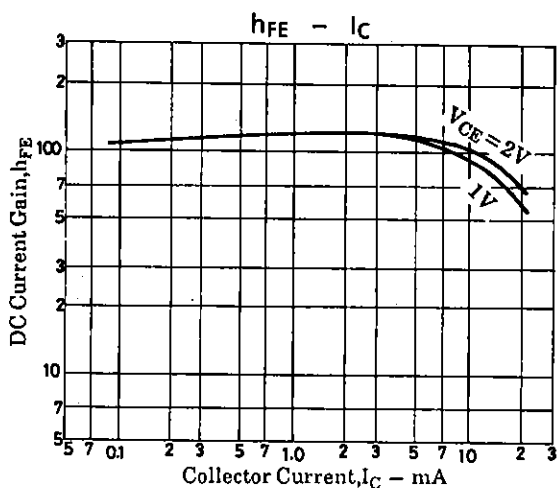
60	3	120	90	4	180	135	5	270
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Marking : CN  
 $h_{FE}$  rank : 3,4,5

**Package Dimensions 2110A**

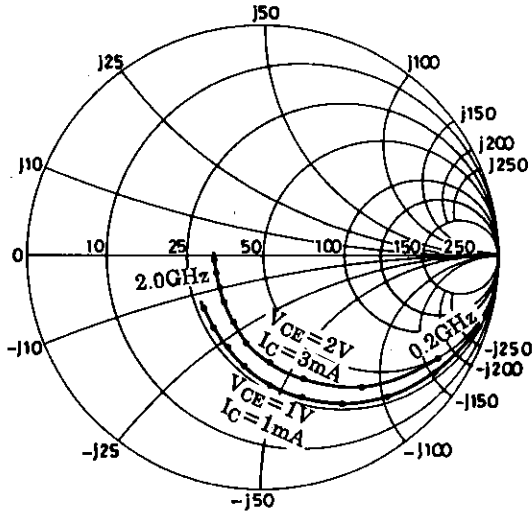
(unit : mm)



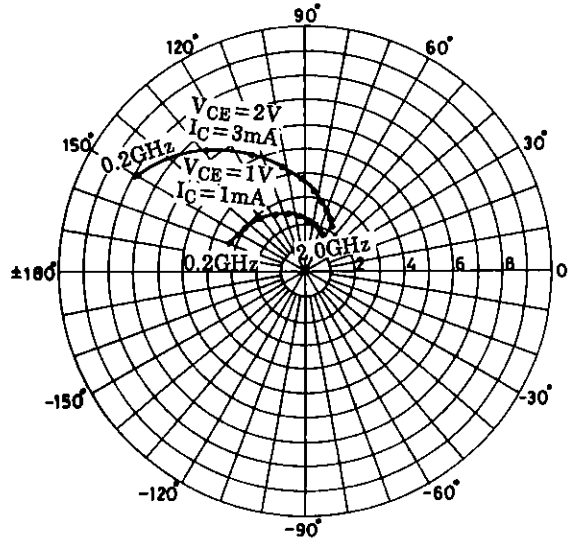


S Parameters

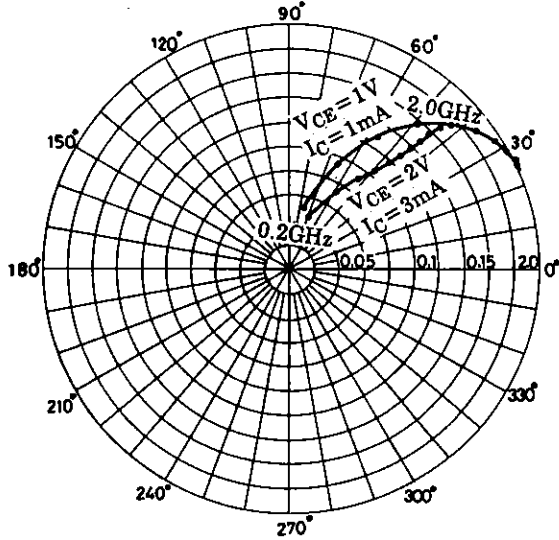
S11e  
f=200~2000MHz (200MHz step)



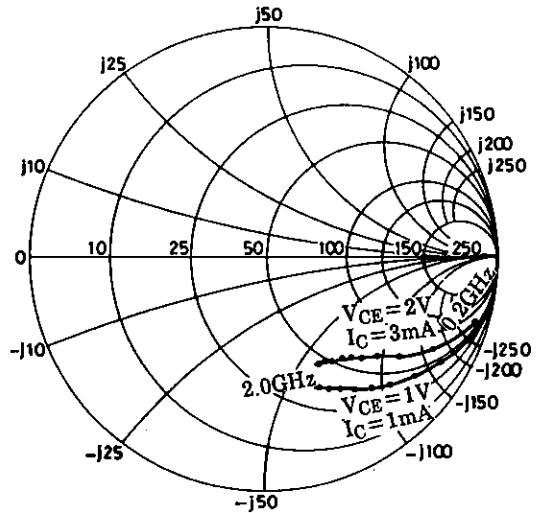
S21e  
f=200~2000MHz (200MHz step)



S12e  
f=200~2000MHz (200MHz step)



S22e  
f=200~2000MHz (200MHz step)



## S Parameters (Common emitter)

 $V_{CE}=1V, I_C=1mA, Z_0=50\Omega$ 

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.944	-18.0	3.276	159.9	0.050	76.8	0.981	-12.0
400	0.869	-34.2	3.037	143.8	0.093	65.5	0.928	-22.2
600	0.786	-48.9	2.778	130.2	0.128	56.5	0.865	-31.1
800	0.706	-62.0	2.550	117.6	0.155	48.8	0.808	-38.6
1000	0.619	-75.4	2.379	106.1	0.173	42.3	0.753	-45.7
1200	0.547	-87.4	2.165	95.7	0.186	36.9	0.712	-51.2
1400	0.473	-100.1	2.022	85.9	0.194	32.4	0.675	-56.1
1600	0.417	-111.7	1.840	77.4	0.198	28.9	0.639	-60.4
1800	0.371	-125.2	1.745	69.9	0.202	26.4	0.614	-64.1
2000	0.343	-139.3	1.639	62.2	0.201	25.2	0.595	-67.6

 $V_{CE}=2V, I_C=3mA, Z_0=50\Omega$ 

Freq (MHz)	$ S_{11} $	$\angle S_{11}$	$ S_{21} $	$\angle S_{21}$	$ S_{12} $	$\angle S_{12}$	$ S_{22} $	$\angle S_{22}$
200	0.844	-30.5	7.785	149.6	0.043	71.0	0.933	-17.4
400	0.688	-53.7	6.308	129.2	0.072	59.3	0.808	-28.8
600	0.545	-72.1	5.182	113.8	0.091	52.6	0.705	-36.3
800	0.451	-86.7	4.315	102.3	0.104	49.2	0.632	-41.6
1000	0.374	-102.0	3.713	92.2	0.117	47.0	0.590	-46.0
1200	0.308	-115.4	3.225	83.5	0.127	45.9	0.564	-49.5
1400	0.260	-130.6	2.823	75.5	0.137	45.0	0.541	-53.1
1600	0.230	-145.2	2.515	68.8	0.146	44.5	0.525	-56.8
1800	0.215	-160.5	2.296	63.0	0.155	44.2	0.510	-60.3
2000	0.213	-177.0	2.143	56.9	0.166	43.8	0.506	-63.4

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