Ordering number:EN4759

NPN Epitaxial Planar Silicon Transistor

2SC4855

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

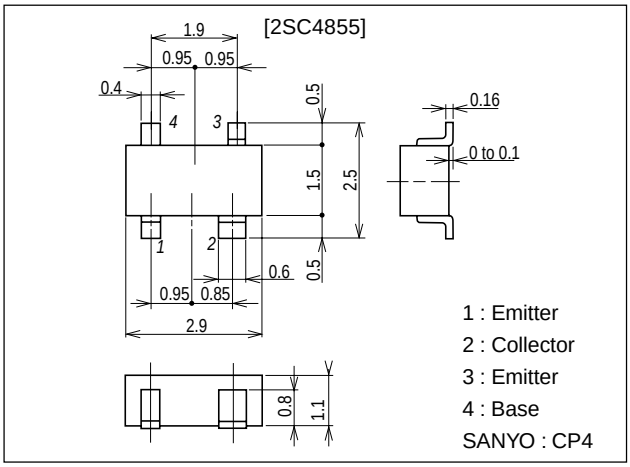
Features

· Low-voltage, low-current operation : f_T=5GHz typ. (V_{CE}=1V, I_C=1mA) : $|S21e|^2$=7.5dB typ (f=1GHz).
: NF=2.6dB typ (f=1GHz).

Package Dimensions

unit:mm

2110A



Specifications

Absolute Maximum Ratings at Ta = 25˚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		80	mW
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=5V, I_E=0			1.0	µA
Emitter Cutoff Current	I_{EBO}	V_{EB}=1V, I_C=0			10	µA
DC Current Gain	h_{FE}	V_{CE}=1V, I_C=1mA	60*		270*	
Gain-Bandwidth Product	f_T	V_{CE}=1V, I_C=1mA		5		GHz
Output Capacitance	C_{ob}	V_{CB}=1V, f=1MHz		0.6	1.0	pF

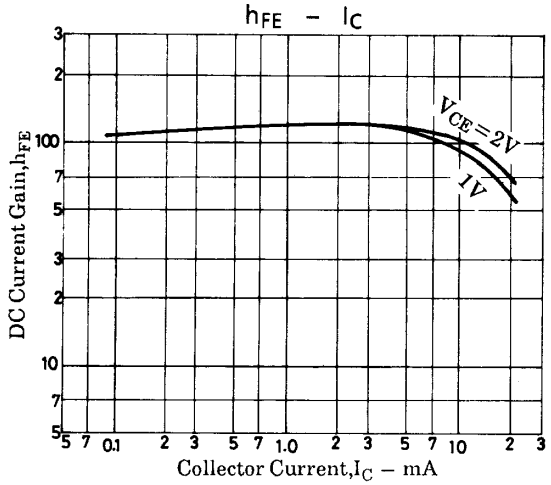
* : The 2SC4855 is classified by 1mA h_{FE} as follows :

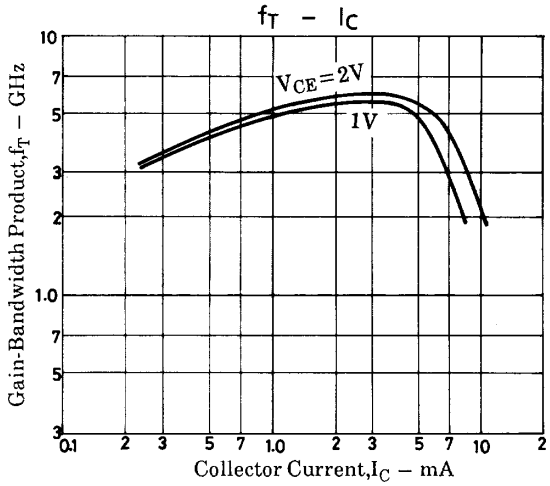
60	3	120	90	4	180	135	5	270

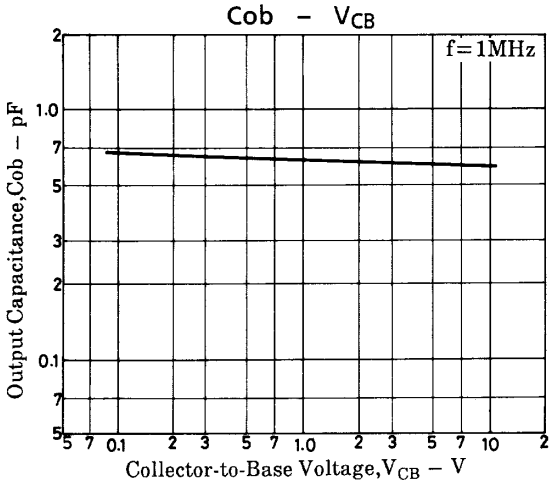
Marking : CN
h_{FE} rank : 3, 4, 5

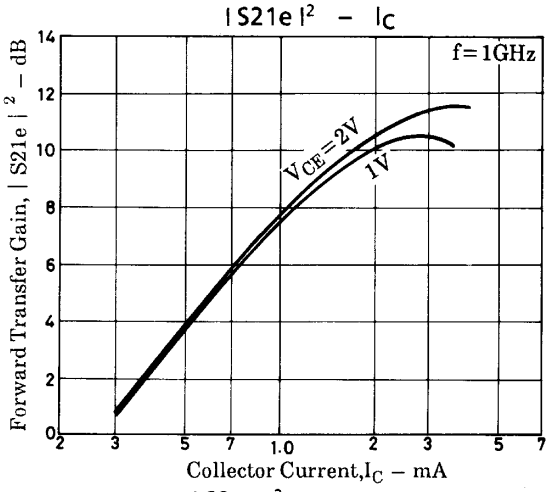
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

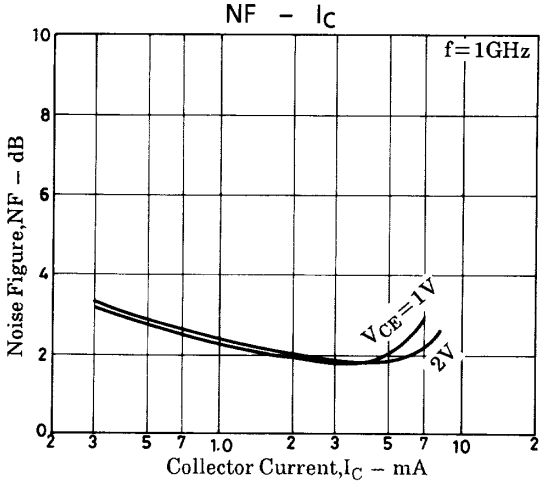
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Gain	| S21e |^2 1	V_{CE}=1V, I_C=1mA, f=1GHz	5	7.5		dB
	| S21e |^2 2	V_{CE}=2V, I_C=3mA, f=1GHz		11.5		dB
Noise Figure	NF1	V_{CE}=1V, I_C=1mA, f=1GHz		2.6	4.5	dB
	NF2	V_{CE}=2V, I_C=3mA, f=1GHz		1.9		dB

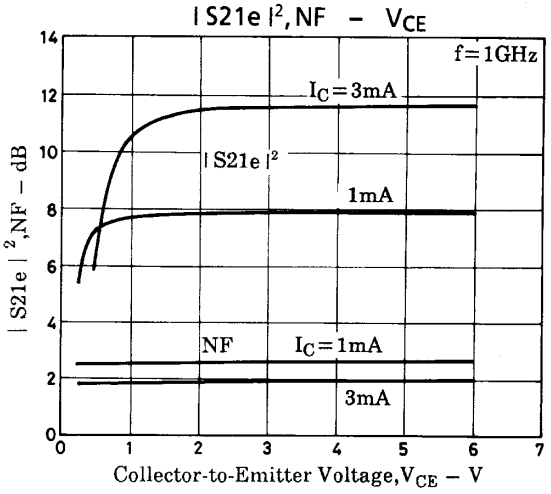


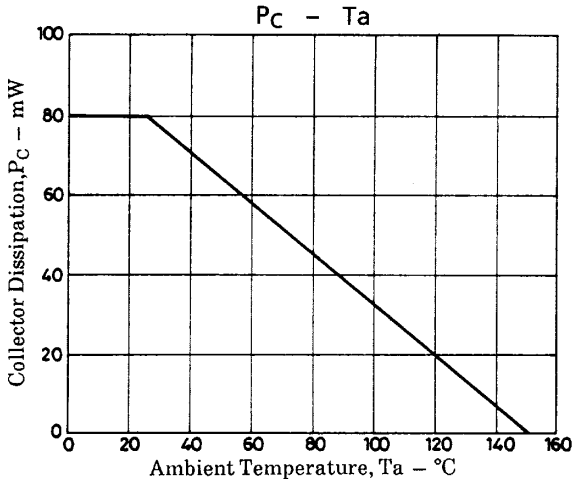






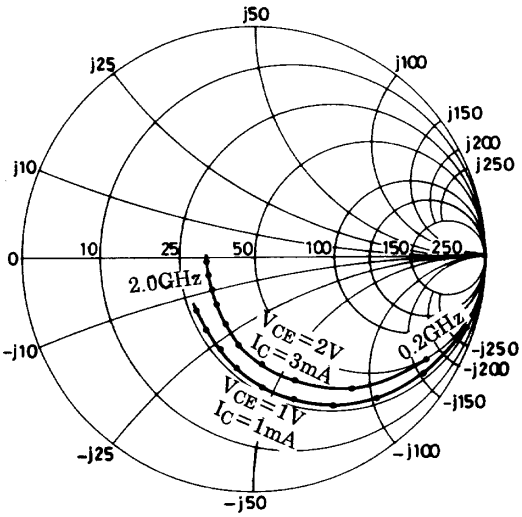




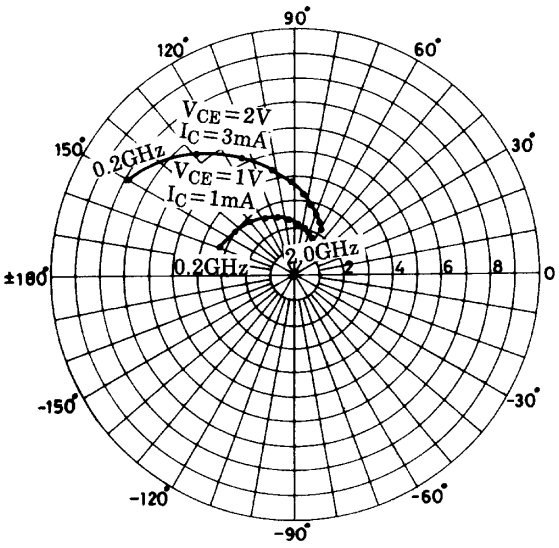


S parameter

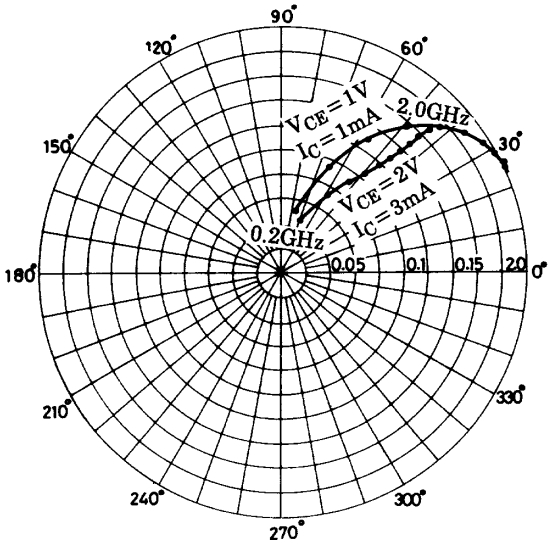
S11e
f=200 to 2000MHz (200MHz step)



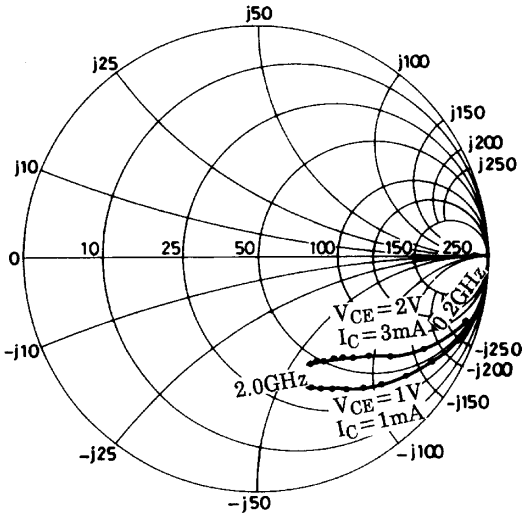
S21e
f=200 to 2000MHz (200MHz step)



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



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



S parameter (Common emitter)

V_{CE}=1V, I_C=1mA, Z_O=50Ω

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_O=50Ω

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	95.2	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