

High-Performance Si Bipolar Transistor ($f_T \geq 5\text{GHz}$) Series

Features

High Gain, Low Noise

G-III-NRP (Giga-III-Noise Reduction Process) technology submicron hyperfine process developed for high gain and low noise characteristics

Low Power Dissipation

High performance at low voltage and low current for low power dissipation

Full-range Lineup

Wide range of devices to match any application

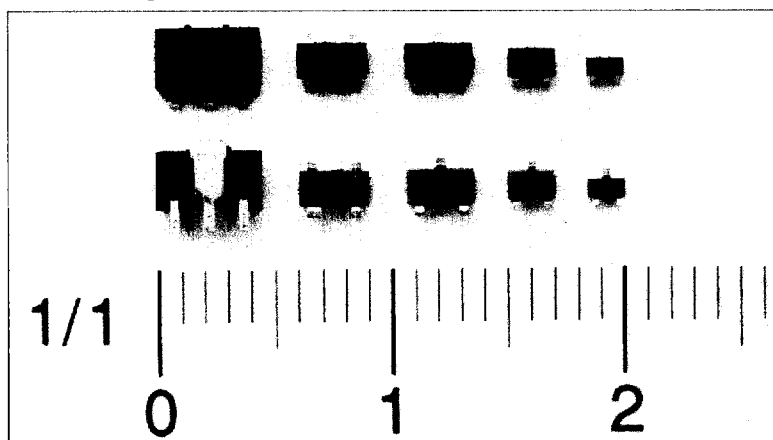
High Reliability

Ti-Pt-Au electrodes for superior reliability

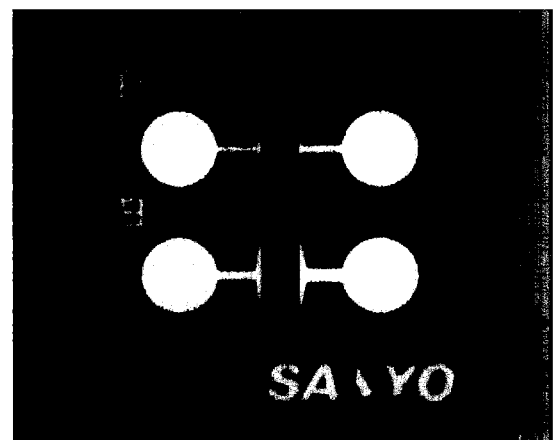
Device Summary Table

Type No.	f_T (GHz)	MCP			SMCP	CP	CP4	PCP
		$ S_{21e} ^2$ @ $f = 1\text{GHz}$ (dB)	NF @ $f = 1\text{GHz}$ (dB)	Cob (pF)				
2SC4853	5	7	2.8	0.6		2SC4854	2SC4855	
2SC4856	6	6	1.5	1.0		2SC4857	2SC4858	2SC4859
2SC4860	6.5	11.5	2.2	0.65		2SC4861	2SC4862	
2SC5226	7	12	1.0	0.85	2SC5231	2SC5227	2SC5228	2SC5229
2SC4867	9	13	1.3	0.7	2SC4931	2SC4868	2SC4869	
2SC4871	10	13	1.4	0.45		2SC4872	2SC4873	
2SC5245	11	10 (1.5GHz)	1.5 (1.5GHz)	0.45	2SC5277	2SC5275	2SC5276	

Packages

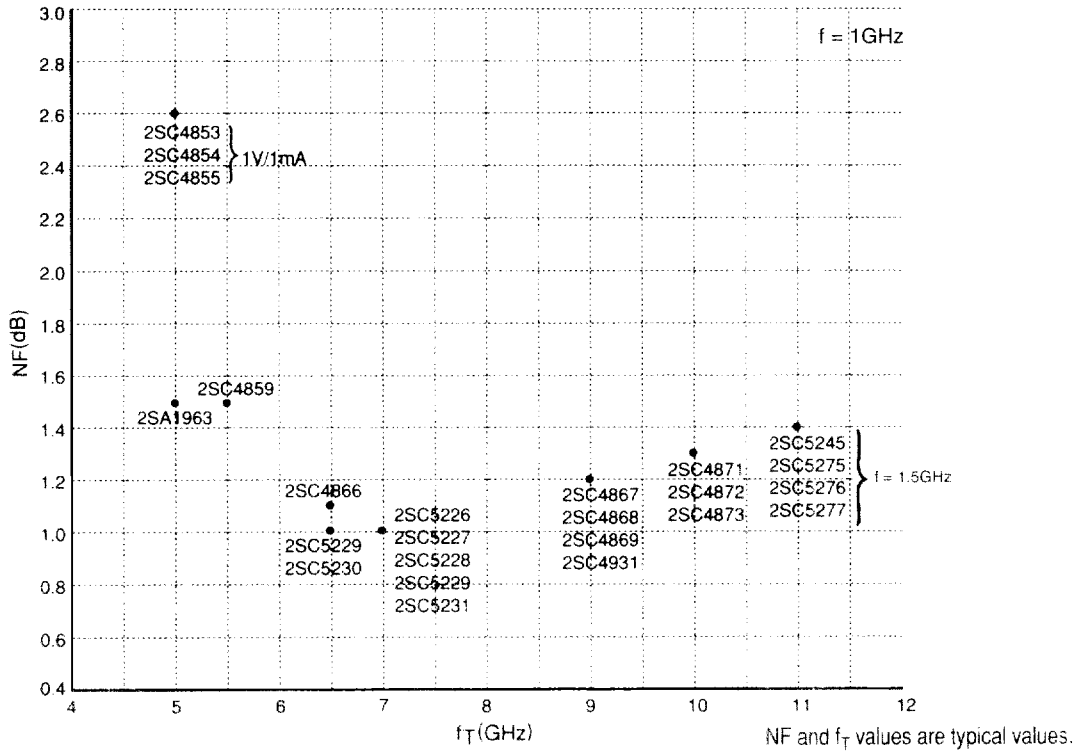


Chip

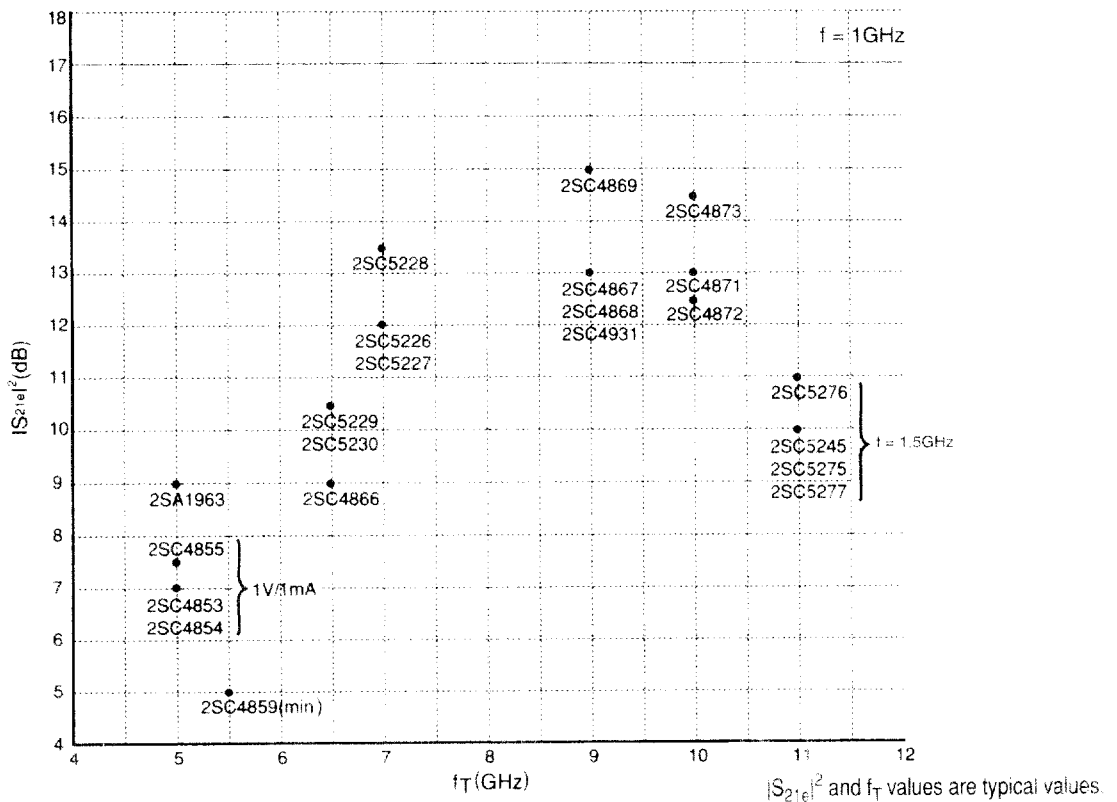


or Ultrahigh-Frequency Low-Noise Amplifiers

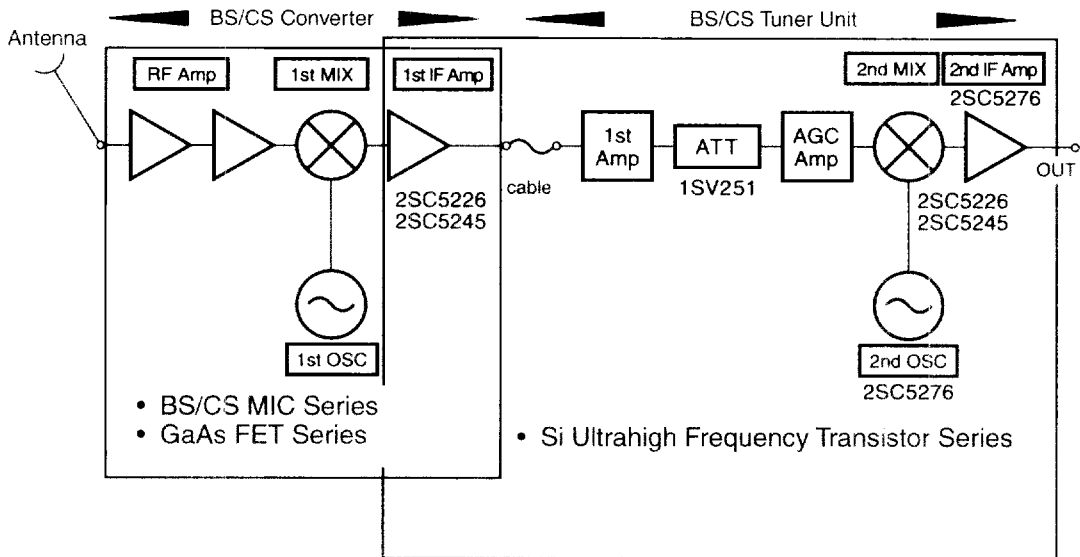
NF — f_T Map



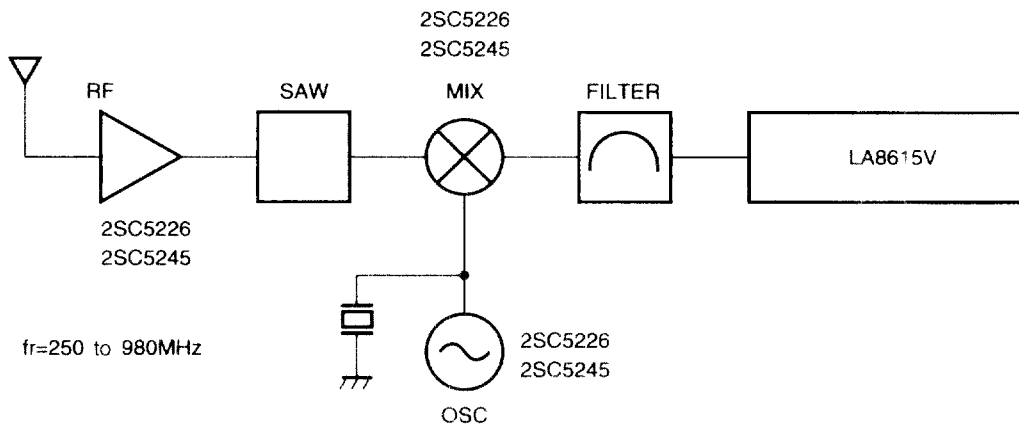
$|S_{21e}|^2$ Map



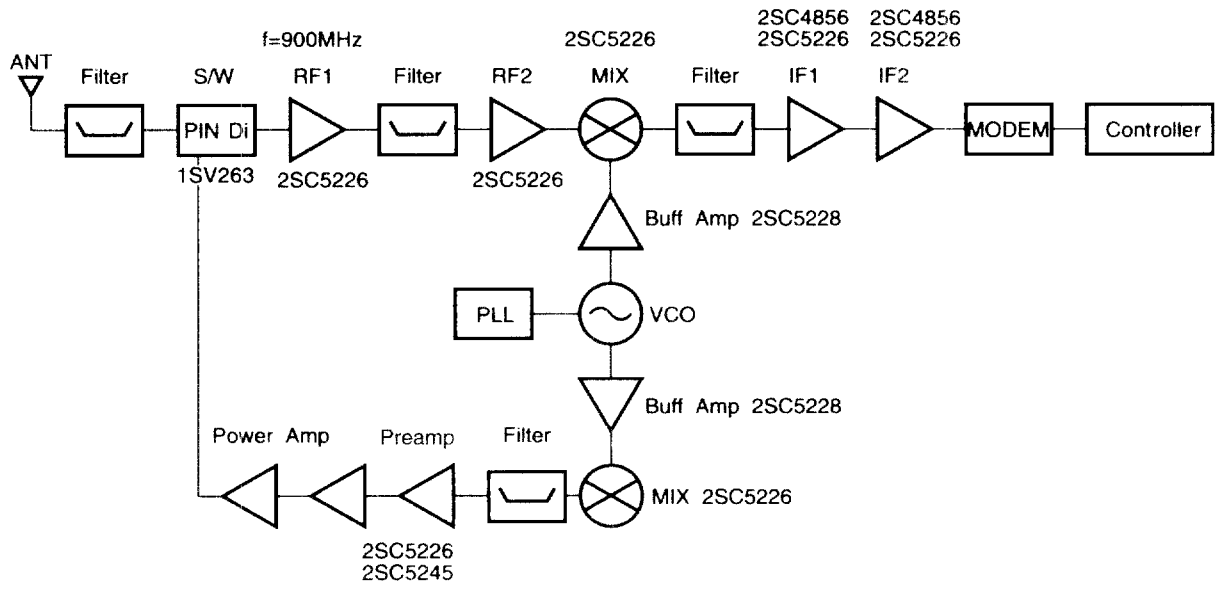
BS/CS System Diagram



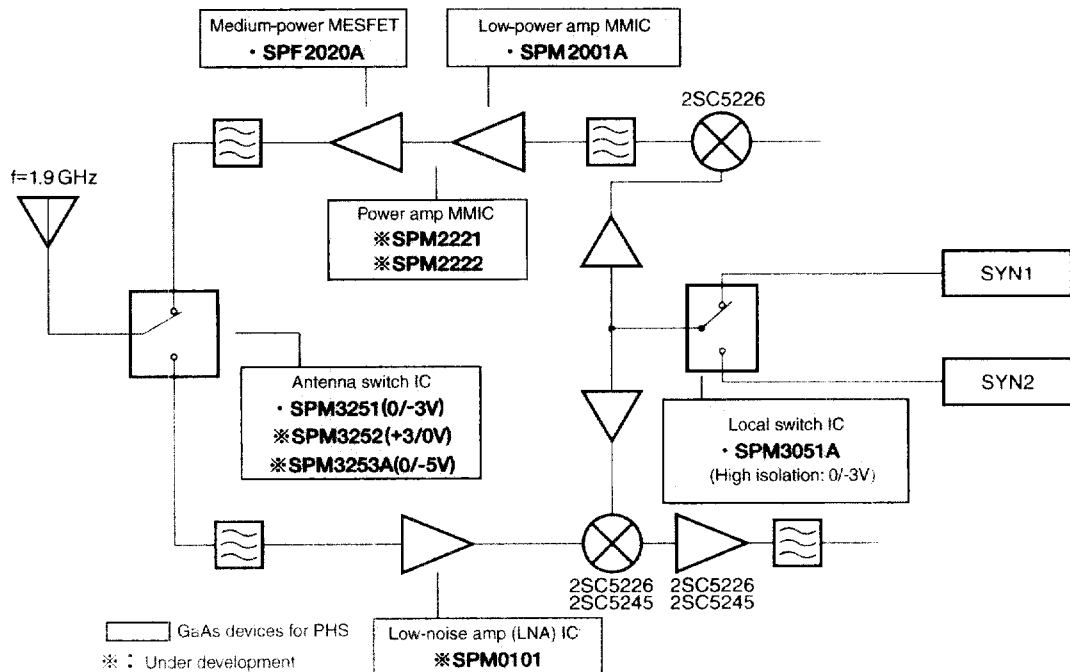
Pager System Diagram



Cellular Telephone System Diagram

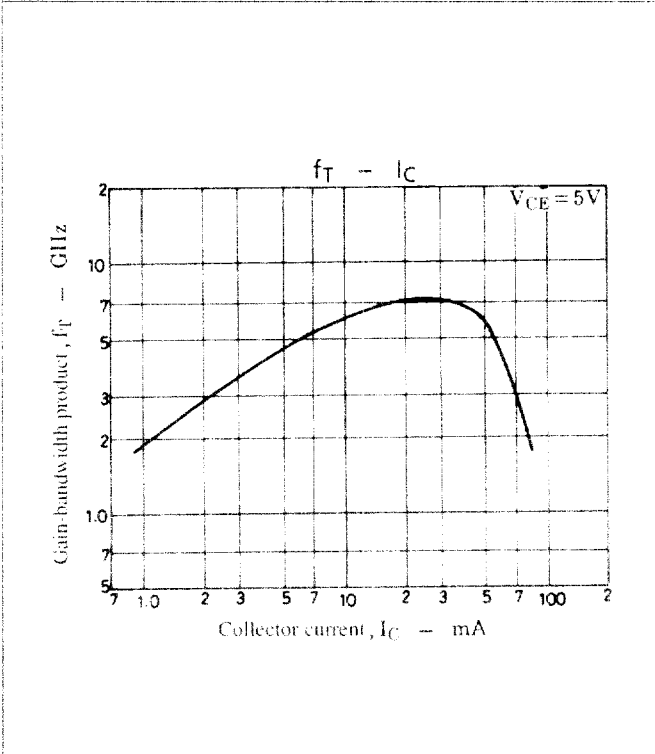


PHS System Diagram

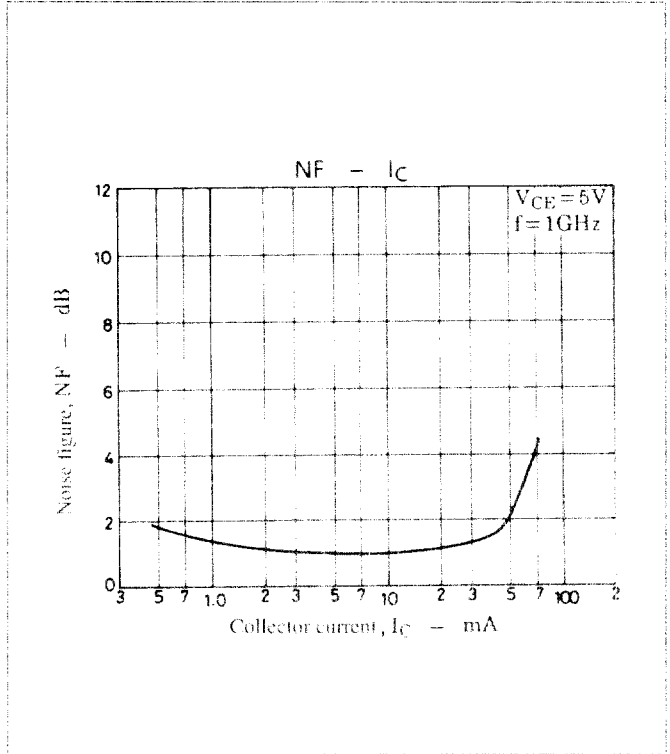


2SC5226 Characteristics

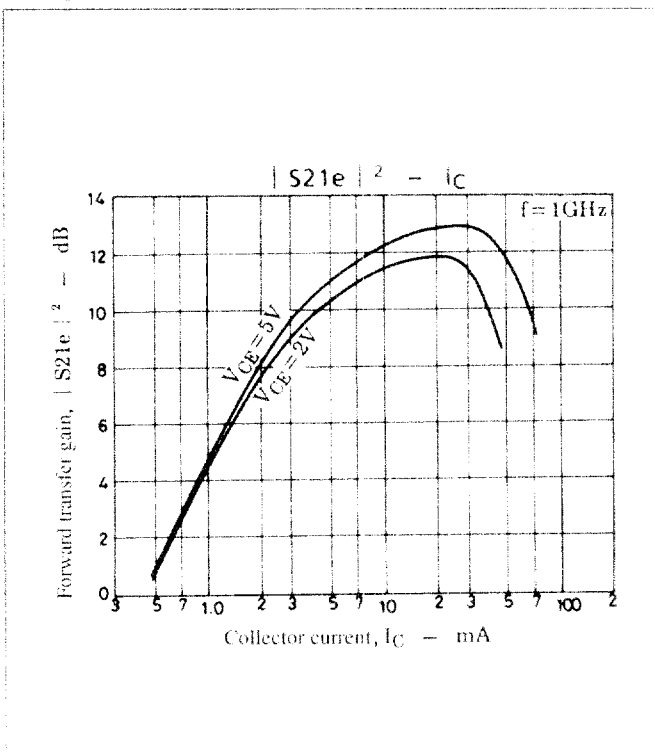
$f_T - I_C$



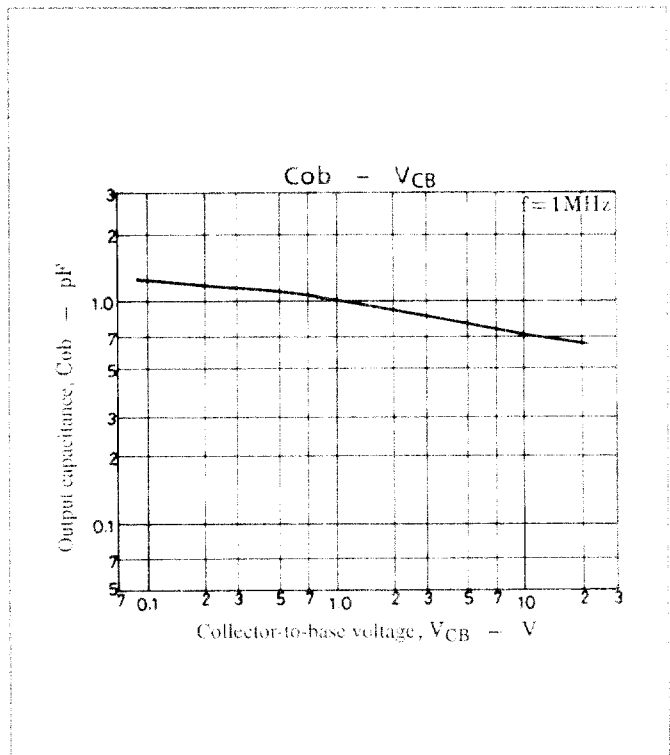
NF - I_C



$|S_{21e}|^2 - I_C$

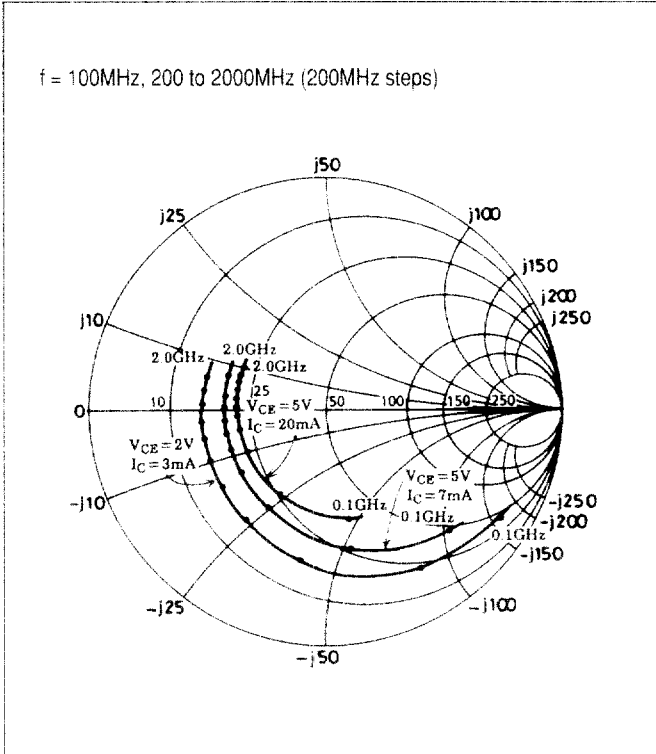


$C_{ob} - V_{CB}$

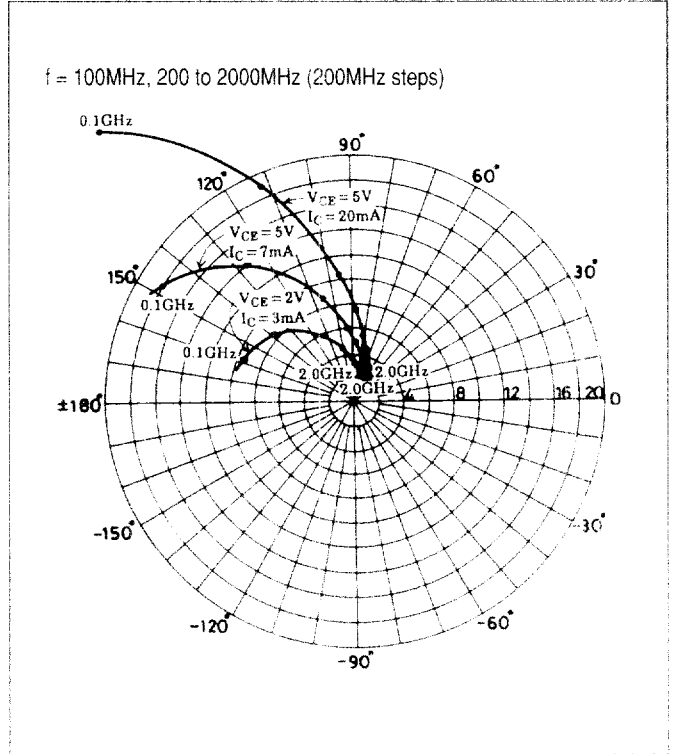


2SC5226 S-Parameter Characteristics

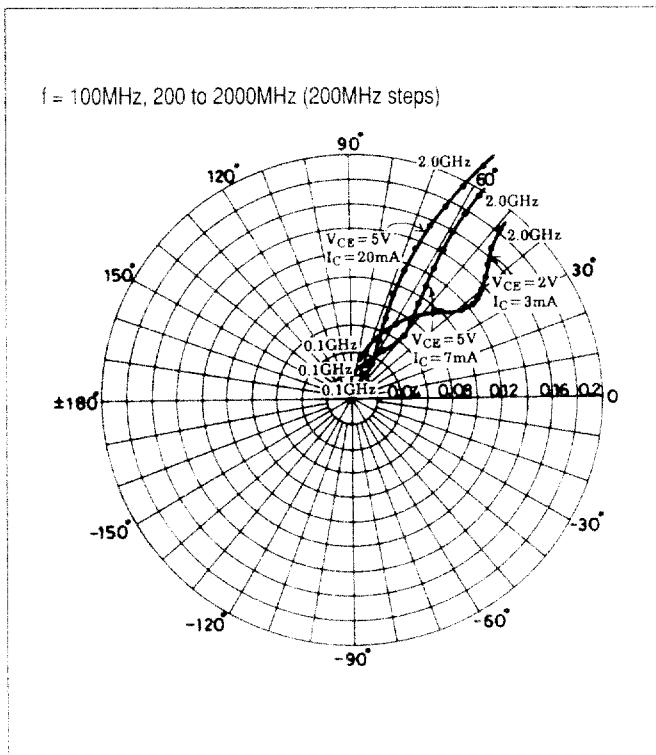
S_{11e}



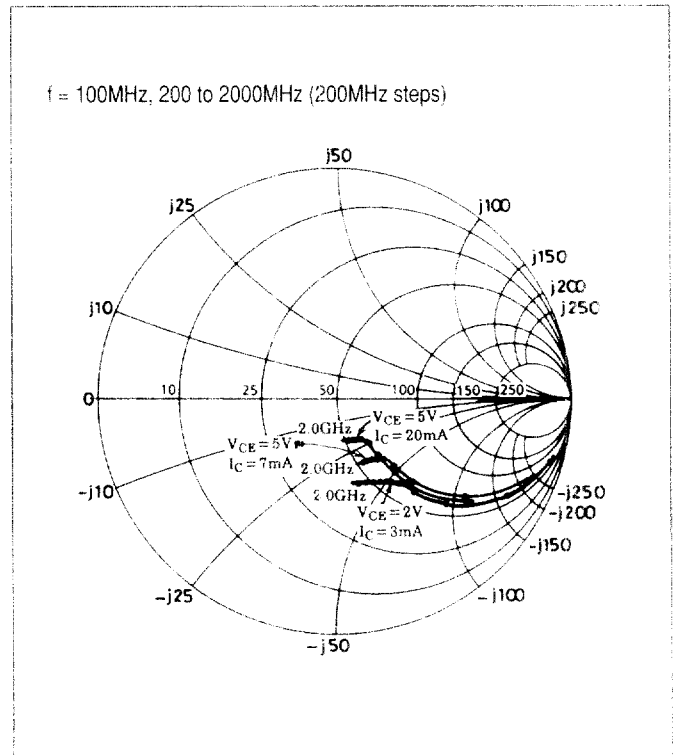
S_{21e}



S_{12e}

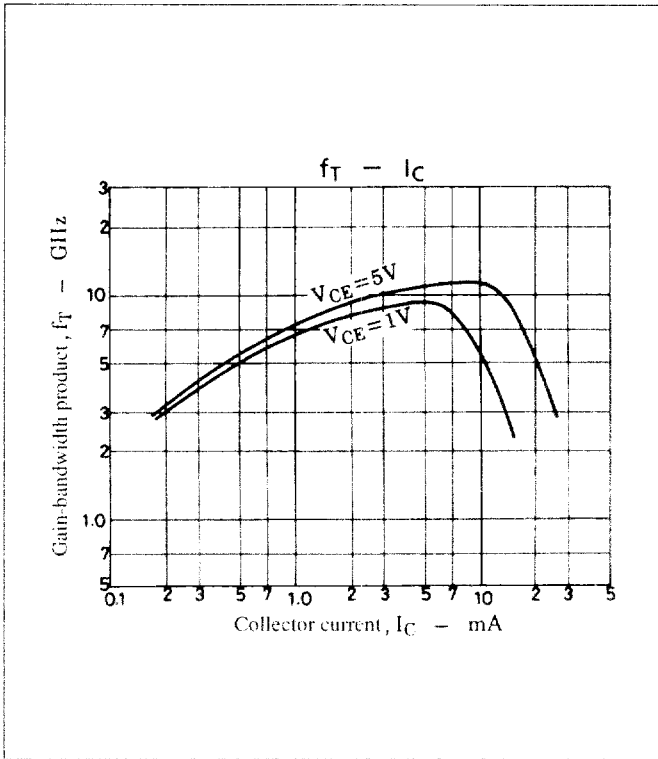


S_{22e}

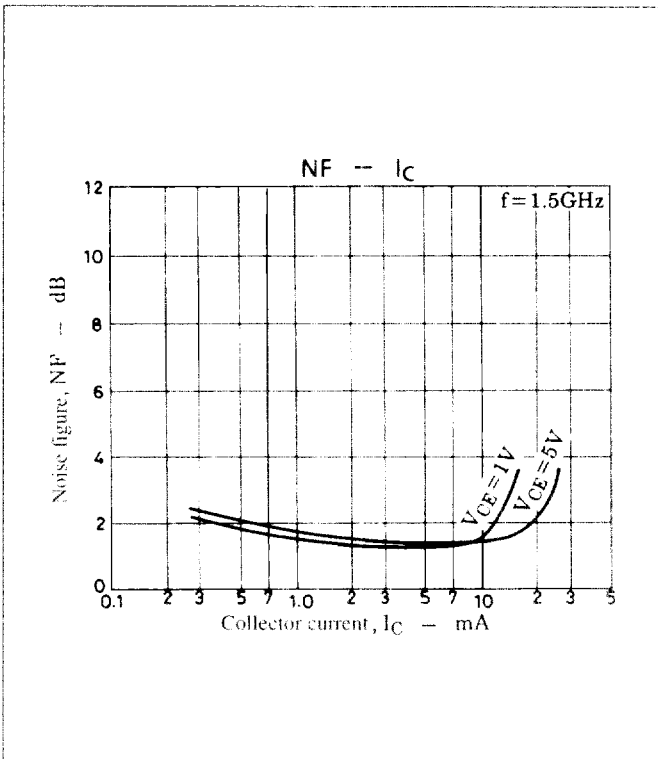


2SC5245 Characteristics

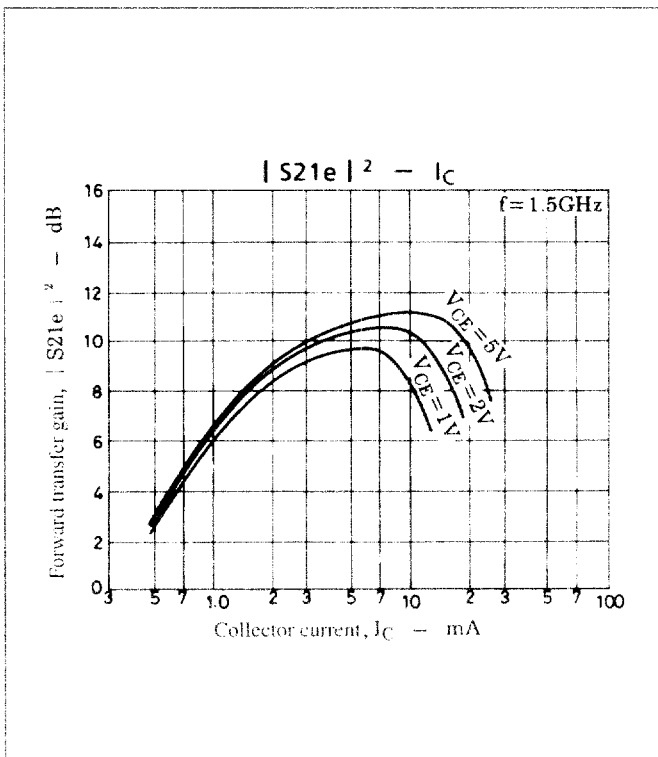
$f_T - I_C$



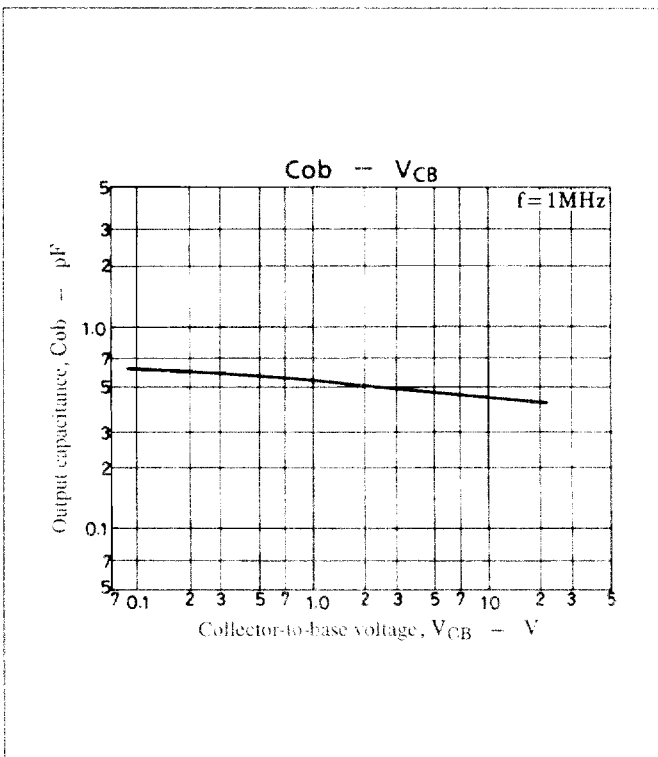
NF - I_C



$|S_{21e}|^2 - I_C$

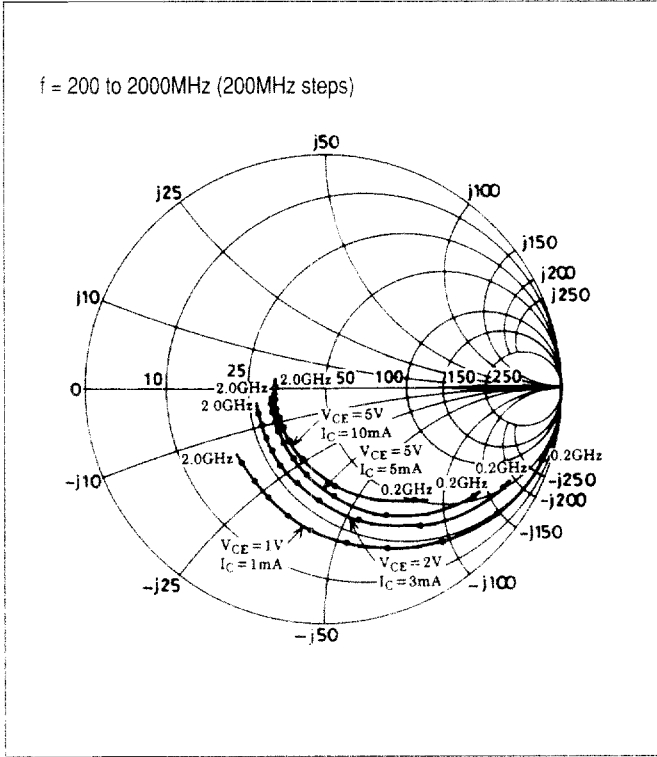


$C_{ob} - V_{CB}$

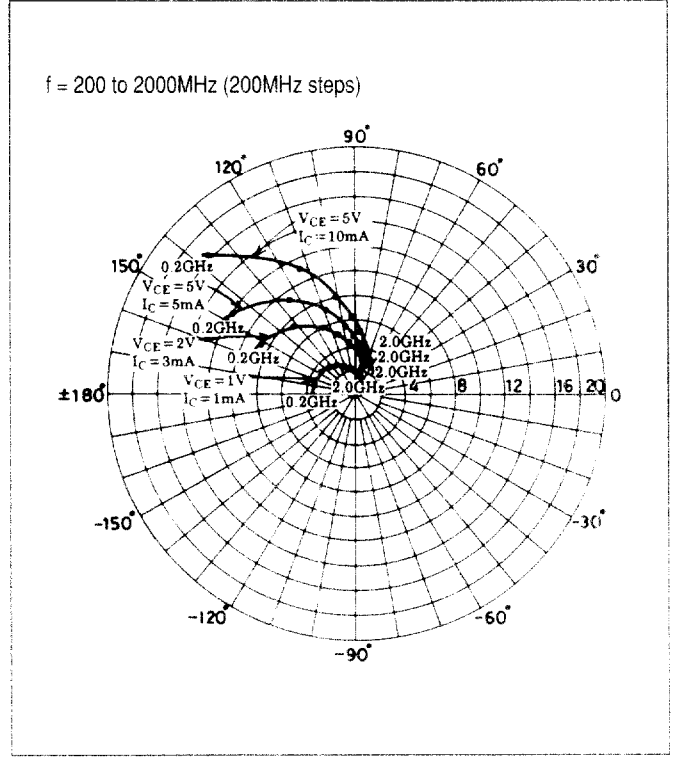


2SC5245 S-Parameter Characteristics

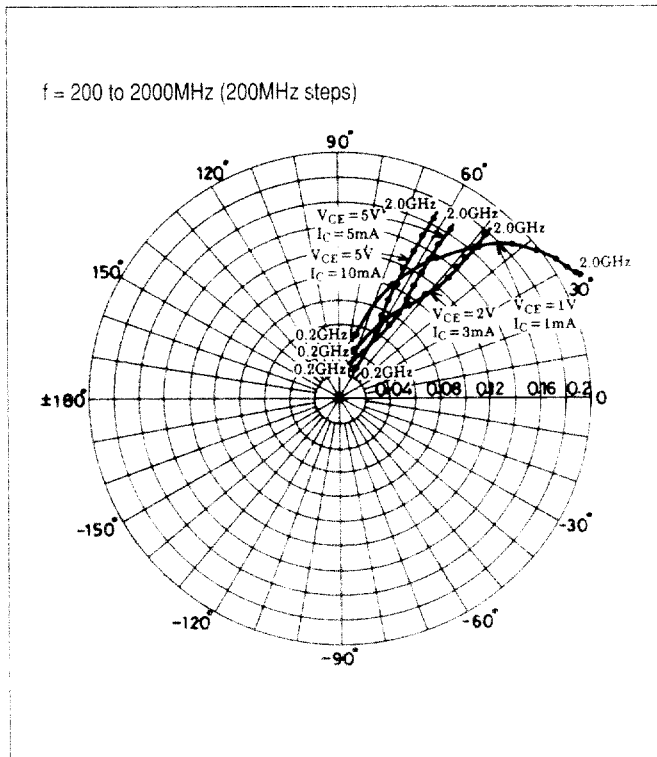
S_{11e}



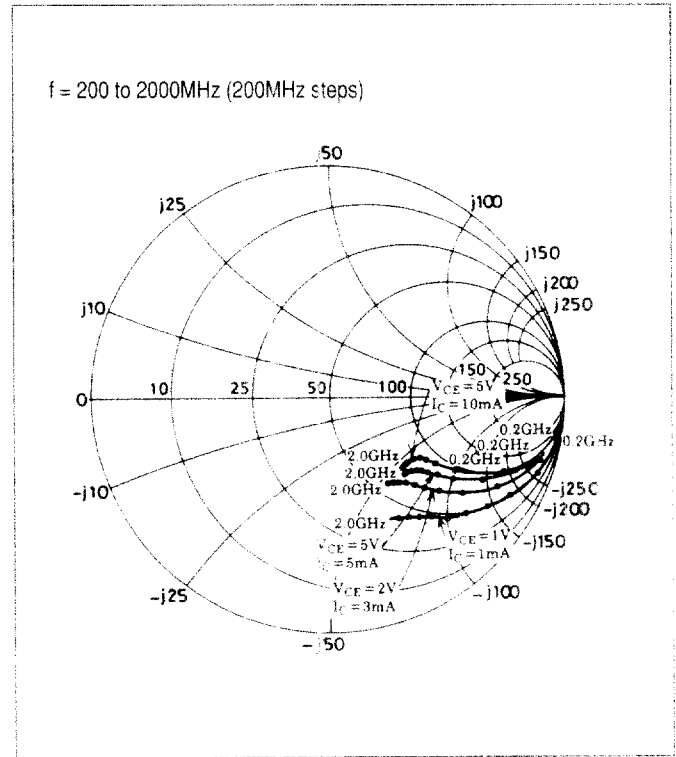
S_{21e}



S_{12e}



S_{22e}



Device Lineup

Type No.	Package	Absolute maximum ratings at Ta = 25°C				Electrical Characteristics at Ta = 25°C											
		V _{CBO} (V)	V _{CEO} (V)	I _C (mA)	P _C (mW)	V _{CE} (V)	I _C (mA)	f _T typ (GHz)	V _{CB} (V)	Cob typ (pF)	V _{CE} (V)	I _C (mA)	NF typ (dB)	V _{CE} (V)	I _C (mA)	S _{21e} ² typ (dB)	
2SC4931	SMCP	16	8	50	100	5	15	9	10	0.55	5	5	1.2	5	15	13	
2SC5231		20	10	70			20	7		0.7		7	1		20	12	
2SC5277				30			10	11		0.45		5	1.4*		10	10	
2SC4853	MCP	12	6	15	80	1	1	5	1	0.6	1	1	2.6	1	1	7	
2SC4867		16	8	50	150	5	15	9	10	0.4	5	5	1.2	5	15	13	
2SC4871				20	100		4	10				4	1.3		7		
2SC5226		20	10	70	150		20	7				0.75	7		1	20	12
2SC5245				30			10	11				0.45	5		1.4*	10	10
2SA1963	CP			12			8	50				200	5		10	5	10
2SC4854		6	15		80	1	1	5	1	0.6	1	1	2.6	1	1	7	
2SC4868		16	8	50	200	5	15	9	10	0.45	5	5	1.2	5	15	13	
2SC4872				20	150		4	10				4	1.3		7		12.5
2SC5227		20	10	70	200		20	7				0.75	7		1	20	12
2SC5275				30			10	11				0.45	5		1.4*	10	10
2SC4855				CP4			12	6				15	80		1	1	5
2SC4869	16	8	50		200	5		15	9	10	0.45	5	5	1.2	5	15	15
2SC4873			20		150		4	10	4				1.3	7		14.5	
2SC5228	20	10	70		200		20	7	0.75				7	1		20	13.5
2SC5276			30				10	11	0.45				5	1.4*		10	11
2SA1969			PCP	10			10	400	1300 [†]				5	100		1.7	10
2SC4859	18	80		800 [†]	20	5.5		1.1	5	5	1.5	20		5 min			
2SC4866	16	8		70	700 [†]	20	6.5	1.05	5	7	1.1	5		9			
2SC5229	20	10		70	700 [†]	20	6.5	0.85	5	7	1	5		10.5			
2SC5230	NP [‡]	20	10	70	400	5	20	6.5	10	0.85	5	7	1	5	20	10.5	

* At f = 1.5GHz

† Mounted on a ceramic board (250mm² × 0.8mm), |S_{21e}|² and NF at f = 1GHz

‡ Emitter center (EC) device