

2SC4860

UHF Converter, Local Oscillator Applications

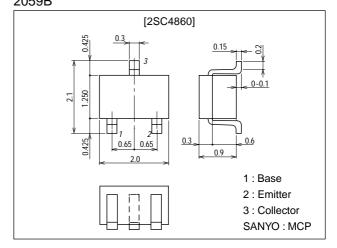
Features

· High cutoff frequency : f_T =6.5GHz typ. · High gain : $|S21e|^2$ =11.5dB typ (f=1GHz).

· Small Cob : NF=0.65pF typ.

Package Dimensions

unit:mm 2059B



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	V _{CEO}		10	V
Emitter-to-Base Voltage	V _{EBO}		2	V
Collector Current	IC		30	mA
Collector Dissipation	PC		150	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

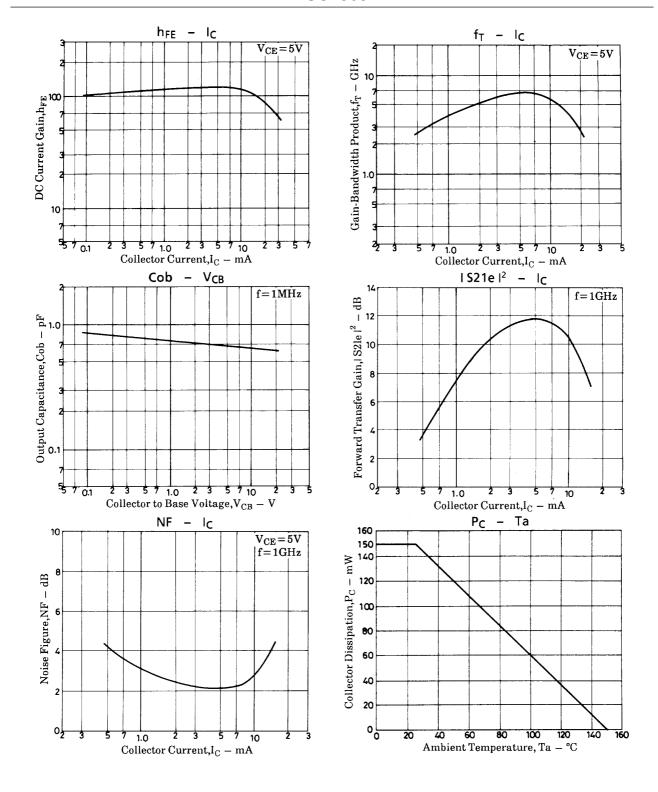
Parameter	Symbol	Conditions	Ratings			Unit
Falametei	Symbol	Conditions	min	typ	max	Offic
Collector Cutoff Current	I _{CBO}	V _{CB} =10V, I _E =0			1.0	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =1V, I _C =0			10	μA
DC Current Gain	h _{FE}	V _{CE} =5V, I _C =5mA	60*		270*	
Gain-Bandwidth Product	fΤ	V _{CE} =5V, I _C =5mA		6.5		GHz
Output Capacitance	Cob	V _{CB} =10V, f=1MHz		0.65	1.1	pF
Forward Transfer Gain	S21e ²	V _{CE} =5V, I _C =5mA, f=1GHz	8	11.5		dB
Noise Figure	NF	V _{CE} =5V, I _C =5mA, f=1GHz		2.2	4.0	dB

 $\mbox{\ast}$: The 2SC4860 is classified by 5mA $\mbox{$h_{FE}$}$ as follows :

60 3 120 90 4 180 135 5 270

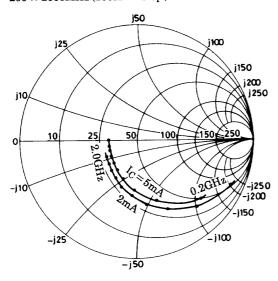
Marking: EN h_{FE} rank: 3, 4, 5

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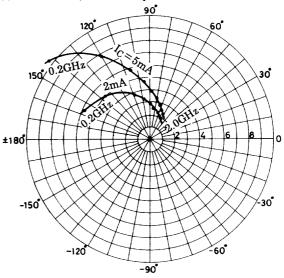


S parameter

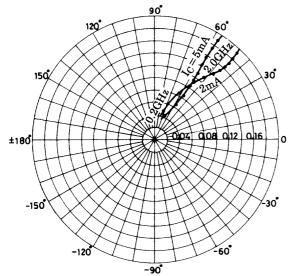
 $S11e:V_{CE}\!=\!5V \\ f\!=\!200 \text{ to } 2000MHz \text{ (200MHz step)}$



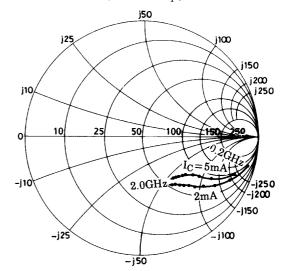
 $\begin{array}{l} S21e:V_{CE}\!=\!5V\\ f\!=\!200 \text{ to } 2000MHz \text{ (200MHz step)} \end{array}$



 $\begin{array}{l} S12e:V_{CE}\!=\!5V\\ f\!=\!200\text{ to }2000MHz\text{ (200MHz step)} \end{array}$



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



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	∠ S ₂₂
200	0.888	-25.7	5.847	155.4	0.049	73.1	0.946	-14.8
400	0.765	-47.7	5.082	136.2	0.085	62.3	0.845	-25.6
600	0.645	-66.2	4.368	121.1	0.110	55.1	0.755	-32.7
800	0.553	-81.7	3.777	108.9	0.127	50.9	0.678	-37.8
1000	0.475	-95.5	3.281	98.5	0.141	47.8	0.625	-42.0
1200	0.419	-108.4	2.915	89.5	0.153	46.1	0.586	-45.0
1400	0.367	-120.1	2.593	81.5	0.162	45.3	0.553	-48.0
1600	0.337	-131.8	2.350	74.4	0.170	45.2	0.525	-50.7
1800	0.312	-141.7	2.141	69.2	0.180	45.5	0.501	-53.8
2000	0.297	-153.0	1.996	63.3	0.191	46.0	0.488	-56.3

 $V_{CE}=5V$, $I_{C}=5mA$, $Z_{O}=50\Omega$

Freq (MHz)	S ₁₁	∠ S ₁₁	S ₂₁	∠S ₂₁	S ₁₂	∠S ₁₂	S ₂₂	∠ S ₂₂
200	0.737	-42.9	10.312	142.5	0.043	67.0	0.858	-21.1
400	0.540	-72.3	7.574	119.9	0.068	58.5	0.698	-29.9
600	0.418	-93.2	5.789	105.8	0.084	56.3	0.601	-33.4
800	0.349	-110.1	4.604	95.5	0.099	56.3	0.548	-35.7
1000	0.299	-125.4	3.885	87.1	0.114	56.6	0.518	-38.0
1200	0.275	-137.3	3.310	80.1	0.128	56.8	0.498	-39.9
1400	0.257	-149.9	2.906	73.6	0.142	57.2	0.480	-42.3
1600	0.249	-161.0	2.595	67.7	0.157	57.1	0.466	-45.5
1800	0.246	-170.2	2.346	63.6	0.172	57.1	0.450	-48.5
2000	0.245	179.7	2.174	58.4	0.189	56.7	0.447	-51.5

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