

BIPMIC[®] – Cascadable Silicon Bipolar Amplifier

Applications

General purpose for narrow and broad band IF and RF amplifiers in commercial and industrial applications with low power consumption. This allows to build amplifiers

Electrostatic sensitive device.

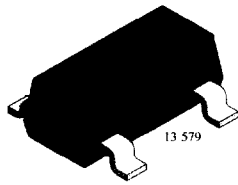
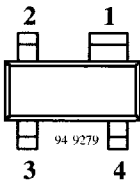
Observe precautions for handling.



with minimal external circuitry, thus providing a simple, cost effective way to achieve low level amplification, for example in cordless phones.

Features

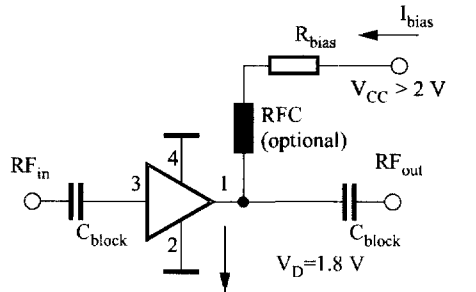
- Broadband amplification
- Low operating voltage (3 V)
- Low operating current
- High gain (8.5dB at 900MHz and 50 Ω)
- Low cost surface mount plastic package
- Few external components



S860T Marking: 860

Plastic case (SOT 143)

1 = RF-output; 2 = Ground; 3 = RF-input; 4 = Ground



$$R_{bias} = (V_{CC} - 1.8 \text{ V}) / I_{bias} \quad 13294$$

Typical biasing configuration

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Device current	I_{bias}	4	mA
RF Input power	P_{in}	0	dBm
Total power dissipation $T_{amb} \leq 146^\circ\text{C}$	P_{tot}	8	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 to +150	$^\circ\text{C}$

Maximum Thermal Resistance

Parameters	Symbol	Value	Unit
Junction ambient on glass fibre printed board (25 x 20 x 1.5) mm ³ plated with 35 μm Cu	R_{thJA}	450	K/W

Electrical AC Characteristics

$I_{bias} = 3 \text{ mA}$, $Z_0 = 50 \Omega$, $T_{amb} = 25^\circ\text{C}$

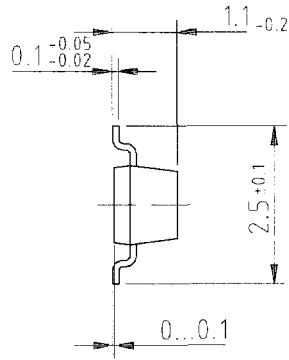
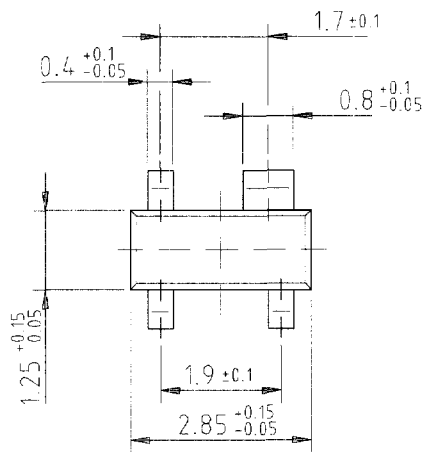
Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Power gain					
$f = 900 \text{ MHz}$	G_p	6	8.5		dB
$f = 1.9 \text{ GHz}$	G_p	5	7.5		dB
3 dB bandwidth	f_{3dB}		2.5		GHz
Noise figure					
$f = 900 \text{ MHz}$	F		5.5		dB
$f = 1.9 \text{ GHz}$	F		6.5		dB
Intermodulation distortion					
7 mV input voltage, $f = 900 \text{ MHz}$	IM_3		40		dB
$f = 1.9 \text{ GHz}$	IM_3		45		dB
Device voltage	V_d		1.8		V

Typical Source S-Parameters

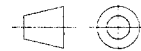
$V_{cc} = 2.4 \text{ V}$, $R_{bias} = 200 \Omega$, $Z_0 = 50 \Omega$

f/MHz	S_{11}		S_{21}		S_{12}		S_{22}	
	LOG MAG	ANG	LOG MAG	ANG	LOG MAG	ANG	LOG MAG	ANG
	dB	deg	dB	deg	dB	deg	dB	deg
100	-2.28	-2.7	7.78	174.9	-20.37	19.2	-2.06	-11.3
200	-2.34	-5.4	7.72	170.2	-20.00	15.3	-2.54	-10.6
300	-2.40	-8.1	7.69	165.6	-19.49	16.1	-2.86	-12.4
400	-2.46	-10.3	7.64	160.4	-19.28	18.9	-2.88	-14.5
500	-2.57	-13.0	7.63	155.7	-18.93	22.0	-2.84	-17.6
600	-2.66	-15.5	7.59	150.7	-18.39	25.4	-2.84	-21.4
700	-2.71	-17.7	7.49	146.6	-17.63	27.0	-3.01	-25.7
800	-2.75	-20.2	7.41	141.9	-16.93	27.1	-3.40	-29.7
900	-2.85	-22.5	7.38	137.2	-17.21	26.0	-3.45	-26.4
1000	-2.93	-24.9	7.33	132.9	-16.42	27.6	-3.62	-32.3
1100	-3.05	-27.1	7.24	128.6	-15.89	29.2	-3.55	-36.3
1200	-3.18	-29.7	7.10	124.4	-15.36	29.2	-3.67	-39.9
1300	-3.28	-32.6	7.08	120.1	-14.63	30.4	-3.53	-45.5
1400	-3.37	-35.0	7.03	116.4	-14.18	27.5	-4.22	-49.1
1500	-3.54	-37.4	6.87	112.1	-13.88	26.0	-4.62	-51.5
1600	-3.63	-40.4	6.91	108.2	-13.64	24.4	-5.03	-53.6
1700	-3.75	-43.1	6.82	104.5	-13.36	23.4	-5.24	-55.4
1800	-3.90	-46.1	6.76	100.8	-13.03	23.0	-5.26	-58.0
1900	-4.10	-49.0	6.78	96.5	-12.66	22.3	-5.40	-61.9
2000	-4.24	-52.2	6.73	93.0	-12.35	20.6	-5.75	-65.3
2100	-4.35	-55.7	6.65	89.1	-12.14	19.0	-6.09	-67.7
2200	-4.54	-59.1	6.64	85.4	-11.98	17.7	-6.34	-69.9
2300	-4.81	-62.2	6.46	81.8	-11.79	17.1	-6.40	-72.0
2400	-4.75	-65.7	6.61	78.5	-11.35	16.6	-6.31	-76.7
2400	-5.02	-72.4	6.74	74.4	-10.86	13.3	-6.69	-82.9
2600	-5.61	-75.7	6.61	69.5	-10.64	10.7	-7.13	-87.0
2700	-6.05	-80.4	6.54	65.3	-10.54	8.6	-7.60	-89.9
2800	-6.50	-84.4	6.56	61.8	-10.48	6.3	-8.10	-92.8
2900	-7.02	-89.6	6.33	57.3	-10.42	3.9	-8.60	-96.0
3000	-7.45	-94.6	6.31	53.0	-10.38	1.8	-9.11	-99.0

Dimensions in mm



96 12240



technical drawings
according to DIN
specifications