S 860 T

BIPMIC® – Cascadable Silicon Bipolar Amplifier

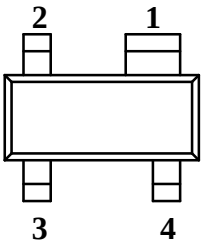
Electrostatic sensitive device.
Observe precautions for handling.

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 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
- Low operating current
- High gain (8.5dB at 900MHz and 50 Ω
- Low cost surface mount plastic package
- Few external components



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S860T Marking: 860
Plastic case (SOT 143)
1 = RF–input; 2 = Ground; 3 = RF–output; 4 = Ground

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Device current	I_d	9	mA
Total power dissipation $T_{amb} \leq 143°C$	P_{tot}	15	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	–65 to +150	°C

Maximum Thermal Resistance

Parameters	Symbol	Value	Unit
Junction ambient mounted on glass fibre printed board (25 x 20 x l.5) mm^3 plated with 35 µm Cu	R_{thJA}	450	K/W

Electrical AC Characteristics

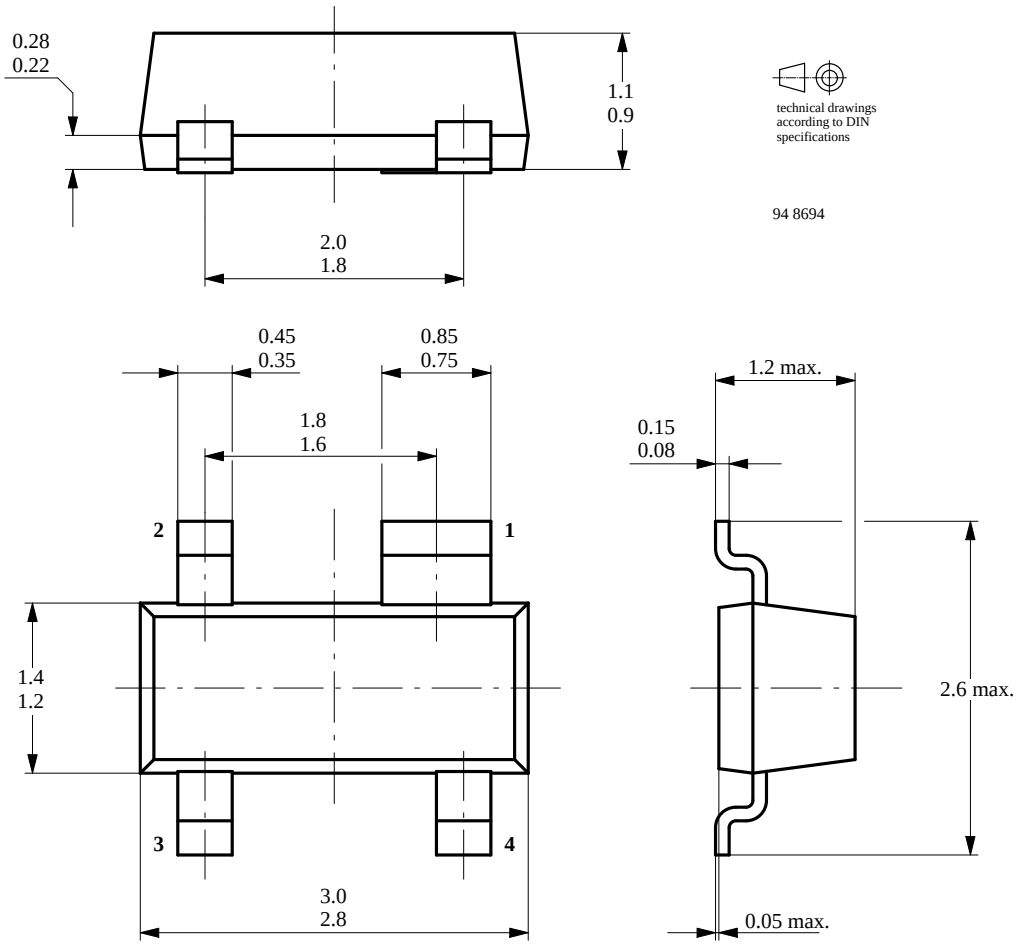
I_d = 3 mA, Z_0 = 50 Ω, T_{amb} = 25°C

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

Common Source S-Parameters
V_{cc} = 2.4 V, R_{bias} = 200 Ω, Z_0 = 50 Ω

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	–2.2801	–2.7	7.7872	174.9	–20.3717	19.2	–2.0690	–11.3
200	–2.3471	–5.4	7.7212	170.2	–20.0094	15.3	–2.5495	–10.6
300	–2.4041	–8.1	7.6965	165.6	–19.4945	16.1	–2.8614	–12.4
400	–2.4674	–10.3	7.6473	160.4	–19.2899	18.9	–2.8847	–14.5
500	–2.5794	–13.0	7.6355	155.7	–18.9347	22.0	–2.8459	–17.6
600	–2.6641	–15.5	7.5933	150.7	–18.3947	25.4	–2.8404	–21.4
700	–2.7105	–17.7	7.4965	146.6	–17.6306	27.0	–3.0140	–25.7
800	–2.7539	–20.2	7.4183	141.9	–16.9327	27.1	–3.4032	–29.7
900	–2.8592	–22.5	7.3838	137.2	–17.2117	26.0	–3.4562	–26.4
1000	–2.9304	–24.9	7.3395	132.9	–16.4278	27.6	–3.6254	–32.3
1100	–3.0563	–27.1	7.2429	128.6	–15.8951	29.2	–3.5535	–36.3
1200	–3.1838	–29.7	7.1072	124.4	–15.3694	29.2	–3.6733	–39.9
1300	–3.2876	–32.6	7.0854	120.1	–14.6335	30.4	–3.5379	–45.5
1400	–3.3738	–35.0	7.0327	116.4	–14.1855	27.5	–4.2240	–49.1
1500	–3.5409	–37.4	6.8725	112.1	–13.8808	26.0	–4.6261	–51.5
1600	–3.6365	–40.4	6.9141	108.2	–13.6467	24.4	–5.0360	–53.6
1700	–3.7512	–43.1	6.8277	104.5	–13.3641	23.4	–5.2406	–55.4
1800	–3.9022	–46.1	6.7680	100.8	–13.0329	23.0	–5.2657	–58.0
1900	–4.1010	–49.0	6.7821	96.5	–12.6635	22.3	–5.4008	–61.9
2000	–4.2445	–52.2	6.7351	93.0	–12.3590	20.6	–5.7530	–65.3
2100	–4.3576	–55.7	6.6544	89.1	–12.1454	19.0	–6.0975	–67.7
2200	–4.5436	–59.1	6.6486	85.4	–11.9898	17.7	–6.3418	–69.9
2300	–4.8109	–62.2	6.4639	81.8	–11.7947	17.1	–6.4054	–72.0
2400	–4.7582	–65.7	6.6171	78.5	–11.3507	16.6	–6.3167	–76.7
2400	–5.0228	–72.4	6.7449	74.4	–10.8653	13.3	–6.6916	–82.9
2600	–5.6170	–75.7	6.6150	69.5	–10.6497	10.7	–7.1380	–87.0
2700	–6.0511	–80.4	6.5426	65.3	–10.5458	8.6	–7.6035	–89.9
2800	–6.5035	–84.4	6.5652	61.8	–10.4841	6.3	–8.1026	–92.8
2900	–7.0286	–89.6	6.3346	57.3	–10.4274	3.9	–8.6028	–96.0
3000	–7.4523	–94.6	6.3173	53.0	–10.3899	1.8	–9.1119	–99.0

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design without further notice.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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