

Monolithic Amplifier

Gali  S66+
Gali  S66

50Ω, Broadband, DC to 3 GHz

Features

- wide bandwidth, DC-3 GHz
- low noise figure, 2.7 dB typ.
- excellent package for heat dissipation, exposed metal bottom
- advanced silicon technology
- low thermal resistance for high reliability
- miniature SOT-89 package



CASE STYLE : DF782

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Applications

- cellular
- PCS
- communication receivers & transmitters

Electrical Specifications @ 25°C

MODEL NO.	FREQ.* (GHz)	GAIN, dB Typical							MIN. @ 2GHz	MAXIMUM POWER, dBm @ 2GHz			DYNAMIC RANGE @ 2GHz		VSWR (:1) Typ.		MAXIMUM RATING**		DC OPERATING POWER @ Pin 3***			THERMAL RESISTANCE θjc, typ. °C/W	PRICE \$ Qty. (25)	
		over frequency, GHz								Output (1 dB Comp.)	Input (no dmg.)	NF Typ.	IP3 Typ.	In DC-3 GHz	Out DC-3 GHz	I mA	P mW	Current (mA)	Device Volt	Typ	Min			Max
Gali-S66(+)	DC-3	22	20.3	17.3	15.5	—	—	—	15	2.8	1.0	13	2.7	18	1.25	1.7	50	200	16	3.5	3.0	4.0	136	.99

* Low frequency cutoff determined by external coupling capacitors.
 ** Permanent damage may occur if any of these limits are exceeded. These ratings are not intended for continuous normal operation.
 ***Reliability predictions and normal operating conditions are applicable at current specified.

Maximum Ratings

Operating Temperature	-45°C to 85°C
Storage Temperature	-65°C to 150°C

Pin Configuration

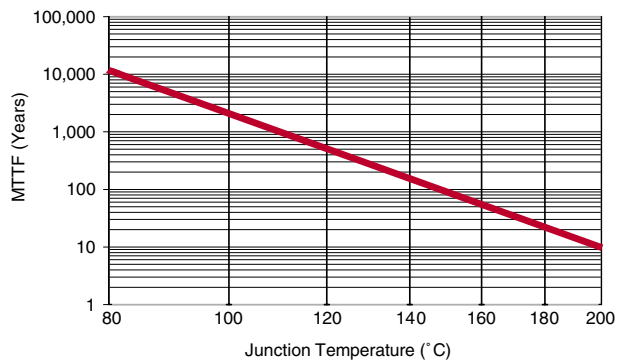
RF IN	1
RF OUT	3
DC	3
GROUND	2

Model Identification

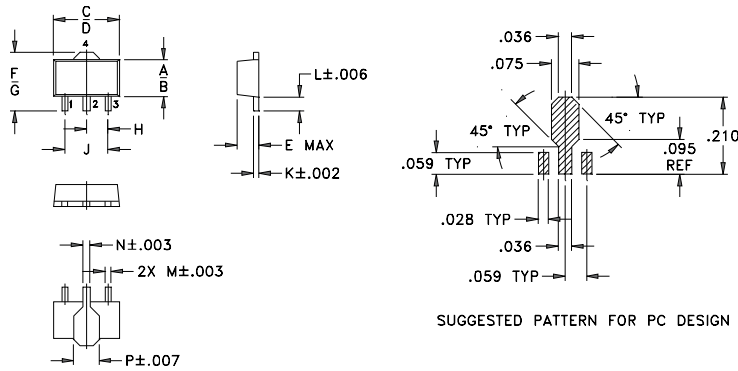
Model	Marking†
GALI-S66(+)	66

†Prefix letter (optional) designates assembly location. Suffix letters (optional) are for wafer identification.

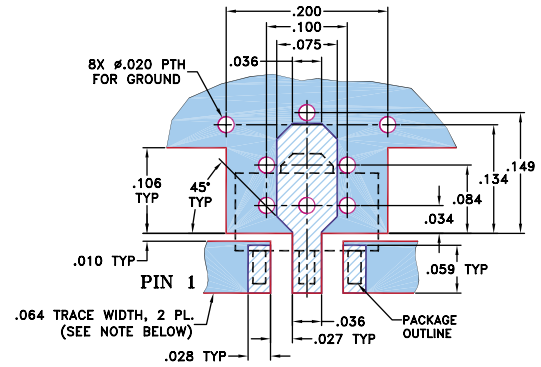
MTTF vs. Junction Temp



Outline Drawing



Demo Board MCL P/N: Gali-TBF
Suggested PCB Layout (PL-019)



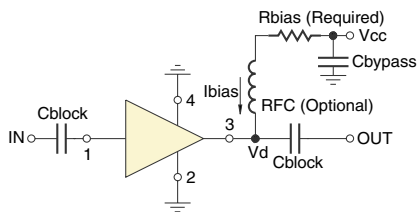
NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS $.030 \pm .002$; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H
.102	.090	.181	.173	.063	.167	.155	.059
2.59	2.29	4.60	4.39	1.60	4.24	3.94	1.50
J	K	L	M	N	P	wt	
.118	.015	.041	.016	.019	.065	grams	
3.00	0.38	1.04	0.41	0.48	1.65	0.2	

Typical Biasing Configuration



R BIAS "1%" Resistor Values

Vcc	GALI-S66(+)
7	187
8	243
9	301
10	374
11	432
12	499
13	562
14	619
15	681
16	750
17	806
18	866
19	931
20	976

S-parameters

Gali-S66(+)

$$I_d=16\text{mA}, V_d=3.5\text{V}$$

Freq. MHz	S11 (Input Return Loss)			S21 (Power Gain)			S12 (Isolation Out-in)			S22 (Output Return Loss)			K
	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	dB	Mag	Angle	
100	-24.09	0.06	39.95	21.51	11.90	172.83	-22.33	0.08	19.18	-28.55	0.04	-10.91	1.00
200	-36.61	0.01	10.67	21.76	12.25	167.59	-23.81	0.06	3.66	-24.53	0.06	-61.64	1.03
400	-35.73	0.02	-45.81	21.51	11.90	155.64	-24.13	0.06	5.88	-22.58	0.07	-85.72	1.04
600	-34.27	0.02	-92.68	21.15	11.42	144.48	-23.93	0.06	3.23	-18.78	0.12	-109.94	1.04
800	-28.50	0.04	-92.71	20.72	10.86	134.26	-23.85	0.06	4.11	-16.69	0.15	-126.13	1.04
1000	-26.32	0.05	-112.67	20.21	10.24	124.22	-23.31	0.07	10.05	-14.99	0.18	-138.85	1.03
1200	-24.05	0.06	-128.08	19.67	9.63	115.05	-23.29	0.07	7.55	-13.68	0.21	-149.77	1.04
1400	-22.86	0.07	-140.37	19.08	9.00	106.38	-22.65	0.07	6.41	-12.72	0.23	-159.37	1.03
1600	-20.96	0.09	-149.41	18.56	8.47	98.44	-23.27	0.07	8.29	-11.87	0.26	-167.31	1.08
1800	-19.65	0.10	-155.87	18.00	7.94	90.91	-22.41	0.08	9.63	-11.42	0.27	-175.05	1.05
2000	-18.67	0.12	-163.45	17.48	7.48	83.86	-22.00	0.08	5.8	-10.59	0.30	179.54	1.04
2200	-17.81	0.13	-166.09	16.99	7.07	77.01	-21.96	0.08	7.01	-10.23	0.31	173.61	1.06
2500	-16.75	0.15	-171.82	16.35	6.57	67.36	-21.88	0.08	4.79	-9.91	0.32	165.24	1.09
2800	-15.50	0.17	179.2	15.66	6.07	57.94	-20.78	0.09	3.19	-9.62	0.33	158.74	1.05
3000	-14.77	0.18	175.92	15.34	5.85	52.07	-21.03	0.09	-1.81	-9.44	0.34	152.16	1.08
3200	-14.00	0.20	171.52	14.99	5.62	45.93	-20.80	0.09	-1.29	-9.26	0.34	146.53	1.08
3400	-13.32	0.22	164.6	14.67	5.41	39.82	-20.88	0.09	-4.12	-8.98	0.36	140.45	1.10
3600	-12.60	0.23	158.01	14.34	5.21	33.89	-20.27	0.10	-7.46	-8.75	0.37	134.52	1.07
3800	-11.81	0.26	152.63	14.03	5.03	28.09	-20.10	0.10	-10.8	-8.48	0.38	128.23	1.07
4000	-11.11	0.28	148.42	13.76	4.88	21.73	-19.84	0.10	-14.14	-8.05	0.40	121.87	1.05
4200	-10.59	0.30	142.32	13.48	4.72	15.74	-19.68	0.10	-18.33	-7.80	0.41	115.58	1.04
4400	-9.96	0.32	135.86	13.24	4.59	9.72	-19.84	0.10	-22.23	-7.56	0.42	109.41	1.05
4600	-9.40	0.34	129.31	12.95	4.44	3.91	-19.88	0.10	-27.64	-7.19	0.44	103.63	1.05
4800	-8.80	0.36	123.36	12.72	4.33	-2.17	-19.87	0.10	-31.42	-6.79	0.46	97.78	1.05
5000	-8.35	0.38	116.93	12.42	4.18	-8.25	-19.85	0.10	-35.44	-6.44	0.48	92.05	1.04
5200	-7.97	0.40	110.85	12.16	4.06	-14.18	-19.91	0.10	-39.54	-6.22	0.49	86.32	1.05
5400	-7.55	0.42	104.88	11.98	3.97	-20.07	-20.00	0.10	-44.17	-5.93	0.51	81.88	1.04
5600	-7.30	0.43	99.47	11.87	3.92	-25.88	-19.91	0.10	-50.84	-5.75	0.52	76.25	1.02
5800	-6.97	0.45	94.02	11.76	3.87	-32.69	-20.41	0.10	-55.66	-5.57	0.53	71.71	1.03
6000	-6.56	0.47	88.03	11.58	3.79	-39.71	-20.45	0.10	-64.66	-5.39	0.54	66.91	1.00
6200	-6.27	0.49	80.49	11.42	3.72	-47.15	-20.61	0.09	-66.75	-5.23	0.55	61.69	1.01
6400	-6.06	0.50	73.88	11.19	3.63	-54.46	-20.79	0.09	-76.1	-5.12	0.55	56.57	1.00
6600	-5.62	0.52	65.18	11.05	3.57	-62.82	-20.92	0.09	-82.48	-4.83	0.57	49.99	0.97
6800	-5.43	0.54	57.29	10.72	3.44	-71.18	-21.28	0.09	-89.75	-4.79	0.58	42.8	1.00
7000	-5.10	0.56	48.76	10.34	3.29	-79.64	-21.39	0.09	-98.46	-4.71	0.58	35.49	1.00
7500	-4.13	0.62	27.5	9.17	2.87	-100.66	-22.08	0.08	-123.7	-4.49	0.60	15.91	1.00
8000	-3.45	0.67	6.79	7.51	2.37	-121.91	-23.19	0.07	-143.23	-4.42	0.60	-4.65	1.17