

KGF1181B

Medium-Power Amplifier for UHF-Band and PCS Frequencies

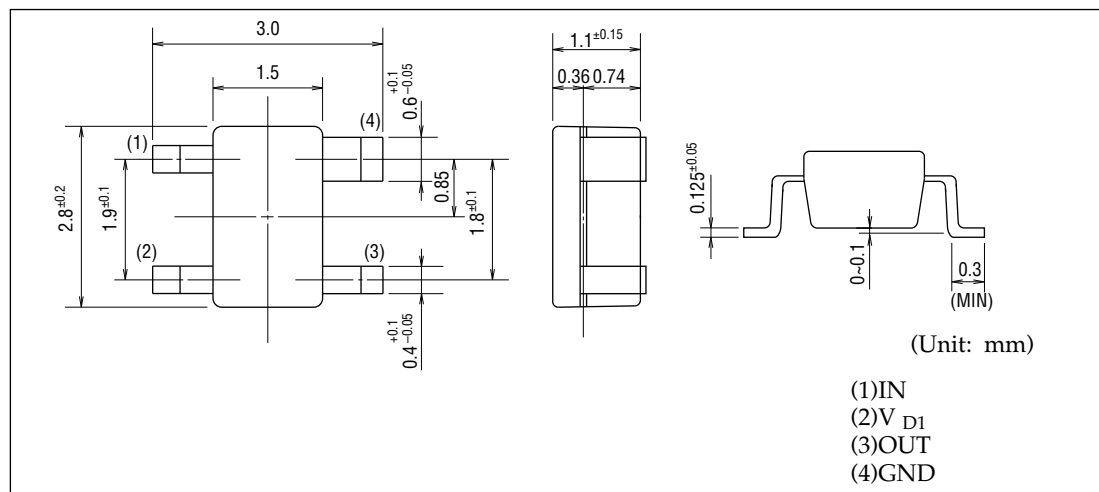
GENERAL DESCRIPTION

The KGF1181B is a two-stage medium-power UHF-band amplifier that features high gain, high output power, and low power dissipation. The internally matched $50\ \Omega$ input and output eliminate external impedance-matching circuits. All specifications for this device are guaranteed at 5 V and 850 MHz. Because of the high gain and high output power, the KGF1181B is ideal as an intermediate transmitter-stage amplifier for personal handy phones.

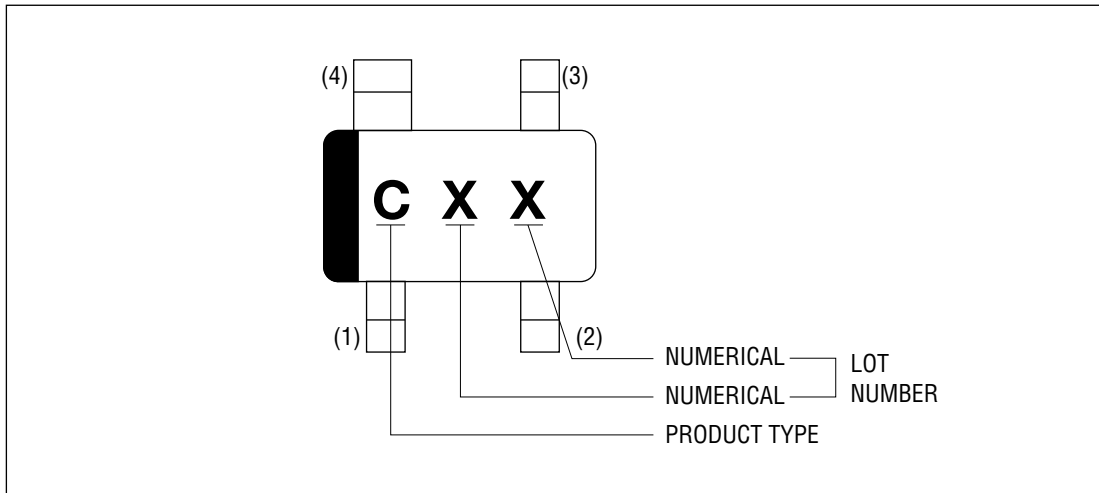
FEATURES

- Internally matched $50\ \Omega$ input and output
- High linear gain: 20 dB (min)
- High output power: 11.5 dBm (min)
- Low current: 40 mA (max)
- Self-bias circuit configuration with built-in source capacitor
- Surface-mount 4-pin SOP plastic package

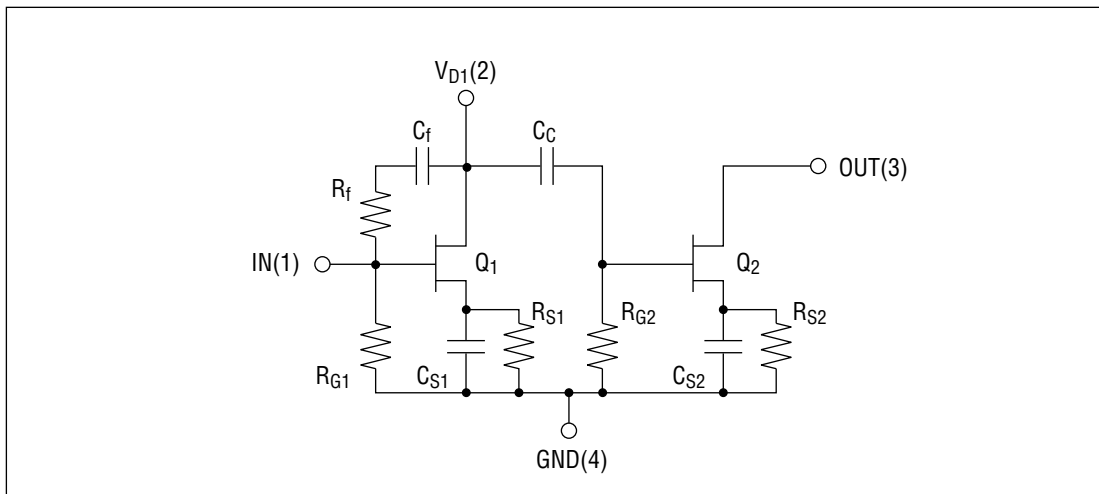
PACKAGE OUTLINE



MARKING



CIRCUIT



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Condition	Unit	Min.	Max.
Supply voltage	V_{DD}	$T_a = 25^{\circ}\text{C}$	V	—	10
Input power	P_{IN}	$T_a = 25^{\circ}\text{C}$	dBm	—	6
Total power dissipation	P_{tot}	$T_a = 25^{\circ}\text{C}$	mW	—	300
Channel temperature	T_{ch}	—	$^{\circ}\text{C}$	—	150
Storage temperature	T_{stg}	—	$^{\circ}\text{C}$	-45	125

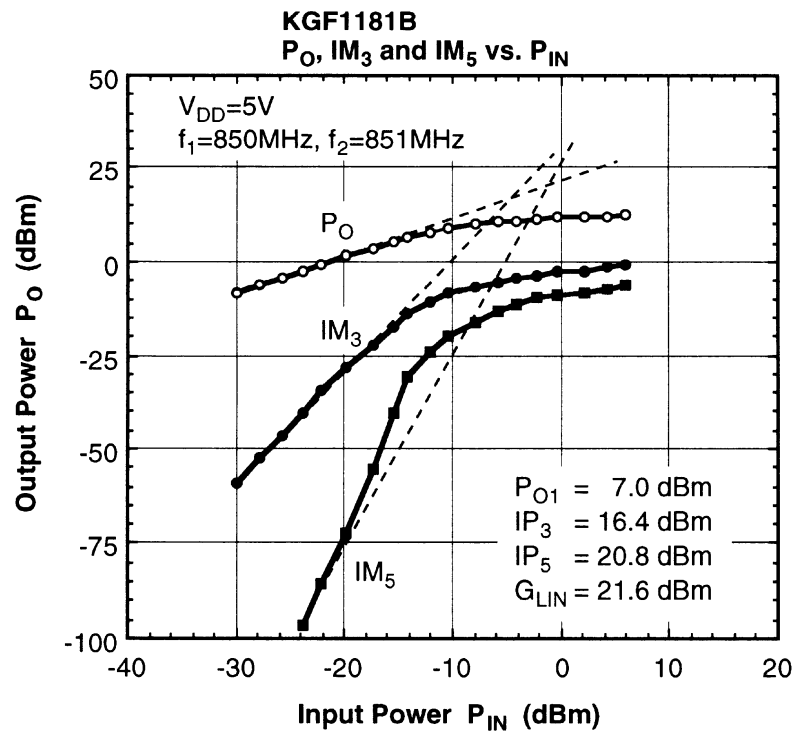
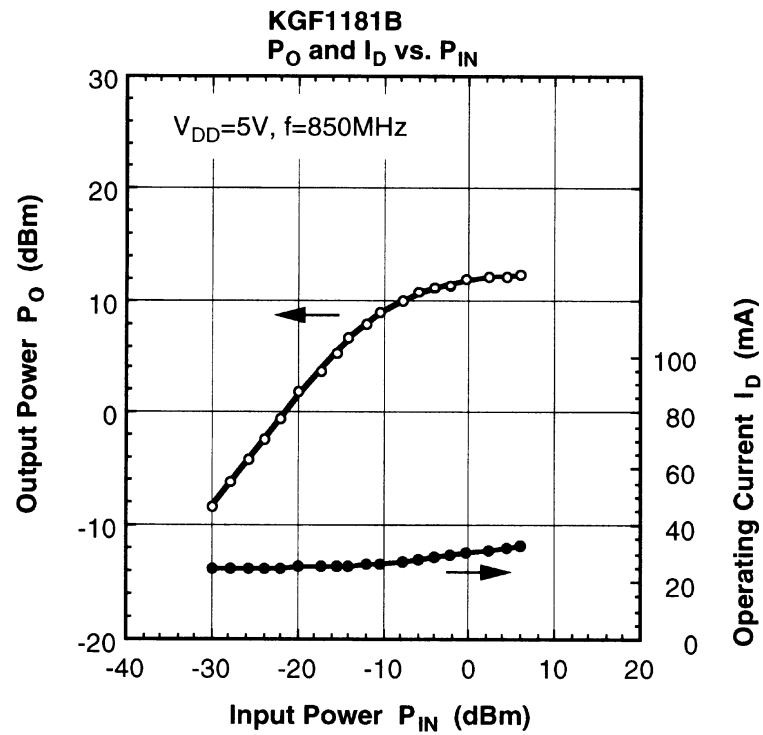
ELECTRICAL CHARACTERISTICS

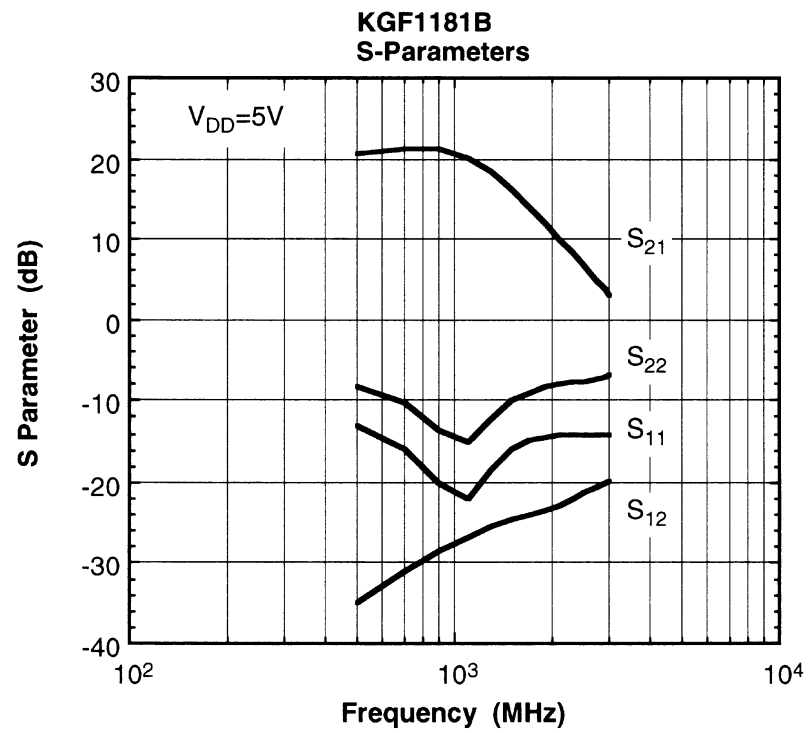
(Ta = 25°C)

Item	Symbol	Condition	Unit	Min.	Typ.	Max.
Operating current	I_D	(*1), $P_{IN} = 0$ dBm	mA	—	—	40.0
Linear gain	G_{LIN}	(*1), $P_{IN} = -20$ dBm	dB	20.0	—	—
Output power	P_O	(*1), $P_{IN} = 0$ dBm	dBm	11.5	—	—
Input return loss	R_{LIN}	(*1), $P_{IN} = -20$ dBm	dB	—	-18.0	—

*1 Self-bias condition: $V_{DD} = 5.2$ V, $f = 850$ MHz

RF CHARACTERISTICS



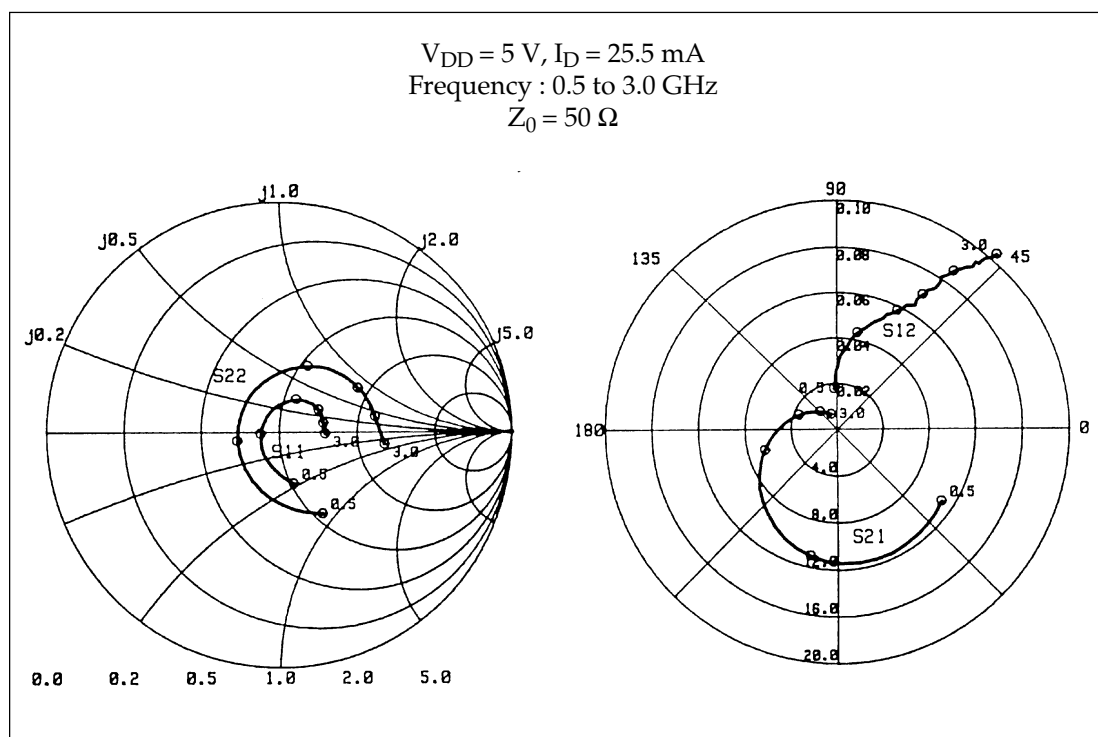


Typical S-Parameters

 $V_{DD} = 5\text{ V}$, $I_D = 25.5\text{ mA}$

Freq(MHz)	MAG(S ₁₁)	ANG(S ₁₁)	MAG(S ₂₁)	ANG(S ₂₁)	MAG(S ₁₂)	ANG(S ₁₂)	MAG(S ₂₂)	ANG(S ₂₂)
500.0	0.225	-73.96	10.928	-34.12	0.018	93.77	0.391	-61.62
600.0	0.194	-83.51	11.264	-46.61	0.023	91.50	0.350	-72.91
700.0	0.160	-95.59	11.461	-59.58	0.028	88.67	0.305	-87.74
800.0	0.128	-113.58	11.551	-73.18	0.033	86.61	0.259	-106.94
900.0	0.099	-139.96	11.432	-87.52	0.038	81.86	0.211	-133.79
1000.0	0.078	-176.28	10.984	-102.34	0.043	77.98	0.180	-168.49
1100.0	0.079	140.16	10.295	-116.91	0.046	74.33	0.179	152.13
1200.0	0.099	109.32	9.320	-130.65	0.051	69.99	0.210	120.21
1300.0	0.122	88.58	8.398	-143.34	0.053	67.04	0.246	96.42
1400.0	0.143	72.45	7.362	-154.70	0.056	65.05	0.284	79.27
1500.0	0.162	61.99	6.483	-164.55	0.058	63.02	0.314	66.56
1600.0	0.173	52.98	5.707	-173.40	0.061	61.23	0.340	56.49
1700.0	0.182	45.27	5.011	178.69	0.063	60.52	0.356	48.34
1800.0	0.189	39.56	4.435	171.29	0.064	57.80	0.372	41.34
1900.0	0.192	34.22	3.942	164.86	0.068	58.14	0.381	35.18
2000.0	0.196	29.98	3.512	158.67	0.070	57.52	0.390	29.57
2100.0	0.197	25.53	3.158	153.01	0.073	56.93	0.401	24.62
2200.0	0.196	21.33	2.856	147.49	0.075	55.36	0.405	20.51
2300.0	0.195	17.92	2.580	142.39	0.079	55.00	0.411	16.27
2400.0	0.192	14.26	2.347	137.60	0.081	55.69	0.412	12.62
2500.0	0.195	11.84	2.131	133.02	0.086	53.68	0.418	9.36
2600.0	0.193	8.31	1.960	128.32	0.089	52.40	0.423	5.63
2700.0	0.194	6.31	1.796	124.09	0.093	50.34	0.428	2.81
2800.0	0.195	4.04	1.661	119.21	0.096	49.57	0.438	-0.43
2900.0	0.196	0.81	1.535	115.25	0.099	49.19	0.445	-2.91
3000.0	0.198	-1.35	1.424	110.74	0.103	47.80	0.455	-6.22

Typical S-Parameters



Test Circuit and Bias Configuration for KGF1181B