

# OKI electronic components

## KGF1181B

### Medium-Power Amplifier

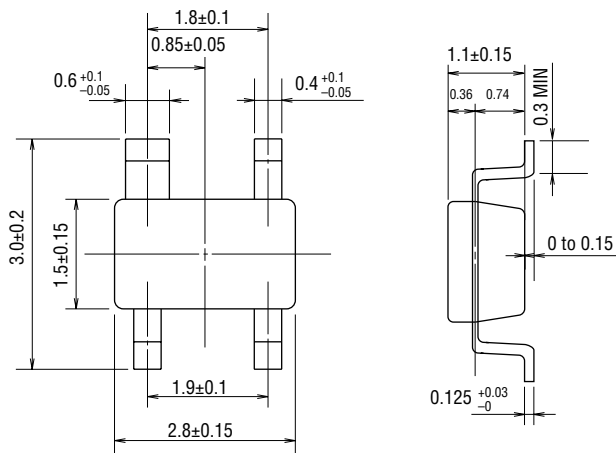
#### GENERAL DESCRIPTION

The KGF1181B is a two-stage medium-power UHF-band amplifier that features high gain, high output power, and low power operation. 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 a transmitter-intermediate-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 operation: 40 mA (max.)
- Self-bias circuit configuration with built-in source capacitor
- Package: 4PSOP

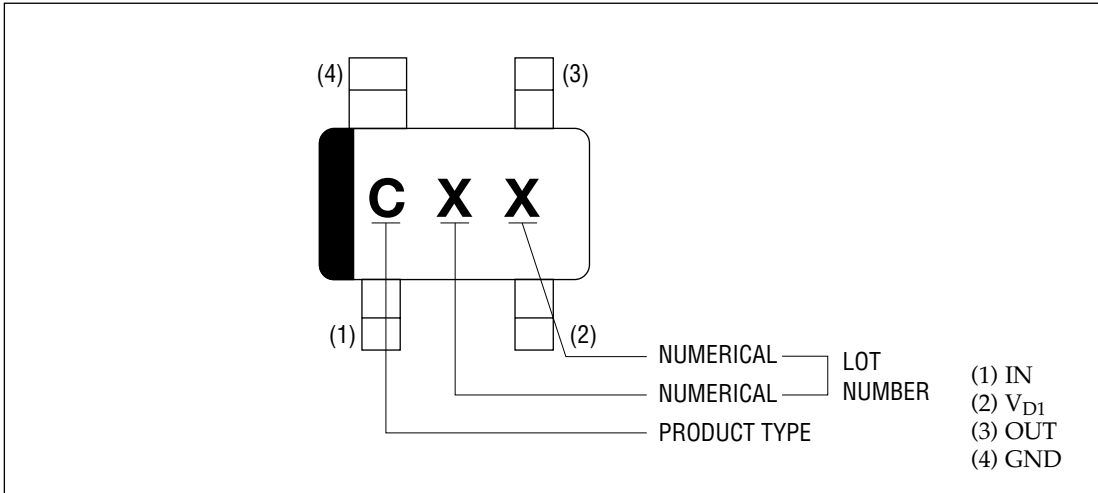
#### PACKAGE DIMENSIONS



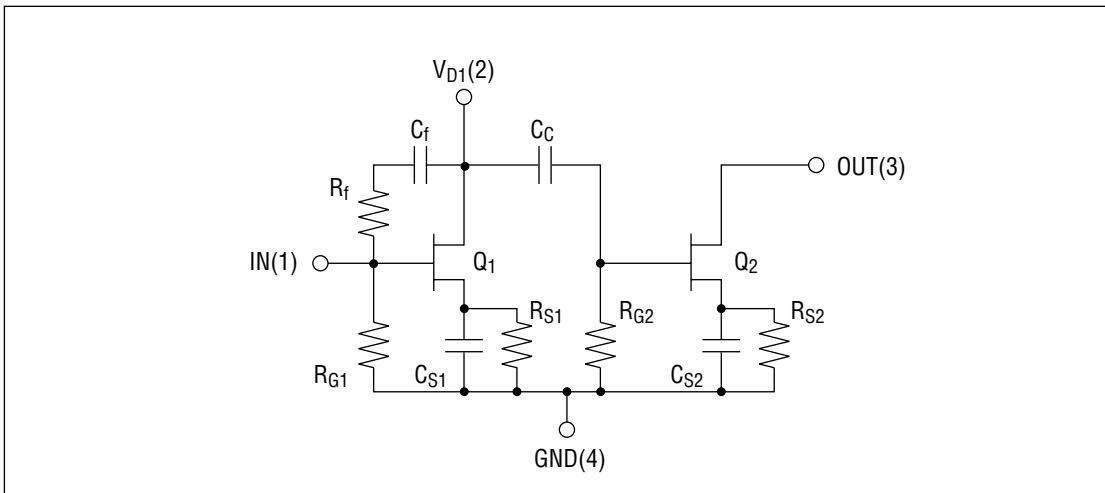
(Unit: mm)

Package material	Epoxy resin
Lead frame material	42 alloy
Pin treatment	Solder plating
Solder plate thickness	5 $\mu\text{m}$ or more

**MARKING**



**CIRCUIT**



**ABSOLUTE MAXIMUM RATINGS**

Item	Symbol	Conditions	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

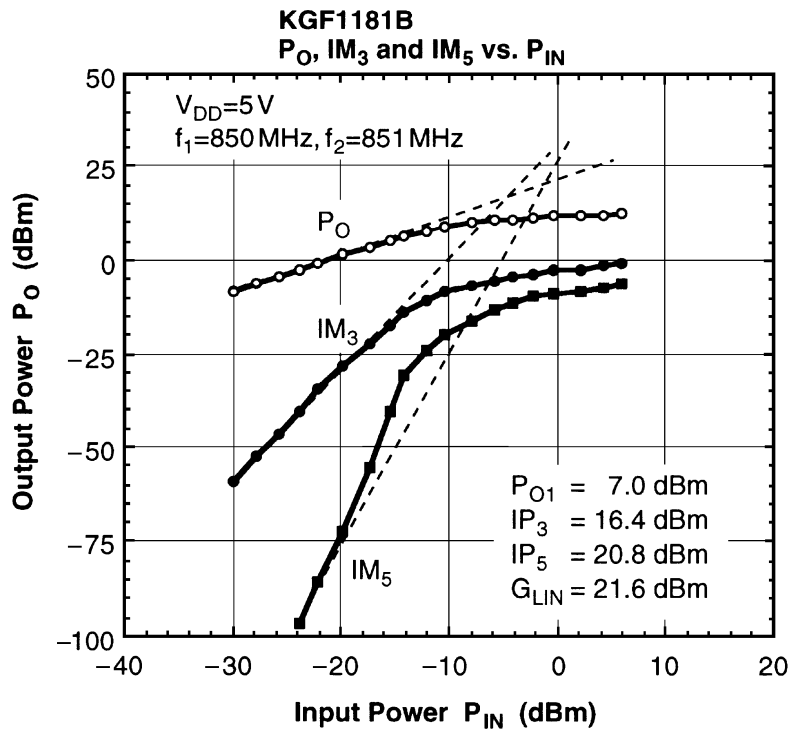
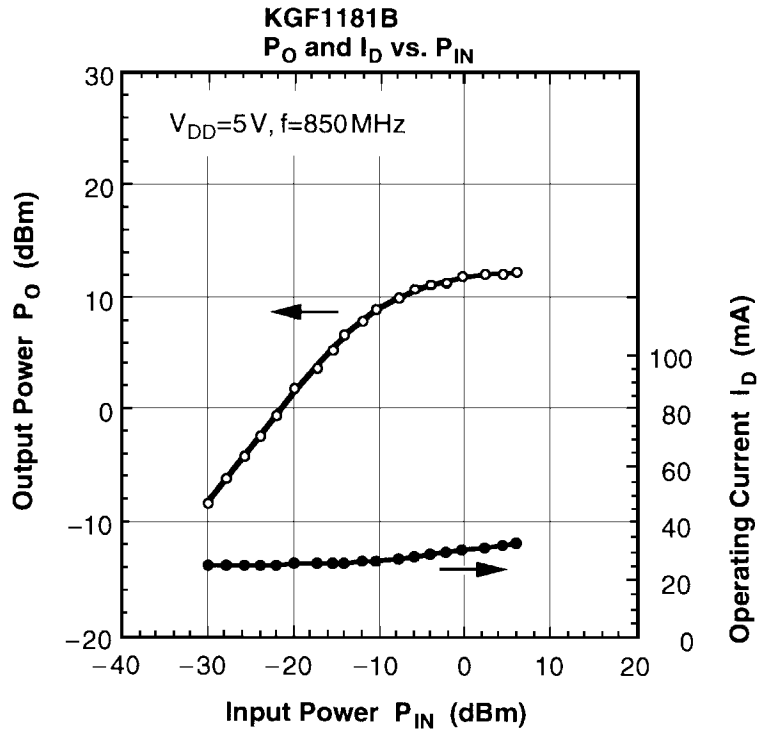
**ELECTRICAL CHARACTERISTICS**

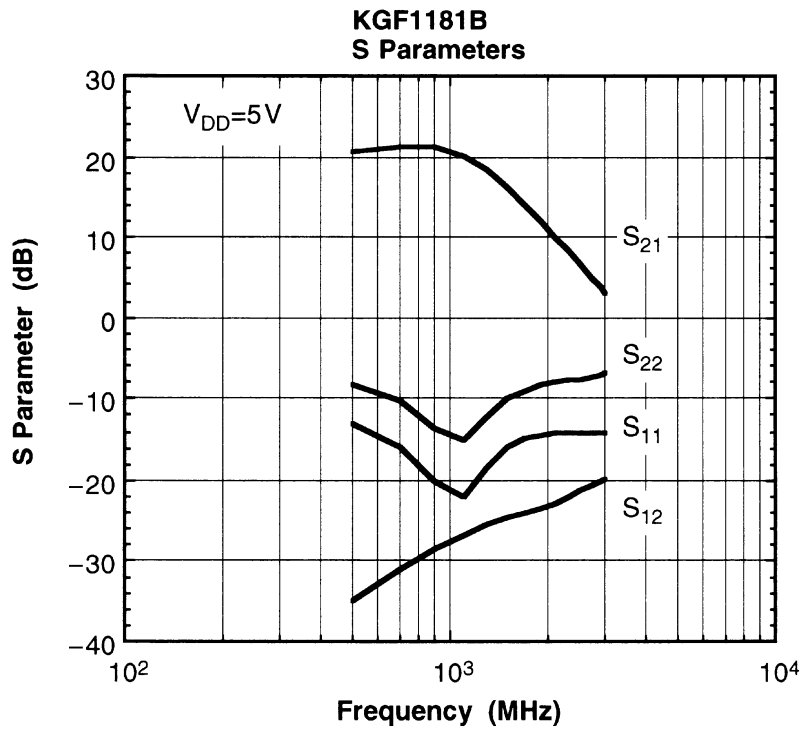
(Ta = 25°C)

Item	Symbol	Conditions	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



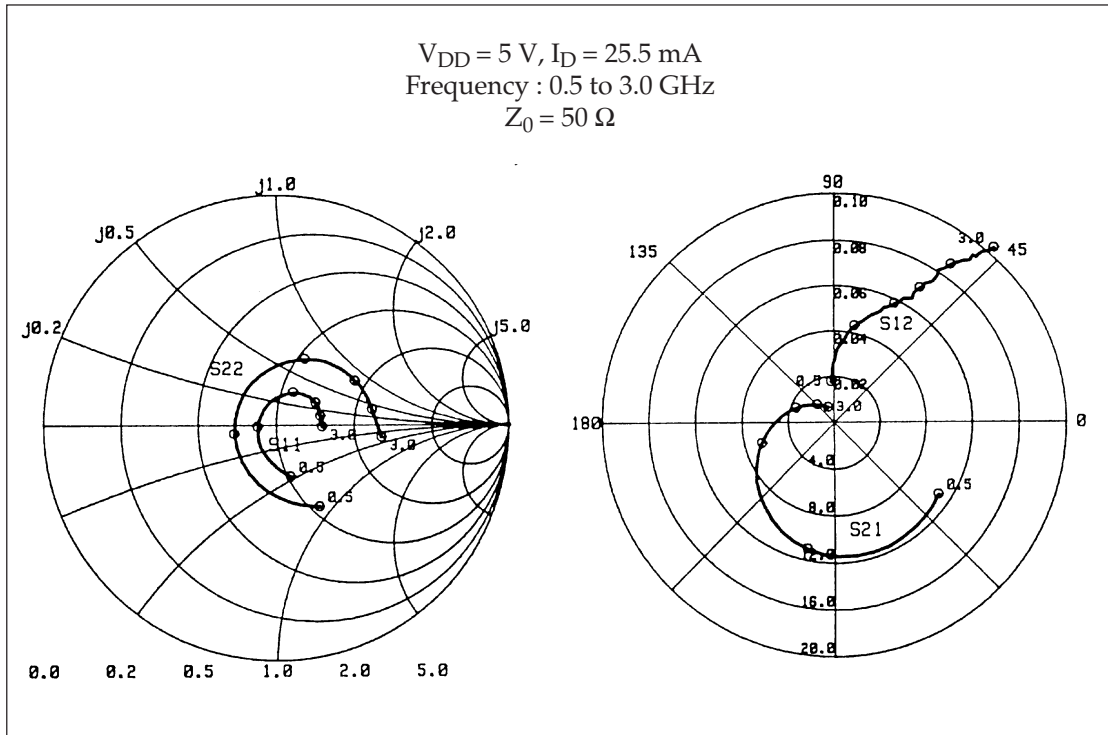


## Typical S Parameters

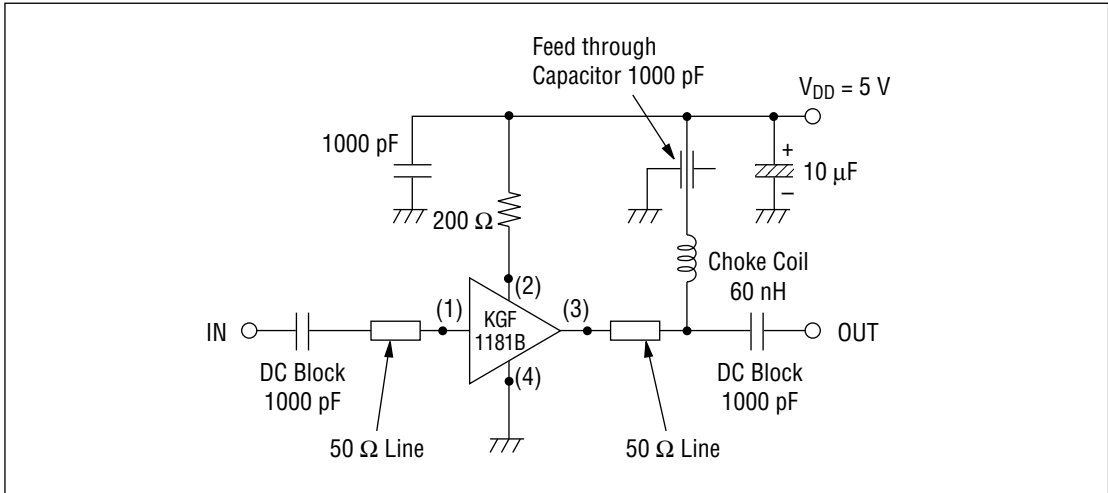
 $V_{DD} = 5\text{ V}$ ,  $I_D = 25.5\text{ mA}$ 

Freq(MHz)	MAG(S <sub>11</sub> )	ANG(S <sub>11</sub> )	MAG(S <sub>21</sub> )	ANG(S <sub>21</sub> )	MAG(S <sub>12</sub> )	ANG(S <sub>12</sub> )	MAG(S <sub>22</sub> )	ANG(S <sub>22</sub> )
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**



**Test Circuit Board for KGF 1181B**

