

# OKI electronic components

## KGF2441

### AGC Amplifier

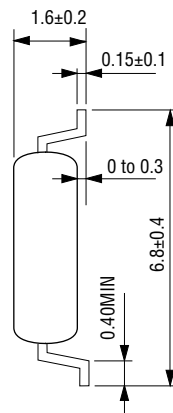
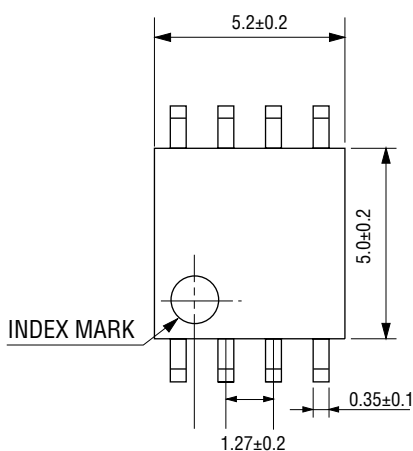
#### GENERAL DESCRIPTION

The KGF2441 is a GaAs FET AGC amplifier offering a wide dynamic range of  $\geq 80$  dB. With control over a +30 dB (max.) to -50 dB (min.) range at 130 MHz, the device also provides excellent gain slope linearity. The KGF2441 operates with a single 5-V power supply with a low current operation of 5 mA (typ.) The device is particularly suited to IF-stage amplifier applications, such as portable handy phones based on CDMA-type digital cellular technology operating over wide dynamic ranges.

#### FEATURES

- Wide dynamic range: 80 dB (min.)
- Excellent gain slope linearity for AGC voltage
- Low current operation: 5 V, 5 mA (typ.)
- Package: 8PSOP

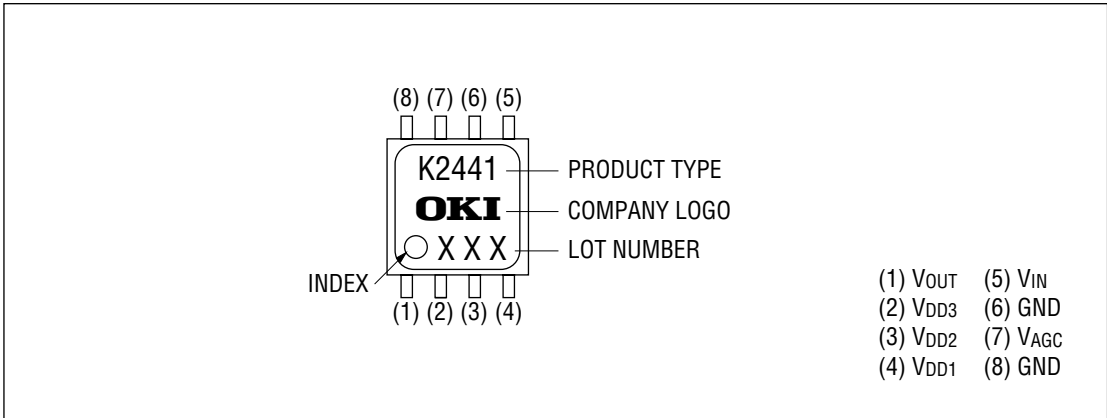
#### PACKAGE DIMENSIONS



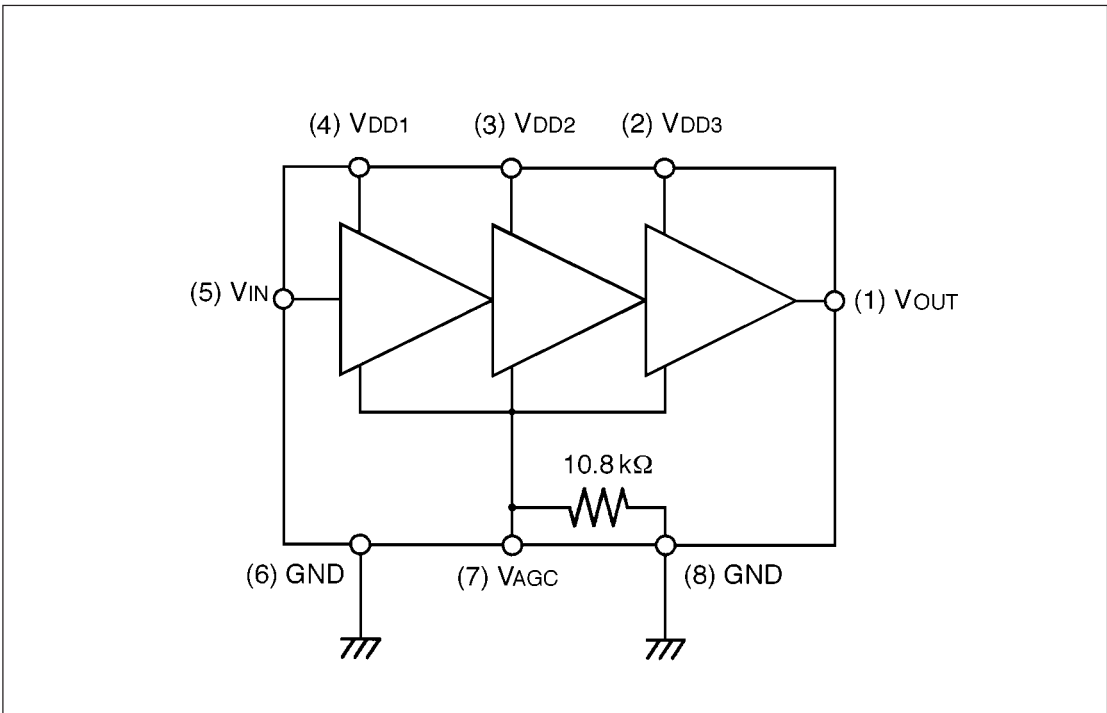
|                        |                   |
|------------------------|-------------------|
| Package material       | Epoxy resin       |
| Lead frame material    | 42 alloy          |
| Pin treatment          | Solder plating    |
| Solder plate thickness | 5 $\mu$ m or more |

(Unit: mm)

**MARKING**



**CIRCUIT**



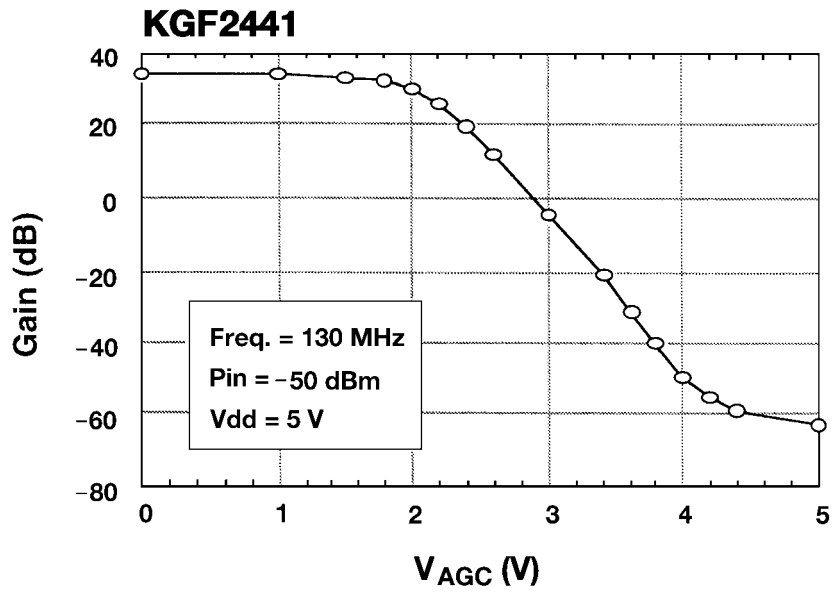
**ABSOLUTE MAXIMUM RATINGS**

| Item                    | Symbol    | Condition                | Unit             | Min.           | Max.                     |
|-------------------------|-----------|--------------------------|------------------|----------------|--------------------------|
| Supply voltage 1        | $V_{DD1}$ | $T_a = 25^\circ\text{C}$ | V                | —              | 5.5                      |
| Supply voltage 2        | $V_{DD2}$ | $T_a = 25^\circ\text{C}$ | V                | —              | 5.5                      |
| Supply voltage 3        | $V_{DD3}$ | $T_a = 25^\circ\text{C}$ | V                | —              | 5.5                      |
| Gain control voltage    | $V_{AGC}$ | $T_a = 25^\circ\text{C}$ | V                | 0              | $V_{DD}-2$               |
| Input voltage           | $V_{IN}$  | $T_a = 25^\circ\text{C}$ | V                | -3             | 0.4                      |
| Output voltage          | $V_{OUT}$ | $T_a = 25^\circ\text{C}$ | V                | $V_{DD}/2-0.4$ | $V_{DD}/2+3$ or $V_{DD}$ |
| Total power dissipation | $P_{tot}$ | $T_a = 25^\circ\text{C}$ | mW               | —              | 200                      |
| Storage temperature     | $T_{stg}$ | —                        | $^\circ\text{C}$ | -45            | 125                      |

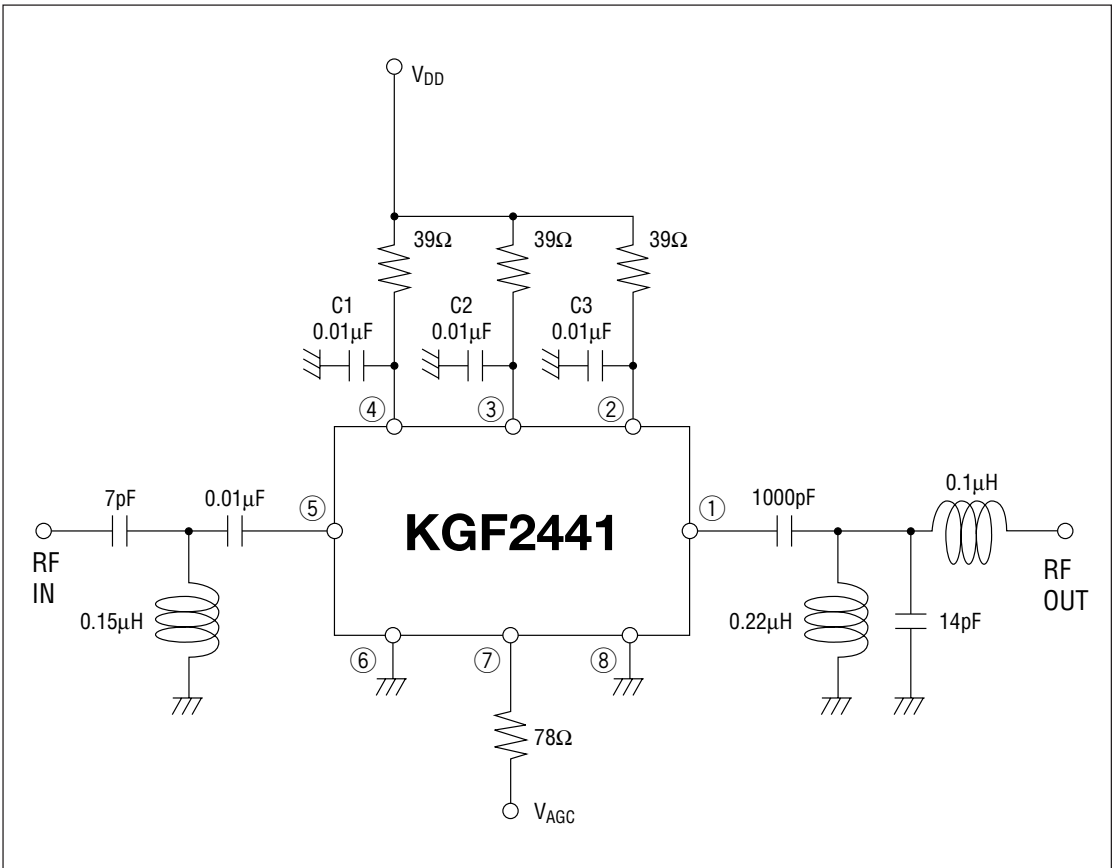
**ELECTRICAL CHARACTERISTICS** $T_a = 25^\circ\text{C}$ ,  $f = 130\text{ MHz}$ ,  $V_{DD} = 5\text{ V}$ 

| Item             | Symbol    | Condition  | Unit     | Min. | Typ. | Max. |
|------------------|-----------|--|----------|------|------|------|
| Maximum gain     | $G_{MAX}$ | $V_{AGC} = 0\text{ V}$                             | dB       | 30   | —    | —    |
| Minimum gain     | $G_{MIN}$ | $V_{AGC} = 5\text{ V}$                             | dB       | —    | —    | -50  |
| Output $IP_3$    | $IP_3$    | $V_{AGC} = 0\text{ V}$ , $f_{LO} = 129\text{ MHz}$ | dBm      | —    | -4.5 | —    |
| Noise figure     | F         | $V_{AGC} = 0\text{ V}$                             | dB       | —    | —    | 10   |
| Supply current   | $I_{DD}$  | $V_{AGC} = 0\text{ V}$                             | mA       | —    | 5    | 10   |
| Input impedance  | $Z_{IN}$  | $V_{AGC} = 0\text{ V}$                             | $\Omega$ | 800  | —    | 1200 |
| Output impedance | $Z_{OUT}$ | $V_{AGC} = 0\text{ V}$                             | $\Omega$ | —    | 175  | —    |

RF CHARACTERISTICS



Test Circuit for KGF2441 at 130 MHz



NOTICE

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.
4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
5. Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of the product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.
6. The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property, or death or injury to humans. Such applications include, but are not limited to, traffic and automotive equipment, safety devices, aerospace equipment, nuclear power control, medical equipment, and life-support systems.
7. Certain products in this document may need government approval before they can be exported to particular countries. The purchaser assumes the responsibility of determining the legality of export of these products and will take appropriate and necessary steps at their own expense for these.
8. No part of the contents contained herein may be reprinted or reproduced without our prior permission.
9. MS-DOS is a registered trademark of Microsoft Corporation.

Copyright 1999 Oki Electric Industry Co., Ltd.