



**DATA SHEET**

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O K I G a A s P R O D U C T S

**KGL4216**  
**10-Gbps T-Flip Flop IC**  
**0.2 $\mu$ m Gate Length GaAs MESFET Technology**

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**February 2000**



**Oki Semiconductor**



# Oki Semiconductor

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## KGL4216

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### 10-Gbps GaAs T-Flip Flop IC

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#### INTRODUCTION

Oki Semiconductor's KGL4216 is a 10-Gbps T-Flip Flop IC designed for ultra high-speed digital communications systems. The KGL4216 uses 0.2- $\mu\text{m}$  gate length GaAs MESFETs and Oki's unique MCFF ( Memory Cell type Flip Flop ) technology to achieve operations of over 11-GHz. The KGL4216 is available as a 24-pin ceramic packaged device. Due to the KGL4216's high sensitivity, capacitive coupling is recommended for the KGL4216's I/O connections.

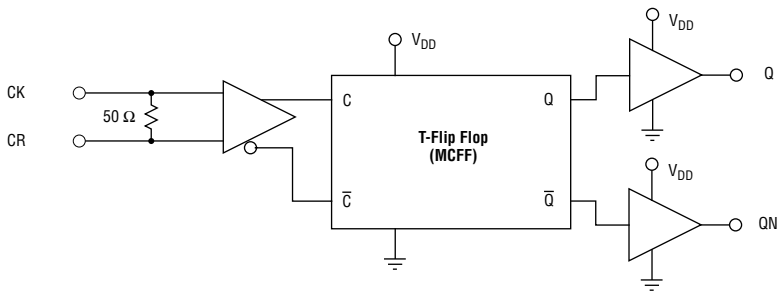
#### FEATURES

- High-speed operation: 11-Gbps data rate (min)
- Low-power dissipation: 400 mW (typ.) using 2-V power-supply
- 0.2- $\mu\text{m}$  gate length GaAs MESFET process
- MCFF ( Memory Cell type Flip Flop ) technology
- 24-pin ceramic package

#### APPLICATION

- High-speed optical communication systems: 10 Gbps
- High-speed test equipment

## BLOCK DIAGRAM



CK Clock Input Terminal  
 CR Reference Voltage Bias Terminal  
 Q, QN Complementary Data Outputs  
 VDD Power Supply of Internal Circuit

## ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Supply Voltage	$V_{DD}$	-0.3	2.3	V
Clock Input Voltage	$V_{CI}$	-0.3	1.5	V
Clock Reference Bias Voltage	$V_{RI}$	-0.3	1.5	V
Temperature at Package Base under Bias	$T_s$	-45	100	°C
Storage Temperature	$T_{st}$	-45	125	°C

Exceeding these maximum ratings could cause immediate damage or lead to permanent deterioration of the device.

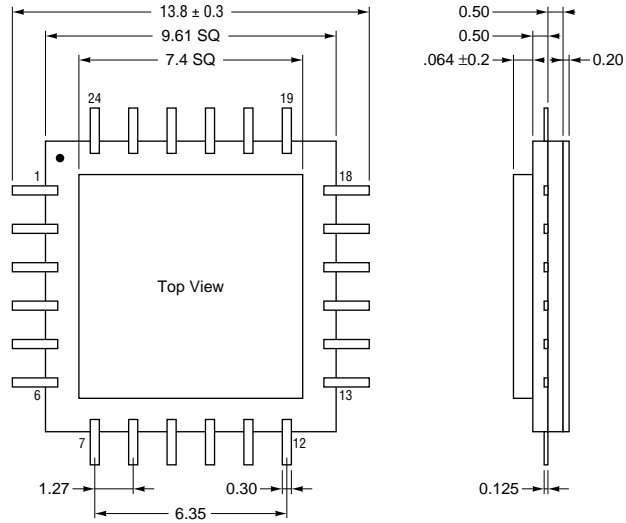
### Electrical Characteristics

$V_{DD} = 2 V \pm 0.1 V$ ,  $T_s = 0^\circ C$  to  $70^\circ C$

Parameter	Symbol	Min.	Typ.	Max.	Units
Maximum Operating Frequency Range	OFR	11			GHz
Power Dissipation	PW		0.4	0.5	W
Clock Input Voltage Swing	$V_I$	0.3	0.8	1.2	V <sub>pp</sub>
Output Voltage Swing	$V_O$	0.4	0.6	0.8	V <sub>pp</sub>

## PACKAGE DIMENSIONS

(Units: mm)



Dimension in mm.

## Pin Configuration

Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
1	GND	7	GND	13	GND	19	CR
2	Q	8	GND	14	GND	20	VDD
3	GND	9	GND	15	GND	21	VDD
4	GND	10	NC	16	GND	22	GND
5	QN	11	NC	17	CK	23	GND
6	GND	12	NC	18	GND	24	GND

Notes:

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## **Northwest Area**

785 N. Mary Avenue  
Sunnyvale, CA 94086  
Tel: 408/720-8940  
Fax: 408/720-8965

## **North Central Area**

300 Park Blvd.  
Suite 365  
Itasca, IL 60143  
Tel: 630/250-1313  
Fax: 630/250-1414

## **Northeast Area**

138 River Road  
Shattuck Office Center  
Andover, MA 01810  
Tel: 978/688-8687  
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## **Southwest Area**

2302 Martin Street  
Suite 250  
Irvine, CA 92715  
Tel: 949/752-1843  
Fax: 949/752-2423

## **Southeast Area**

1590 Adamson Parkway  
Suite 220  
Morrow, GA 30260  
Tel: 770/960-9660  
Fax: 770/960-9682

### **Oki Web Site:**

*<http://www.okisemi.com>*

### **For Oki Literature:**

*Call toll free 1-800-OKI-6388  
(6 a.m. to 5 p.m. Pacific Time)*

**Oki Stock No: 320185-000**



# **Oki Semiconductor**

### **Corporate Headquarters**

785 N. Mary Avenue  
Sunnyvale, CA 94086-2909  
Tel: 408/720-1900  
Fax: 408/720-1918