



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**

February 2000



**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.

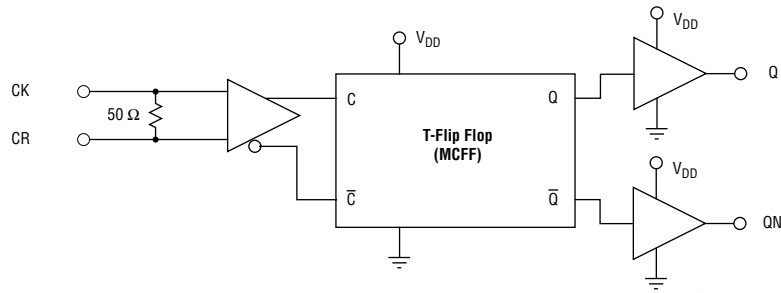
#### FEATURES

- 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

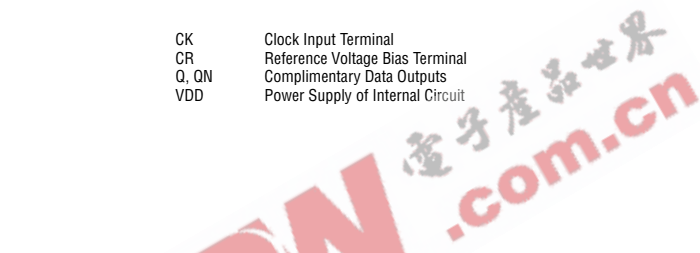
#### APPLICATION

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

**BLOCK DIAGRAM**



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



**ELECTRICAL CHARACTERISTICS**

**Absolute Maximum Ratings**

Parameter	Symbol	Min.	Max.	Units
Supply Voltage	V <sub>DD</sub>	-0.3	2.3	V
Clock Input Voltage	V <sub>CI</sub>	-0.3	1.5	V
Clock Reference Bias Voltage	V <sub>RI</sub>	-0.3	1.5	V
Temperature at Package Base under Bias	T <sub>s</sub>	-45	100	°C
Storage Temperature	T <sub>st</sub>	-45	125	°C

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

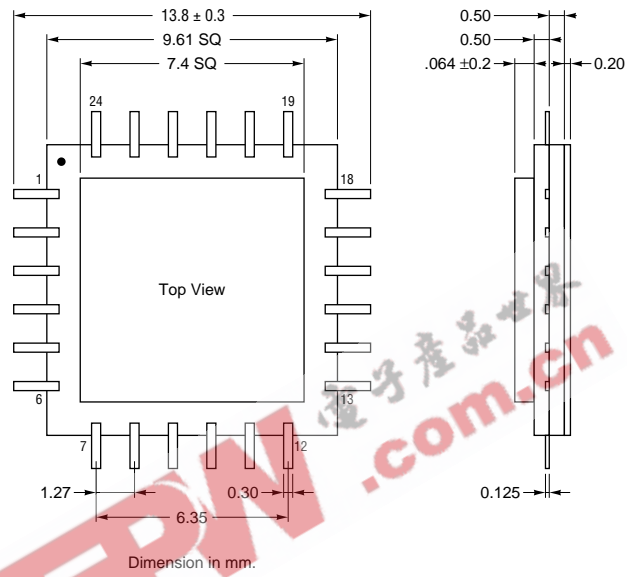
**Electrical Characteristics**

V<sub>DD</sub> = 2 V ± 0.1 V, T<sub>s</sub> = 0°C to 70°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 <sub>I</sub>	0.3	0.8	1.2	V <sub>pp</sub>
Output Voltage Swing	V <sub>O</sub>	0.4	0.6	0.8	V <sub>pp</sub>

## PACKAGE DIMENSIONS

(Units: 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

■ KGL4216 ■

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Notes:

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