



DATA SHEET

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

KGL4216
10-Gbps T-Flip Flop IC
0.2 μ m Gate Length GaAs MESFET Technology

February 2000



Oki Semiconductor



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10-Gbps GaAs T-Flip Flop IC

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- μm 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.

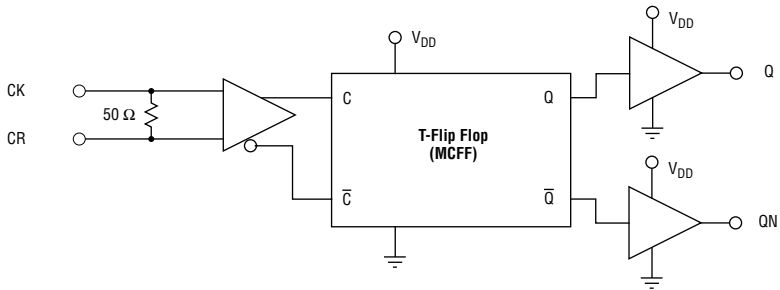
FEATURES

- High-speed operation: 11-Gbps data rate (min)
- Low-power dissipation: 400 mW (typ.) using 2-V power-supply
- 0.2- μm 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_{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.

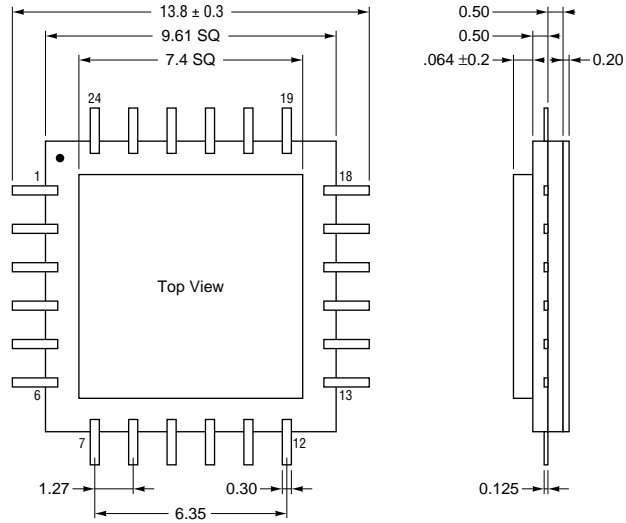
Electrical Characteristics

$V_{DD} = 2 V \pm 0.1 V$, $T_s = 0^\circ C$ 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 _{pp}
Output Voltage Swing	V_O	0.4	0.6	0.8	V _{pp}

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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