



DATA SHEET

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

KGL4205 **10-Gbps D-Flip Flop IC** **0.2 μ m Gate Length GaAs MESFET Technology**

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Oki Semiconductor



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KGL4205

10-Gbps GaAs D-Flip Flop IC

INTRODUCTION

Oki Semiconductor's KGL4205 is a 10-Gbps D-Flip Flop IC designed for ultra high-speed digital communications systems. The KGL4205 uses 0.2- μm gate length GaAs MESFETs and Oki's unique MCFF (Memory Cell type Flip Flop) technology to achieve operations of 10-GHz or more. The KGL4205 is available as a 24-pin ceramic packaged device. Due to the KGL4205's high sensitivity, capacitive coupling is recommended for IC's DA and CK connections.

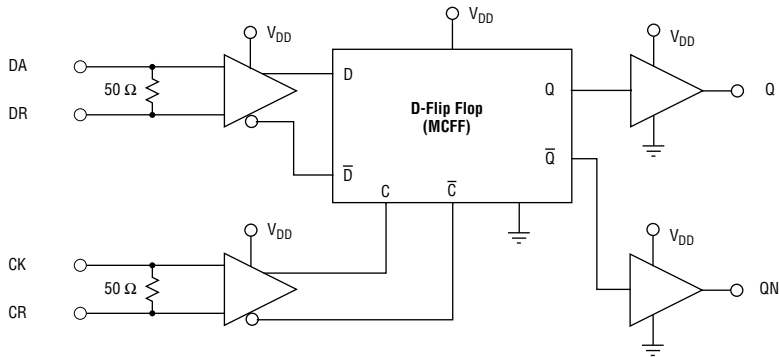
FEATURES

- High-speed operation: 10-Gbps data rate (typ)
- Low-power dissipation: 340 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



DA Data Input Terminals
 CK Clock Input Terminals
 DR, CR Output Reference Voltage Terminals
 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}, V_B	-0.3	2.3	V
Data, Clock Input Voltage	V_{DI}, V_{CI}	-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.

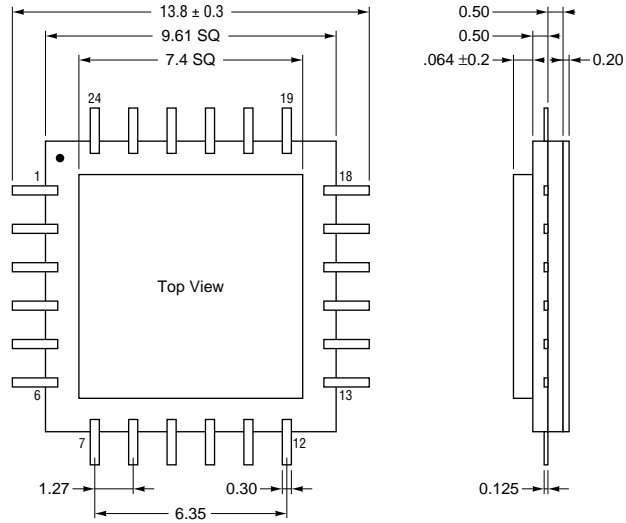
Electrical Characteristics

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

Parameter	Symbol	Min.	Typ.	Max.	Units
Operating Data Bit Rate Range	DAR		10		Gbps
Power Dissipation	PW		0.34	0.38	W
High-Level Data, Clock Input Voltage	V_{IH}	0.6	0.9	1.25	V
Low-Level Data, Clock Input Voltage	V_{IL}	-0.1	0.1	0.3	V
High-Level Output Voltage (Q, QN)	V_{OH}	0.65	0.9	1.2	V
Low-Level Output Voltage (Q, QN)	V_{OL}	0	0.1	0.2	V
Output (Q, QN) Rise time and Fall time	TRF		30	40	ps
Phase Margin @ 10 Gbps ($2^{23} - 1$ PRBS)	TOM		240		degree

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	DA	20	VDD
3	GND	9	GND	15	GND	21	VDD
4	GND	10	GND	16	GND	22	GND
5	QN	11	DR	17	CK	23	VDD
6	GND	12	DR	18	GND	24	GND

Notes:

The information contained herein can change without notice owing to product and/or technical improvements.

Please make sure before using the product that the information you are referring to is up-to-date.

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Oki REGIONAL SALES OFFICES

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
Fax: 978/688-8896

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: 320184-000



Oki Semiconductor

Corporate Headquarters

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