



**DATA SHEET**

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

**KGL4203**  
**10-Gbps EXOR/NOR IC**  
**0.2 $\mu$ m Gate Length GaAs MESFET Technology**

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**February 2000**



**Oki Semiconductor**



# Oki Semiconductor

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## KGL4203

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### 10-Gbps GaAs EXOR/NOR IC

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#### INTRODUCTION

Oki Semiconductor's KGL4203 is a 10-Gbps GaAs EXOR/NOR IC designed for ultra high-speed digital communications systems. The KGL4203 uses 0.2- $\mu\text{m}$  gate length GaAs MESFETs and Oki's unique DCFL ( Direct Coupled FET Logic ) technology to achieve operations of 10-GHz or more. The KGL4203 is available as a 24-pin ceramic packaged device. Due to the KGL4203's high sensitivity, capacitive coupling is recommended for the interface.

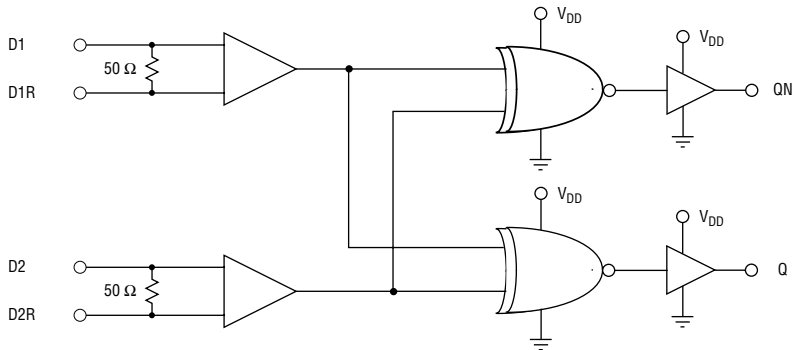
#### FEATURES

- High-speed operation: 10-Gbps data rate (min)
- High sensitivity: 50 to 600 mV<sub>PP</sub> (at 10 Gbps  $2^{23}$  -1 PRPS, capacitive coupling)
- Low-power dissipation: 540 mW (typ.) using 2-V power-supply
- 0.2- $\mu\text{m}$  gate length GaAs MESFET process
- DCFL (Direct Coupled FET Logic) technology
- 24-pin ceramic package

#### APPLICATION

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

## BLOCK DIAGRAM



D1, D2      Data Input Terminals  
 D1R, D2R    Reference Voltage Terminals. Usually D1R and D2R are connected to ground through a capacitor (0.1  $\mu$ F).  
 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
Data Input Voltage ( D1, D2 )	$V_{DI}$	-0.3	1.5	V
Temperature at Package Base Under Bias	$T_s$	-45	100	$^{\circ}$ C
Storage Temperature	$T_{st}$	-45	125	$^{\circ}$ C

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

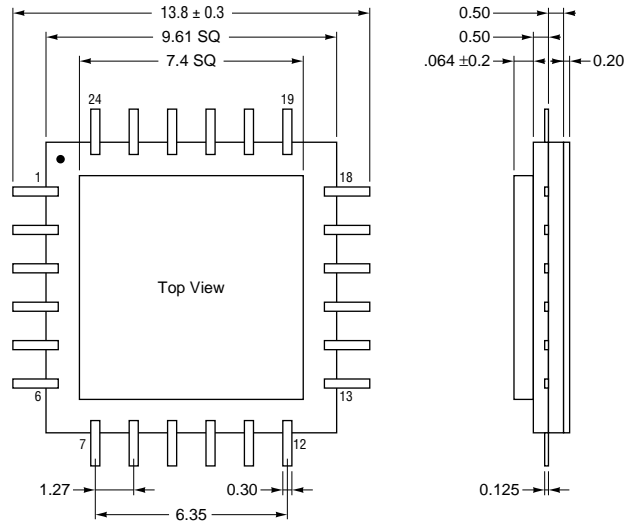
### Electrical Characteristics

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

Parameter	Symbol	Min.	Typ.	Max.	Units
Maximum Operating Data Bit Rate	DAR	10			Gbps
Power Dissipation	PW		0.54	0.68	W
Data Input Voltage Swing ( D1, D2 )	$D_{IS}$	0.5		0.9	V <sub>pp</sub>
Data Output Voltage Swing ( Q, QN )	$D_{OS}$	0.8	1.0	1.2	V <sub>pp</sub>
Output ( Q, QN ) Rise Time and Fall Time	$T_{RF}$		30	40	ps

## 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	D2R
2	Q	8	GND	14	D1	20	VDD
3	GND	9	GND	15	GND	21	VDD
4	GND	10	GND	16	GND	22	GND
5	QN	11	GND	17	D2	23	VDD
6	GND	12	D1R	18	GND	24	GND

Notes:

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