DATA SHEET

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

KGL4208/KGL4209/KGL4210
10-Gbps GaAs Frequency Divider ICs

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Oki Semiconductor

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INTRODUCTION

Oki Semiconductor's KGL4208, KGL4209, and KGL4210 are 10-Gbps GaAs frequency divider ICs that are designed for ultra high-speed digital communications systems. The KGL4208, KGL4209, and KGL4210 are 1/4, 1/8, and 1/16 frequency dividers ICs respectively.

These 10-Gbps frequency divider IC's use 0.2-µm gate length GaAs MESFET and Oki's unique CBFF (Common gate Bias Flip Flop) technology to achieve operations of 10 GHz or more. The KGL4208, KGL4209, and KGL4210 are available as 24-pin ceramic packaged devices. Due to their high sensitivity, capacitive coupling is recommended for the devices' clock input terminal (CK) connections.

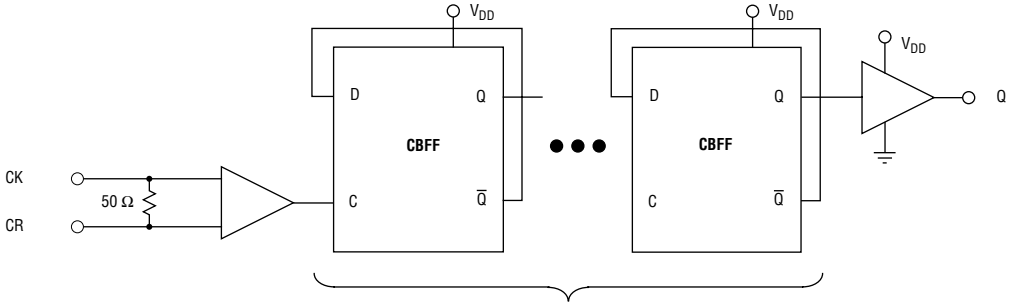
FEATURES

- High-speed operation: 10-Gbps data rate (typ)
- Low-power dissipation: 80 mW (typ.) using 2-V power-supply
- 0.2-µm gate length GaAs MESFET process
- CBFF (Common gate Bias Flip Flop) technology
- 24-pin ceramic package

APPLICATION

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

BLOCK DIAGRAM



Note: The number of KGL4208, 4209, and 4210 flip-flop stages are 2, 3, and 4, respectively.

CK	Clock Input Terminal
CR	Reference Voltage Bias Terminal
Q	Divided Frequency Output Terminal
V_{DD}	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
Temperature at Package Base Under Bias	Ts	-45	100	°C
Storage Temperature	Tst	-45	125	°C

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

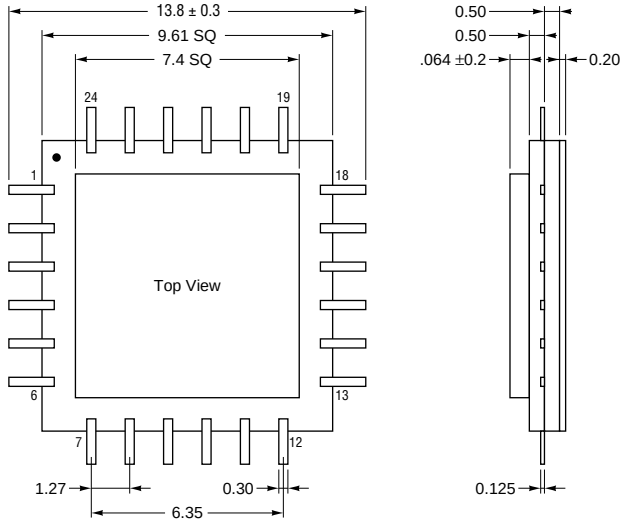
Electrical Characteristics

V_B = 2 V ± 0.1 V, V_{DD} = 2 V ± 0.1 V, Ts = 0°C to 70°C

Parameter	Symbol	Min.	Typ.	Max.	Units
Operating Data Bit Rate Range	DAR		10		Gbps
Power Dissipation	PW		0.08	0.1	W
High-Level Clock Input Voltage	V_{IH}	0.6	0.9	1.25	V
Low-Level Clock Input Voltage	V_{IL}	-0.1	0.1	0.3	V
High-Level Output Voltage	V_{OH}	0.5	0.7	0.9	V
Low-Level Output Voltage	V_{OL}	0	0.1	0.2	V

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	GND
2	GND	8	GND	14	GND	20	GND
3	GND	9	GND	15	GND	21	VDD
4	GND	10	GND	16	GND	22	GND
5	Q	11	GND	17	CK	23	VDD
6	GND	12	CR	18	GND	24	GND

Notes:

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