



DATA SHEET

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

KGL4215

10-Gbps Decision Circuit

0.2 μ m Gate Length GaAs MESFET Technology

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Oki Semiconductor



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10-Gbps GaAs Decision Circuit

INTRODUCTION

Oki Semiconductor's KGL4215 is a 10-Gbps Decision Circuit with Limiting Amplifier and Flip Flop that is designed for ultra high-speed digital communications systems. The KGL415 uses 0.2- μ m gate length GaAs MESFET and Oki's unique MCFF (Memory Cell type Flip Flop) technology to achieve operating speeds of 10-Gbps or more. The KGL4215 is available as a 24-pin ceramic packaged device. Due to the KGL4215's high sensitivity, capacitive coupling is recommended for the IC's interface.

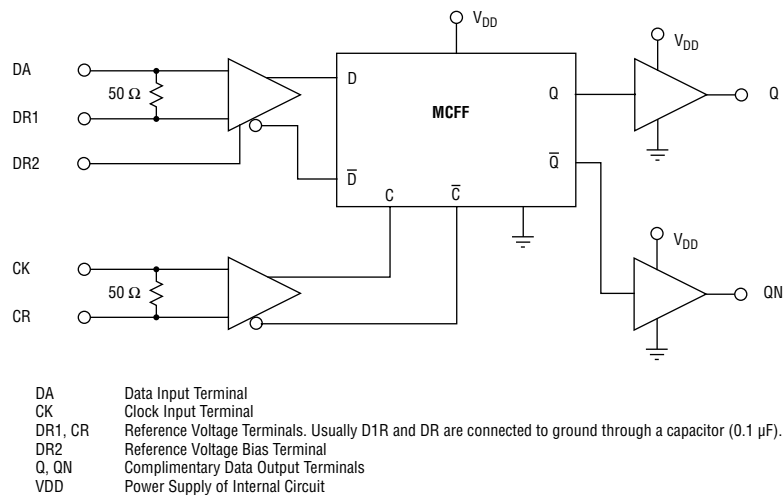
FEATURES

- High-speed operation: 10-Gbps data rate (min)
- Low-power dissipation: 600 mW (typ.) using 2-V power-supply
- 0.2- μ 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



ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Supply Voltage	V_{DD}	-0.3	2.3	V
Data 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.

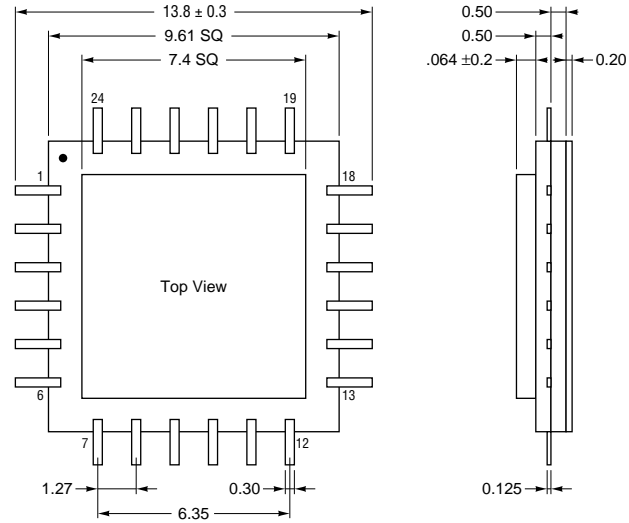
Electrical Characteristics

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

Parameter	Symbol	Min.	Typ.	Max.	Units
Maximum Operating Data Bit Rate	DAR	10			Gbps
Power Dissipation	PW		0.6	0.75	W
Clock Input Voltage Swing	CIS	0.4		0.9	Vpp
Data Input Voltage Swing	DIS	0.1		0.9	Vpp
Output Voltage Swing	DOS	0.8	1.0	1.2	Vpp
Output (Q, QN) Rise Time and Fall Time	TRF		30	40	ps
Phase Margin @ 10 Gbps (2 ²³ -1 PRBS)	TPM	250			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	DR2	17	CK	23	VDD
6	GND	12	DR1	18	GND	24	GND

Notes:

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