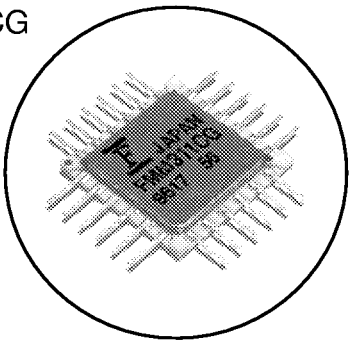
2.5Gb/s GaAs Laser Driver

FMM311CG/DG

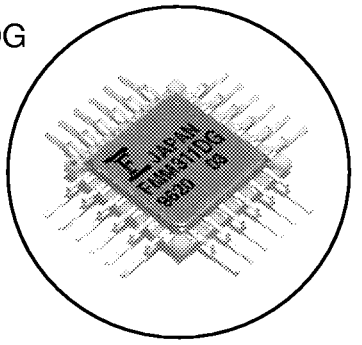
FEATURES

- Operation DC to 2.7 Gbit/s, NRZ
- Maximum Peak and Bias Current of 80mA Typical
- Peak and Bais Current Adjustment
- ECL Compatible Input
- Single Ended or Differential Input
- Single -5.2V Power Supply
- Bias Current Monitoring
- Mark Density Monitoring
- High Reliable, Metal/Ceramic 24-pin Hermatic Flat Package

CG



DG



DESCRIPTION

The FMM311CG and FMM311DG GaAs Laser Driver are a high-data rate driver circuit designed for fiber optic transmitters operating at data rates up to 2.7Gbit/s (NRZ). The device is capable of driving the high-power Laser Diodes at peak and bias currents up to 80mA typically. Peak and bias currents can be automatically controlled by applying a feedback signal from an external Automatic Power Control Circuit. A mark density monitor useful for stabilizing the optical output power of the transmitter is also provided.

ABSOLUTE MAXIMUM RATINGS (Ambient Temperature Ta = 25°C)

Rating	Symbol	Values	Unit
Supply Voltage	V_{SS}	-7.0 to 0	V
Input Voltage	V_{IN}	V_{SS} to 0	V
Power Supply Current	I_{SS}	300	mA
Peak Current Control Voltage	V_{IP}	V_{SS}-2.0 to V_{SS} +3.0	V
Bias Current Control Voltage	V_{IB}	V_{SS}-2.0 to V_{SS} +3.0	V
Storage Temperature	T_{stg}	-55 to 125	°C

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ELECTRICAL CHARACTERISTICS (Tc = 25°C, V_{SS} = -5.2V)

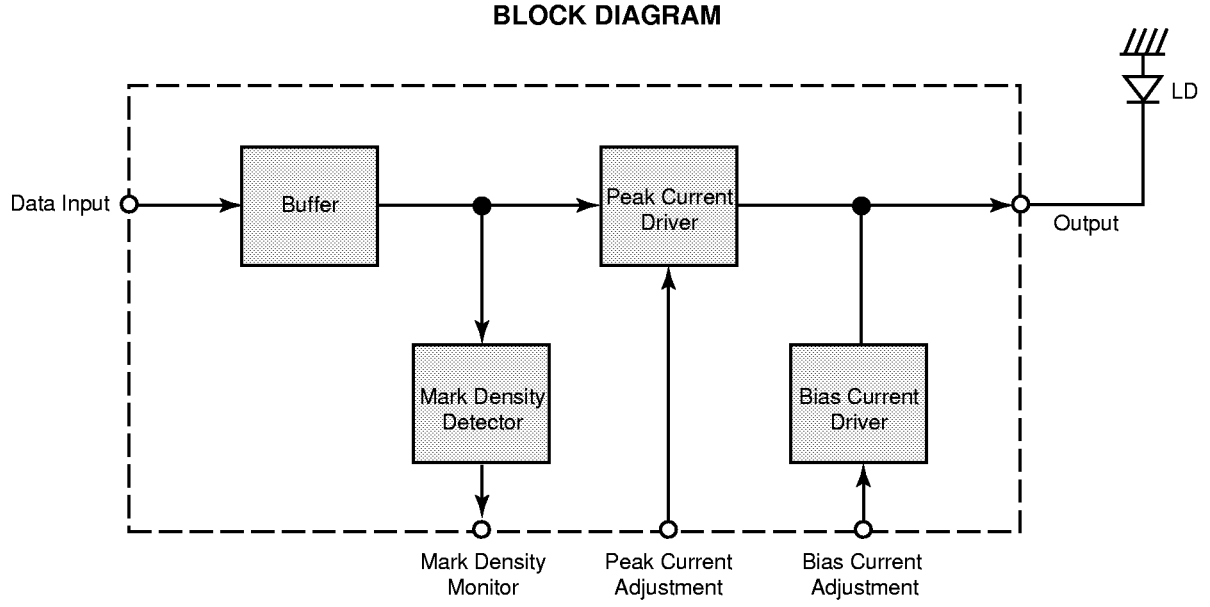
Parameter	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Maximum Data Rate		NRZ	2.7	-	-	Gbit/s
Maximum Peak Current	I_P	V_{IP} = -3.1V, V_{IB} = -5.2V	60	80	-	mA
Maximum Bias Current	I_B	V_{IP} = -5.2V, V_{IB} = -3.1V	60	80	-	mA
Power Supply Current	I_{SS}	I_P = 80mA, I_B = 80mA	-	230	-	mA
Rise Time	t_r	R_L = 10 ohm 20%~80%	-	100	-	ps
Fall Time	t_f		-	100	-	ps

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Condition	Value			Unit
			Min.	Typ.	Max.	
Supply Voltage	V_{SS}		-5.46	-5.2	-4.94	V
High Level Input Voltage	V_{IH}	Vref = -1.3V	-1.0	-	-	V
Low Level Input Voltage	V_{IL}		-	-	-1.6	V
Peak Current Control Voltage	V_{IP}		V_{SS}	-	V_{SS}+2.1	V
Bias Current Control Voltage	V_{IB}		V_{SS}	-	V_{SS}+2.1	V
Case Temperature	T_C		0	-	+65	°C

Note: The potential at pin 16 (OUT) in operation is recommended in order not be more negative than -1.5V.

BLOCK DIAGRAM



TYPICAL CHARACTERISTICS

Fig. 1 - Bias Current vs. Bias Current Control Voltage

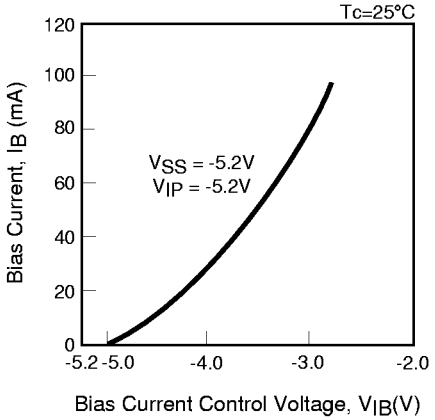


Fig. 2 - Peak Current vs. Peak Current Control Voltage

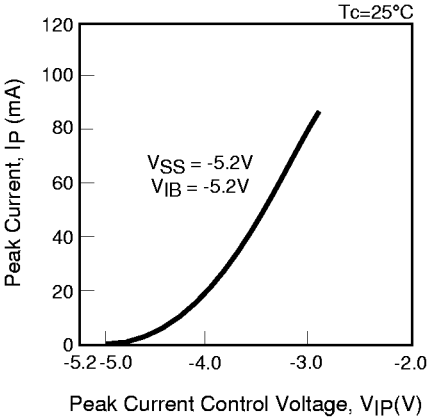
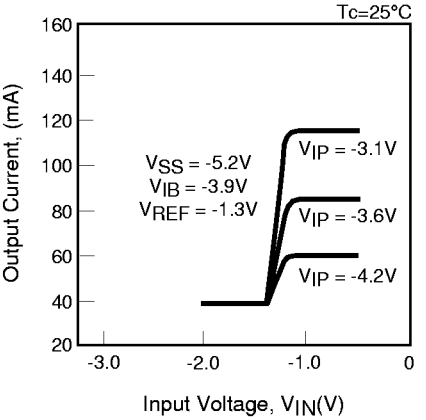
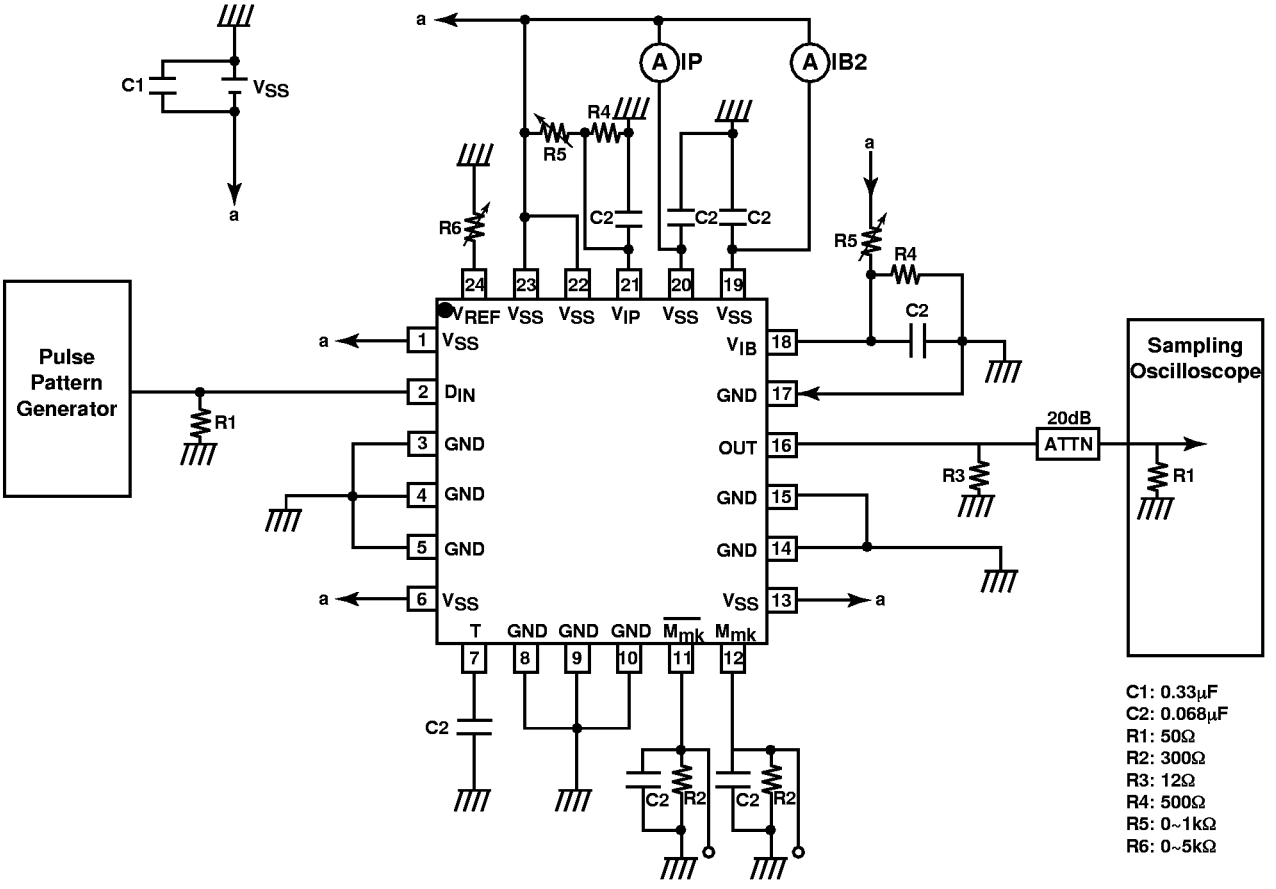


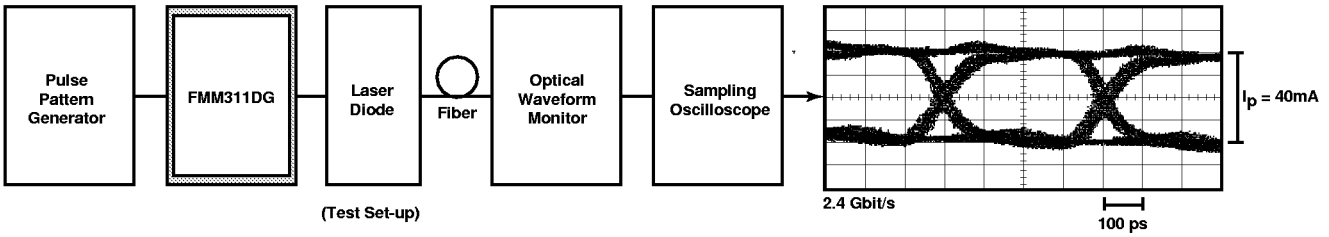
Fig. 3 - Output Current vs. Input Voltage



FMM311CG/DG Test Circuit

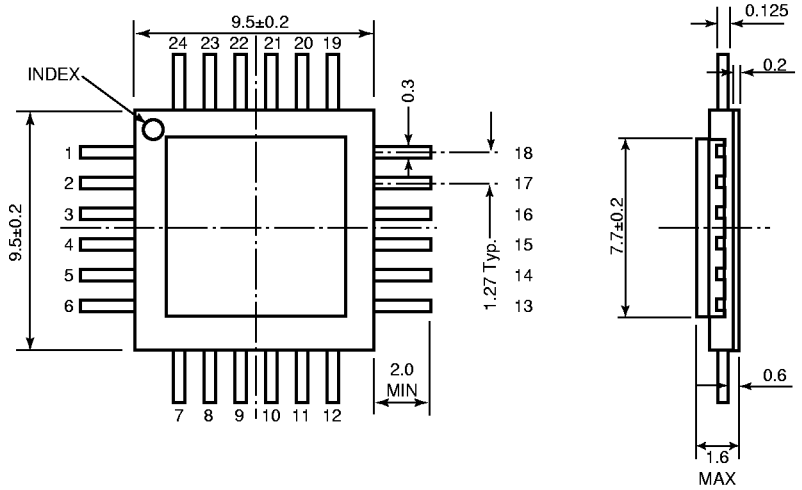


ELECTRICAL OUTPUT WAVEFORM



"CG" PACKAGE

UNIT: mm



"DG" PACKAGE

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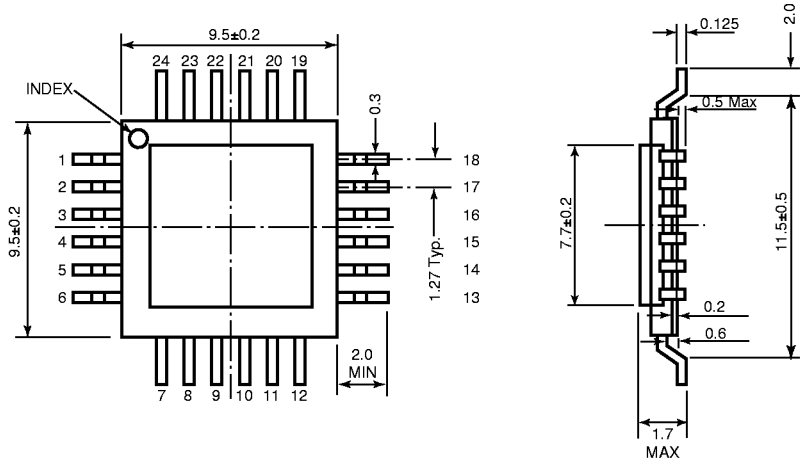

For further information please contact:

FUJITSU COMPOUND SEMICONDUCTOR, INC.
Americas & R.O.W.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
Phone: (408) 232-9500
FAX: (408) 428-9111

55 Schanck Road,
Suite A-2
Freehold, NJ 07728-2964, U.S.A.
Phone: (732) 303-0282
FAX: (732) 431-3393

www.fcsi.fujitsu.com

FUJITSU MIKROELECTRONIK GmbH

Quantum Devices Division
Network House
Norreys Drive
Maidenhead, Berkshire SL6 4FJ, UK
Phone:+44 (0)1628 504800
FAX:+44 (0)1628 504888

FUJITSU QUANTUM DEVICES, LTD.
Asia & Japan

2-7-1, Nishi Shinjuku
Shinjuku-ku, Tokyo 163-0721
Japan
Phone: 3-5322-3356
FAX: 3-5322-3398

CAUTION

Fujitsu Compound Semiconductor Products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- **Do not put this product into the mouth.**
- **Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.**
- **Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.**

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