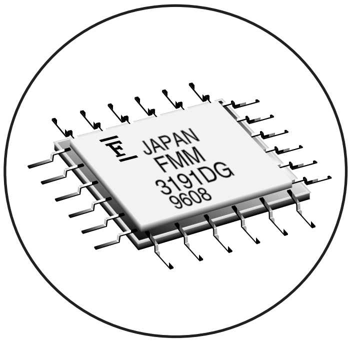
2.5Gb/s GaAs Laser Driver

FMM3191DG

FEATURES

- Operation DC to 2.5 Gbit/s, NRZ
- Peak to Peak Output Voltage, Min: 3V(RL=50Ω)
- Peak and Bias Current Adjustment
- ECL Compatible Input
- Single Ended or Differential Input
- Single-5.2V Power Supply
- Bias Current Monitoring
- High Reliable, Metal/Ceramic 24-pin Hermetic Flat Package
- MI-Laser use only



DESCRIPTION

The FMM3191DG GaAs Laser Driver is a high-data rate driver circuit designed for fiber optic transmitters operating at data rates up to 2.5Gbit/s (NRZ). The device is capable of driving the high-power Laser Diodes. Peak and bias currents can be automatically controlled by applying a feedback signal from an external Automatic Power Control Circuit. This driver is used for MI-Laser.

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

Parameter	Symbol	Ratings	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} +1.2 (RL = 10 Ω)	V
Bias Current Control Voltage	V_{IB1} V_{IB2}	V_{SS} -2.0 to V_{SS} +2.1	V
Storage Temperature	T_{stg}	-55 to 125	°C

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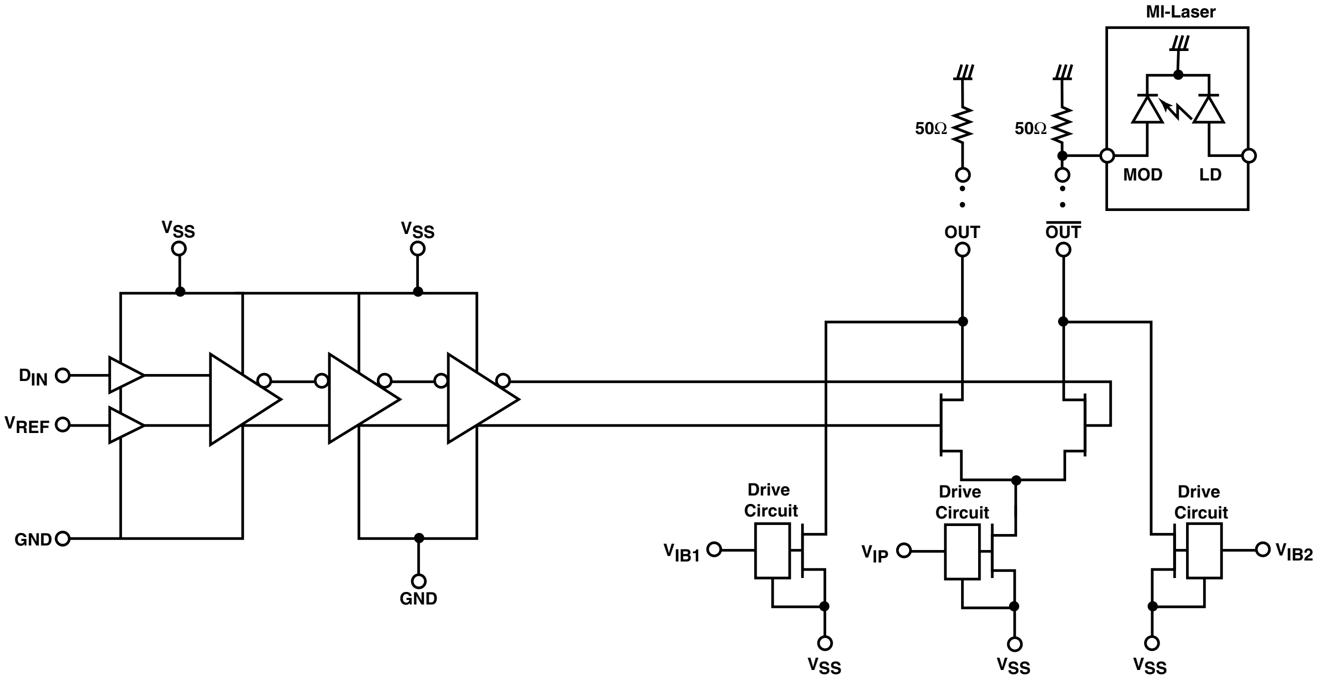
ELECTRICAL CHARACTERISTICS (Tc=25°C, VSS=-5.2V, RL=50Ω, at $\overline{\text{OUT}}$ Pin)

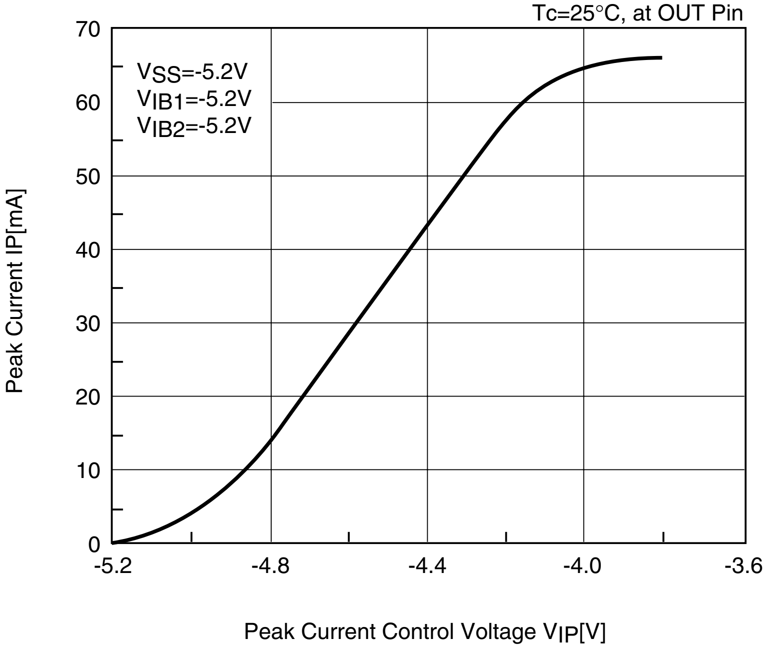
Parameter	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Maximum Data Rate		NRZ	2.5	-	-	Gb/s
Maximum Peak Current	IP	V_{IP}=-4.1 V_{IB1}=-5.2 V_{IB2}=-5.2 D_{IN}="Lo"	60	-	-	mA
Maximum Peak Current	IPDH	V_{IP}=-4.1 V_{IB1}=-5.2 V_{IB2}=-5.2 D_{IN}="Hi"	-	-	4	mA
Maximum Bias Current	IB	V_{IB2}=-3.4 V_{IB1}=-5.2 V_{IP}=-5.2	30	-	-	mA
Power Supply Current	I_{SS}	V_{IP}=-5.2 V_{IB1}=-5.2 V_{IB2}=-5.2	-	100	-	mA
Rise Time	tr	20% to 80%	-	120	-	ps
Fall Time	tf	20% to 80%	-	120	-	ps
Reference Voltage	Vref	Duty 50%	-1.4	-	-1.2	V
Output Voltage	$V_{\overline{out}}$	V_{IP}=-4.1 V_{IB1}=-5.2 V_{IB2}=-5.2 D_{IN}="Lo"	-	-	-3.0	V

RECOMMENDED OPERATING CONDITIONS

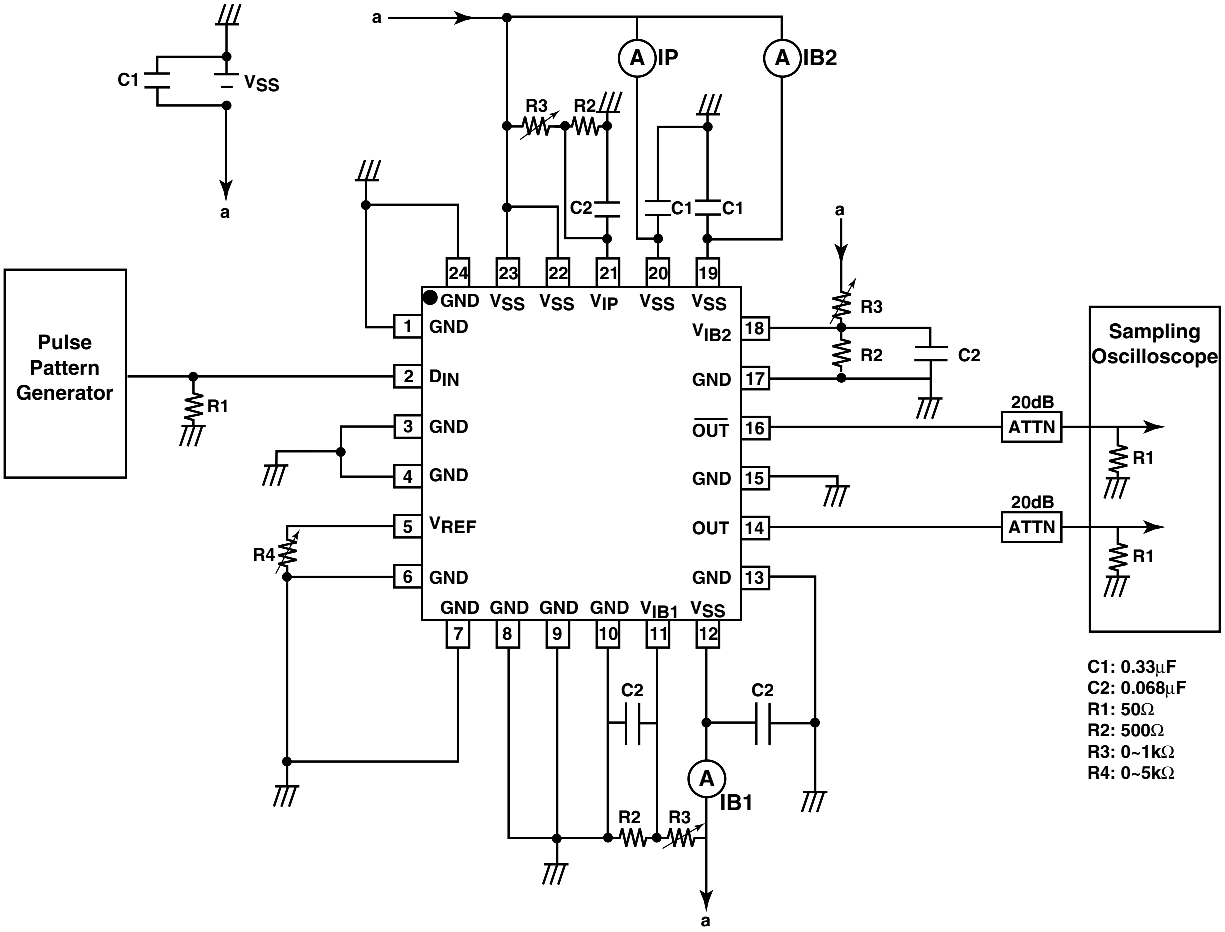
Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Supply Voltage	V_{SS}		-5.46	-5.2	-4.94	V
High Level Input Voltage	V_{IH}	Vref = -1.3V	-1.0	-0.9	-	V
Low Level Input Voltage	V_{IL}	Vref = -1.3V	-	-1.7	-1.6	V
Peak Current Control Voltage	V_{IP}		VSS	-	VSS+1.1	V
Bias Current Control Voltage	V_{IB1} V_{IB2}		VSS	-	VSS+1.8	V
Case Temperature	T_C		0	-	+65	°C

FMM3191DG MI-Laser Block Diagram

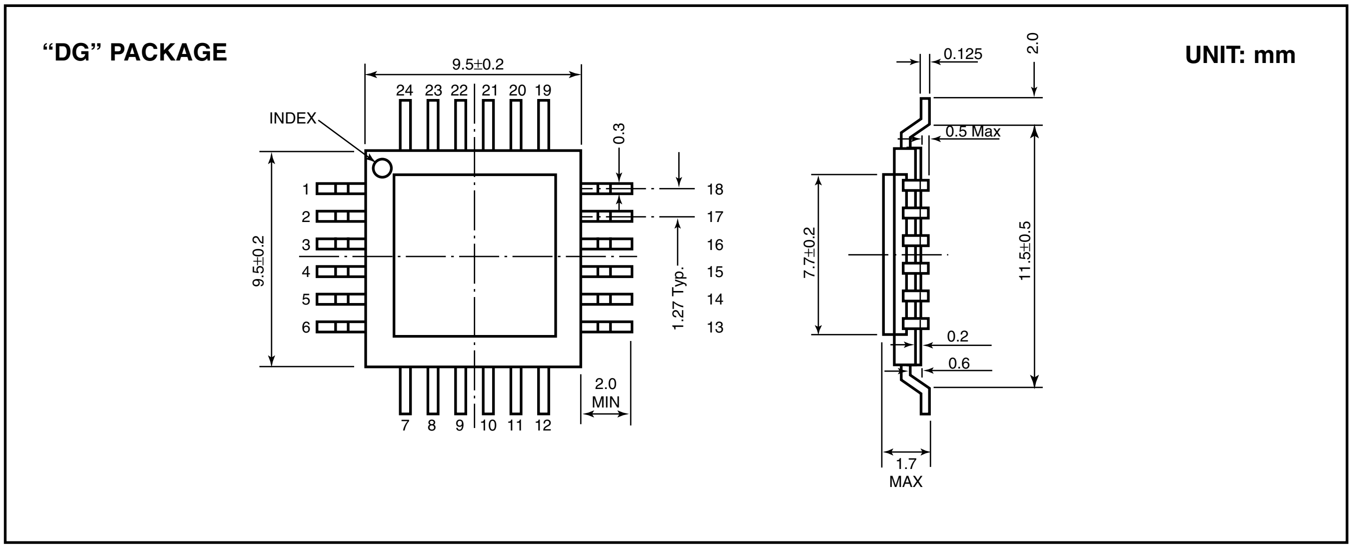




FMM3191DG Test Circuit



C1: 0.33µF
C2: 0.068µF
R1: 50Ω
R2: 500Ω
R3: 0~1kΩ
R4: 0~5kΩ



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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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