

2.5Gb/s GaAs Laser Driver

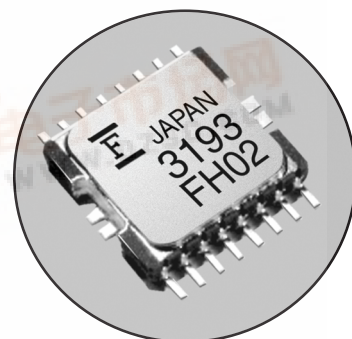
查询FMM3193VI供应商

捷多邦, 专业PCB打样工厂, 24小时加急出货

FMM3193VI

FEATURES

- Operation DC to 2.5Gbit/s, NRZ
- Modulation Current Drive Only
- Capability to Drive Direct Modulation Laser and MI-Laser
- Maximum Peak Current of 80mA Typical@RL = 24Ω
- Peak-to-Peak Output Voltage, Min: 3V@RL = 50Ω
- Single-ended or Differential ECL Input
- Single-5.2V Power Supply
- Small Outline Package similar to SSOP-16



DESCRIPTION

The FMM3193VI GaAs Laser Driver is a high-rate driver circuit designed for fiber optic transmitters operating at NRZ data rates up to 2.5Gbit/s. The FMM3193VI is capable of driving high-power Laser diodes at peak current up to 80mA typically, and driving MI-Laser at peak-to-peak voltage of 3V. The FMM3193VI outputs only modulation current, and an external bias current circuit is required. This driver is assembled in a small outline ceramic package having a similar footprint to SSOP-16.

ABSOLUTE MAXIMUM RATINGS (VDD = 0V, Ta=25°C)

Parameter	Symbol	Ratings	Unit
Supply Voltage	VSS	-7.0 to 0	V
Input Voltage	VIN	VSS to 0	V
Power Supply Current	ISS	300	mA
Peak Current Control Voltage	VIP	VSS -2.0 to VSS +1.2	V
Output Voltage*	Vout, Vout	-3.1 to +0.6	V
Storage Temperature	Tstg	-55 to 125	°C

(*) Applied in less than 10 min.

Direct Modulation Laser Application

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Tc=25°C, VSS=-5.2V)

Parameter	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Maximum Data Rate		NRZ	2.5	-	-	Gbps
Maximum Peak Current (OUT)	IP	VIP = -4.1V, DIN = "HIGH", RL = 25Ω	60	80	-	mA
Output Voltage (OUT)	Vout	VIP = -4.1V, DIN = "HIGH", RL = 50Ω	-	-	-3.0	V
Leakage Current (OUT)	IPDH	VIP = -4.1V, DIN = "LOW"	-	-	4	mA
Power Supply Current	Iss	VIP = -5.2V	-	100	145	mA
Rise Time	tr	20% to 80%	-	120	160	ps
Fall Time	tf	20% to 80%	-	120	160	ps
Reference Voltage	Vref	Duty 50%	-1.4	-	-1.2	V

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Tc=25°C, VSS=-5.2V)

Parameter	Symbol	Test Condition		Limit			Unit
				Min.	Typ.	Max.	
Minimum Peak Current ($\overline{OUT}$)	IPmin	VIP = -5.2V DIN = "HIGH"	Tc = 0°C	-	-	3.5	mA
			Tc = 25°C	-	-	4.0	
			Tc = 70°C	-	-	10.5	

MI-Laser Application

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Tc=25°C, VSS=-5.2V)

Parameter	Symbol	Test Conditions		Limit			Unit
				Min.	Typ.	Max.	
Maximum Data Rate		NRZ		2.5	-	-	Gbps
Maximum Peak Current ($\overline{OUT}$)	IP	VIP = -4.1V, DIN = "LOW", RL = 25Ω		60	80	-	mA
Output Voltage ($\overline{OUT}$)	V $\overline{out}$	VIP = -4.1V, DIN = "LOW", RL = 50Ω		-	-	-3.0	V
Leakage Current ($\overline{OUT}$)	IPDH	VIP = -4.1V, DIN = "HIGH"		-	-	4	mA
Power Supply Current	I _{ss}	VIP = -5.2V		-	100	145	mA
Rise Time	t _r	20% to 80%		-	120	160	ps
Fall Time	t _f	20% to 80%		-	120	160	ps
Reference Voltage	V _{ref}	Duty 50%		-1.4	-	-1.2	V
Minimum Peak Current ($\overline{OUT}$)	IP _{min}	VIP = -5.2V DIN = "LOW"	T _c = 0°C	-	-	3.5	mA
			T _c = 25°C	-	-	4.0	
			T _c = 70°C	-	-	10.5	

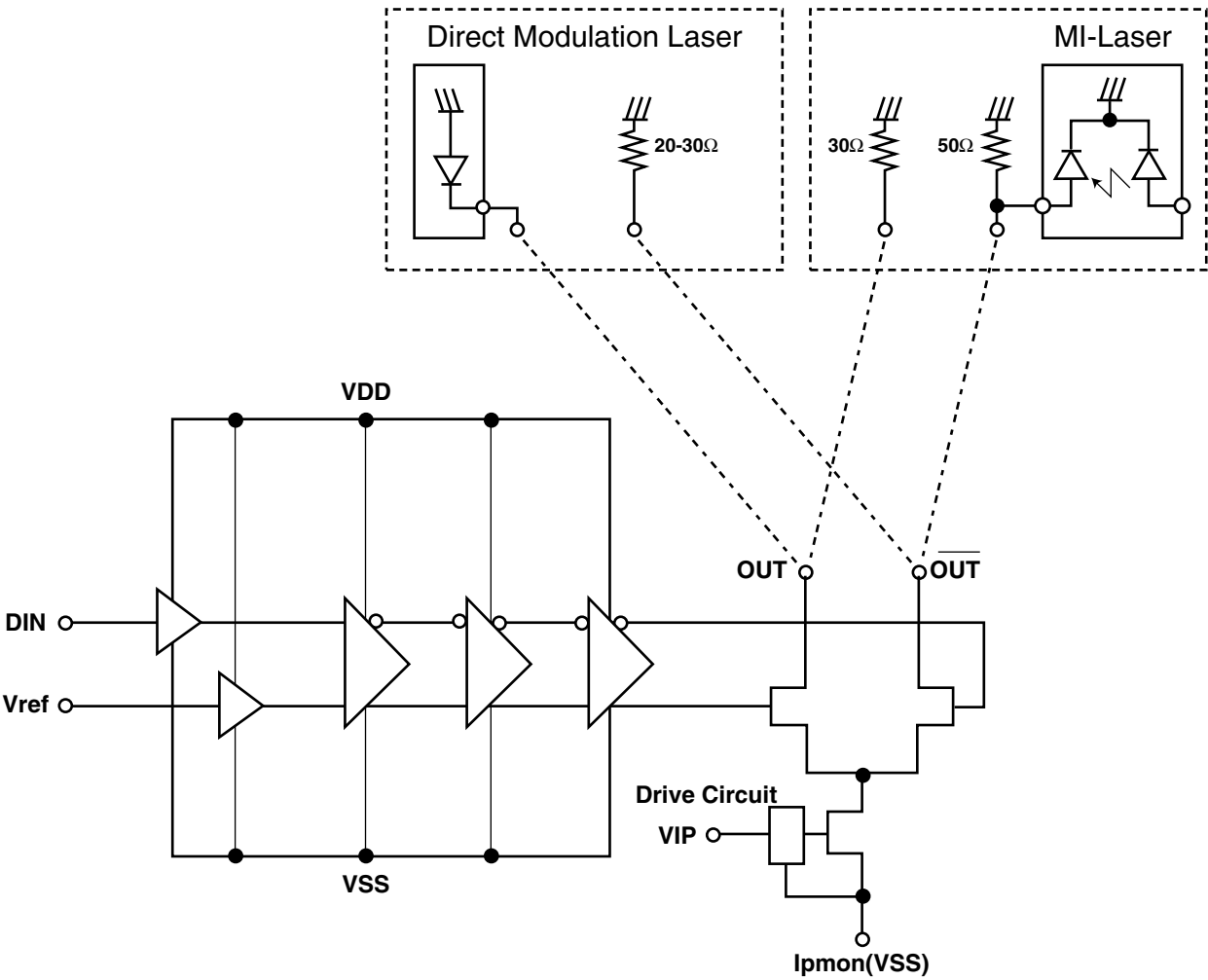
2.5Gb/s GaAs
Laser Driver

FMM3193VI

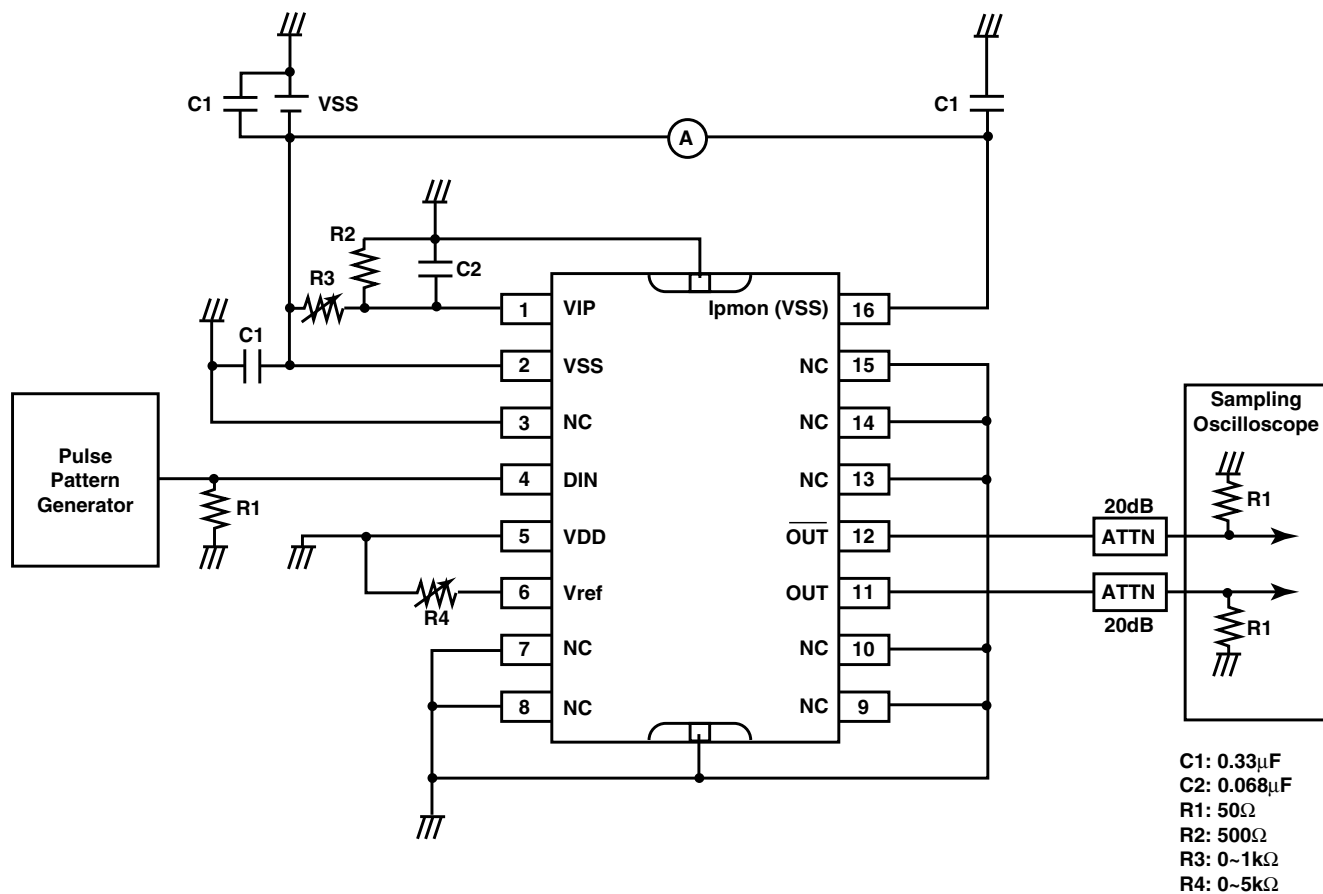
RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Supply Voltage	VSS		-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
Operating Temperature*			0	-	+85	°C

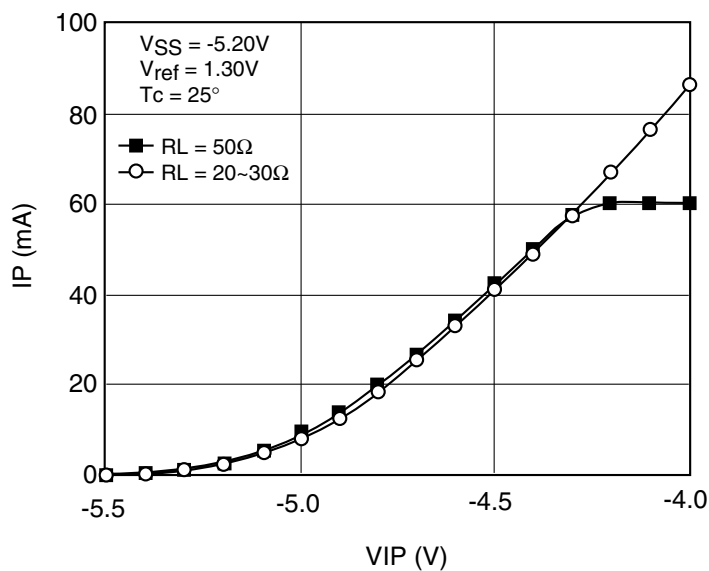
FMM3193VI Block Diagram



Test Circuit



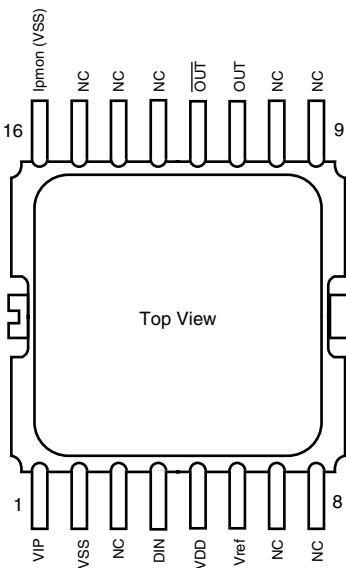
Peak Current Control Voltage vs. Peak Current



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FMM3193VI

FMM3193VI Pin Assignment



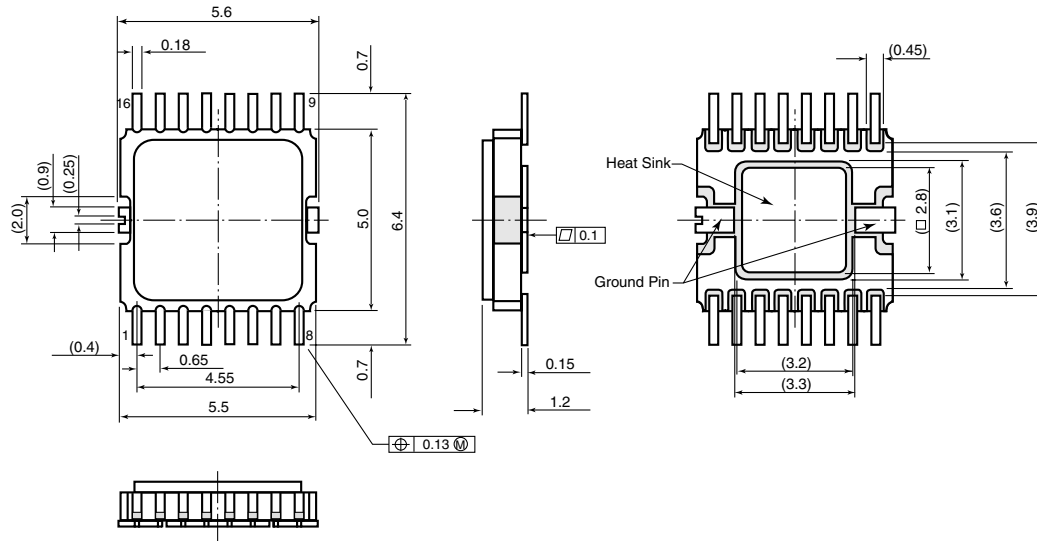
Pin Description

Pin Name	Pin No.	Description	Pin Name	Pin No.	Description
VIP	1	Peak Current Control Voltage	NC	9	No Connection
VSS	2	Supply Voltage	NC	10	No Connection
NC	3	No Connection	OUT	11	Output
DIN	4	Data Input	OUT	12	Complimentary Output
VDD	5	Ground	NC	13	No Connection
Vref	6	Reference Voltage	NC	14	No Connection
NC	7	No Connection	NC	15	No Connection
NC	8	No Connection	Ipmon(VSS)	16	Peak Current Monitor

Ground Pin - Ground\
Heat Sink - Ground
Note: NC pins should be connected to the ground.

"VI" PACKAGE

UNIT: mm



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- 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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