

Preliminary

Notice : This is not a final specification .
Some parametric limits are subject to change .

MITSUBISHI SEMICONDUCTOR <GaAs digital IC>

ML0131

2.5Gb/s LASER DRIVER

DESCRIPTION

The Laser driver IC ML0131 is designed for a 2.5Gb/s optical communication system.

This IC has a large modulation current Min. 50mA and a rise/fall time of 80ps at 2.5Gb/s.

FEATURES

- High Speed Operation
Tr/Tf= 80ps TYP. (RL = 25Ω)
- ECL/SCFL Compatible Interface
- Adjustable Output Current
IOUT = 20~60mA
- Low Power Dissipation
PD = 700mW (@ Vss = -5.2V)
- Internal Input 50Ω Termination
- 26 Pin Leadless Chip Carrier
- Mark Density Monitor Integrated
- Single -5.2V Power Supply



Package Size : 9.6mm×7.6mm×1.7mm

< Keep safety first in your circuit design! >

Mitsubishi Electric Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage. Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (1) placement of substitutive, auxiliary circuits, (2) use of non-flammable material or (3) prevention against any malfunction or mishap.

APPLICATION

2.5Gb/s Optical Transmitter

ABSOLUTE MAXIMUM RATINGS

(Ta = 25 ± 3 deg·C)

Symbol	Parameter	Ratings	Unit
Vss	Supply Voltage	-7.5	V
VD1	Input Voltage	Vss to 0	V
VD2	Input Reference Voltage	Vss to 0	V
IH1	Control Current for Output Current	6.0	mA
VH2	Control Voltage for Tr/Tf	-7.5	V
Tc	Operating Temperature(case)	+110	deg·C
Tstg	Storage Temperature	-65 to +150	deg·C

RECOMMENDED BIAS CONDITION

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
Vss	Supply Voltage	-	-5.46	-5.2	-4.94	V
VD1	Input Signal Voltage Swing	-	ECL -	0.8	-	Vpp
			SCFL -	1.0	-	
VD2	Input Reference Voltage	-	ECL -	-1.3	-	V
			SCFL -	-0.5	-	
IH1	Control Current of Modulation Current	-	1.5	-	5.0	mA
VH2	Control Voltage for Tr/Tf	-	-	-5.2	-	V
Tc	Operating Temperature(Case)	-	-30	-	+80	deg·C

ELECTRICAL CHARACTERISTICS

(Ta = 25 ± 3 deg·C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
fopr	Operating Frequency	NRZ, Vss=VH2=-5.2V, IH1=3.5mA, RL=25Ω	-	2.5	-	GHz
Iss	Supply Current	Vss = VH2 = -5.2V, IH1 = 3.5mA	-	130	170	mA
IOUT	Output Modulation Current	Vss = VH2 = -5.2V, RL= 25Ω IH1 = 3.5mA	50	-	60	mA
Tr	Rise time	Vss = VH2 = -5.2V IH1 = 3.5mA, RL=25Ω	-	80	-	ps
Tf	Fall time	Vss = VH2 = -5.2V IH1 = 3.5mA, RL=25Ω	-	80	-	ps
VM1	Mark Density Monitor Output Voltage	Vss = VH2 = -5.2V, RLM = 1kΩ	-0.6	-	-0.2	V

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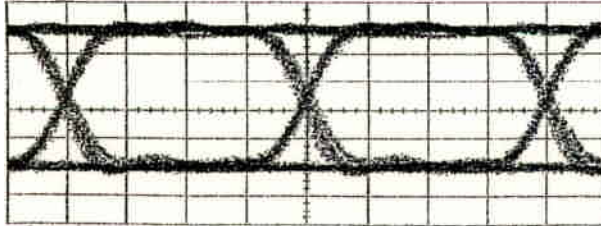
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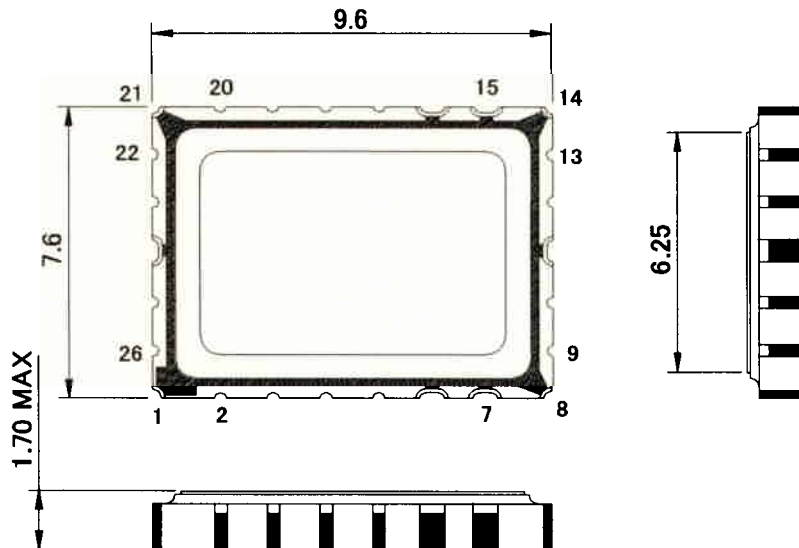
TYPICAL CHARACTERISTICS (Ta=25deg·C)

Output waveform(@2.5Gb/s)



H :10mA/div, V :100ps/div.

OUTLINE DRAWING



Pin	Symbol	Function
1,6,7,8,11, 14,15,16, 21,24	GND	Ground
2	M2	Mark Density Monitor Output Complementary to M1
3,13,19	Vss	Supply Voltage; -5.2V nominal
4	VH2	Control Voltage for Tr/Tf of IOU and IOU; -5.2V nominal
5	Q2	Modulation Current ,IOU, Output Complementary to IOU
9	IH1	Control Current for IOU and IOU
10,12,18	NC	No-Connect
17	Q1	Modulation Current ,IOU, Output
20	M1	Mark Density Monitor Output
22	VR1	Termination Voltage for D1 ;Connected to -2.0V for ECL Interface or GND for SCFL interface
23	D1	Data Input
25	D2	Data Input Complementary to D1
26	VR2	Termination Voltage for D2; Connected to -2.0V for ECL Interface or GND for SCFL interface



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ELECTRIC**

(2/3) as of 04.Oct....2001