

Laser Diode Driver GaAs IC for Optical Transmission

The PHS6901 is Laser Diode Driver GaAs IC for Optical Transmission system.

Features

- Driving Current : 50 mA
- Output Signal Rise/Fall time : 100 ps
- ECL compatible Input
- Single power supply of -5.2 V
(PHS6901 is supplied in die form)

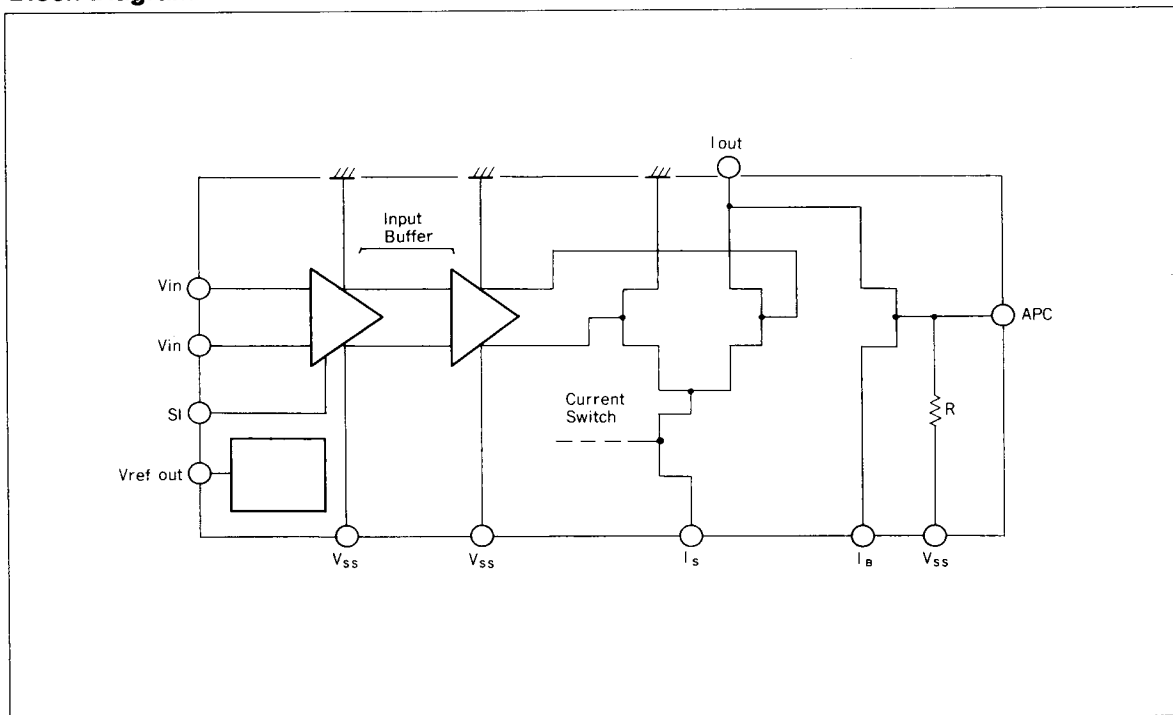
Absolute Maximum Ratings

Item	Symbol	Ratings	Unit	Remarks
Supply Voltage	$V_{SS (+)}$	+0.5	V	
	$V_{SS (-)}$	-7.0	V	
Input Voltage	V_{IH}	0	V	
	V_{IL}	V_{SS}	V	
Supply Current	I_{SS}	150	mA	
Power Dissipation	P_d	1.0	W	
Storage Temperature	T_{stg}	-65+150	°C	
Operating Temperature	T_a	-10+80	°C	

Recommended Operational Conditions

Item	Symbol	Min	Typ	Max	Unit	Remarks
Supply Voltage	V_{SS}	-5.46	-5.20	-4.94	V	
Input Voltage	V_{in}	0.4		1.1	V_{p-p}	
	V_{IH}	-1.1			V	
	V_{IL}			-1.5	V	
Input reference voltage	V_{ref}		-1.3		V	

Block Diagram



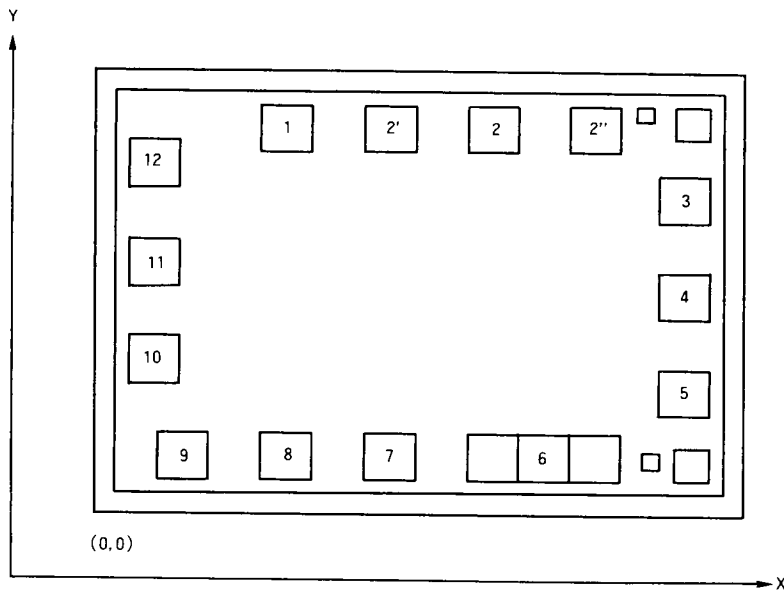
Bonding PAD Description

PAD No	PAD Name	Functional Description
1	SI	see *
2	GND	GND
3	Is	Signal Current
4	Ib	Bias Current
5	APC	Connected to APC (Auto Power Control) circuit
6	Iout	Connected to Laser Diode
7	Vgs1	Gate bias control Pad in IC
8	Vgs2	
9	Vref	Output Pad of ECL Reference level voltage
10	Vss	-5.2 V voltage source input
11	Vin	Input Signal
12	Vin	Input reference voltage

* SI Pad

SI	function
H	Output Signal is fixed to "L" level
open	normaly output signal

Pad Description



PAD No.	Coordinates		PAD No.	Coordinates	
	X-axis (μm)	Y-axis (μm)		X-axis (μm)	Y-axis (μm)
1	500	1085	6	1175	165
2'	770	1085	7	770	165
2	1040	1085	8	500	165
2''	1310	1085	9	230	165
3	1545	890	10	155	435
4	1545	620	11	155	705
5	1545	350	12	155	985

Electrical Characteristics

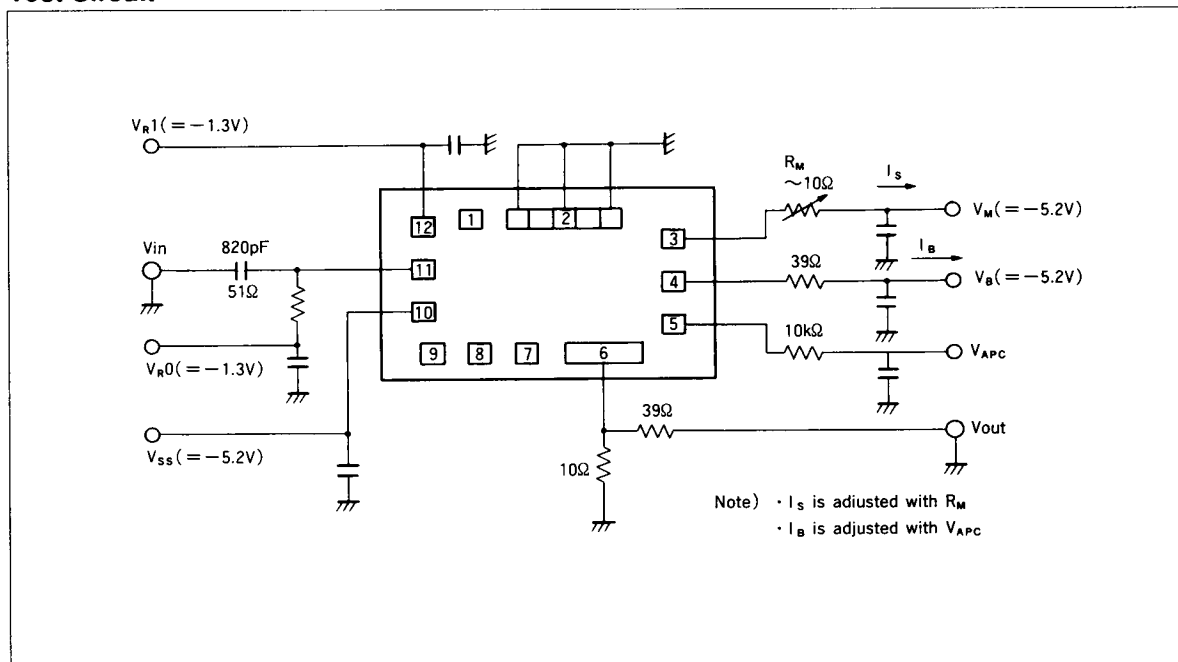
DC Characteristics

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Signal Current	I_s	See Test Circuit		50	80	mA
Bias Current	I_B	See Test Circuit		50	80	mA
Input Signal Voltage	V_{in}	Capacitor Coupled	0.4		1.1	V _{p-p}
	V_{IH}	Direct Input	-1.1			V
	V_{IL}				-1.5	V
Supply Current	I_{ss}			40		mA

AC Characteristics

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Signal Current Rise Time	t_r	$I_b = 50 \text{ mA}$		100	150	ps
Signal Current Fall Time	t_f	$I_s = 50 \text{ mA}$ 10% to 90%		100	150	ps

Test Circuit



Note: I_s is adjusted with R_M
 I_B is adjusted with V_{APC}