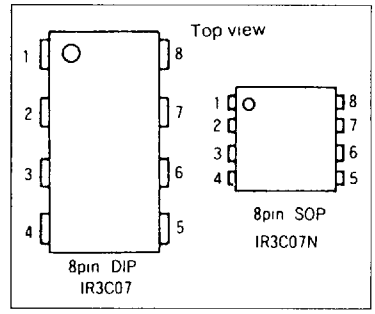
IR3C07/IR3C07N

Pin Assignment

	IR3C07/IR3C07N	
Pin No.	**Symbol**	**Function**
1	OUT	Output
2	Cp	Phase Compensation
3	IM	Monitor input
4	GND	Ground
5	INH	Inhibit input (on/off)
6	So	Operating signal (output)
7	V_{CC}	Control Circuit Power Supply
8	V_{PS}	Laser Drive Power Supply



Absolute Maximum Ratings

Parameter	Symbol	Remarks	Ratings	Unit
			IR3C07/IR3C07N	
Supply Voltage	V_{CC}	Pin ⑦	10	V
Supply Voltage	V_{PS}	Pin ⑧	10	V
Output Current	I_O	Pin ①	−170	mA
Inhibit Input Voltage	V_I	Pin ⑤	−0.2 to V_{CC}	V
Power Dissipation	P_C	Ta≦25℃	800/500	mW
Derating ratio	——	Ta>25℃	7.0/4.4	mW/℃
Operating Temperature	Topr	——	−30 to +85	℃
Storage Temperature	Tstg	——	−55 to +150	℃
Output Current	I_{OS}	Pin ⑥ (on time)	5	mA
Output Applied Voltage	V_{OS}	Pin ⑥ (off time)	−0.2 to V_{CC}	V

Electrical Characteristics

(V_{CC}=5V, V_{PS}=5V, Ta=25℃)

Parameter		Symbol	Condition	Rating			Units
				MIN	TYP	MAX	
Operating Supply Voltage		V_{CC}	——	4.5	5.0	5.5	V
Circuit Current		$I_{CC\ ON}$	V_I=5 V	——	3.8	6.8	mA
		$I_{CC\ OFF}$	V_I=0 V	——	5.0	9.0	
Output Voltage		V_{O1}	I_O=−150mA	3.7	4.1	——	V
		V_{O2}	I_O=−100mA	3.8	4.2	——	
		V_{O3}	I_O=−20mA	3.9	4.3	——	
Output Voltage		V_{OS1}	I_{OS}=0mA	——	0.05	——	V
		V_{OS2}	I_{OS}=2mA	——	0.1	0.4	
Inhibit Input Voltage	High	V_{IH}	V_O, V_{OS} L→H	1.43	1.53	1.63	V
	Low	V_{IL}	V_O, V_{OS} H→L	1.23	1.33	1.43	
	Hysteresis	V_{IHY}	(V_{IH}−V_{IL})	——	200	——	mW
Inhibit Input Current		I_I	——	——	−0.3	−5	μA
Monitor Input Pin Voltage		V_M	In equilibrium operation	1.71	1.95	2.19	V
Monitor Input Pin Current		I_M	——	——	−0.3	−5	μA
Light Output Power Supply Deviation		$\Delta I_P/I_P\Delta V_{CC}$	V_{CC}=5V±10%	——	0.2	——	%/V
Light Output Change Range		$\Delta I_P/I_P$	Ta=−20 to +85℃	——	0.2	——	%

Common Data

Fig. 94-1 Optical Power Output Dependence of Far-Field Pattern

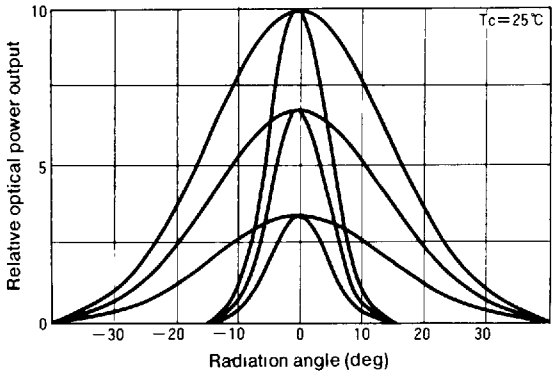


Fig. 94-2 Polarization Ratio vs. Optical Power Output (LT026 series, LT023 series)

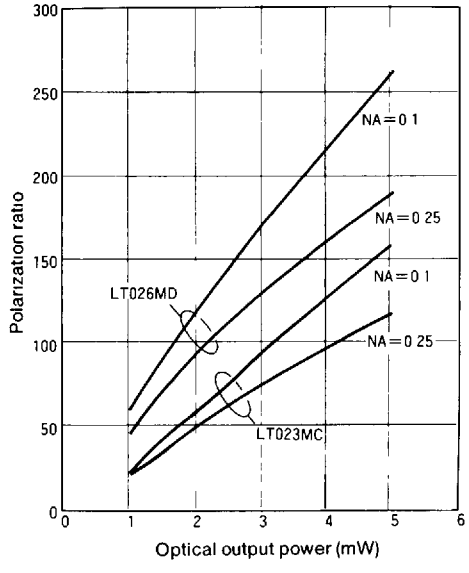


Fig. 94-3 Polarization Ratio vs. Optical Power Output (LT024 series, LT015 series)

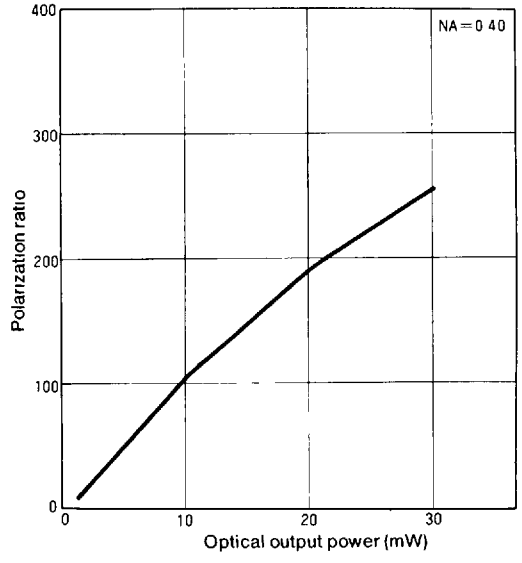


Fig. 94-4 Coupling Efficiency

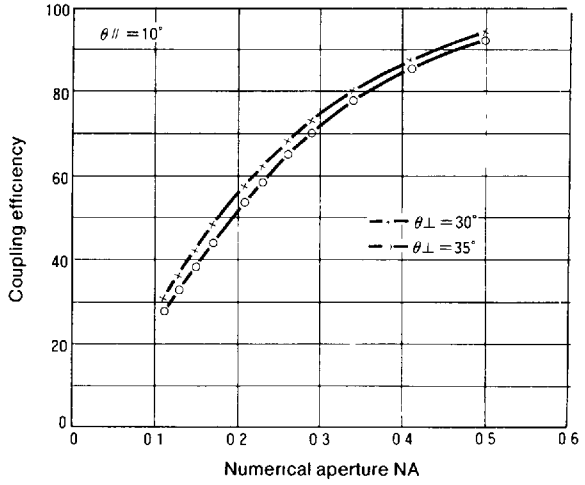
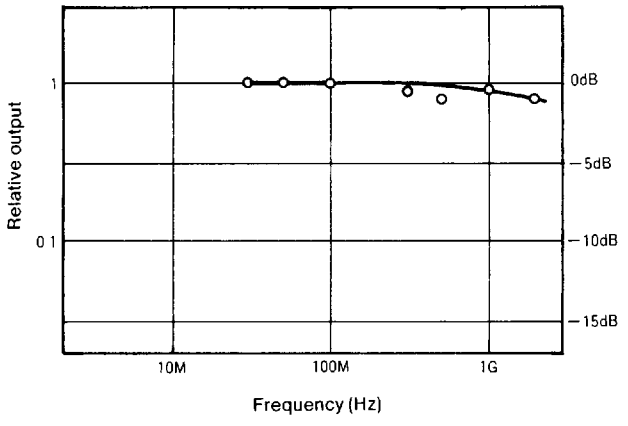


Fig. 94-5 Frequency Response



Note All data on this page is typical only, and is not intended as a specification The shapes of these curves can be used as a general reference, but the actual characteristics will vary from device to device

Built-in PIN Photodiode Characteristics

Fig. 95-1 Photodiode Frequecy Response Characteristic

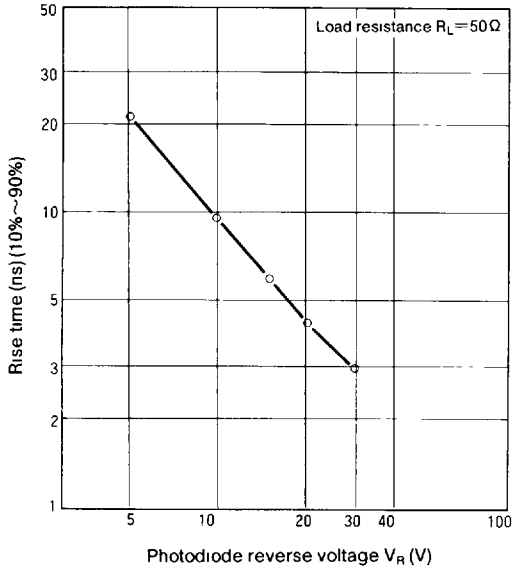
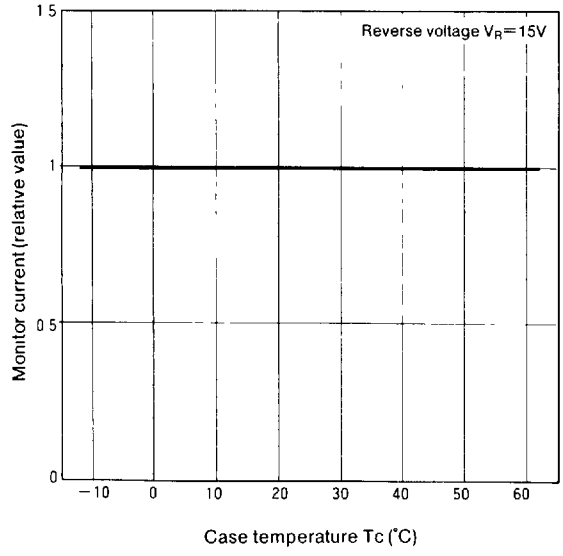


Fig. 95-2 Photodiode Temperature Characteristic



Note All data on this page is typical only, and is not intended as a specification The shapes of these curves can be used as a general reference, but the actual characteristics will vary from device to device

Outline Dimensions

Unit: mm

Fig. 98-1 Standard Type (C Type)

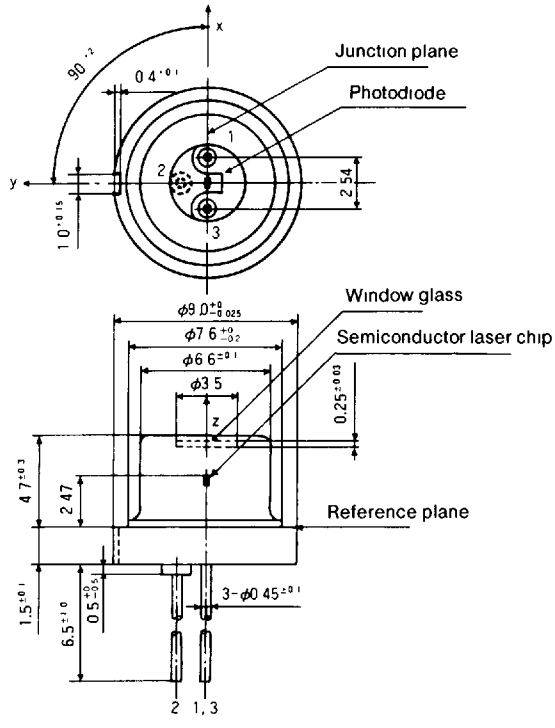


Fig. 98-2 Low-Cap Type (D Type)

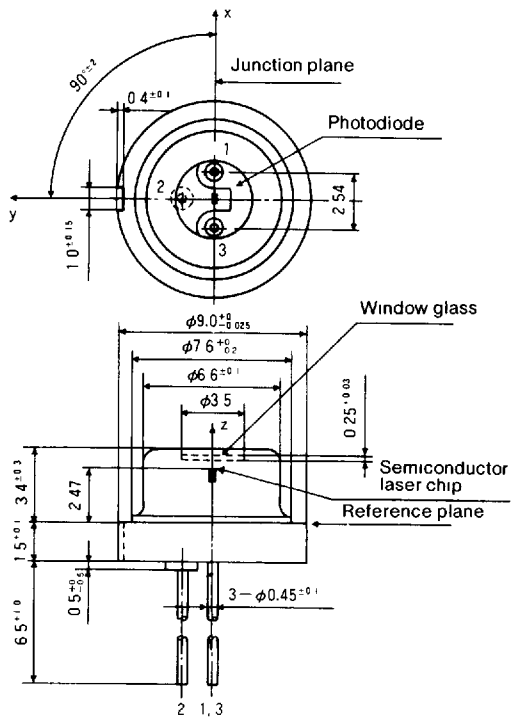


Fig. 98-3 Fin-Equipped Type (F Type)

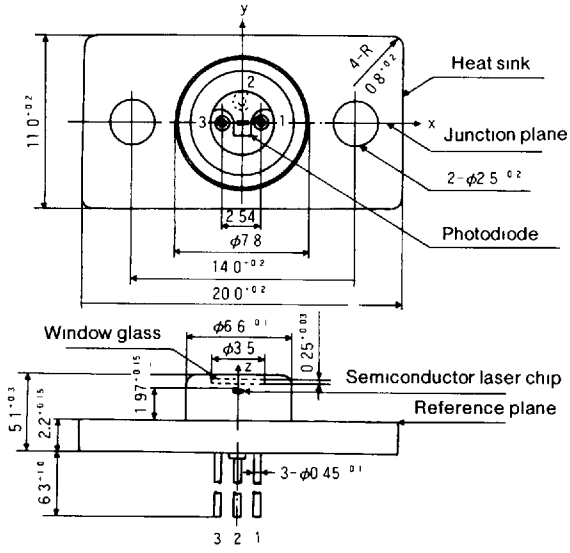
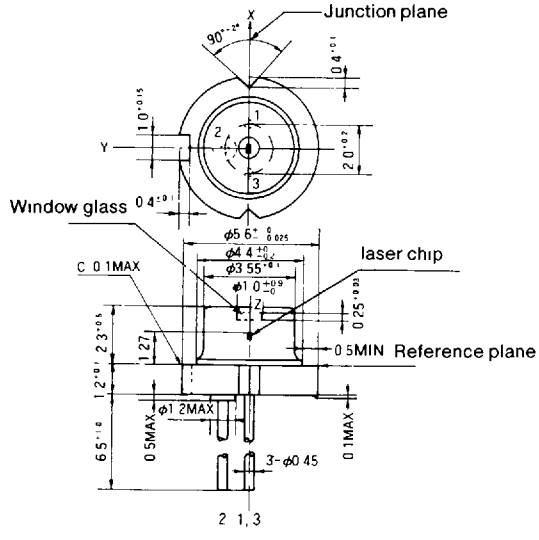
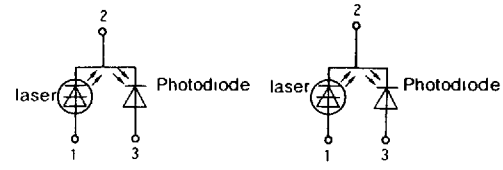


Fig. 98-4 Compact Package Type (S Type)



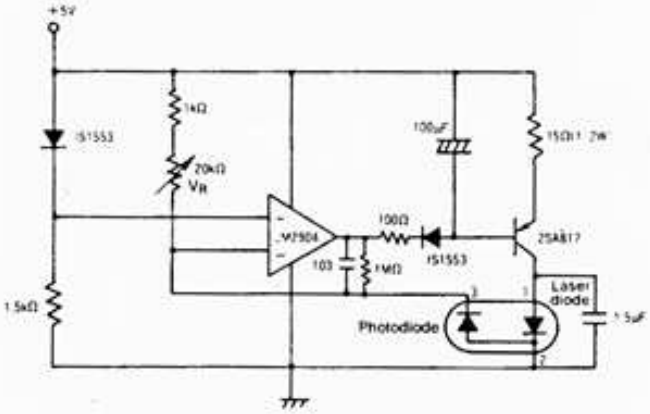
Terminal connections



Typical Drive Circuits for P-type Laser Diodes

In the P-type laser diodes, the built-in PIN photodiode is reversed relative to Sharp's other models. The same positive power voltage power supply that is used to drive the laser diode can be used to apply a reverse bias to the photodiode, as shown in Fig. 32-2

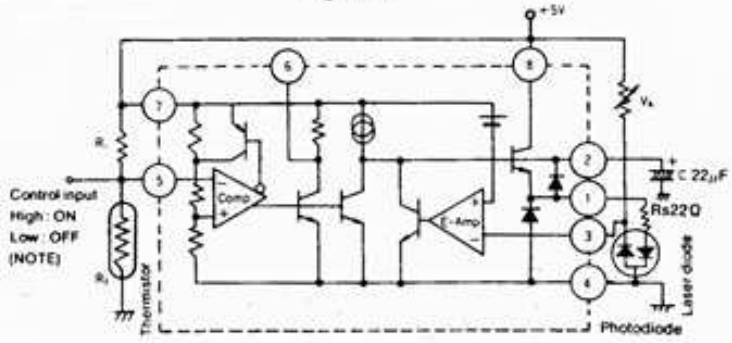
Fig. 32-2 Typical Drive Circuit for LT022PD Series



Note : 1) See page 31 for power adjustment instructions and precautions.
2) If a thermal shut-off function is not required remove R_1 and R_2, and use a TTL level input at Pin 5 to control the laser diode.
(high : on, low : off)

●Circuits Using a Driver IC

Fig. 32-3



The value of V_R should be selected according to the following table.

Model No	V_R Value
LT022PD, LT022WD	15kΩ
LT022PS, LT022WS, LT023PS LT023WS, LT026PS, LT011PS	35kΩ
LT024PD, LT015PD	100kΩ

IR3C07 IR3C07N