

GP1F40T1/GP1F40R1/ GP1C251

High Speed Type Plastic Fiber Optics with Built-in Amp.

■ Features

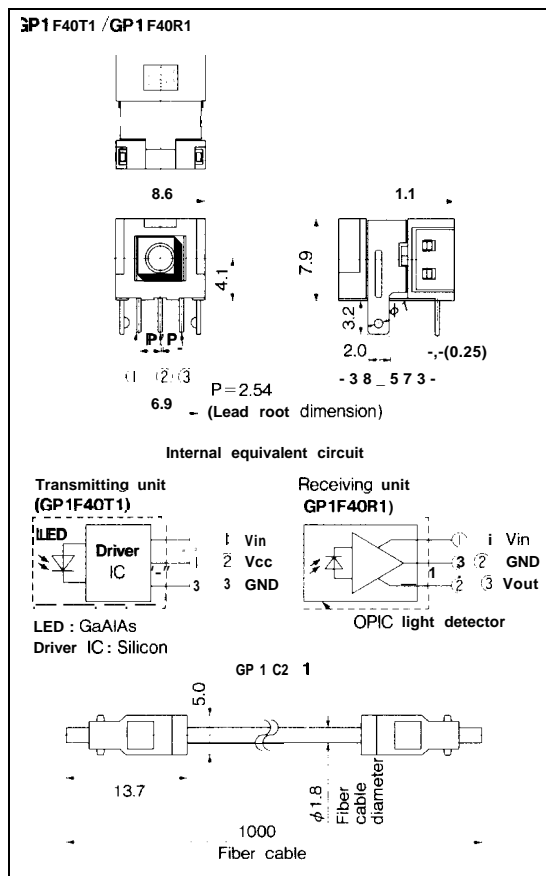
- High speed optical data transmission
Signal transmission speed : DC to 25M_{bps}
(NRZ signal)
- Uni-directional fiber optics using APF*
*APF : All plastic Fiber
- High resistance to noise
- GP1 F40T1** : Transmitting unit
GP1 F40R1 : Receiving unit
GP1C251 : Plastic fiber cable (1m)

■ Applications

- Copiers
- Laser beam printers
- Equipments with microcomputer

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(GP1F40T1/GP1F40R1)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	-0.5 to +7.0	V
Output current	GP1 F40R1 I _{OL}	6($V_{CC}=5V$)	mA
Input voltage	V_{in}	-0.5 to $V_{CC}+0.3$	V
Storage temperature	T_{stg}	-30 to +80	°C
Operating temperature	T_{opr}	0 to +70	°C

■ Recommended Operating Conditions (GP1F40T1/GP1F40R1)

Parameter	Symbol	Remarks	MIN.	MAX.	Unit
Supply voltage	V_{CC}		4.75	5.25	V
High level input voltage	GP1F40T1 V_{INH}		2.0	V_{CC}	v
Low level input voltage	GP1F40T1 V_{INL}		0	0.4	V
Operating transfer rate	T_0	NRZ signal duty ratio 50%	0.1	25	Mbps

■ Electro-optical Characteristics (GP1F40T1/GP1F40R1)

(Ta = 25°C, V_{CC} = 5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit		
Peak emission wavelength	λ_P		—	660		nm		
Supply current	GP1F40T1	*1 Refer to Fig. 1	—	—	25	mA		
	GP1F40R1	Refer to Fig. 2			30			
Low → High delay time	t_{PLH}	Refer to Fig. 3	—		80	ns		
High → Low delay time	t_{PHL}		—	—	80	ns		
Transmitter	Optical power output coupling with fiber	P_C	Refer to Fig. 1	—	—	—	dBm	
	High level input current			I_{IH}	$V_{IN} = 2.0V$	—		0.4
	Low level input current	I_{IL}	$V_{IN} = 0.8V$	—	—	-1.6	v	
	Pulse width distortion	t_w	Refer to Fig. 3	30		70	%	
Receiver	Minimum receiver input optical power level	P_{CMIN}	Refer to Fig. 2	—	—	-15	dBm	
	Maximum receiver input optical power level	P_{CMAX}		-5.5	—	—		dBm
	High level output voltage	V_{OH}		2.7	—	—	v	
	Low level output voltage	V_{OL}		—	—	0.4	v	
	output rise time	t_r		—	—	—	20	ns
	Output fall time	t_f		—	—	—	10	ns
	Pulse width distortion	t_w		Refer to Fig. 3	30		70	%

*1 When input is low level ($V_{IN} = 0.8V$)

■ Optical Characteristics (GP1C251) (Ta = 25°C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Output coupling with fiber	P_f	-17	—	—	dBm
Refraction ratio	—	Stee index			

Note) 1. Standard light transmitter : Light transmitter that provides the fiber end light output of $-15dBm \pm 0.3dBm$ when the standard optical fiber cable is connected.

2. Measuring system block diagram : Shown in Fig. 4.

■ Mechanical Characteristics (GP1C251)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Insertion force, withdrawal force	—	*2	6	—	40	N

*2 Initial value when GP1F40T1/GP1F40R1 is used

Fig. 1 Measuring Method (Transmitting Unit)

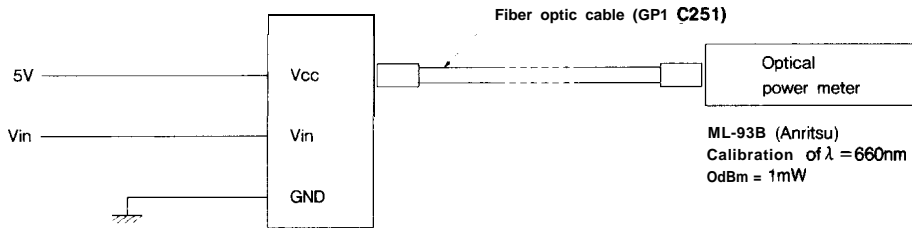
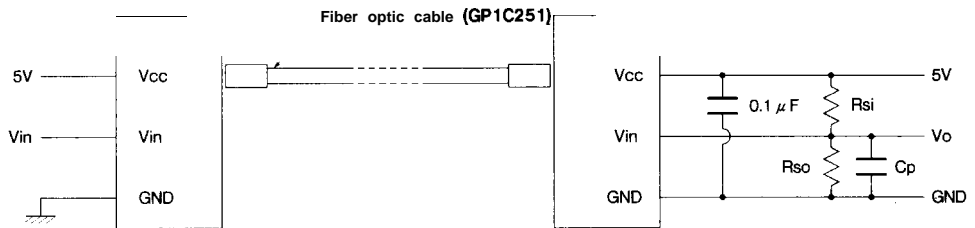


Fig. 2 Measuring Method (Receiver Unit)



Input signal : 0.1Mbps (NRZ, Duty50%)
 $R_{si} = 2k\ \Omega$, $R_{so} = 10k\ \Omega$, $C_p = 2pF$
 (R_{so}, C_p : Including probe load)

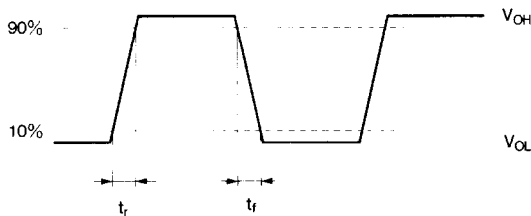


Fig. 3 Transfer Characteristics

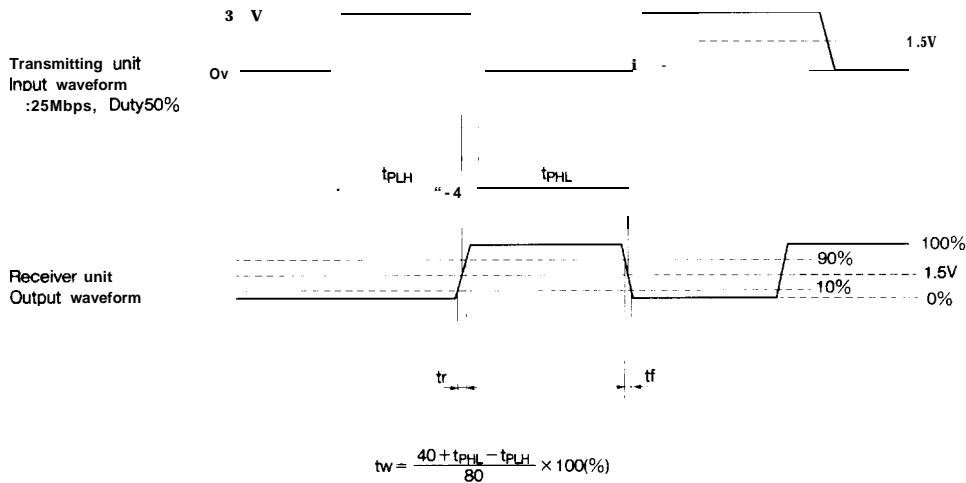
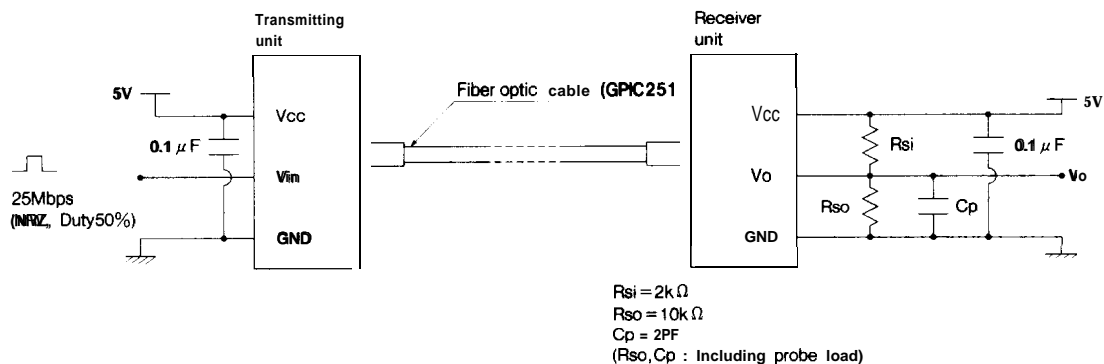
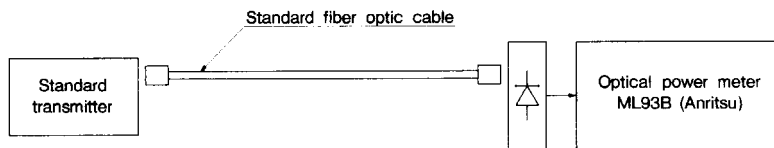


Fig. 4 Measuring Method (Optical Power Output Coupling with Fiber)



● Please refer to the chapter “Precautions for Use” (Page 78 to 93)