

GP1F40T1/GP1F40R1/ GP1C251 High Speed Type Plastic Fiber Optics with Built-in Amp.

■ Features

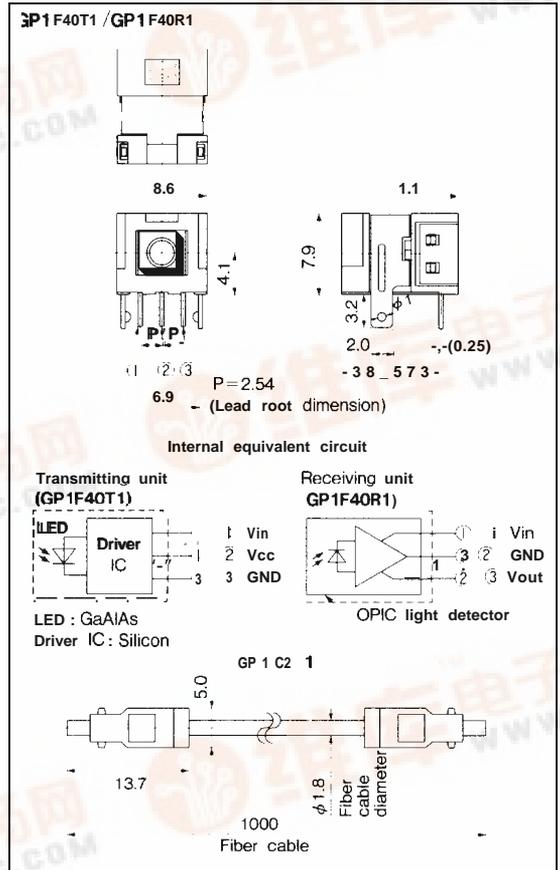
- High speed optical data transmission
Signal transmission speed : DC to 25M_{bps}
(NRZ signal)
- Uni-directional fiber optics using APF*
*APF : All plastic Fiber
- High resistance to noise
- GP1 F40T1** : Transmitting unit
GP1 F40R1 : Receiving unit
GP1C251 : Plastic fiber cable (1m)

■ 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	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_o	NRZ signal duty ratio 50%	0.1	25	Mbps

Electro-optical Characteristics (GP1F40T1/GP1F40R1) ($T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit		
Peak emission wavelength	λ_P		—	660	—	nm		
Supply current	GP1F40T1	*1 Refer to Fig. 1 Refer to Fig. 2	—	—	25	mA		
	GP1F40R1				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	—12	—9	—6	dBm	
	High level input current	I_{IH}		$V_{IN} = 2.0\text{V}$	—	—	0.4	v
	Low level input current	I_{IL}		$V_{IN} = 0.8\text{V}$	—	—	—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 ($V_{IN} = 0.8\text{V}$)

Optical Characteristics (GP1C251) ($T_a = 25^\circ\text{C}$)

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

Note) 1. Standard light transmitter : Light transmitter that provides the fiber end light output of $-15\text{dBm} \pm 0.3\text{dBm}$ 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)

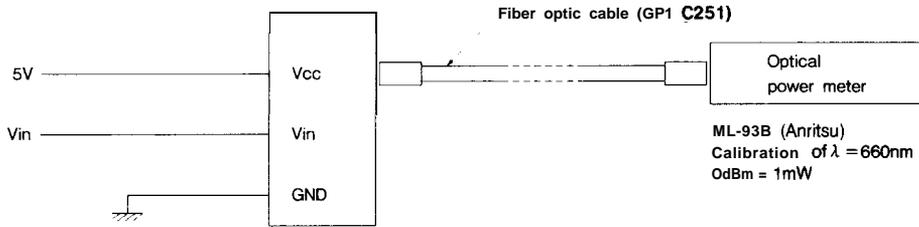
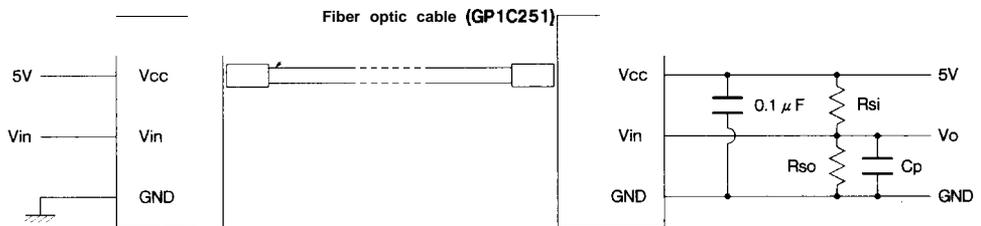


Fig. 2 Measuring Method (Receiver Unit)



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

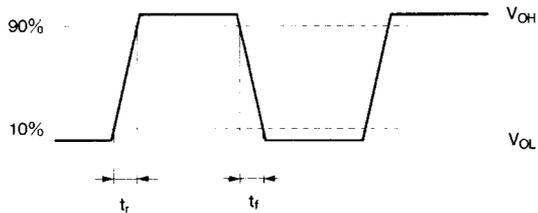


Fig. 3 Transfer Characteristics

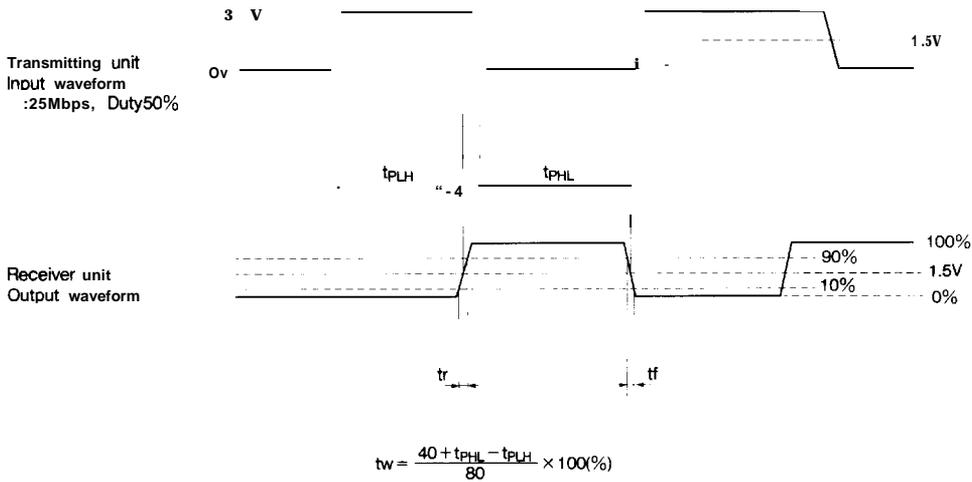
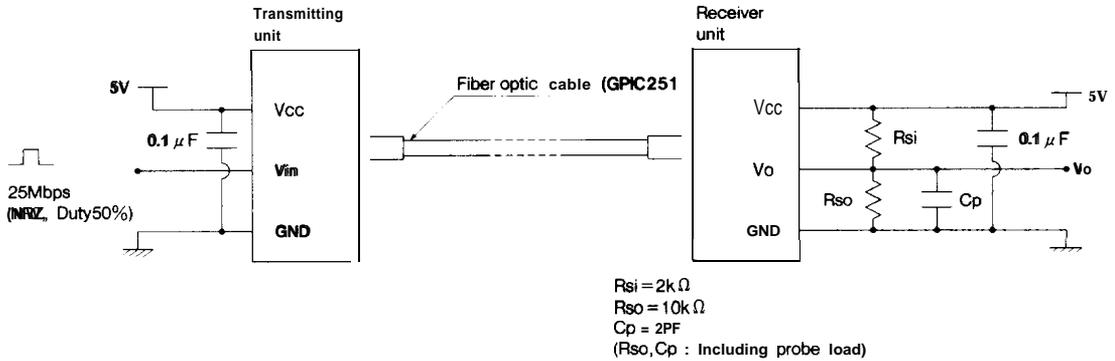


Fig. 4 Measuring Method (Optical Power Output Coupling with Fiber)

