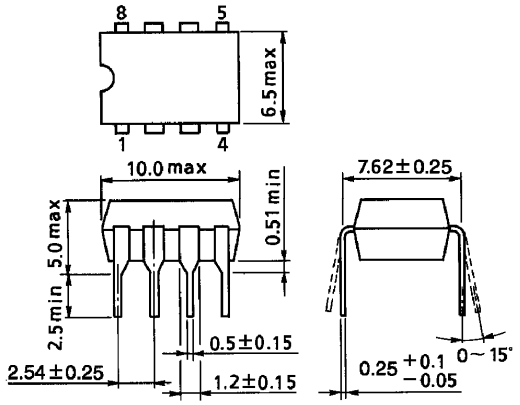
FIBER OPTIC TRANSMITTING PERIPHERAL IC

TA8513P

LED DRIVE CIRCUIT FOR OPTICAL TRANSMITTION

Unit : mm

- TTL interface
- Data rate : Up to 20 Mb / s (NRZ code)



Pin connection
1. Input
2. LED
3. B_2
4. GND
5. B_4
6. B_8
7. B_9
8. V_{CC}

1. Maximum Ratings (Ta = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Storage Temperature	T_{stg}	−55~150	°C
Operating Temperature	T_{opr}	−40~85	°C
Power Supply	V_{CC}	−0.5~7	V
Input Voltage	V_{IN}	−0.5~V_{CC}	V
LED Terminal Voltage	V_{LED}	V_{CC} − 2.5~V_{CC}	V
Package Allowable Loss		0.9	W
Soldering Temperature	T_{sol}	260 (1)	°C

(Note) : (1) Soldering time ≦ 10 s (More than 1mm apart from the package).

2. Recommended Operating Conditions

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT
Power Supply	V_{CC}	4.75	5.00	5.25	V
Data Rate		DC	—	20	Mb / s

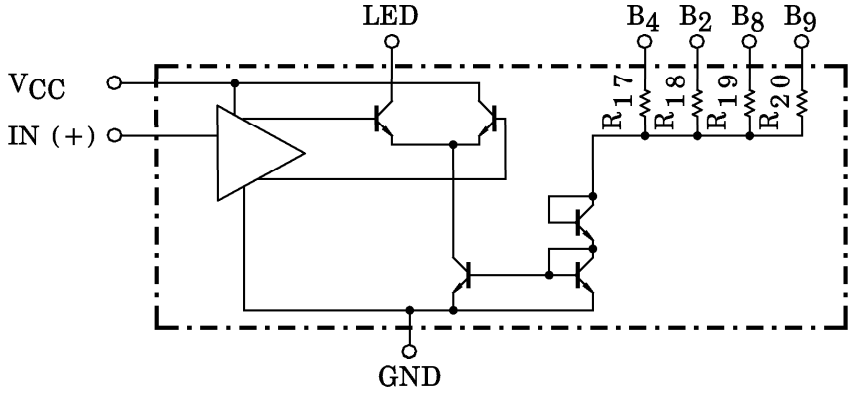
3. Electrical Characteristics (Ta = 25°C, V_{CC} = 5 V, V_{LED} = V_{CC} − 2.5V)

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP.	MAX	UNIT
Current Consumption	I_{CC}	V_{CC} = V_{LED} = 5.25 V	B_2, B_4, B_8, B_9 = OPEN	—	1.2	—	mA
			V_{B9} = 5.25 V	6	10	14	
			V_{B8} = 5.25 V	15	26	37	
			V_{B2} = 5.25 V	29	42	55	
			V_{B4} = 5.25 V	45	64	83	
Current Limiting Resistor	R_{17}			—	1.8	—	kΩ
	R_{18}			—	3	—	
	R_{19}			—	4.9	—	
	R_{20}			—	14.8	—	
LED Output Current	I_{LED}	V_{B9} = 5.0 V		5	7	9	mA
		V_{B8} = 5.0 V		15	20	25	
		V_{B2} = 5.0 V		24	32	40	
		V_{B4} = 5.0 V		37	50	63	
LED Cut-off Current	I_{off}			—	—	12	μA

4. Input Logic Part (Ta = 25°C, V_{CC} = 5 V, V_{LED} = V_{CC} − 2.5 V)

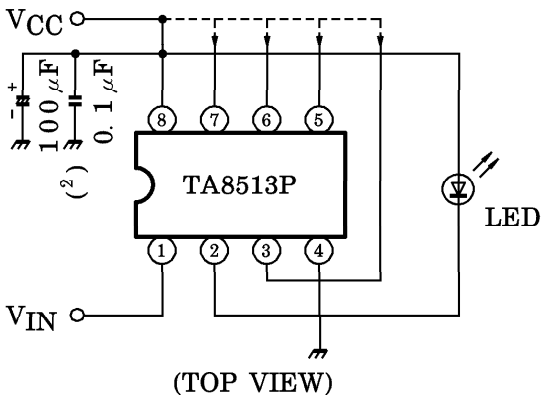
PARAMETER		SYMBOL	CONDITIONS	MIN	TYP.	MAX	UNIT
TTL Input Unit	Low Level Input Current	I_{IL}	V_{IL} = 0.4 V	—	—	−0.4	mA
	High Level Input Current	I_{IH}	V_{IH} = 2.4 V	—	—	40	μA
			V_{IH} = 2.7 V	—	—	20	
	Maximum High Level Input Current	I_{IHMAX}	V_{IH} = V_{CC} = 5 V	—	—	10	μA
	Low Level Input Voltage	V_{IL}		—	—	0.8	V
	High Level Input Voltage	V_{IH}		2.0	—	—	V
	Input Clamp Voltage	V_{IK}	V_{CC} = 4.75 V, I_{IL} = −10 mA	—	—	−1.5	V

5. Equivalent Circuit



6. Application Circuit

Example of a recommended circuit ($V_{LED} \leqq 2.5$ V)



(TOP VIEW)

See item next figure for connection method of pins No.3, 5, 6 and 7.

Pin No.	LED OUTPUT CURRENT (V_{CC} = 5 V, Turn ON, Typ.)
3	32 mA
5	50 mA
6	20 mA
7	7 mA

(2) Install 0.1 μF capacitor within 5 mm from No.8 pin and 100 μF capacitor within 15 mm from No.8 pin.

7. IC Logic

INPUT LEVEL	OPTICAL OUTPUT (LED OUTPUT CURRENT)
Hi	ON
Lo	OFF

8. Precautions for Operation

(1) The maximum ratings show the limits, which must not be exceeded even momentarily regardless of the external condition.
Operation beyond the limit of the maximum rating may cause failure of the devices.
Therefore, special attention should be given to the maximum ratings.

(2) Do not use acid or alkaline soldering flux cleaner solvent.

(3) Ground all GND pins.