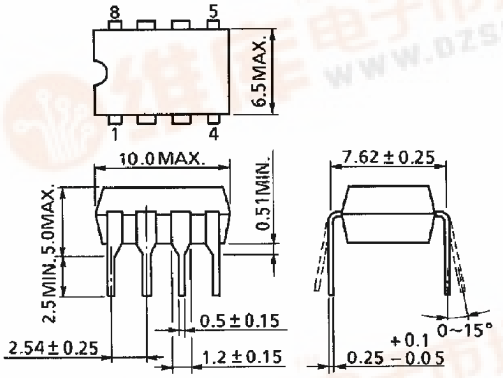
FIBER OPTIC TRANSMITTING PERIPHERAL IC

TOIC8513P

LED DRIVE CIRCUIT FOR OPTICAL TRANSMITTION

Unit : mm

- TTL interface
- Data rate : Up to 20Mb/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)

ITEM	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≦10s (More than 1mm apart from package).

2. Recommended Operating Conditions

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

961001EAA2

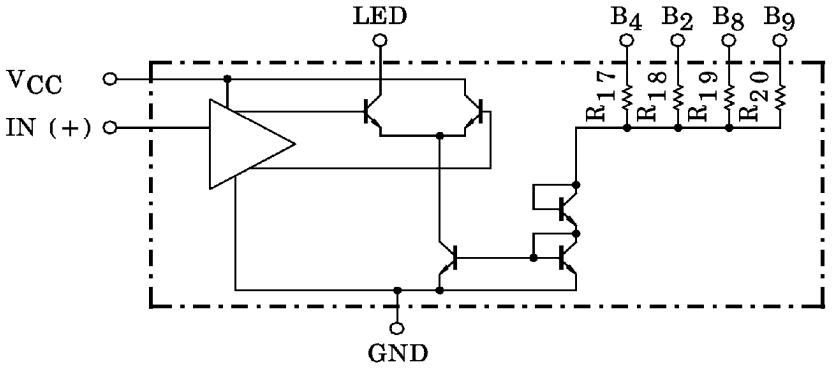
3. Electrical characteristics (Ta = 25°C, V_{CC} = 5V, V_{LED} = V_{CC}-2.5V)

ITEM	SYMBOL	CONDITIONS		MIN.	TYP.	MAX.	UNIT
Current Consumption	I_{CC}	V_{CC} = V_{LED} = 5.25V	B_2, B_4, B_8, B_9 = OPEN	—	1.2	—	mA
			V_{B9} = 5.25V	6	10	14	
			V_{B8} = 5.25V	15	26	37	
			V_{B2} = 5.25V	29	42	55	
			V_{B4} = 5.25V	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} = 5.0V		5	7	9	mA
		V_{B8} = 5.0V		15	20	25	
		V_{B2} = 5.0V		24	32	40	
		V_{B4} = 5.0V		37	50	63	
LED Cut-off Current	I_{off}			—	—	12	μA

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

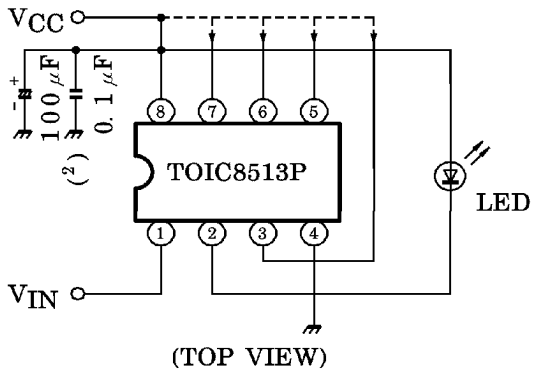
ITEM		SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
TTL Input Unit	Low Level Input Current	I_{IL}	V_{IL} = 0.4V	—	—	−0.4	mA
	High Level Input Current	I_{IH}	V_{IH} = 2.4V	—	—	40	μA
			V_{IH} = 2.7V	—	—	20	
	Maximum High Level Input Current	I_{IHMAX}	V_{IH} = V_{CC} = 5V	—	—	10	μA
	Low Level Input Voltage	V_{IL}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

5. Equivalent Circuit



6. Connecting Method

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



(TOP VIEW)

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

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

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