FIBER OPTIC TRANSMITTING PERIPHERAL IC

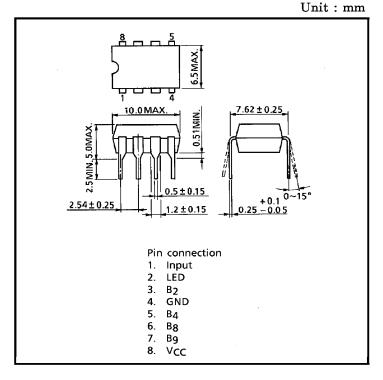
TOIC8513P

LED DRIVE CIRCUIT FOR OPTICAL

TRANSMITTION

TTL interface

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



1. Maximum Ratings (Ta = 25°C)

ITEM	SYMBOL	RATINGS	UNIT
Storage Temperature	$\mathrm{T_{stg}}$	-55~150	°C
Operating Temperature	T_{opr}	-40~85	°C
Power Supply	v_{CC}	-0.5~7	V
Input Voltage	$v_{ m IN}$	$-0.5 \sim V_{\mathrm{CC}}$	V
LED Terminal Voltage	$v_{ m LED}$	$V_{\rm CC}$ – 2.5 ~ $V_{\rm CC}$	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

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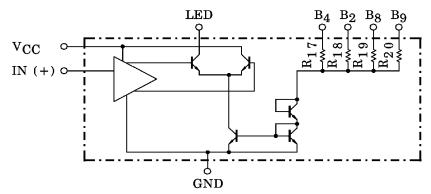
3. Electrical characteristics (Ta = 25°C, V_{CC} = 5V, V_{LED} = V_{CC} -2.5V)

ITEM	SYMBOL	CONDITIONS		MIN.	TYP.	MAX.	UNIT
	To o	V _{CC} =V _{LED} =5.25V	B ₂ , B ₄ , B ₈ , B ₉ =OPEN	_	1.2	_	mA
Current Consumption			$V_{B9} = 5.25V$	6	10	14	
Current Consumption	I_{CC}		$V_{B8} = 5.25V$	15	26	37	
			$V_{B2} = 5.25V$	29	42	55	
			$V_{B4} = 5.25V$	45	64	83	
	R ₁₇			_	1.8	_	
Comment Limiting Besisten	R ₁₈			_	3	_	$\mathbf{k}\Omega$
Current Limiting Resistor	R ₁₉			_	4.9	_	K77
	R ₂₀			_	14.8	_	
LED Output Current	${ m I_{LED}}$	$V_{B9} = 5.0V$		5	7	9	
		$V_{\mathrm{B8}} = 5.0 \mathrm{V}$		15	20	25] ,
		$V_{\rm B2}$ =5.0 V		24	32	40	mA
		$V_{B4} = 5.0V$		37	50	63	7 I
LED Cut-off Current	$I_{ m off}$			_	_	12	μ A

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

	ITEM	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
	Low Level Input Current	${ m I_{IL}}$	$V_{ m IL}$ = 0.4 V	_	_	-0.4	mA
	High Level Input	T	$ m V_{IH}\!=\!2.4V$	_	_	40	۸
mm	Current	${f I}_{f IH}$	$V_{ m IH}$ = 2.7 V	_	_	20	μ A
TTL Input	Maximum High Level	TTTT3 # A 32	$V_{IH} = V_{CC} = 5V$			10	$\mu \mathbf{A}$
Unit	Input Current	HMAX	1H - 4CC - 34			10	μ A
	Low Level Input Voltage	$ m v_{IL}$		_	_	0.8	V
	High Level Input Voltage	$ m v_{IH}$		2.0	_	_	V
	Input Clamp Voltage	$ m v_{IK}$	$V_{CC} = 4.75V, I_{IL} = -10mA$	_	_	-1.5	V

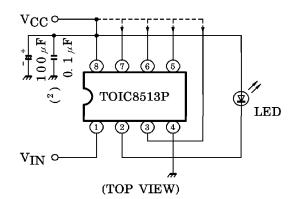
5. Equivalent Circuit



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6. Connecting Method

Example of a recommended circuit (VLED $\leqq 2.5 V)$



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

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

(2) Install $0.1\mu F$ capacitor within 5mm from No.8 pin and $100\mu F$ 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.