

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-MOS FET

TLP 3540

MEMORY TESTERS

LOGIC IC TESTERS

DATA RECORDING EQUIPMENT

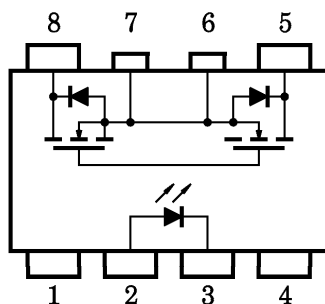
MEASURING EQUIPMENT

TLP3540 is a photorelay and consists of a GaAs infrared emitting diode optically coupled to a photo-MOSFET in a 8-pin DIP package (DIP8).

This photorelay has characteristics of low-ON resistance when it turns on. It is suitable for 48 V power line ON/OFF switches.

- 1-Form-A
- Peak Off-State Voltage : 60 V (MIN.)
- Trigger LED Current : 5 mA (MAX.)
- On-State Current : 2 A (MAX.)
- On-State Resistance : 120 mΩ (MAX.)
- Isolation Voltage : 1500 V_{rms} (MIN.)

PIN CONFIGURATION (TOP VIEW)

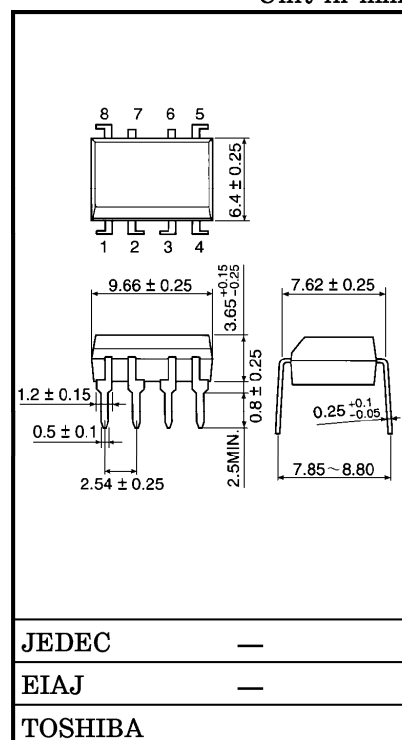


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1 : NC          5 : DRAIN
2 : ANODE       6 : SOURCE (shorten a pin)
3 : CATHODE     7 : SOURCE (shorten a pin)
4 : NC          8 : DRAIN

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Unit in mm



Weight : 0.54 g

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I _F	50	mA
	Reverse Voltage	V _R	6	V
	Junction Temperature	T _j	125	°C
DETECTOR	Off-State Output Voltage	V _{OFF}	60	V
	On-State Current	I _{ON}	2	A
	Junction Temperature	T _j	125	°C
Storage Temperature		T _{stg}	−55~125	°C
Operating Temperature		T _{opr}	−20~85	°C
Lead Solder Temperature (10 s)		T _{sol}	260	°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note 1)		BV _S	1500	V _{rms}

(Note 1) : Device considered a two-terminal device : Pins 1, 2, 3 and 4 shorted together and pins 5 and 8 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{OFF}	—	—	48	V
Forward Current	I _F	10	—	30	mA
On-State Current	I _{ON}	—	—	2	A
Operating Temperature	T _{opr}	25	—	50	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 20 mA	1.0	1.2	1.4	V
	Reverse Voltage	I _R	V _R = 6 V	—	—	10	μA
	Capacitance	C _T	V = 0, f = 1 MHz	—	15	—	pF
DETECTOR	Off-State Current	I _{OFF}	V _{OFF} = 20 V, Ta = 50°C	—	1.0	4.0	nA
	Capacitance	C _{OFF}	V = 0, f = 1 MHz	—	600	1400	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I _{FT}	I _{ON} = 1 A	—	—	5	mA
ON-State Resistance	R _{ON}	I _{ON} = 1 A, I _F = 10 mA	—	—	0.12	Ω

ISOLATION CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	CS	VS = 0 V, f = 1 MHz	—	0.8	—	pF
Isolation Resistance	RS	VS = 500 V, R.H. ≤ 60%	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BVS	AC, 1 minute	1500	—	—	Vrms
		AC, 1 second (in oil)	—	3000	—	
		DC, 1 minute (in oil)	—	3000	—	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-ON Time	tON	RL = 200 Ω (Note 2)	—	—	5	ms
Turn-OFF Time	tOFF	VDD = 20 V, IF = 15 mA	—	—	3	

(Note 2) : SWITCHING TIME TEST CIRCUIT

