TOSHIBA PHOTOCOUPLER PHOTO RELAY

TLP3121

MEASUREMENT INSTRUMENTS LOGIC IC TESTERS / MEMORY TESTERS BOARD TESTERS / SCANNERS

The TOSHIBA TLP3121 Mini-flat photorelay is a small-outline photorelay, suitable for surface-mount assembly. The TLP3121 consists of a GaAs infrared-emitting diode optically coupled to a photo-MOS FET and housed in a 4-pin package.

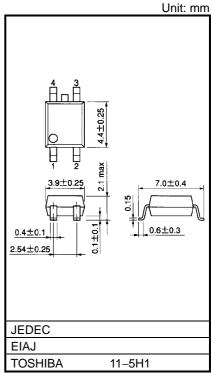
Its characteristics include low OFF-state current and low output pin capacitance.

FEATURES

• 4 pin SOP (2.54SOP4) : 2.1 mm high, 2.54 mm pitch

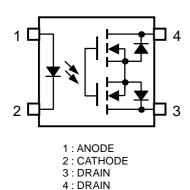
• 1-Form-A

Peak Off-State Voltage : 80 V (MIN.)
 Trigger LED Current : 4 mA (MAX.)
 On-State Current : 350 mA (MAX.)
 On-State Resistance : 1.2 Ω (MAX.)
 Output Capacitance : 40 pF (MAX.)
 Isolation Voltage : 1500 Vrms (MIN.)

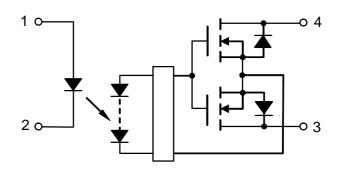


Weight: 0.1 g

PIN CONFIGURATION (TOP VIEW)



SCHEMATIC



MAXIMUM RATINGS (Ta = 25°C)

	CHARACTERISTIC	SYMBOL	RATING	UNIT
	Forward Current	l _F	50	mA
Ω	Forward Current Derating (Ta ≥ 25°C)	ΔI _F /°C	-0.5	mA/°C
쁘	Reverse Voltage	V_{R}	5	V
	Junction Temperature	Tj	125	°C
~	Off-State Output Terminal Voltage	V _{OFF}	80	V
DETECTOR	On-State Current	I _{ON}	350	mA
	On-State Current Derating (Ta ≥ 25°C)	Δl _{ON} /°C	-3.5	mA/°C
	Junction Temperature	Tj	125	°C
Storage Temperature Range		T _{stg}	-40~125	°C
Operating Temperature Range		T _{opr}	-20~85	°C
Lead Soldering Temperature (10 s)		T _{sol}	260	°C
Isolat	tion Voltage (AC, 1 minute, R.H. \leq 60%) (NOTE1)	BVS	1500	Vrms

(NOTE1) : Device considered a two-terminal device : Pins 1 and, 2 shorted together, and pins 3 and 4 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{DD}	_	_	64	V
Forward Current	l _F	5	_	30	mA
On-State Current	I _{ON}	_	_	350	mA
Operating Temperature	T _{opr}	25	_	60	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
	Forward Voltage	V _F	I _F = 10 mA	1.0	1.15	1.3	V
LED	Reverse Current	I _R	V _R = 5 V		_	10	μΑ
	Capacitance	C _T	V = 0, f = 1 MHz		15		pF
DETECTOR	Off-State Current	l _{OFF}	V _{OFF} = 30 V, Ta = 50°C	l	200	1000	pА
DETE	Capacitance	C _{OFF}	V = 0, f = 100 MHz	l	30	40	pF

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COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I _{FT}	I _{ON} = 350 mA	_	1	4	mA
Return LED Current	I _{FC}	I _{OFF} = 10 μA	0.2	0.75	_	mA
On-State Resistance	R _{ON}	$I_{ON} = 350 \text{ mA}, I_F = 5 \text{ mA}$	_	1.0	1.2	Ω

ISOLATION CHARACTERISTICS (Ta = 25°C)

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

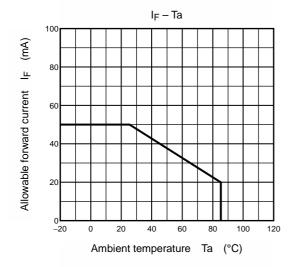
SWITCHING CHARACTERISTICS (Ta = 25°C)

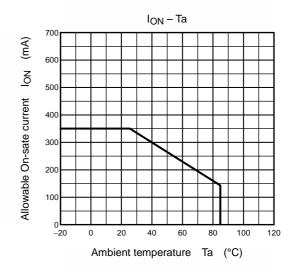
CHARACTERISTIC	SYMBOL	TEST CONDITION		MIN.	TYP.	MAX.	UNIT
Turn-on Time	t _{ON}	$R_L = 200 \Omega$ (N	NOTE 2)		300	500	116
Turn-off Time	tOFF	$V_{DD} = 20 \text{ V}, I_F = 5 \text{ mA}$		_	300	500	μs

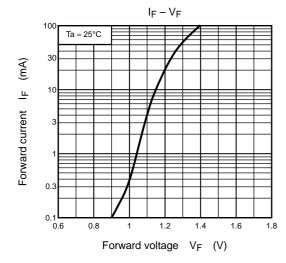
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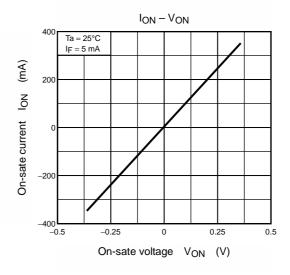
(NOTE 2): SWITCHING TIME TEST CIRCUIT

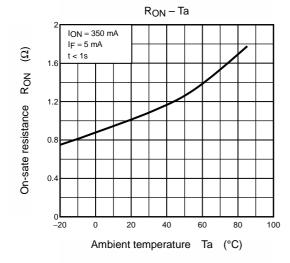
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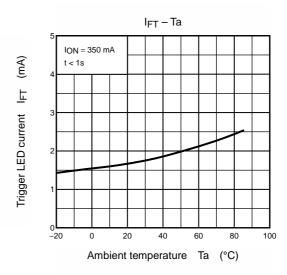


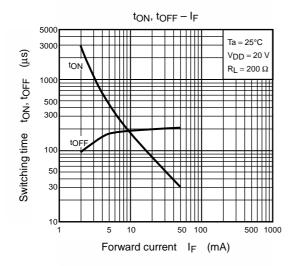


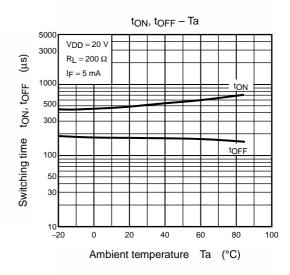


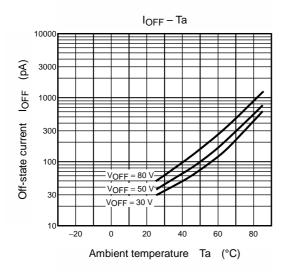












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