UNDER DEVELOPMENT
PRELIMINARY

TOSHIBA PHOTOCOUPLER PHOTORELAY

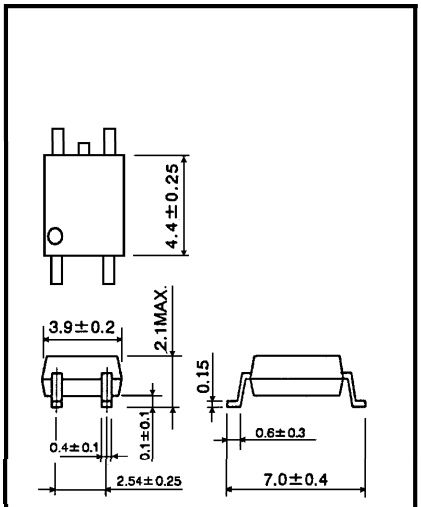
TLP3113

MEASUREMENT INSUTRUMENTS

LOGIC IC TESTERS / MEMORY TESTERS

BOARD TESTERS / SCANNERS

Unit in mm



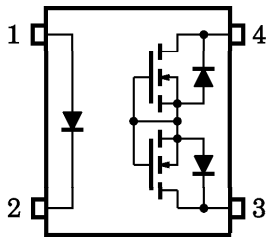
JEDEC	—
EIAJ	—
TOSHIBA	

Weight : 0.1 g

The Toshiba TLP3113 Mini-flat photorelay is a small-outline photorelay, suitable for surface-mount assembly. The TLP3113 consists of a GaAs infrared-emitting diode optically coupled to a photo-MOSFET and housed in a 4-pin package.
Its characteristics include low OFF-state current and low output pin capacitance, enabling it to be used in high-frequency measuring instruments.

- SOP (2.54SOP4) : 2.1 mm high, 2.54-mm pitch
- 1 Form A
- Peak OFF-State Voltage : 40 V (min)
- Trigger LED Current : 4 mA (max)
- ON-State Current : 100 mA (max)
- ON-State Resistance : 35 Ω (max)
- Output Capacitance : 0.9 pF (max)
- Isolation Voltage : 1500 Vrms (min)

PIN CONFIGURATION (TOP VIEW)



1 : ANODE
2 : CATHODE
3 : DRAIN
4 : DRAIN

980910EBC2

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}	40	V
	ON-State Current	I_{ON}	100	mA
	Peak ON-State Current (t = 100 ms, 1 shot)	I_{peak}	0.3	A
	Junction Temperature	T_j	125	°C
Storage Temperature		T_{stg}	−55~125	°C
Operating Temperature		T_{opr}	−20~85	°C
Lead Soldering Temperature (10 s)		T_{sol}	260	°C
Isolation Voltage (AC, 1 min., R.H. ≦ 60%) (Note 1)		BV_S	1500	Vrms

(Note 1) : Device considered a two-pin device : Pin 1 and 2 shorted together, and pins 3 and 4 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN	TYP.	MAX	UNIT
Supply Voltage	V_{OFF}	—	—	32	V
Forward Current	I_F	10	—	30	mA
ON-State Current	I_{ON}	—	—	100	mA
Operating Temperature	T_{opr}	25	—	60	°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} = 30 V, Ta = 50°C	—	—	1000	pA
	Output Capacitance	C_{OFF}	V = 0, f = 100 MHz	—	0.6	0.9	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Trigger LED Current	I_{FT}	I_{ON} = 100 mA	—	—	4	mA
ON-State Resistance	R_{ON}	I_{ON} = 100 mA, I_F = 5 mA	—	25	35	Ω

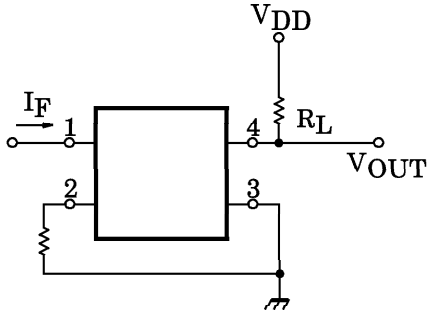
ISOLATION CHARACTERISTICS (Ta = 25°C)

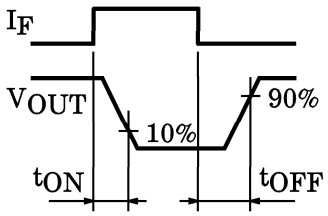
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Capacitance Input to Output	C_S	V_S = 0 V, f = 1 MHz	—	0.8	—	pF
Isolation Resistance	R_S	V_S = 500 V, R.H. ≦ 60%	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 min	1500	—	—	Vrms
		AC, 1 s (in oil)	—	3000	—	
		DC, 1 min (in oil)	—	3000	—	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Turn-on Time	t_{ON}	R_L = 200 Ω (Note 2)	—	—	1	ms
Turn-off Time	t_{OFF}	V_{DD} = 20 V, I_F = 10 mA	—	—	1	

(Note 2) : SWITCHING TIME TEST CIRCUIT





PRELIMINARY