

TOSHIBA PHOTOREFLECTIVESENSOR INFRARED + PHOTODARLINGTONTRANSISTOR

TLP909

PAPER DETECTOR SUCH AS COPYING MACHINE, FACSIMILE, PRINTER, ETC.

DETECTION OF FILM AND COIN

TIMING AND EDGE SENSOR

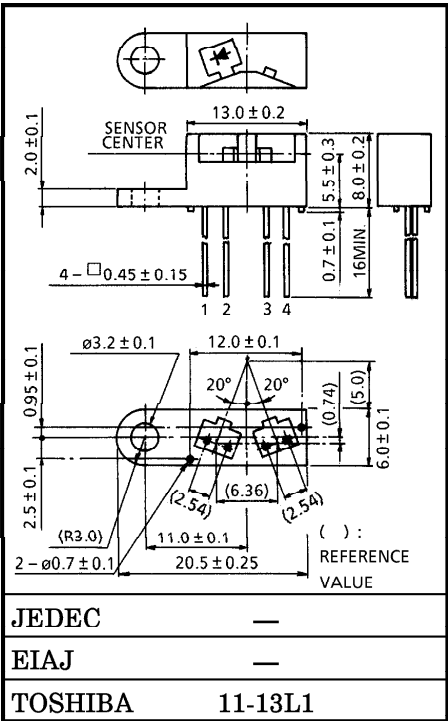
- Large detection distance : Optimum distance 2.5 to 4.5mm
- Side mounting type
- Protected from external light by black mold packaging.
- Material of the package : Polycarbonate

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	IF	50	mA
	Forward Current Derating (Ta>25°C)	ΔIF/°C	−0.33	mA/°C
	Pulse Forward Current (Note 1)	IFP	600	mA
	Reverse Voltage	VR	5	V
DETECTOR	Collector-Emitter Voltage	VCEO	30	V
	Emitter-Collector Voltage	VECO	5	V
	Collector Power Dissipation	PC	75	mW
	Collector Power Dissipation Derating (Ta>25°C)	ΔPC/°C	−1	mW/°C
	Collector Current	IC	50	mA
Operating Temperature Range		Topr	−25~85	°C
Storage Temperature Range		Tstg	−40~100	°C

(Note 1) Pulse width≤100μs, Repetitive frequency=100Hz

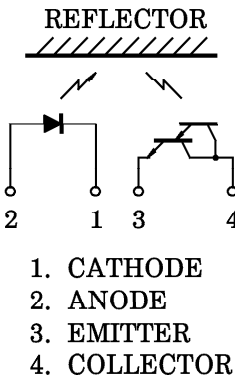
Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	11-13L1

Weight : 0.83g (TYP.)

PIN CONNECTION



961001EBC2

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OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.00	1.15	1.30	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Peak Emission Wavelength	λ_P	$I_F = 10\text{mA}$	—	940	—	nm
DETECTOR	Dark Current	$I_D (I_{CEO})$	$V_{CE} = 16\text{V}, I_F = 0$	—	—	0.25	μA
	Peak Sensitivity Wavelength	λ_P	—	—	870	—	nm
COUPLED	Collector Current	I_C	$V_{CE} = 2\text{V}, I_F = 10\text{mA}$ (Note 2)	1	—	20	mA
	Leakage Current	I_{LEAK}	$V_{CE} = 5\text{V}, I_F = 25\text{mA}$ Without Reflector	—	—	0.25	μA
	Collector-Emitter Saturation Voltage	$V_{CE} (\text{sat})$	$I_F = 10\text{mA}, I_C = 0.5\text{mA}$	—	0.85	1.2	V
	Rise Time	t_r	$V_{CC} = 5\text{V}, I_C = 10\text{mA},$ $R_L = 100\Omega$	—	100	—	μs
	Fall Time	t_f		—	100	—	

(Note 2) Reflection ratio 90% at white color paper (KODAK NEUTRAL TEST CARD),
Detecting Distance 5mm.

PRECAUTION

Please be careful of the followings.

1. Soldering temperature : 260°C MAX. Soldering time : 5s MAX.
(Soldering portion of lead above 1.5mm from the body of the device)
2. If chemical are used for cleaning, the soldered surface only shall be cleaned with chemicals avoiding the whole cleaning of the package.
3. The package may be dissolved or cracked by oil or chemicals as it uses polycarbonate.
4. TLP909 shall be mounted on an unwarped surface.
5. Screw shall be tightened to clamping torque of 0.59N·m.

PRODUCT INDICATION

