

TENTATIVE

TOSHIBA Photocoupler Photo-Diode

TLP722

Unit in mm

The TOSHIBA TLP722 consists of a photo-diode optically coupled to a gallium arsenide infrared emitting diode in a four lead plastic DIP (DIP4).

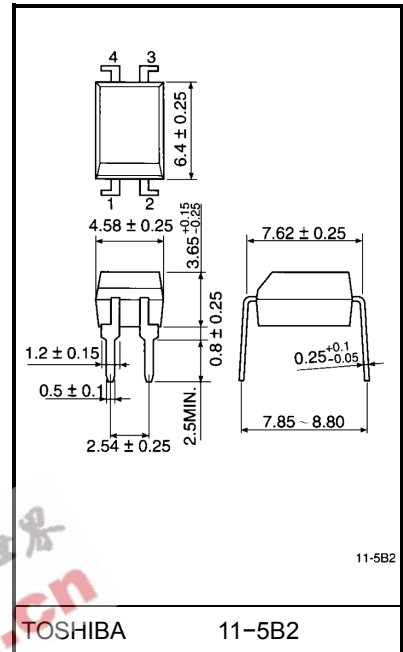
TLP722: Single circuit

- Cathode-anode voltage: 30V (max)
- Current transfer ratio: 0.1% (min)
- Input / output isolation voltage: 4000V_{rms} (min)
- Operating temperature range: -55~100°C
- Storage temperature range: -55~125°C
- UL recognized: UL1577, E67349
- VDE approved: VDE0884
 - Maximum operating insulation voltage: 890V_{PK}
 - Maximum permissible over voltage: 8000V_{PK}

(Note): When a VDE0884 approved type is needed, please designate the " Option (D4) "

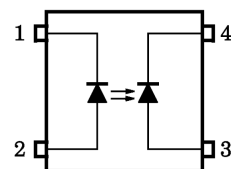
- SEMKO approved product: SS EN60950, approved No. 9808324 / 01
- Construction mechanical rating

	TLP722 type	TLP722F type
Creepage distance	7.0 mm	8.0 mm
Clearance	7.0 mm	8.0 mm
Insulation thickness	0.4 mm	0.4 mm



Weight: 0.28 g

Pin Configuration (top view)



- 1 : LED CATHODE
- 2 : LED ANODE
- 3 : DETECTOR ANODE
- 4 : DETECTOR CATHODE

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	Forward current	I_F	25	mA
	Forward current derating	$\Delta I_F / ^\circ\text{C}$	-0.45 (Ta ≥ 70°C)	mA / °C
	Pulse forward current	I_{FP}	1 (1μs pulse, 1000 pps)	mA
	Pulse forward current	I_{FTP}	1 (100μs pulse, 1000 pps)	A
	Reverse voltage	V_R	5	V
Detector	Cathode-anode voltage	V_{KAO}	30	V
	Anode-cathode voltage	V_{AKO}	0.5	V
	Photodiode output current	I_{PB}	100	μA
	Junction temperature	T_j	125	°C
Storage temperature range		T_{stg}	-55~125	°C
Operating temperature range		T_{opr}	-55~100	°C
Lead soldering temperature (10 s)		T_{sol}	260 (10s)	°C
Isolation voltage		BV_S	4000 (AC, 1min., R.H. 60%)	V_{rms}

Individual Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
LED	Forward voltage	V_F	$I_F = 16 \text{ mA}$	—	1.65	1.85	V
	Reverse current	I_R	$V_R = 5 \text{ V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1 \text{ MHz}$	—	30	—	pF
Detector	Cathode-anode breakdown voltage	$V_{(BR)KAO}$	$I_{KA} = 0.1 \text{ mA}$	30	—	—	V
	Anode-cathode breakdown voltage	$V_{(BR)AKO}$	$I_{AK} = 0.1 \text{ mA}$	0.5	—	—	V
	Dark current	I_{leak}	$V_{KA} = 10 \text{ V}$	—	—	50	nA
			$V_{KA} = 10 \text{ V}, T_a = 85^\circ\text{C}$	—	—	1	μA
	Photodiode output current	I_{PB}	$V = 10 \text{ mA}, V_{KA} = 5 \text{ V}$	10	—	50	μA
Capacitance	C_{AK}	$V = 0, f = 1 \text{ MHz}$	—	10	—	pF	

Isolation Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Capacitance (input to output)	C_S	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation resistance	R_S	$V_S = 500 \text{ V}$	1×10^{12}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 minute	4000	—	—	V_{rms}
		AC, 1 second, in oil	—	10000	—	
		DC, 1 minute, in oil	—	10000	—	V_{dc}

RESTRICTIONS ON PRODUCT USE

000707EBC

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the “Handling Guide for Semiconductor Devices,” or “TOSHIBA Semiconductor Reliability Handbook” etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury (“Unintended Usage”). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.