

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

TLP561J

TRIAC DRIVER

PROGRAMMABLE CONTROLLERS

AC-OUTPUT MODULE

SOLID STATE RELAY

The TOSHIBA TLP561J consists of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600V (MIN.)
- On-State Current : 100mA (MAX.)
- Isolation Voltage : 2500V_{rms} (MIN.)
- UL Recognized : UL1577, File No. E67349
- Isolation Operating Voltage : 2500V_{ac} or 300V_{dc} for Isolation Groupe C*¹
- Trigger LED Current

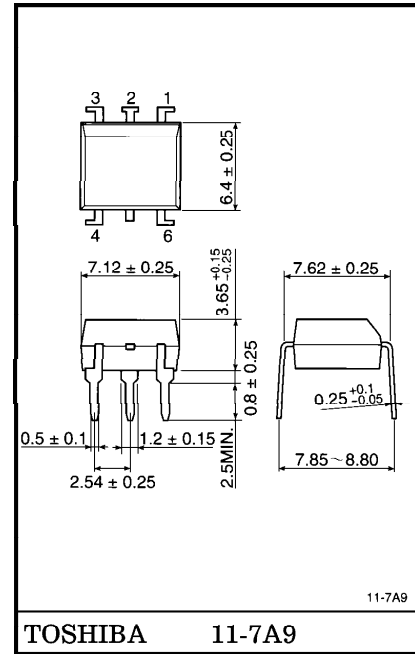
CLASSIFICATION*	TRIGGER LED CURRENT (mA)		MARKING OF CLASSIFICATION
	V _T =6V, T _a =25°C		
	MIN.	MAX.	
(IFT7)	—	7	T7
Standard	—	10	T7, Blank

*Ex. (IFT7) ; TLP561J (IFT7)

(Note) Application type name for certification test, please use standard product type name, i.e. TLP561J (IFT7) : TLP561J

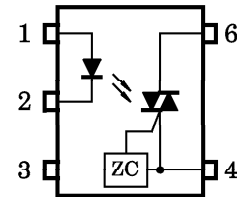
*1 : According to VDE0110, table 4.

Unit in mm



Weight : 0.39g

PIN CONFIGURATION (TOP VIEW)



- 1 : ANODE
- 2 : CATHODE
- 3 : N.C.
- 4 : TERMINAL 1
- 6 : TERMINAL 2

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- 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.
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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta ≥ 53°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	mA / °C
	Peak Forward Current (100μs pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_j	125	°C
DETECTOR	Off-State Output Terminal Voltage	V_{DRM}	600	V
	On-State RMS Current	Ta = 25°C	100	mA
		Ta = 70°C	50	
	On-State Current Derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-1.1	mA / °C
	Peak On-State Current (100μs pulse, 120pps)	I_{TP}	2	A
	Peak Nonrepetitive Surge Current (Pw = 10ms, DC = 10%)	I_{TSM}	1.2	A
	Junction Temperature	T_j	115	°C
Storage Temperature Range	T_{stg}	-55~125	°C	
Operating Temperature Range	T_{opr}	-40~100	°C	
Lead Soldering Temperature (10s)	T_{sol}	260	°C	
Isolation Voltage (AC, 1 min., R.H. ≤ 60%)	BVS	2500	V_{rms}	

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	15	20	25	mA
Peak On-State Current	I_{TP}	—	—	—	A
Operating Temperature	T_{opr}	-25	—	85	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM} = 600\text{V}$	—	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{TM} = 100\text{mA}$	—	1.7	3.0	V
	Holding Current	I_H	—	—	0.6	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{in} = 240V_{rms}, Ta = 85^\circ\text{C}$ (Fig.1)	200	500	—	$V/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in} = 60V_{rms}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	$V/\mu\text{s}$

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_T = 6\text{V}, R_L = 100\Omega$	—	5	10	mA
Inhibit Voltage	V_{IH}	$I_F = \text{Rated } I_{FT}$	—	—	50	V
Leakage in Inhibited State	I_{IH}	$I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated } V_{DRM}$	—	200	600	μA
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}
		AC, 1 second, in oil	—	5000	—	V_{rms}
		DC, 1 minute, in oil	—	5000	—	V_{dc}

Fig.1 : dv/dt TEST CIRCUIT

