

Unit in mm

Office Machine

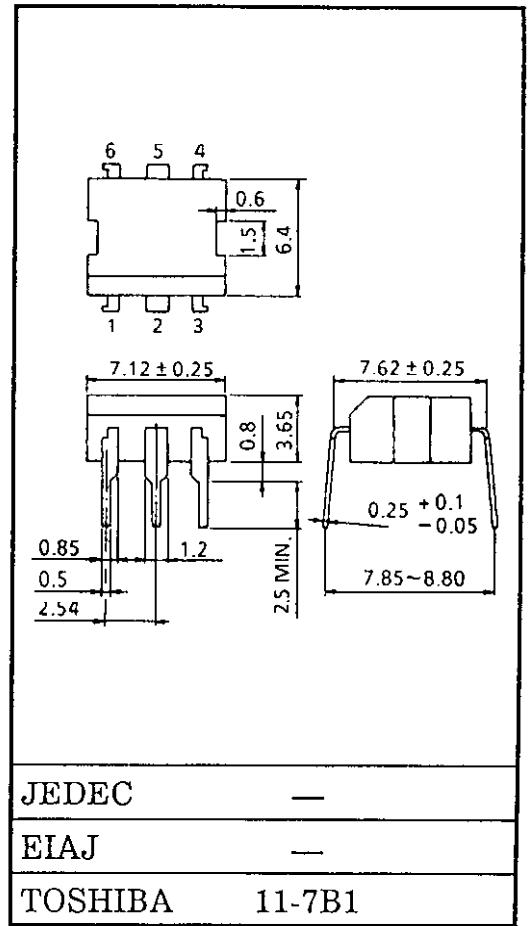
Household Use Equipment

Solid State Relay

Switching Power Supply

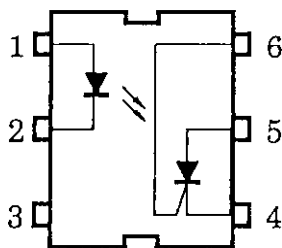
The Toshiba TLP741G consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 400V (Min.)
  - Trigger LED Current : 10mA (Max.)
  - On-State Current : 150mA (Max.)
  - Isolation Voltage : 4000V<sub>rms</sub> (Min.)
  - Guaranteed Requirements of IEC380/VDE0806
  - Climatic Test Class : 55/150/21
  - Isolation Creepage Path : 8.2mm (Min.)
  - Isolation Clearance : 7.6mm (Min.)
  - Isolation Operating Voltage : 500V<sub>ac</sub> or 600V<sub>dc</sub> for Isolation Group C. \*1
  - Creeping Current Resistance : Group I\*2
  - TUV Approved for DIN57883/VDE0883/6.80
- \*1: According to VDE0110, Table 4  
\*2: According to VDE0110, Table 3



Weight : 0.4g

### Pin Configuration (Top View)



- 1 : ANODE
- 2 : CATHODE
- 3 : NC
- 4 : CATHODE
- 5 : ANODE
- 6 : GATE

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Maximum Ratings (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	$I_F$	60	mA
	Forward Current Derating (Ta ≥ 39°C)	$\Delta I_F/^\circ\text{C}$	-0.7	mA/°C
	Peak Forward Current (100μs pulse, 100pps)	$I_{PF}$	1	A
	Power Dissipation	$P_D$	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	$\Delta P_D/^\circ\text{C}$	-1.0	mW/°C
	Reverse Voltage	$V_R$	5	V
	Junction Temperature	$T_j$	125	°C
DETECTOR	Peak Forward Voltage (R <sub>GK</sub> = 27kΩ)	$V_{DRM}$	400	V
	Peak Reverse Voltage (R <sub>GK</sub> = 27kΩ)	$V_{RRM}$	400	V
	On-State Current	$I_{T(RMS)}$	150	mA
	On-State Current Derating (Ta ≥ 25°C)	$\Delta I_T/^\circ\text{C}$	-2.0	mA/°C
	Peak On-State Current (100μs pulse, 120pps)	$I_{TP}$	3	A
	Peak One Cycle Surge Current	$I_{TSM}$	2	A
	Peak Reverse Gate Voltage	$V_{GM}$	5	V
	Power Dissipation	$P_D$	150	mW
	Power Dissipation Derating (Ta ≥ 25°C)	$\Delta P_D/^\circ\text{C}$	-2.0	mW/°C
	Junction Temperature	$T_j$	100	°C
Storage Temperature Range		$T_{stg}$	-55~150	°C
Operating Temperature Range		$T_{opr}$	-55~100	°C
Lead Soldering Temperature (10s)		$T_{sol}$	260	°C
Total Package Power Dissipation		$P_T$	250	mW
Total Package Power Dissipation Derating (Ta ≥ 25°C)		$\Delta P_T/^\circ\text{C}$	-3.3	mW/°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%)		$BV_S$	4000	V <sub>rms</sub>

Individual Electrical Characteristics (Ta = 25°C)

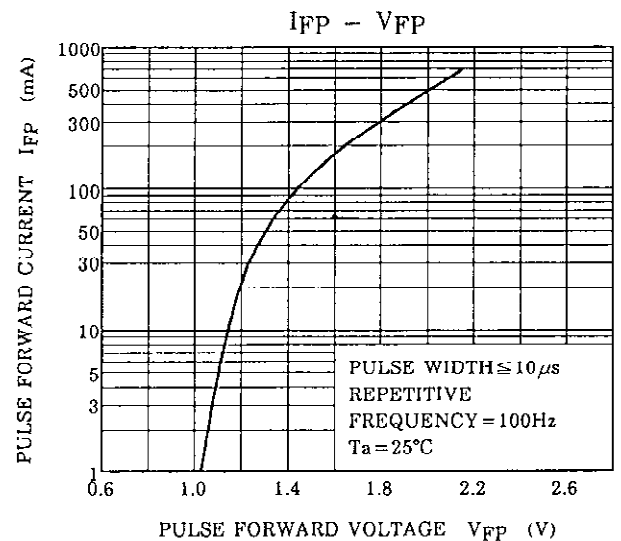
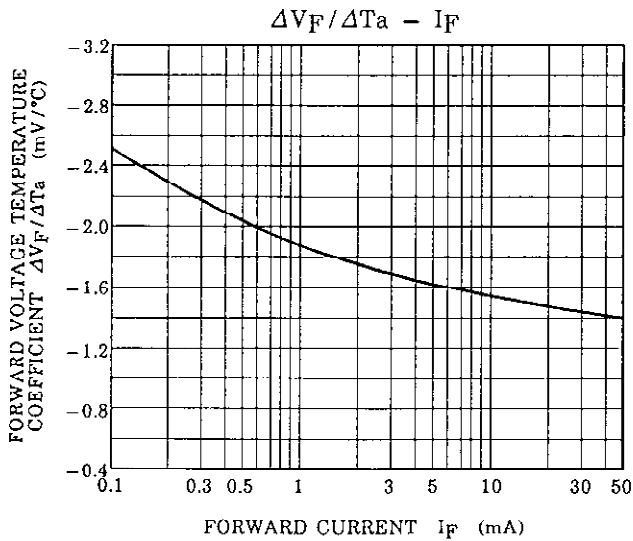
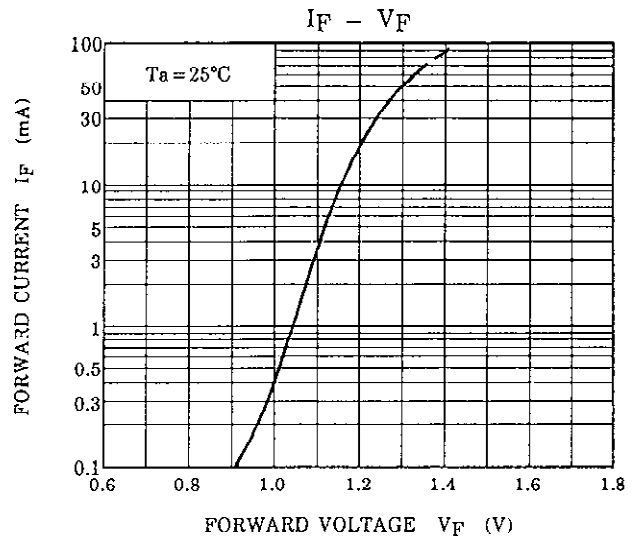
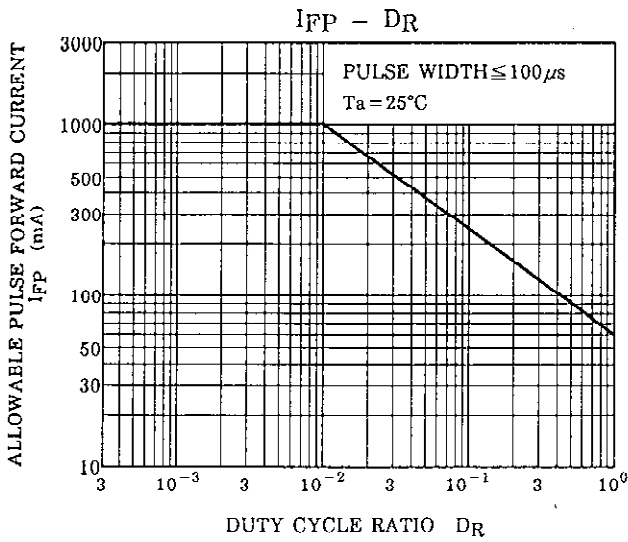
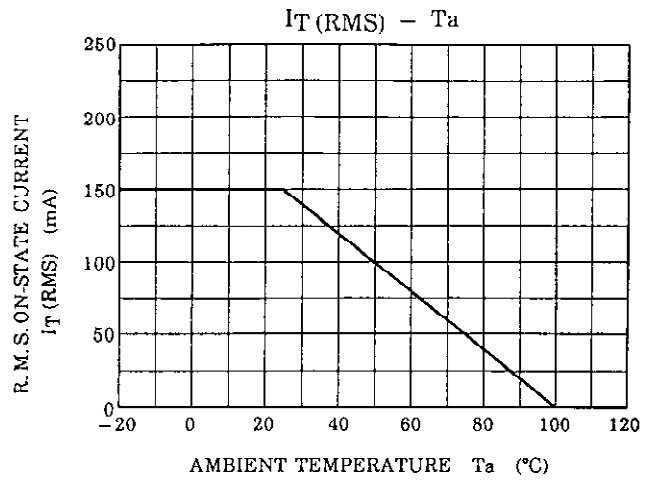
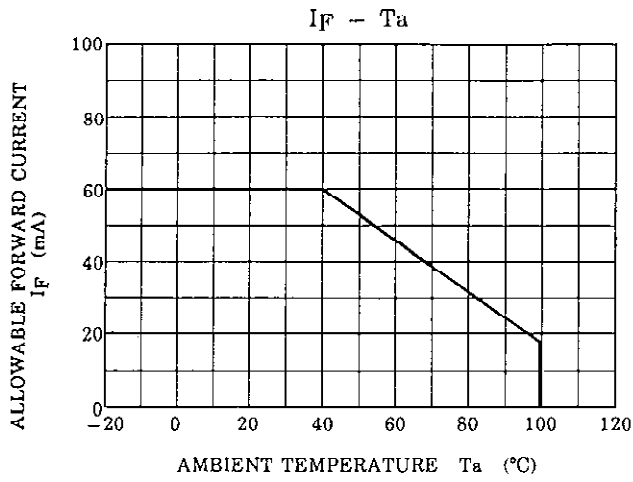
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT	
LED	Forward Voltage	$V_F$	$I_F = 10\text{mA}$	1.0	1.15	1.3	V	
	Reverse Current	$I_R$	$V_R = 5\text{V}$	–	–	10	μA	
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	–	30	–	pF	
DETECTOR	Off-State Current	$I_{DRM}$	$V_{AK} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	Ta = 25°C	–	10	5000	nA
				Ta = 100°C	–	1	100	μA
	Reverse Current	$I_{RRM}$	$V_{KA} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	Ta = 25°C	–	10	5000	nA
				Ta = 100°C	–	1	100	μA
	On-State Voltage	$V_{TM}$	$I_{TM} = 100\text{mA}$	–	0.9	1.3	V	
	Holding Current	$I_H$	$R_{GK} = 27\text{k}\Omega$	–	0.2	–	mA	
	Off-State dv/dt	dv/dt	$V_D = 280\text{V}, R_{GK} = 27\text{k}\Omega$	5	10	–	V/μs	
Capacitance	$C_j$	$V = 0, f = 1\text{MHz}$	Anode to Gate	–	20	–	pF	
			Gate to Cathode	–	350	–		

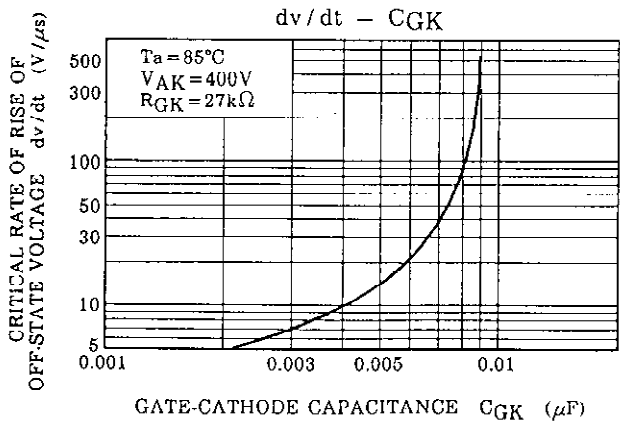
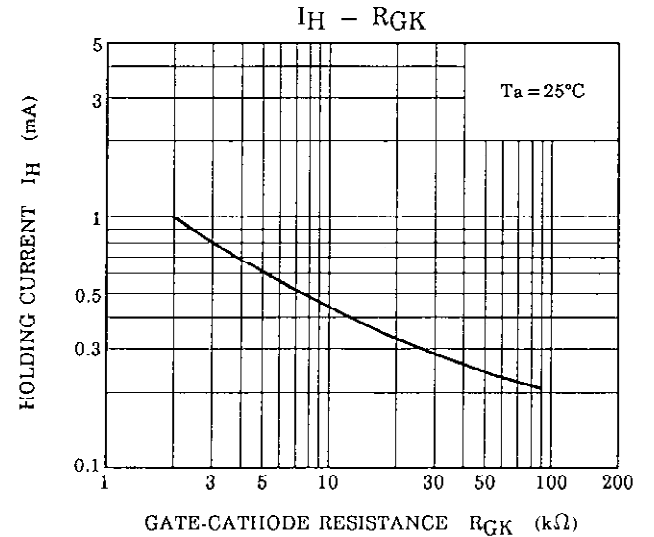
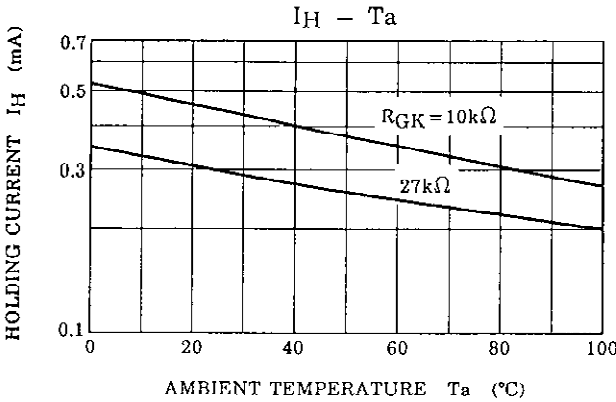
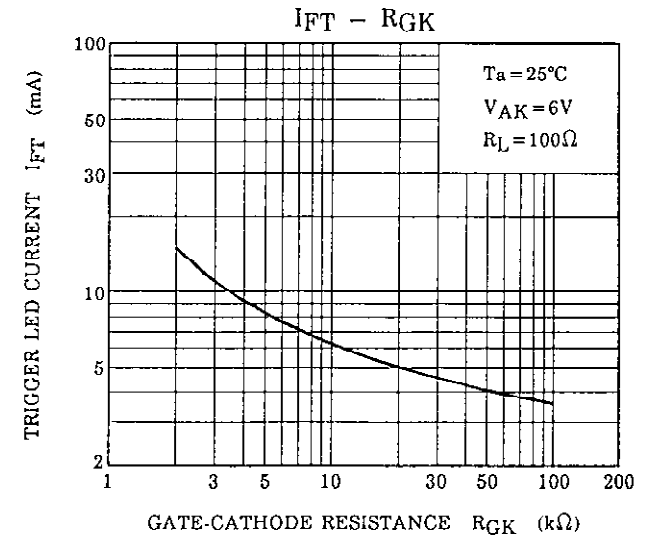
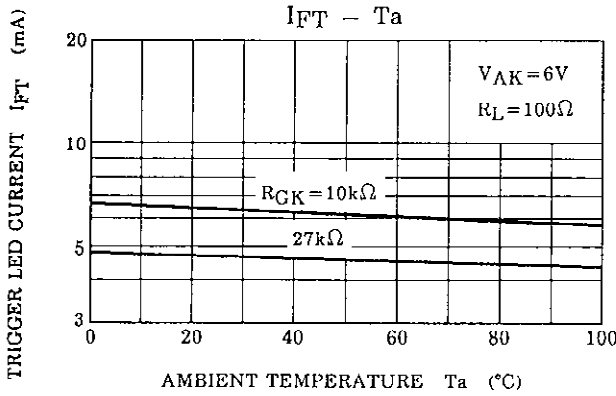
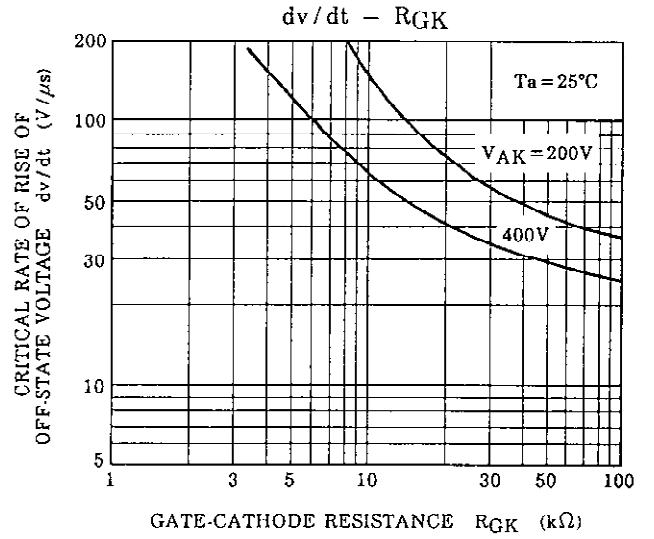
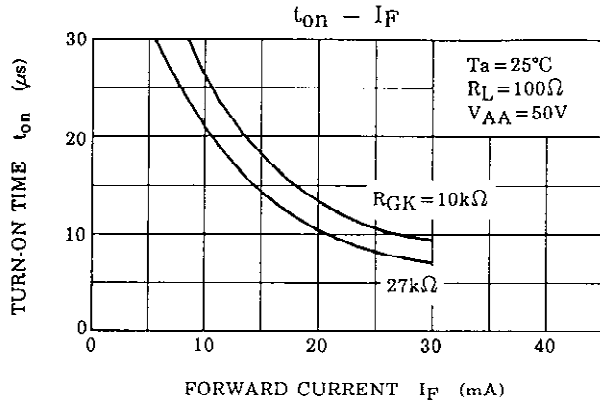
**Coupled Characteristics (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Trigger LED Current	$I_{FT}$	$V_{AK} = 6V, R_{GK} = 27k\Omega$	–	4	10	mA
Turn-on Time	$t_{on}$	$I_F = 30mA, V_{AA} = 50V, R_{GK} = 27k\Omega$	–	10	–	$\mu s$
Coupled dv/dt	dv/dt	$V_S = 500V, R_{GK} = 27k\Omega$	500	–	–	V/ $\mu s$
Capacitance (Input to Output)	$C_S$	$V_S = 0, f = 1MHz$	–	0.8	–	pF
Isolation Resistance	$R_S$	$V_S = 500V$	$5 \times 10^{10}$	$10^{14}$	–	$\Omega$
Isolation Voltage	$BV_S$	AC, 1 minute	4000	–	–	$V_{rms}$
		AC, 1 second, in oil	–	10000	–	
		DC, 1 minute, in oil	–	10000	–	$V_{dc}$

**Recommended Operating Conditions**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MX.	UNIT
Supply Voltage	$V_{AC}$	–	–	120	$V_{ac}$
Forward Current	$I_F$	15	20	25	mA
Operating Temperature	$T_{opr}$	-25	–	85	$^{\circ}C$
Gate to Cathode Resistance	$R_{GK}$	–	27	33	k $\Omega$
Gate to Cathode Capacity	$C_{GK}$	–	0.01	0.1	$\mu F$





Notes