

Unit in mm

### Office Machine

### Household Use Equipment

### Solid State Relay

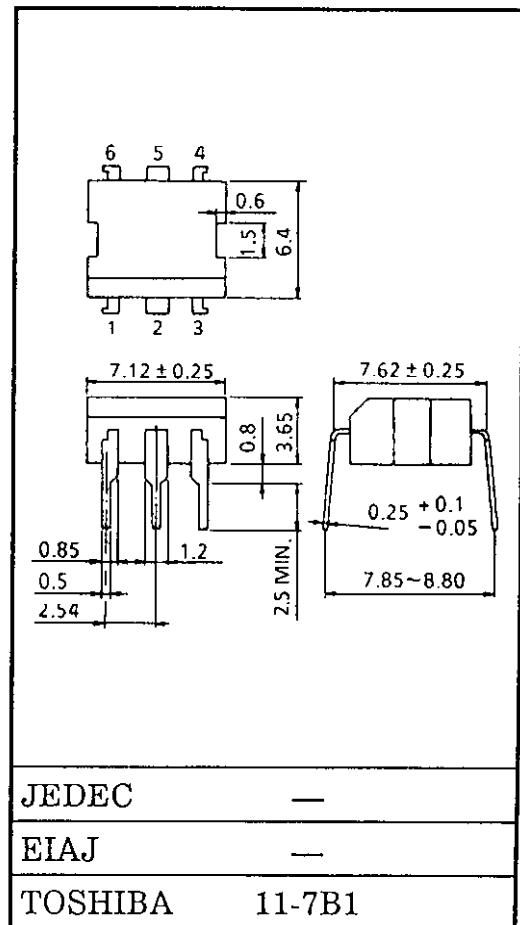
### Switching Power Supply

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. <sup>\*1</sup>
- Creeping Current : Group I <sup>\*2</sup>  
Resistance :
- TUV Approved for DIN57883/VDE0883/6.80

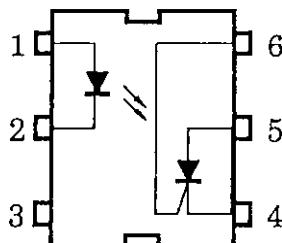
\*1: According to VDE0110, Table 4

\*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 <sub>F</sub>	60	mA
	Forward Current Derating (Ta ≥ 39°C)	ΔI <sub>F</sub> /°C	-0.7	mA/°C
	Peak Forward Current (100μs pulse, 100pps)	I <sub>PF</sub>	1	A
	Power Dissipation	P <sub>D</sub>	100	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-1.0	mW/°C
	Reverse Voltage	V <sub>R</sub>	5	V
	Junction Temperature	T <sub>j</sub>	125	°C
DETECTOR	Peak Forward Voltage (R <sub>GK</sub> = 27kΩ)	V <sub>DRM</sub>	400	V
	Peak Reverse Voltage (R <sub>GK</sub> = 27kΩ)	V <sub>RRM</sub>	400	V
	On-State Current	I <sub>T(RMS)</sub>	150	mA
	On-State Current Derating (Ta ≥ 25°C)	ΔI <sub>T</sub> /°C	-2.0	mA/°C
	Peak On-State Current (100μs pulse, 120pps)	I <sub>TP</sub>	3	A
	Peak One Cycle Surge Current	I <sub>TSM</sub>	2	A
	Peak Reverse Gate Voltage	V <sub>GM</sub>	5	V
	Power Dissipation	P <sub>D</sub>	150	mW
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-2.0	mW/°C
	Junction Temperature	T <sub>j</sub>	100	°C
	Storage Temperature Range	T <sub>stg</sub>	-55~150	°C
Operating Temperature Range		T <sub>opr</sub>	-55~100	°C
Lead Soldering Temperature (10s)		T <sub>sol</sub>	260	°C
Total Package Power Dissipation		P <sub>T</sub>	250	mW
Total Package Power Dissipation Derating (Ta ≥ 25°C)		ΔP <sub>T</sub> /°C	-3.3	mW/°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%)		BV <sub>S</sub>	4000	Vrms

## Individual Electrical Characteristics (Ta = 25°C)

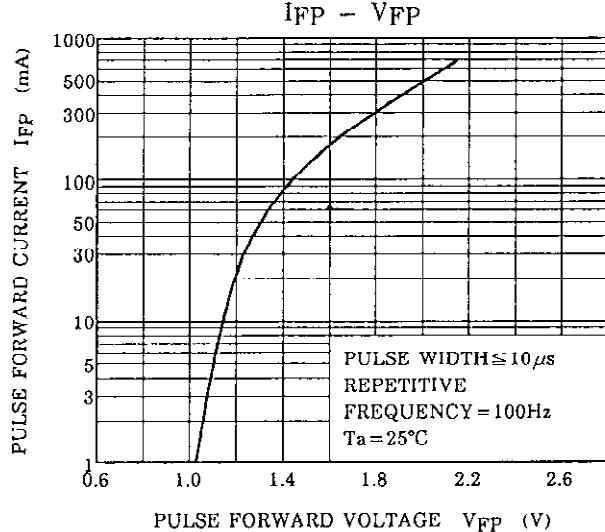
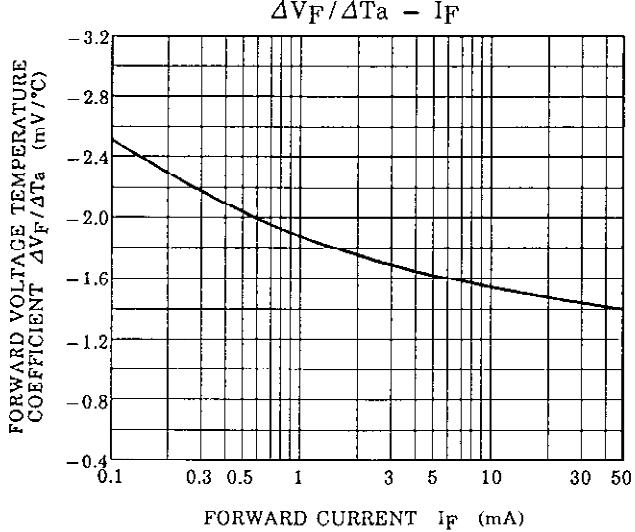
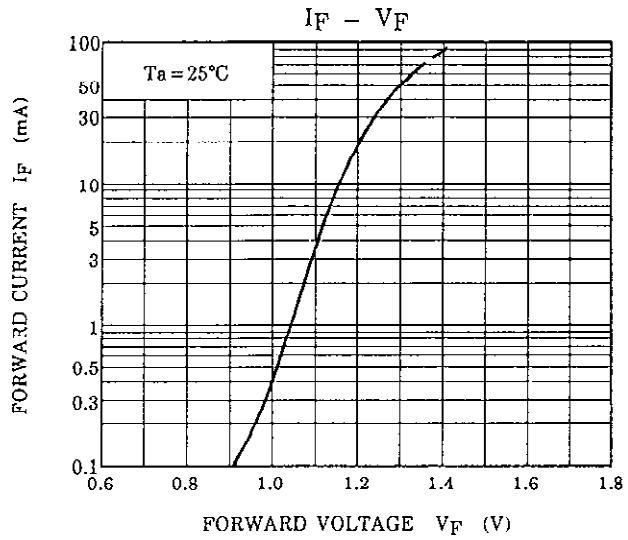
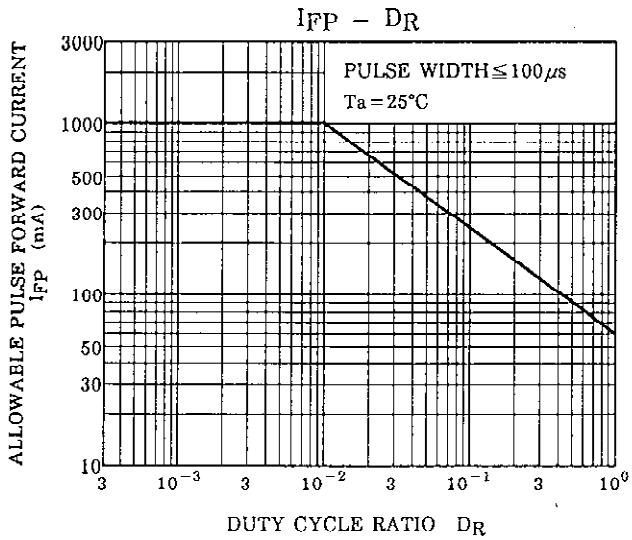
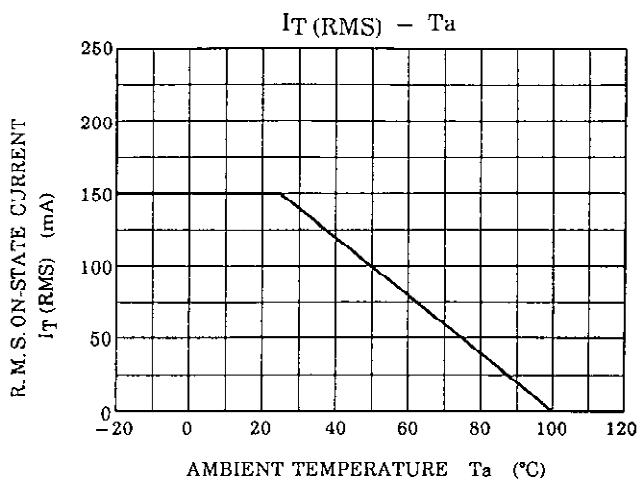
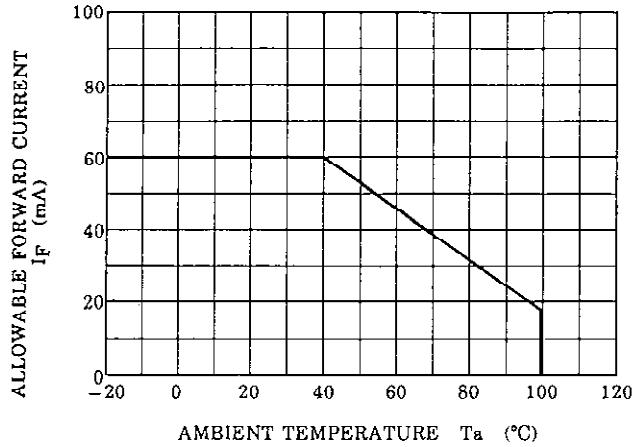
CHARACTERISTIC		SYMBOL	TEST CONDITION		MIN.	TYP.	MX.	UNIT
LED	Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA		1.0	1.15	1.3	V
	Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5V		—	—	10	μA
	Capacitance	C <sub>T</sub>	V = 0, f = 1MHz		—	30	—	pF
DETECTOR	Off-State Current	I <sub>DRM</sub>	V <sub>AK</sub> = 400V R <sub>GK</sub> = 27kΩ	Ta = 25°C Ta = 100°C	— —	10 1	5000 100	nA μA
	Reverse Current	I <sub>RRM</sub>	V <sub>KA</sub> = 400V R <sub>GK</sub> = 27kΩ	Ta = 25°C Ta = 100°C	— —	10 1	5000 100	nA μA
	On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> = 100mA		—	0.9	1.3	V
	Holding Current	I <sub>H</sub>	R <sub>GK</sub> = 27kΩ		—	0.2	—	mA
	Off-State dv/dt	dv/dt	V <sub>D</sub> = 280V, R <sub>GK</sub> = 27kΩ		5	10	—	V/μs
	Capacitance	C <sub>j</sub>	V = 0, f = 1MHz	Anode to Gate	—	20	—	pF
				Gate to Cathode	—	350	—	

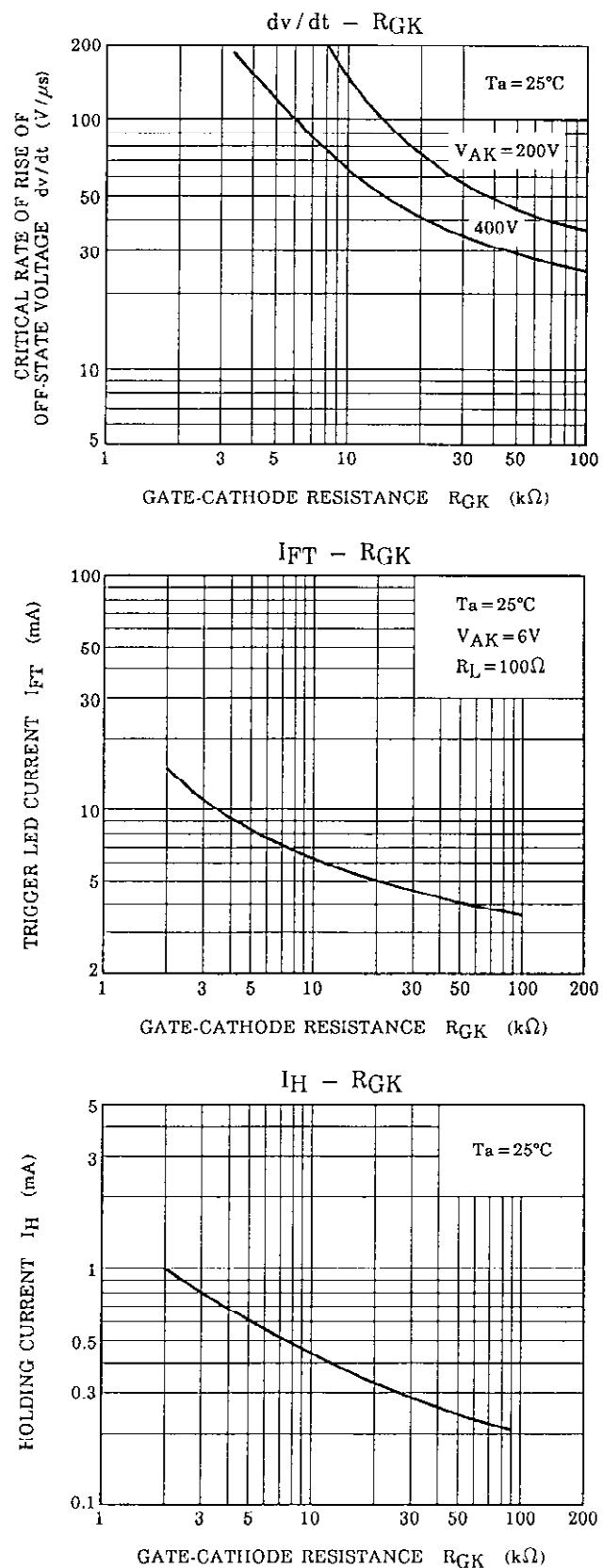
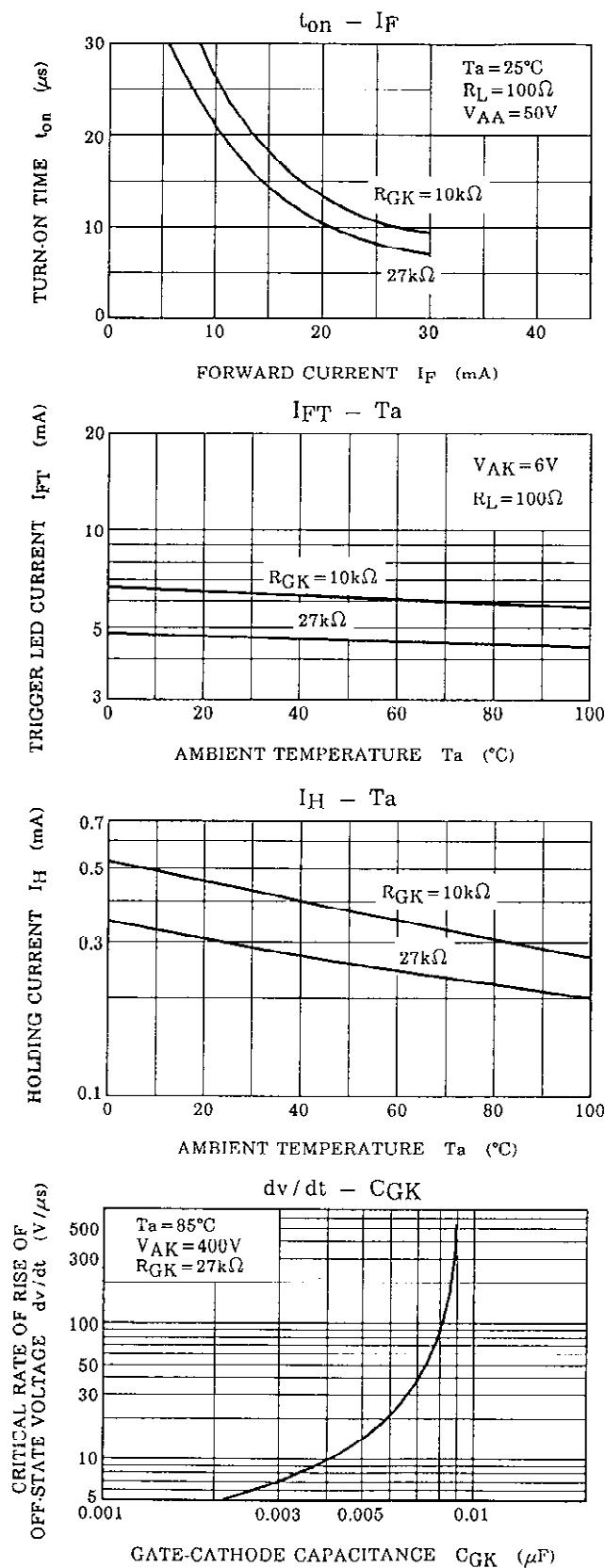
**Coupled Characteristics (Ta = 25°C)**

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	°C
Gate to Cathode Resistance	$R_{GK}$	—	27	33	$k\Omega$
Gate to Cathode Capacity	$C_{GK}$	—	0.01	0.1	$\mu F$





**Notes**