

(TLP3051)

- OFFICE MACHINE
- HOUSEHOLD USE EQUIPMENT
- TRIAC DRIVER
- SOLID STATE RELAY

The TOSHIBA TLP3051 and TLP3052 consist of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 15mA (Max.) (TLP3051)  
10mA (Max.) (TLP3052)
- On-State Current : 100mA (Max.)
- UL Recognized : UL1577, File No. E67349  
Isolation Voltage : 5000Vrms (Min.)
- Option (D4) type  
VDE Approved : DIN VDE0884/08.87,  
Certificate No. 68329

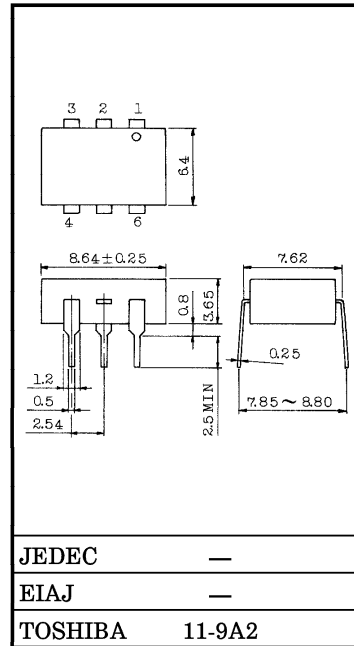
Maximum Operating Insulation Voltage : 630V<sub>PK</sub>  
 Highest Permissible Over Voltage : 6000V<sub>PK</sub>

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

	7.62mm pich	10.16mm pich
	<u>standard type</u>	<u>(LF2) type</u>

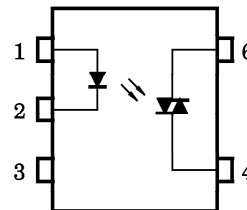
- Creepage Distance : 7.0mm (Min.) 8.0mm (Min.)
- Clearance : 7.0mm (Min.) 8.0mm (Min.)
- Insulation Thickness : 0.5mm (Min.) 0.5mm (Min.)

Unit in mm



Weight : 0.44g

PIN CONFIGURATION (TOP VIEW)



- 1 : ANODE
- 2 : CATHODE
- 3 : NC
- 4 : TERMINAL 1
- 6 : TERMINAL 2

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	I <sub>F</sub>	50	mA	
	Forward Current Derating (Ta ≥ 53°C)	ΔI <sub>F</sub> /°C	-0.7	mA/°C	
	Peak Forward Current (100μs pulse, 100pps)	I <sub>FP</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	Off-State Output Terminal Voltage	V <sub>DRM</sub>	600	V	
	On-State RMS Current	I <sub>T</sub> (RMS)	Ta = 25°C	100	mA
			Ta = 70°C	50	
	On-State Current Derating (Ta ≥ 25°C)	ΔI <sub>T</sub> /°C	-1.1	mA/°C	
	Peak On-State Current (100μs pulse, 120pps)	I <sub>TP</sub>	2	A	
	Peak Nonrepetitive Surge Current (P <sub>w</sub> = 10ms, DC = 10%)	I <sub>TSM</sub>	1.2	A	
	Power Dissipation	P <sub>D</sub>	300	mW	
	Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>D</sub> /°C	-4.0	mW/°C	
	Junction Temperature	T <sub>j</sub>	115	°C	
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C		
Operating Temperature Range	T <sub>opr</sub>	-40~100	°C		
Lead Soldering Temperature (10s)	T <sub>sol</sub>	260	°C		
Total Package Power Dissipation	P <sub>T</sub>	330	mW		
Total Package Power Dissipation Derating (Ta ≥ 25°C)	ΔP <sub>T</sub> /°C	-4.4	mW/°C		
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note 1)	BV <sub>G</sub>	5000	V <sub>rms</sub>		

Note 1 : Device considered a two terminal device : Pins 1, 2 and 3 shorted together and pins 4 and 6 shorted together.

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INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	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	Peak Off-State Current	I <sub>DRM</sub>	V <sub>DRM</sub> = 600V	—	10	1000	nA
	Peak On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> = 100mA	—	1.7	3.0	V
	Holding Current	I <sub>H</sub>	—	—	1.0	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	V <sub>in</sub> = 240Vrms, Ta = 85°C (Fig.1)	—	500	—	V/μs
	Critical Rate of Rise of Commutating Voltage	dv/dt (c)	V <sub>in</sub> = 60Vrms, I <sub>T</sub> = 15mA (Fig.1)	—	0.2	—	V/μs

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

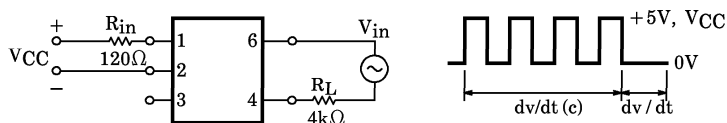
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	TLP3051	I <sub>FT</sub>	V <sub>T</sub> = 6V	—	—	15	mA
	TLP3052			—	5	10	
Capacitance Input to Output	C <sub>S</sub>	V <sub>S</sub> = 0, f = 1MHz	—	0.8	—	pF	
Isolation Resistance	R <sub>S</sub>	V <sub>S</sub> = 500V (R.H. ≤ 60%)	5 × 10 <sup>10</sup>	10 <sup>14</sup>	—	Ω	
Isolation Voltage	BV <sub>S</sub>	AC, 1 minute	5000	—	—	Vrms	
		AC, 1 second, in oil	—	10000	—		
		DC, 1 minute, in oil	—	10000	—	V <sub>dc</sub>	

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V <sub>AC</sub>	—	—	240	V <sub>ac</sub>
Forward Current	I <sub>F</sub> *	15	20	25	mA
Peak On-State Current	I <sub>TP</sub>	—	—	1	A
Operating Temperature	T <sub>opr</sub>	-25	—	85	°C

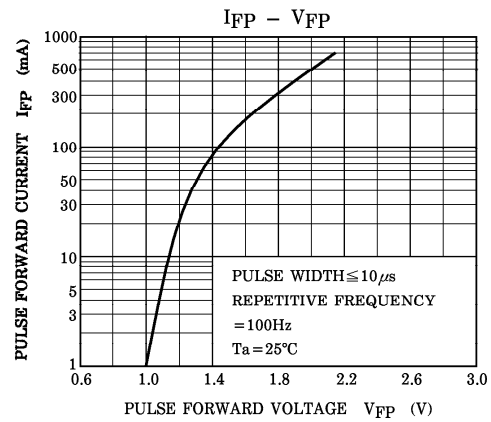
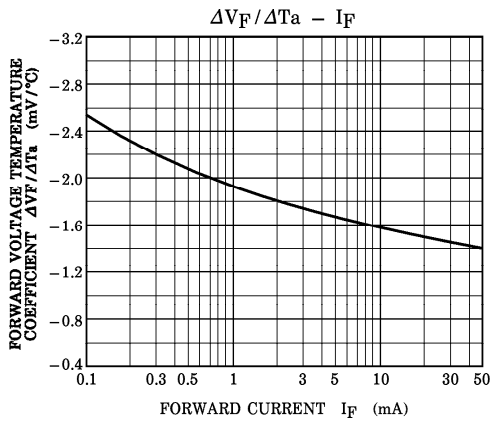
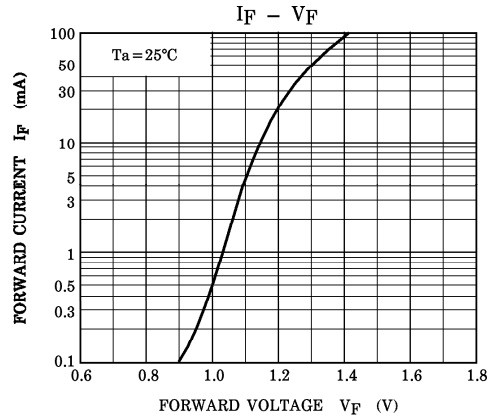
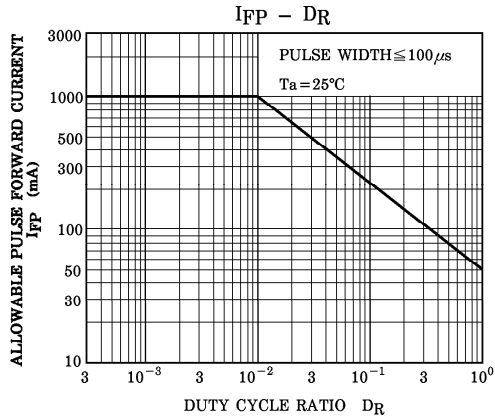
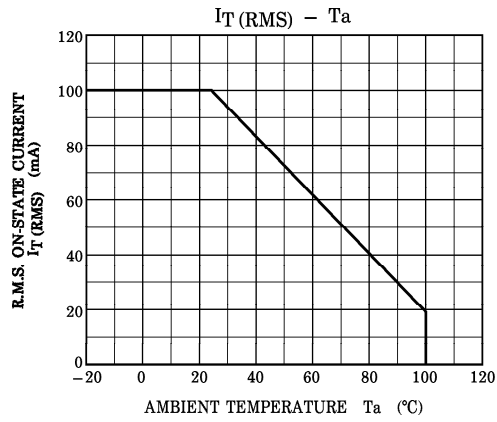
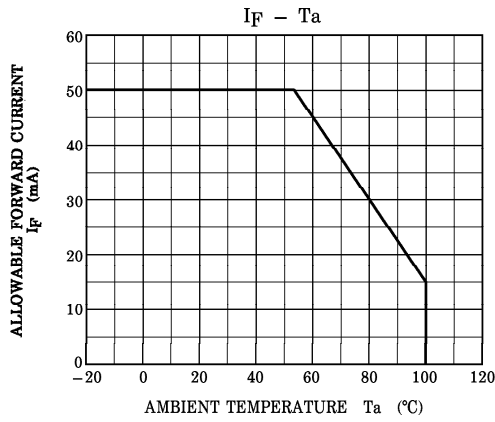
※ In the case of TLP3052

Fig. 1 dv/dt TEST CIRCUIT



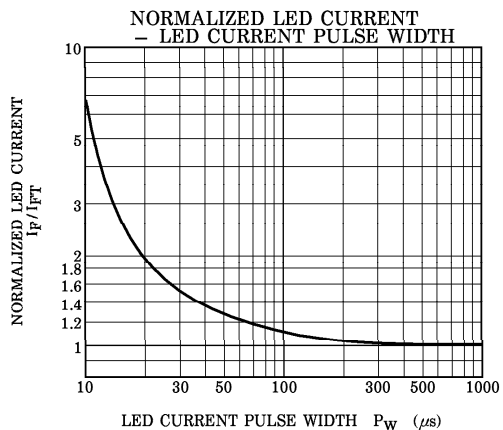
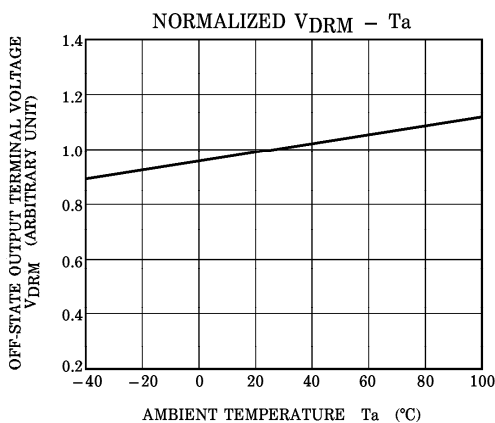
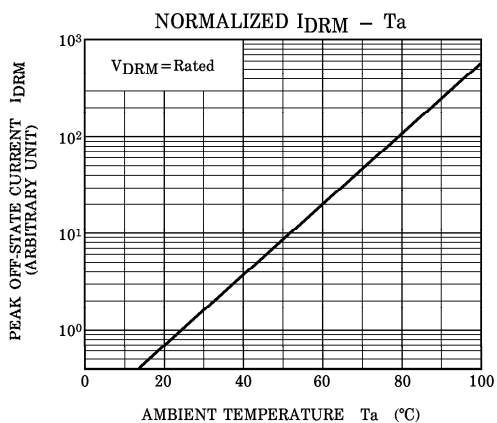
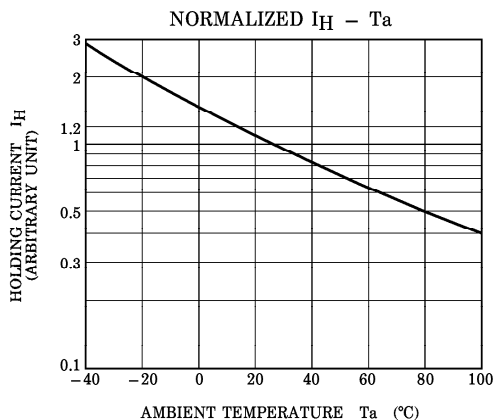
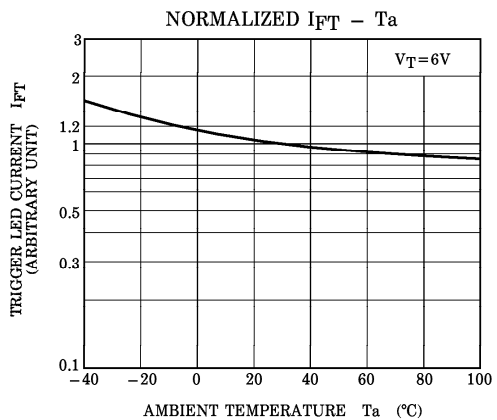
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