

TLP3041(S), TLP3042(S), TLP3043(S)

OFFICE MACHINE
 HOUSEHOLD USE EQUIPMENT
 TRIAC DRIVER
 SOLID STATE RELAY

The TOSHIBA TLP3041 (S), TLP3042 (S), TLP3043 (S) consist 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. All parameters are tested to the specification of TLP3041, TLP3042, TLP3043.

- Peak Off-State Voltage : 400 V (min)
- Trigger LED Current : 15 mA (max) (TLP3041)
 10 mA (max) (TLP3042)
 5 mA (max) (TLP3043)
- On-State Current : 100 mA (max)
- UL Recognized : UL1577, File No. E67349
- Isolation Voltage : 5000 Vrms (min)
- Option (D4) Type VDE Approved : DIN VDE0884 / 06.92
 Certificate No. 68329

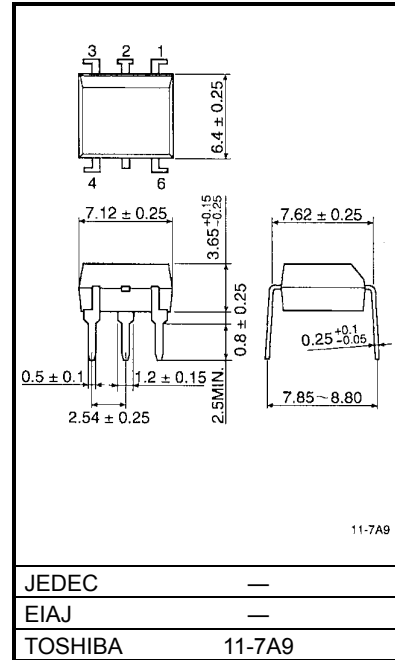
Maximum Operating Insulation Voltage : 890 Vpk
 Highest Permissible Over Voltage : 8000 Vpk

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

● Device Construction

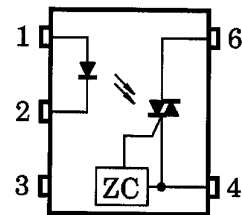
	7.62mm pich standard type	10.16 mm pich (LF2) type
Creepage Distance	7.0 mm (min)	8.0 mm (min)
Clearance	7.0 mm (min)	8.0 mm (min)
Insulation Thickness	0.5 mm (min)	0.5 mm (min)

Unit: mm



weight: 0.39g

PIN CONFIGURATION (Top view)



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

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
	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	Off-State Output Terminal Voltage	V_{DRM}	400	V
	On-Stage RMS Current	$I_{T(RMS)}$	100	mA
	Ta = 25°C		50	
	Ta = 70°C			
	On-Stage Current Derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-1.1	mA / °C
	Peak On-Stage Current (100μs pulse, 120pps)	I_{TP}	2	A
	Peak Nonrepetitive Surge Current (PW = 10ms, DC = 10%)	I_{TSM}	1.2	A
	Power Dissipation	P_D	300	mW
	Power Dissipation Derating (Ta ≥ 25°C)	$\Delta P_D / ^\circ\text{C}$	-4.0	mW / °C
Junction Temperature	T_j	115	°C	
Storage Temperature Range	T_{stg}	-55 ~ 150	°C	
Operating Temperature Range	T_{opr}	-40 ~ 100	°C	
Lead Soldering Temperature (10s)	T_{sol}	260	°C	
Total Package Power Dissipation	P_T	330	mW	
Total Package Power Dissipation Derating (Ta ≥ 25°C)	$\Delta P_T / ^\circ\text{C}$	-4.4	mW / °C	
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note 1)	BV_S	5000	Vrms	

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

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN	TYP.	MAX	UNIT
Supply Voltage	V_{AC}	—	—	120	Vac
Forward Current	I_F^*	15	20	25	mA
Peak On-Stage Current	I_{TP}	—	—	1	A
Operating Temperature	T_{opr}	-25	—	85	°C

* : In the case of TLP3042

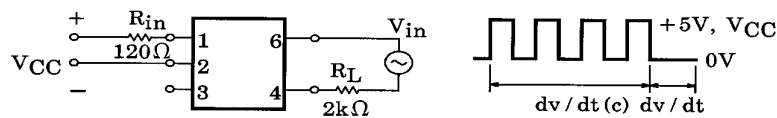
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

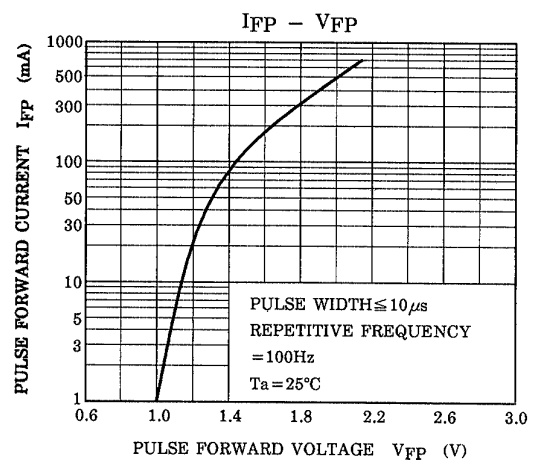
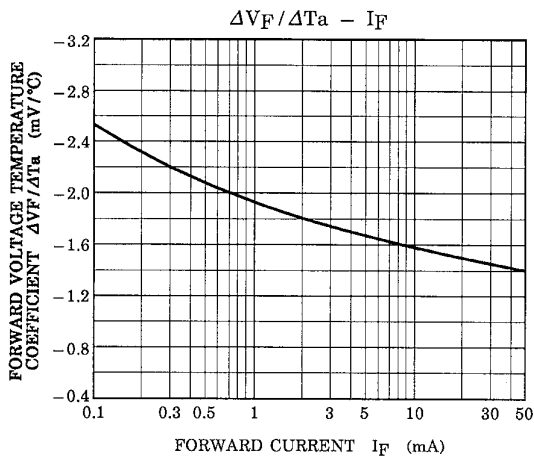
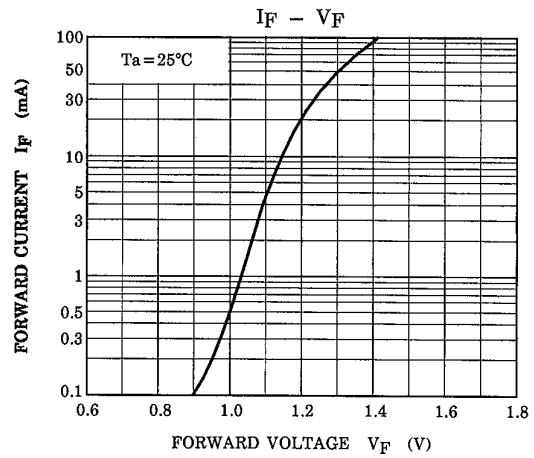
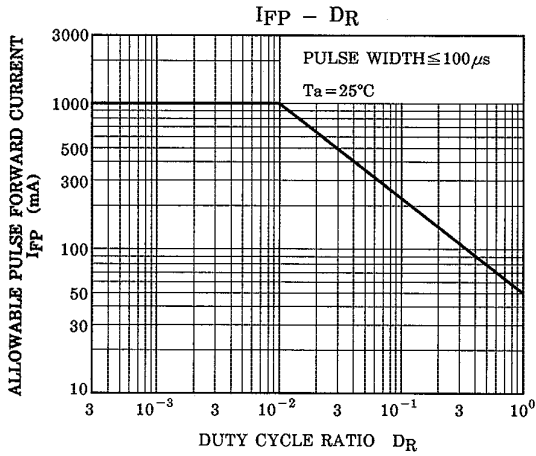
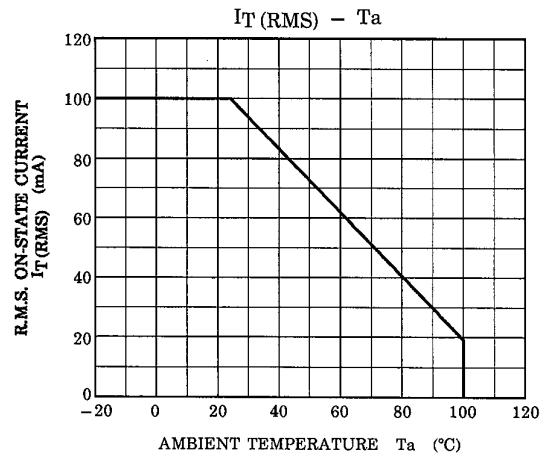
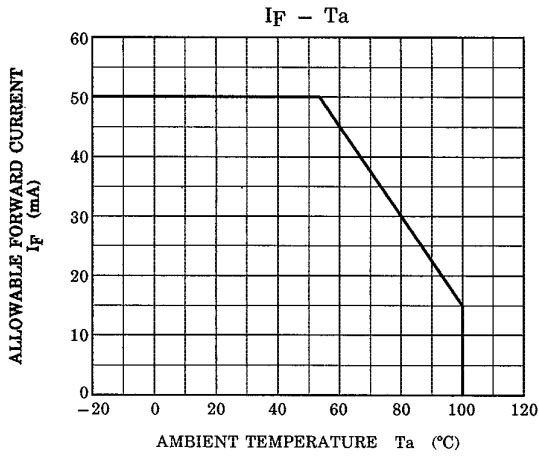
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	10	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM} = 400\text{V}$	—	10	100	nA
	Peak On-Stage 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	$V_{in} = 120\text{Vrms}, T_a = 85^\circ\text{C}$ (Fig.1)	200	500	—	$\text{V} / \mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv / dt(c)$	$V_{in} = 30\text{Vrms}, I_T = 15\text{mA}$ (Fig.1)	—	0.2	—	$\text{V} / \mu\text{s}$

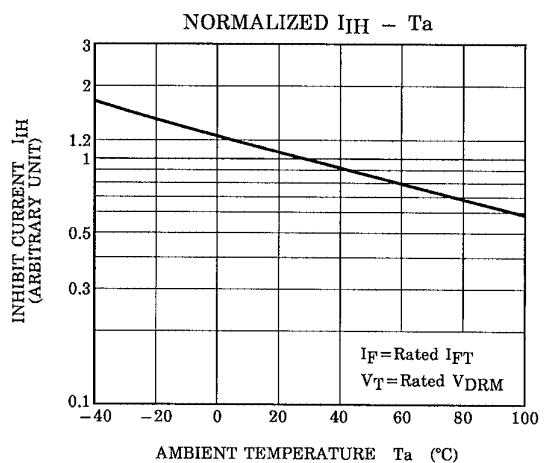
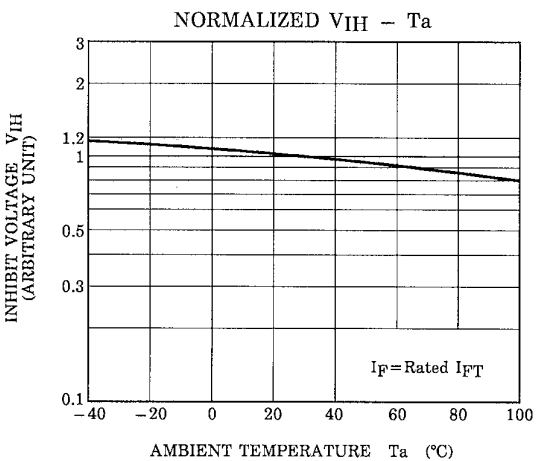
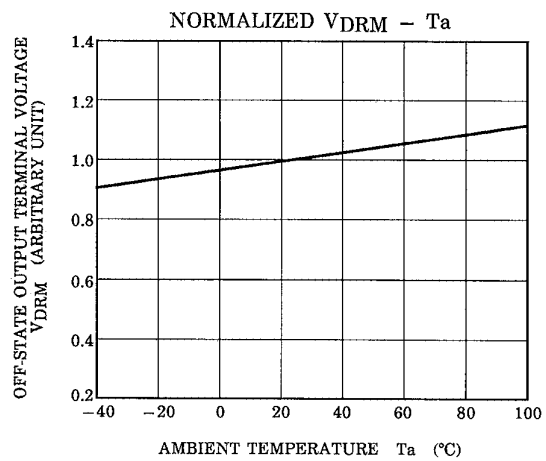
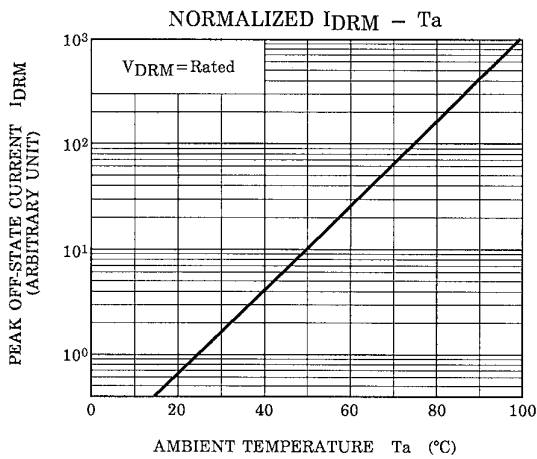
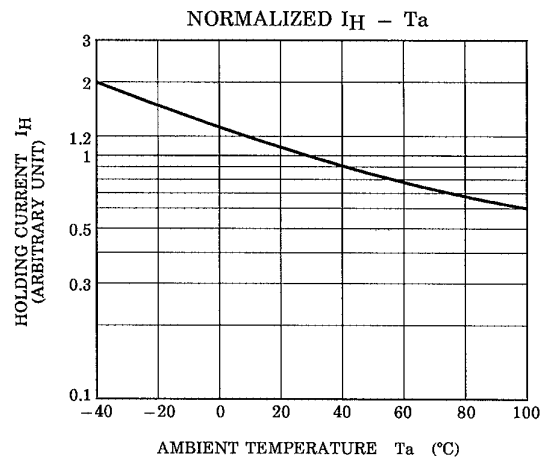
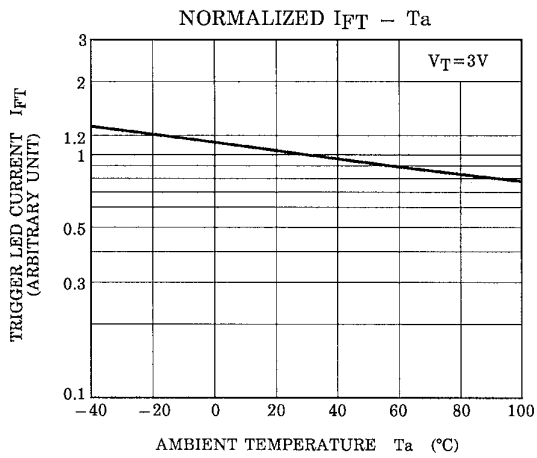
COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Trigger LED Current	TLP3041	I_{FT}	$V_T = 3\text{V}$	—	—	15	mA
	TLP3042			—	5	10	
	TLP3043			—	—	5	
Inhibit Voltage	V_{IH}	$I_F = \text{Rated } I_{FT}$	—	—	40	V	
Leakage in Inhibited State	I_{IH}	$I_F = \text{Rated } I_{FT}$ $V_T = \text{Rated } V_{DRM}$	—	100	300	μA	
Capacitance Input to Output	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF	
Isolation Resistance	R_S	$V_S = 500\text{V}$ (R.H. $\leq 60\%$)	5×10^{10}	10^{14}	—	Ω	
Isolation Voltage	BV_S	AC, 1 minute	5000	—	—	Vrms	
		AC, 1 second (in oil)	—	10000	—	—	
		DC, 1 minute (in oil)	—	10000	—	—	Vdc

Fig. 1 dv / dt TEST CIRCUIT







RESTRICTIONS ON PRODUCT USE

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