

TLP3041, TLP3042, TLP3043

Office Machine

Household Use Equipment

Triac Driver

Solid State Relay

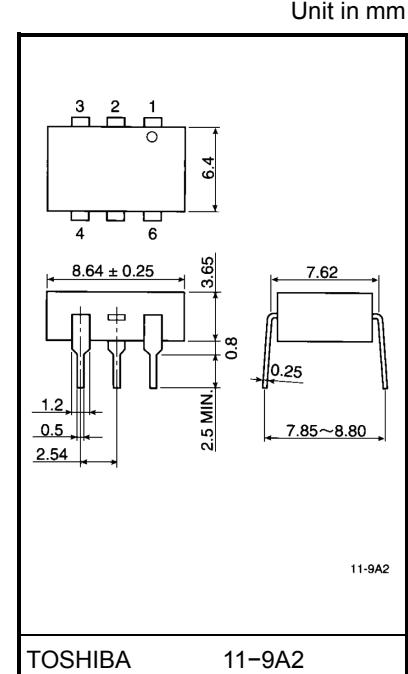
The TOSHIBA TLP3041, TLP3042 and TLP3043 consist of a zero voltage crossing turn-on photo-triac optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

- Peak off-state voltage: 400V(min.)
- Trigger LED current: 15mA(max.) (TLP3041)
10mA(max.) (TLP3042)
5mA(max.) (TLP3043)
- 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: 630VPK
Highest permissible over voltage: 6000VPK

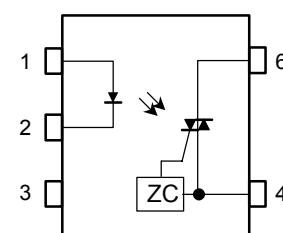
(Note) When a VDE0884 approved type is needed,
please designate the "option (D4)"

	7.62mm pitch standard type	10.16mm pitch (LF2) type
• Creepage distance:	7.0mm(min.)	8.0mm(min.)
Clearance:	7.0mm(min.)	8.0mm(min.)
Insulation thickness:	0.5mm(min.)	0.5mm(min.)



Weight: 0.44 g

Pin Configuration (top view)



- 1 : Anode
- 2 : Cathode
- 3 : NC
- 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)	ΔI _F / °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)	ΔP _D / °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-state RMS current	I _{T(RMS)}	100	mA
			50	
	On-state current derating (Ta ≥ 25°C)	ΔI _T / °C	-1.1	mA / °C
	Peak on-state current (100μs pulse, 120pps)	I _{TP}	2	A
	Peak nonrepetitive surge current (P _w =10ms, DC=10%)	I _{TSM}	1.2	A
	Power dissipation	P _D	300	mW
	Power dissipation derating (Ta ≥ 25°C)	ΔP _D / °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)		ΔP _T / °C	-4.4	mW / °C
Isolation voltage (AC, 1 min., R.H. ≤ 60%)		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-state current	I _{TP}	—	—	1	A
Operating temperature	T _{opr}	-25	—	85	°C

* In the case of TLP3042

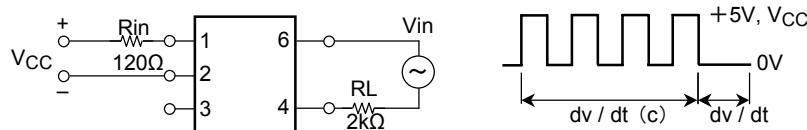
Individual Electrical Characteristics (Ta = 25°C)

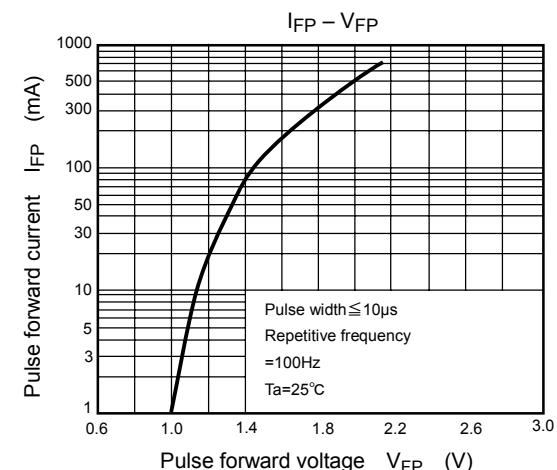
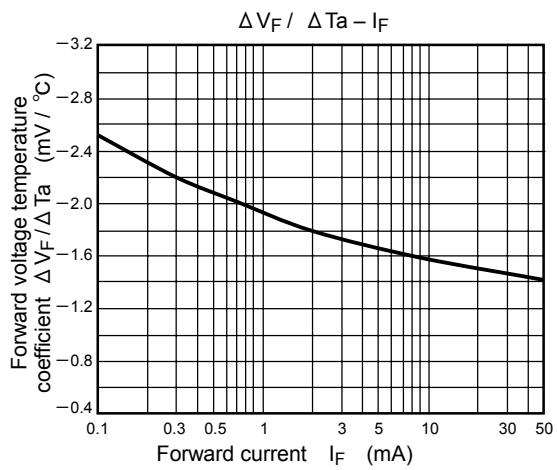
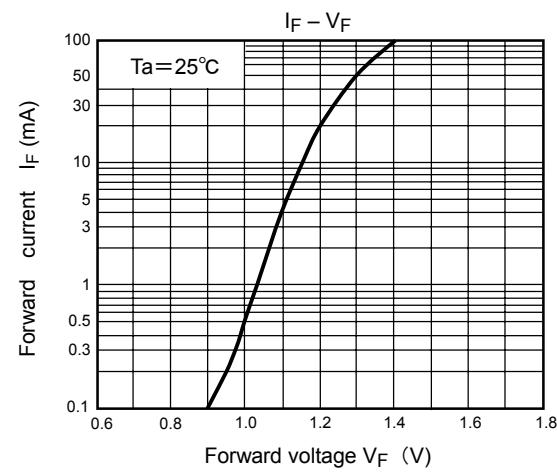
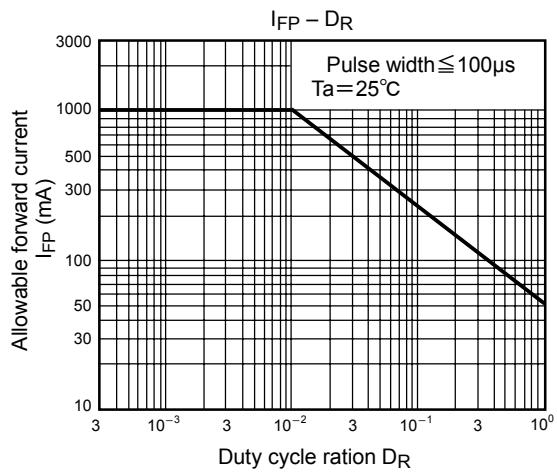
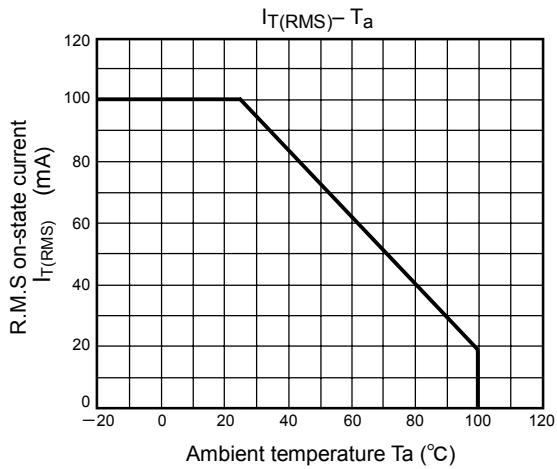
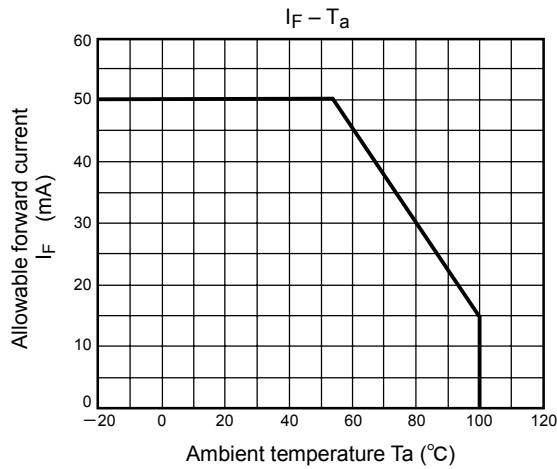
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V _F	I _F = 10mA	1.0	1.15	1.3	V
	Reverse current	I _R	V _R = 5V	—	—	10	µA
	Capacitance	C _T	V = 0, f = 1MHz	—	10	—	pF
Detector	Peak off-state current	I _{DRM}	V _{DRM} = 400V	—	10	100	nA
	Peak on-state voltage	V _{TM}	I _{TM} = 100mA	—	1.7	3.0	V
	Holding current	I _H	—	—	0.6	—	mA
	Critical rate of rise of off-state voltage	dv / dt	V _{in} = 120Vrms, Ta = 85°C (Fig.1)	200	500	—	V / µs
	Critical rate of rise of commutating voltage	dv / dt(c)	V _{in} = 30Vrms, I _T = 15mA (Fig.1)	—	0.2	—	V / µs

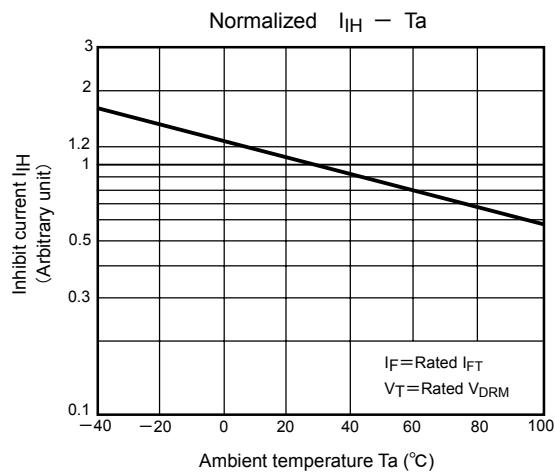
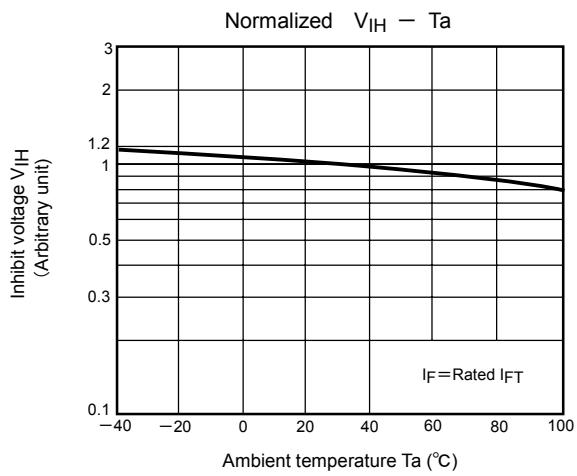
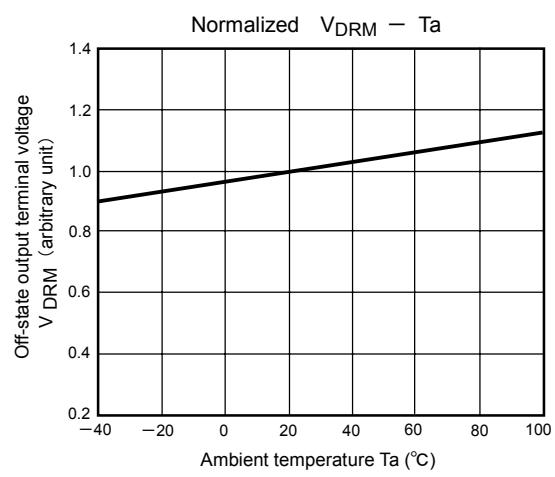
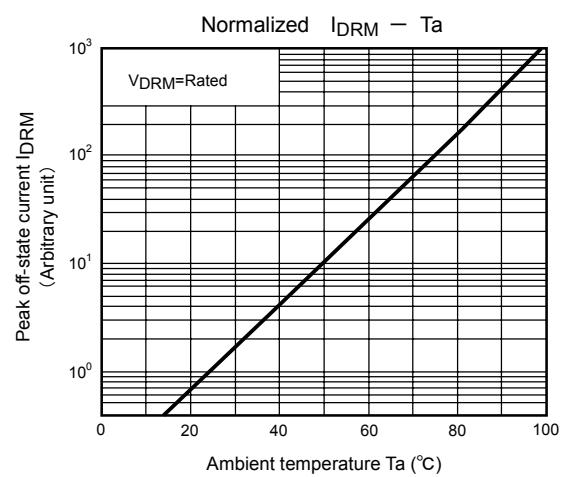
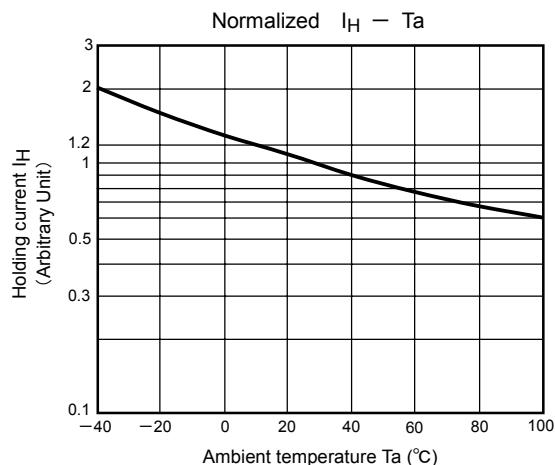
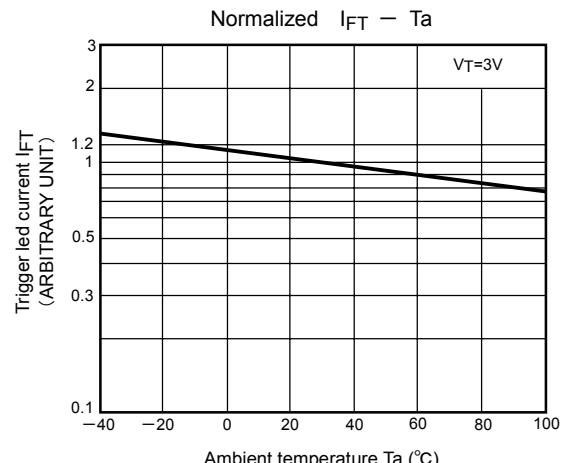
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	TLP3041	I _{FT}	V _T = 3V	—	—	15	mA
	TLP3042			—	5	10	
	TLP3043			—	—	5	
Inhibit voltage	V _{IH}	I _F = rated I _{FT}	—	—	40	—	V
Leakage in inhibited state	I _{IH}	I _F = rated I _{FT} V _T = rated V _{DRM}	—	100	300	—	µA
Capacitance input to output	C _S	V _S = 0, f = 1MHz	—	0.8	—	—	pF
Isolation resistance	R _S	V _S = 500V (R.H. ≤ 60%)	5×10 ¹⁰	10 ¹⁴	—	—	Ω
Isolation voltage	BV _S	AC, 1 minute	5000	—	—	—	V _{rms}
		AC, 1 second (in oil)	—	10000	—	—	
		DC, 1 minute (in oil)	—	10000	—	—	V _{dc}

Fig.1 dv / dt test circuit







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