

**TENTATIVE**

TOSHIBA Photocoupler GaAs Ired & Photo-Triac

# TLP3530

- Triac Driver
- Programmable Controllers
- AC-Output Module
- Solid State Relay

The TOSHIBA TLP3530 consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a 16 lead plastic DIP package for 2 channels output..

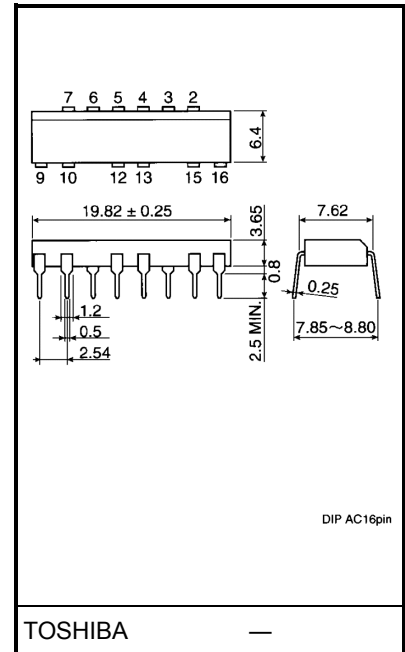
- Peak off-state voltage: 400V(min.)
- Trigger LED current: 10mA(max.)
- On-state current: 1.0A<sub>rms</sub>(max per 1ch)  
1.4A<sub>rms</sub>(max per 2ch)
- Isolation voltage: 2500V<sub>rms</sub> (min.)

### Trigger LED Current

Classi- fication	Trigger LED Current (mA)		Marking Of Classification
	V <sub>T</sub> =6V, T <sub>a</sub> =25°C		
	Min	Max	
(IFT7)	—	7.0	T7
Blank	—	10	T7, blank

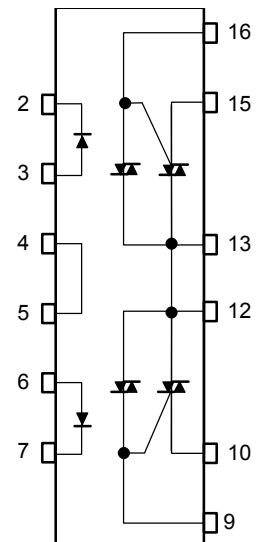
\* : (IFT7): TLP3530(IFT7)  
 (Note): Application type name for certification test,  
 please use standard product type name, i.e.  
 TLP3530(IFT7): TLP3530

Unit in mm



Weight: 1.09 g

### Pin Configuration(top view)



- 3,6 : Anode
- 2,7 : Cathode
- 4,5 : N.C
- 12,13 : Triac T2 (common)
- 10,15 : Triac T1
- 9,16 : Triac gate\*

## 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	
	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	$I_{T(RMS)}$	Ta=40°C	1.0(per 1 ch)	A
				1.4(per 2 ch)	
			Ta=60°C	0.7(per 1 ch)	
				1.0(per 2ch)	
	On-state current derating(Ta ≥ 40°C)	$\Delta I_T / ^\circ\text{C}$	-14.3(per 1ch)	mA / °C	
		-20.0(per 2 ch)			
	Peak current from snubber circuit (100µs pulse, 120pps)	$I_{SP}$	2	A	
	Peak nonrepetitive surge current(50Hz,peak)	$I_{TSM}$	10	A	
	Junction temperature	$T_j$	110	°C	
Storage temperature range	$T_{stg}$	-40~125	°C		
Operating temperature range	$T_{opr}$	-20~80	°C		
Lead soldering temperature (10s)	$T_{sol}$	260	°C		
Isolation voltage (AC, 1min., R.H.≤ 60%) (Note)	$BV_S$	2500	Vrms		

(Note): Device considered a two terminal: LED side pins shorted together and detector side pins shorted together.

## Recommended Operating Conditions

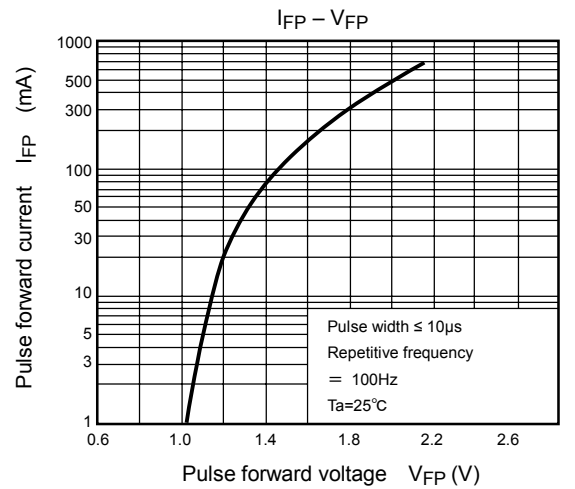
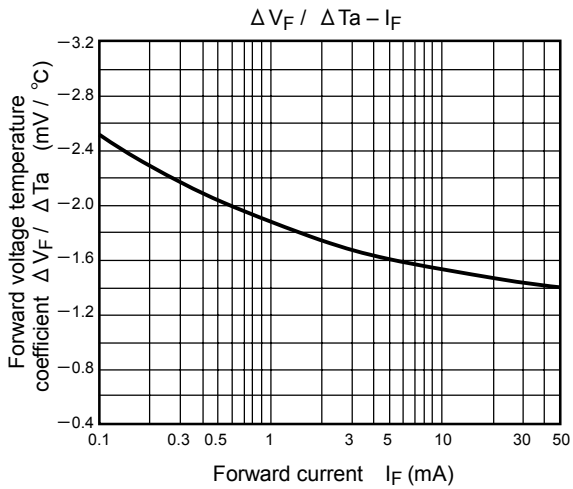
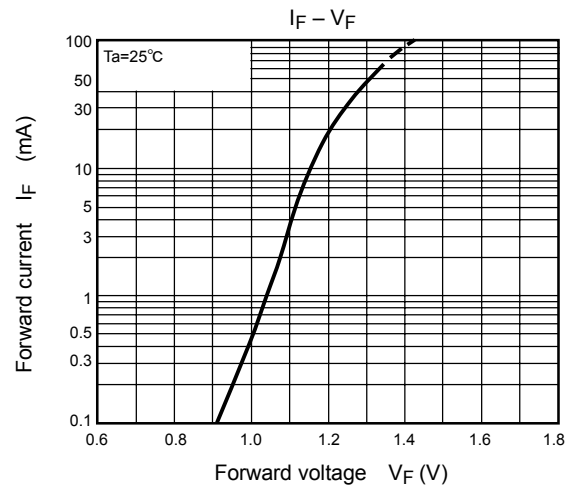
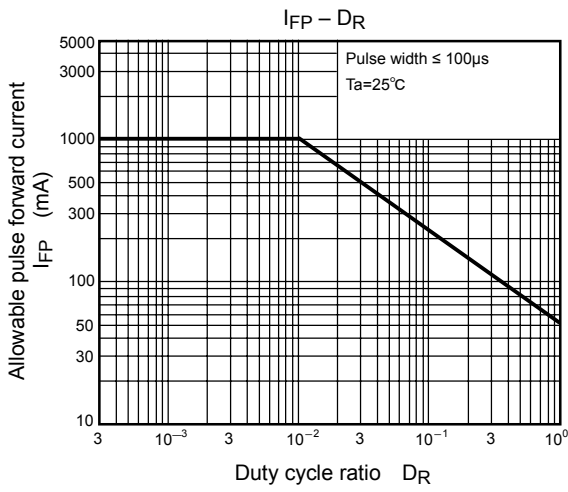
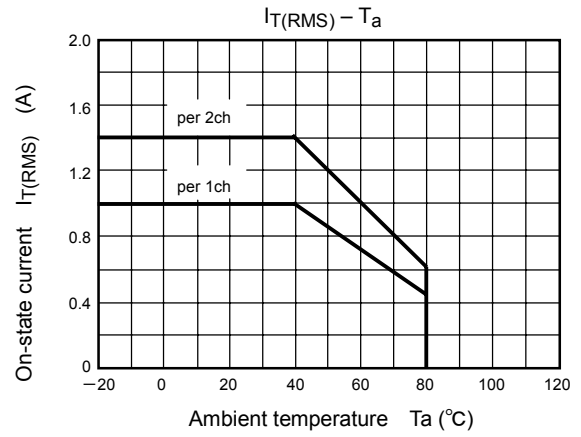
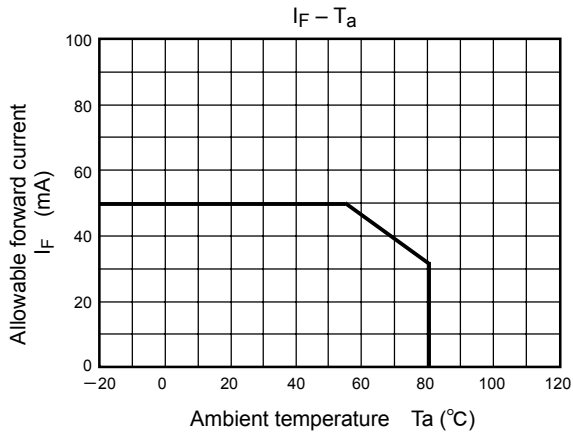
Characteristic	Symbol	Min	Typ.	Max	Unit
Supply voltage	$V_{AC}$	—	—	120	Vac
Forward voltage	$I_F$	15	20	25	mA
Peak current from snubber circuit	$I_{SP}$	—	—	1	A
Operating temperature	$T_{opr}$	-20	—	80	°C

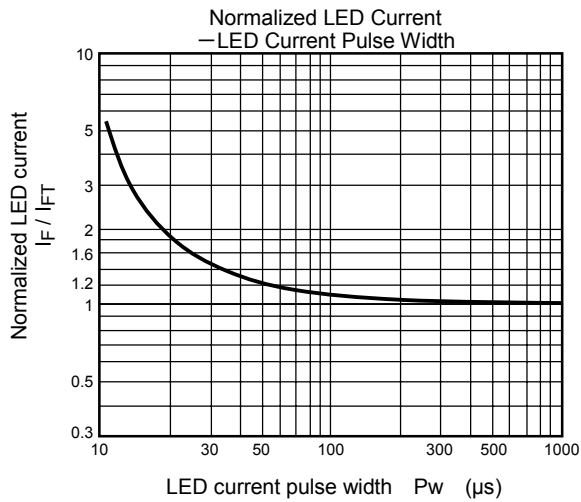
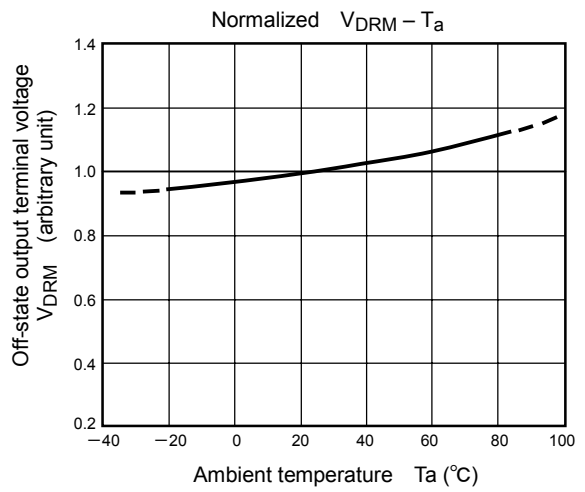
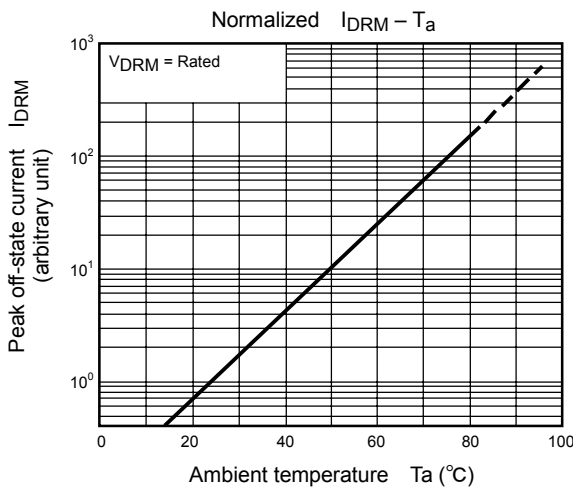
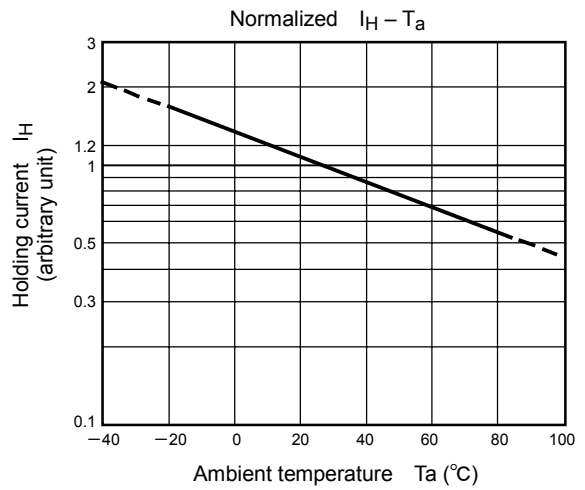
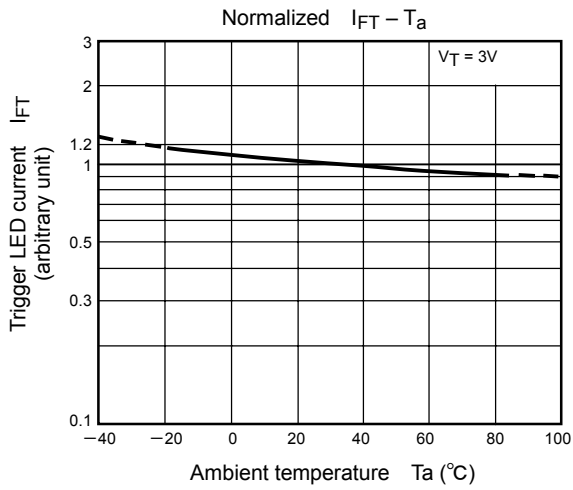
## Individual Electrical Characteristics (Ta = 25°C)

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	$\mu\text{A}$
	Capacitance	$C_T$	$V=0, f=1\text{MHz}$	—	30	—	pF
Detector	Peak off-state current	$I_{DRM}$	$V_{DRM}=400\text{V}, T_a=110^\circ\text{C}$	—	—	100	$\mu\text{A}$
	Peak on-state voltage	$V_{TM}$	$I_{TM}=1.5\text{A}$	—	—	3.0	V
	Holding current	$I_H$	$R_L=100\Omega$	—	—	25	mA
	Critical rate of rise of off-state voltage	$dv/dt$	$V_{in}=250\text{V}$	200	500	—	$\text{V}/\mu\text{s}$
	Critical rate of rise of commutating voltage	$dv/dt(c)$	$V_{in}=120\text{V}_{rms}, I_T=1.0\text{A}_{rms}$	—	5	—	$\text{V}/\mu\text{s}$

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

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Trigger LED current	$I_{FT}$	$V_T=6\text{V}$	—	—	10	mA
Capacitance (input to output)	$C_S$	$V_S=0, f=1\text{MHz}$	—	1.5	—	pF
Isolation resistance	$R_S$	$V_S=500\text{V}, \text{R.H.} \leq 60\%$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{rms}$
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	$V_{dc}$





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