

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_{rms}(max per 1ch)
1.4A_{rms}(max per 2ch)
- Isolation voltage: 2500V_{rms} (min.)

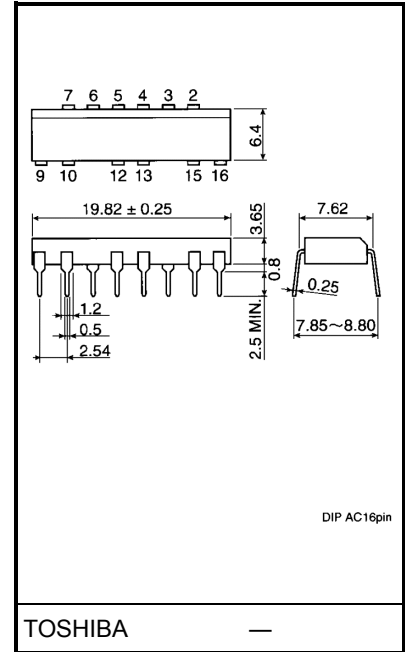
Trigger LED Current

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

* : (IFT7): TLP3530(IFT7)

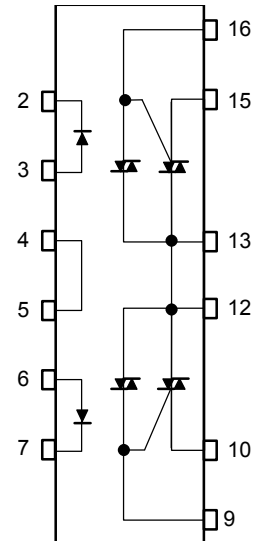
(Note): Application type name for certification test,
please use standard product type name, i.e.
TLP3530(IFT7): TLP3530

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

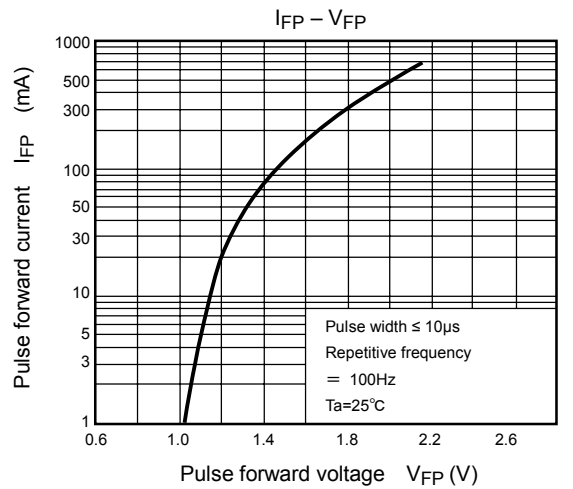
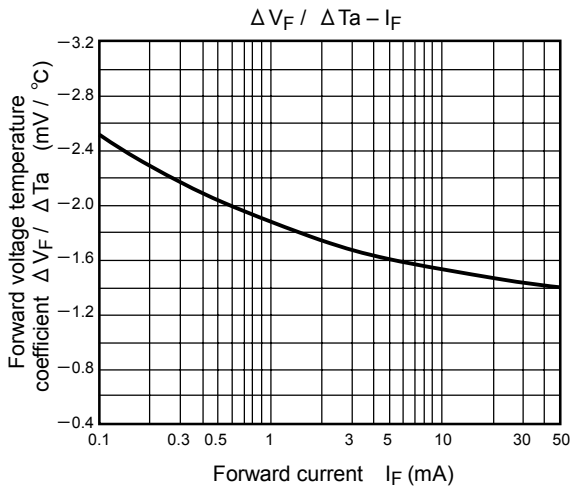
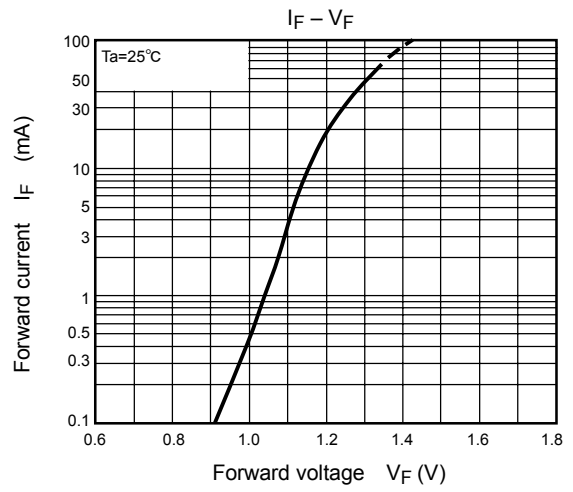
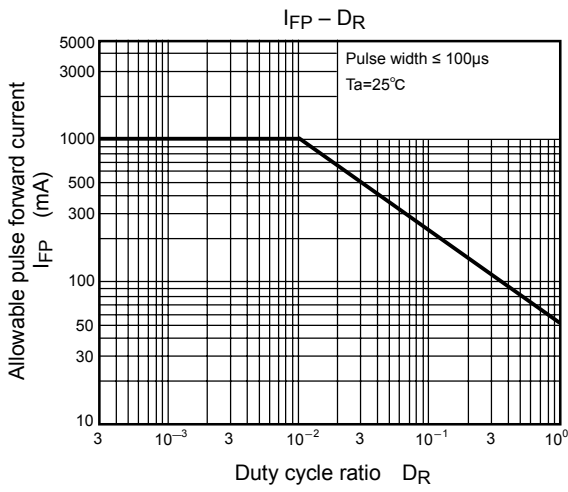
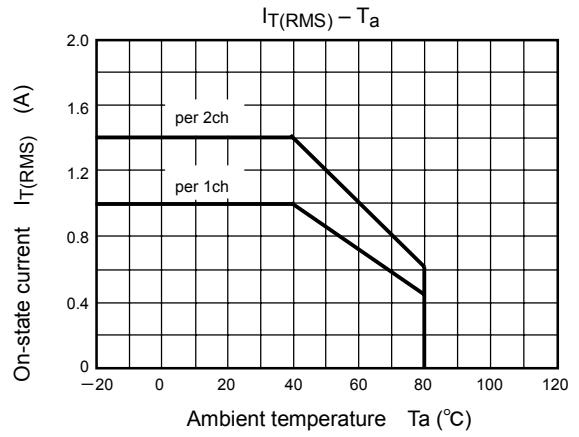
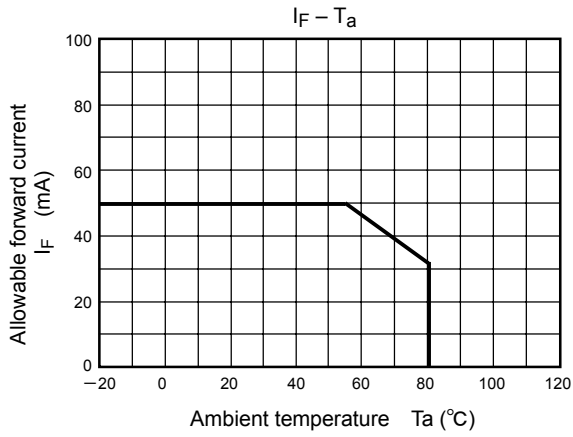
Characteristic	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{AC}	—	—	120	Vac
Forward voltage	I_F	15	20	25	mA
Peak current from snubber circuit	I_{SP}	—	—	1	A
Operating temperature	T_{opr}	-20	—	80	°C

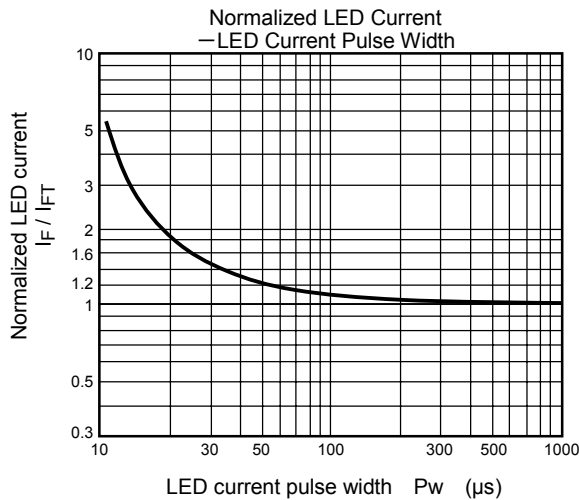
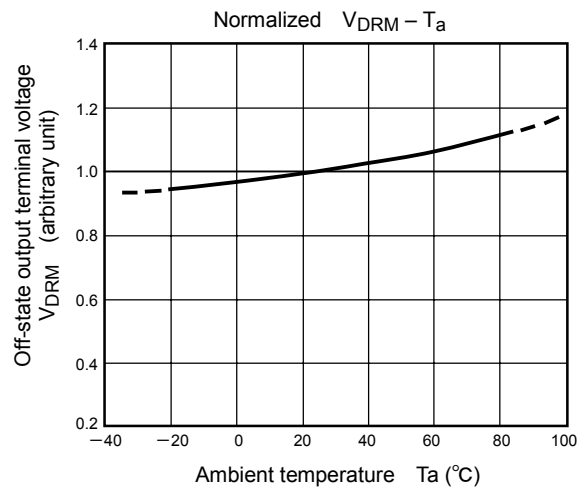
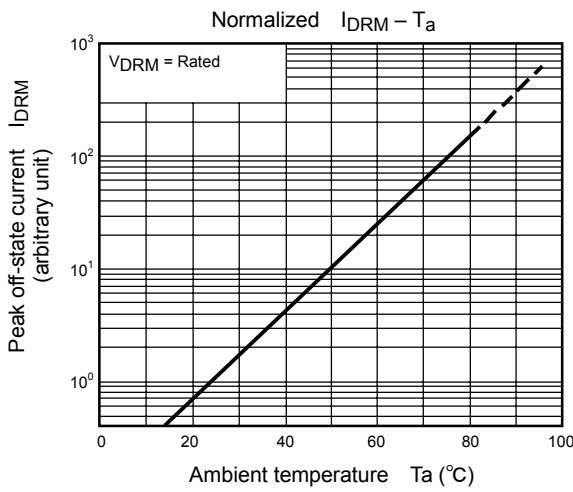
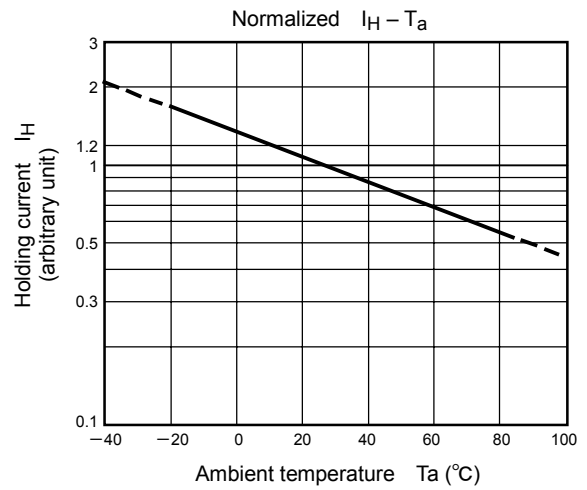
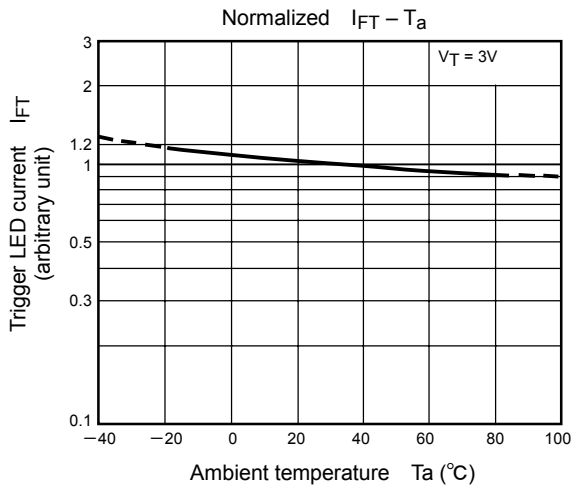
Individual Electrical Characteristics (Ta = 25°C)

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	μA
	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	μA
	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	$V_S=500\text{V}, \text{R.H.} \leq 60\%$	5×10^{10}	10^{14}	—	Ω
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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