

TENTATIVE

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

# TLP3530

TRIAC DRIVER

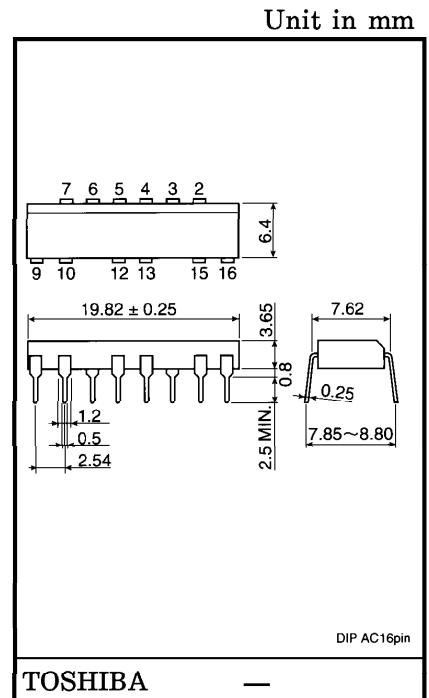
PROGRAMMABLE CONTROLLERS

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 : 400 V (min)
- Trigger LED Current : 10 mA (max)
- On-State Current : 1.0 Arms (max per 1ch)  
1.4 Arms (max per 2ch)
- Isolation Voltage : 2500 Vrms (min)



Weight : 1.09 g

Trigger LED Current

CLASSIFICATION	* TRIGGER LED CURRENT (mA)		MARKING OF CLASSIFICATION
	$V_T = 6\text{ V}, T_a = 25^\circ\text{C}$		
	Min	Max	
(IFT7)	—	7.0	T7
Blank	—	10	T7, Blank

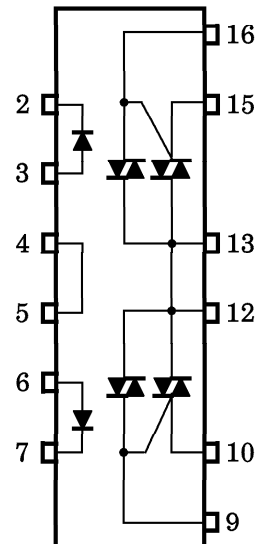
\* : (IFT7) : TLP3530 (IFT7)

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

TLP3530 (IFT7) : TLP3530

- 3, 6 : ANODE
- 2, 7 : CATHODE
- 4, 5 : N.C
- 12, 13 : TRIAC T2 (COMMON)
- 10, 15 : TRIAC T1
- 9, 16 : TRIAC GATE\*

PIN CONFIGURATION (TOP VIEW)



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## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	$I_F$	50	mA	
	Forward Current Derating (Ta $\geq$ 53°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	mA / °C	
	Peak Forward Current (100 $\mu\text{s}$ pulse, 100 pps)	$I_{FP}$	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 2 ch)	
	On-State Current Derating (Ta $\geq$ 40°C)	$\Delta I_T / ^\circ\text{C}$	-14.3 (per 1 ch)	mA / °C	
		-20.0 (per 2 ch)			
	Peak Current from Snubber Circuit (100 $\mu\text{s}$ pulse, 120 pps)	$I_{SP}$	2	A	
Peak Nonrepetitive Surge Current (50 Hz, 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 (10 s)	$T_{sol}$	260	°C		
Isolation Voltage (AC, 1 min., R.H. $\leq$ 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

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
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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	—	$V_{dc}$

