

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

TLP3520A

TRIAC DRIVER

PROGRAMMABLE CONTROLLERS

AC-OUTPUT MODULE

SOLID STATE RELAY

The TOSHIBA TLP3520A consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a 16 lead plastic DIP package.

- Peak Off-State Voltage : 400V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : 1.2A_{rms} (MAX.)
- Isolation Voltage : 2500V_{rms} (MIN.)
- Trigger LED Current

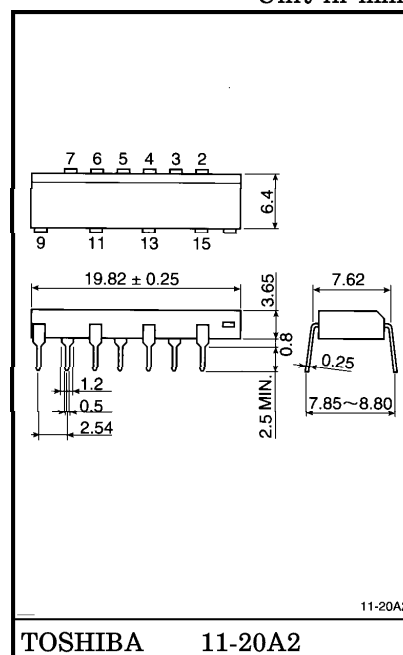
CLASSI- FICATION*	TRIGGER LED CURRENT (mA)		MARKING OF CLASSIFICATION
	V _T =6V, T _a =25°C		
	MIN.	MAX.	
(IFT5)	—	5.0	T5
(IFT7)	—	7.0	T5, T7
Standard	—	10	T5, T7, Blank

*Ex. (IFT5) ; TLP3520A (IFT5)

(Note) Application type name for certification test, please use standard product type name, i.e.
TLP3520A (IFT5) : TLP3520A

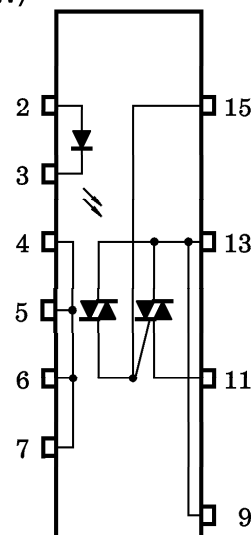
2 : ANODE
3 : CATHODE
4, 5, 6, 7 : N.C.
9, 13 : TRIAC T2
11 : TRIAC T1
15 : TRIAC GATE

Unit in mm



Weight : 1.13g

PIN CONFIGURATION (TOP VIEW)



980508EBC2

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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.
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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 μ s 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)	1.2	A
			0.9	
	On-State Current Derating (Ta $\geq$ 40°C)	$\Delta I_T / ^\circ\text{C}$	-15	mA / °C
	Peak Current from Snubber Circuit (100 μ s pulse, 120pps)	I_{SP}	2	A
	Peak Nonrepetitive Surge Current (50Hz, Peak)	I_{TSM}	10	A
	Junction Temperature	T_j	120	°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, 1 min., R.H. $\leq$ 60%) (Note)		BV_S	2500	V_{rms}

(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	V_{ac}
Forward Current	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	$V_{in} = 120\text{V}_{rms}$ (Fig.1)	200	500	—	$\text{V} / \mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in} = 120\text{V}_{rms}, I_T = 1.0\text{A}_{rms}$ (Fig.1)	—	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	$V_S = 500\text{V}$	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}

Fig.1 : dv/dt TEST CIRCUIT