

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

# TLP3526

TRIAC DRIVER

PROGRAMMABLE CONTROLLERS

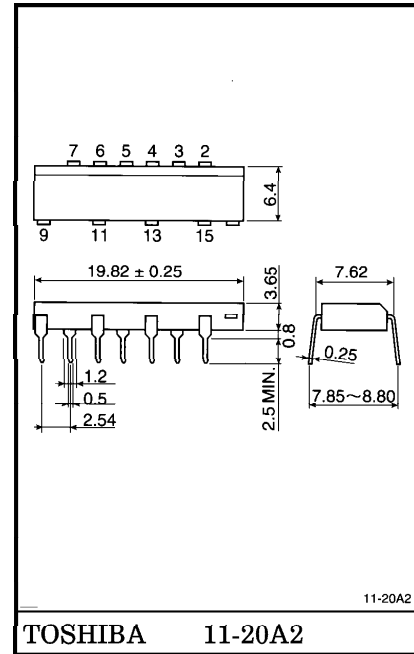
AC-OUTPUT MODULE

SOLID STATE RELAY

The TOSHIBA TLP3526 consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a 16 lead plastic DIP.

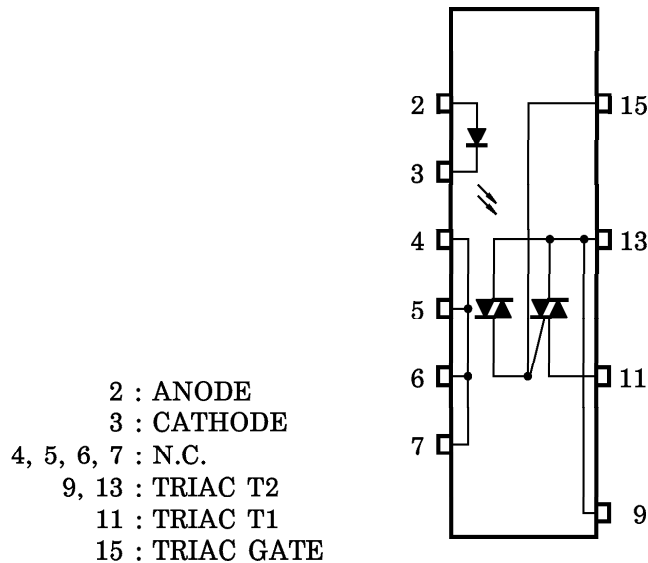
- Peak Off-State Voltage : 600V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : 1.0A<sub>rms</sub> (MAX.)
- Isolation Voltage : 2500V<sub>rms</sub> (MIN.)
- UL Recognized : UL1577, File No. E67349

Unit in mm



Weight : 1.13g

**PIN CONFIGURATION (TOP VIEW)**



961001EBC2

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## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	I <sub>F</sub>	50	mA	
	Forward Current Derating (Ta ≥ 53°C)	ΔI <sub>F</sub> / °C	-0.7	mA / °C	
	Peak Forward Current (100μs pulse, 100pps)	I <sub>FP</sub>	1	A	
	Reverse Voltage	V <sub>R</sub>	5	V	
	Junction Temperature	T <sub>j</sub>	125	°C	
DETECTOR	Off-State Output Terminal Voltage	V <sub>DRM</sub>	600	V	
	On-State RMS Current	Ta = 40°C	I <sub>T</sub> (RMS)	1.0	A
		Ta = 60°C		0.7	
	On-State Current Derating (Ta ≥ 40°C)	ΔI <sub>T</sub> / °C	-14.3	mA / °C	
	Peak Current from Snubber Circuit (100μs pulse, 120pps)	I <sub>SP</sub>	2	A	
	Peak Nonrepetitive Surge Current (50Hz, Peak)	I <sub>TSM</sub>	10	A	
	Junction Temperature	T <sub>j</sub>	110	°C	
Storage Temperature Range	T <sub>stg</sub>	-40~125	°C		
Operating Temperature Range	T <sub>opr</sub>	-20~80	°C		
Lead Soldering Temperature (10s)	T <sub>sol</sub>	260	°C		
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note)	BV <sub>S</sub>	2500	V <sub>rms</sub>		

(Note 1) 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 <sub>AC</sub>	—	—	240	V <sub>ac</sub>
Forward Current	I <sub>F</sub>	15	20	25	mA
Peak Current from Snubber Circuit	I <sub>SP</sub>	—	—	1	A
Operating Temperature	T <sub>opr</sub>	-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	$I_{DRM}$	$V_{DRM} = 600\text{V}, T_a = 110^\circ\text{C}$	—	—	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	$dv/dt$	$V_{in} = 240\text{V}_{rms}$ (Fig.1)	—	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in} = 240\text{V}_{rms}, I_T = 1.0\text{A}_{rms}$ (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	$R_S$	$V_S = 500\text{V}$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation Voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{rms}$
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	$V_{dc}$

Fig.1 :  $dv/dt$  TEST CIRCUIT

