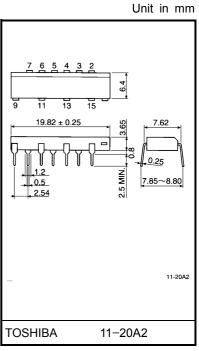
TOSHIBA Photocoupler GaAs Ired & Photo-Triac

# **TLP3526**

Triac Driver
Programmable Controllers
AC-Output Module
Solid State Relay

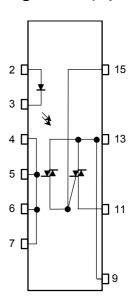
The TOSHIBA TLP3526 consists of a photo–triac optically coupled to a gallium arsenide infrared emitting diode in a 16 lead plastic DIP.

- Peak off-state voltage: 600V(min.)
- Trigger LED current: 10mA(max.)
- On-state current: 1.0A<sub>rms</sub>(max.)
- Isolation voltage: 2500 V<sub>rms</sub>(min.)
- UL recognized: UL1577, file no. E67349



Weight: 1.13 g

#### Pin Configuration (top view)



2 : Anode 3 : Cathode 4,5,6,7 : N.C. 9,13 : Triac T2 11 : Triac T1 15 : Triac gate

1

### **Maximum Ratings (Ta = 25°C)**

Characteristic			Symbol	Rating	Unit	
	Forward current		l <sub>F</sub>	50	mA	
Forward current Forward current derating (Ta ≥ 53°C)  Peak forward current (100µs pulse, 100pps)  Reverse voltage  Junction temperature  Off–state output terminal voltage  On–state RMS current  Ta = 40°C  Ta = 60°C  On–state current derating (Ta ≥ 40°C)  Peak current from snubber circuit (100µs pulse, 120pps)  Peak nonrepetitive surge current (50Hz, peak)  Junction temperature  Storage temperature range  Operating temperature range	ΔI <sub>F</sub> / °C	-0.7	mA / °C			
LED	Peak forward current (100µs p	current (100µs pulse, 100pps)		1	Α	
	Reverse voltage	V <sub>R</sub>	5	V		
	Junction temperature	Tj	125	°C		
	Off-state output terminal voltage	$V_{DRM}$	600	V		
	On-state RMS current	Ta = 40°C	I=	1.0	Α	
_		Ta = 60°C	I <sub>T(RMS)</sub>	0.7	_ ^	
ecto	On-state current derating (Ta	ΔI <sub>T</sub> / °C	-14.3	mA / °C		
Det		I <sub>SP</sub>	2	А		
	Peak nonrepetitive surge curre	I <sub>STM</sub>	10	Α		
	Junction temperature	Tj	110	°C		
Storag	e temperature range		T <sub>stg</sub>	-40~125	°C	
Operat	Operating temperature range		T <sub>opr</sub>	-20~80	°C	
Lead s	ead soldering temperature (10 s)		T <sub>sol</sub>	260	°C	
Isolatio	Isolation voltage (AC, 1min., R.H.≤ 60%) (Note)			2500	V <sub>rms</sub>	

(Note 1) Device considered a two terminal: LED side pins shorted together and detector side pins shorted together.

2

### **Recommended Operating Conditions**

Characteristic	Symbol	Min.	Тур.	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	Α
Operating temperature	T <sub>opr</sub>	-20	_	80	°C

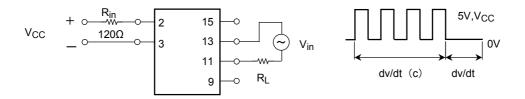
# Individual Electrical Characteristics (Ta = 25°C)

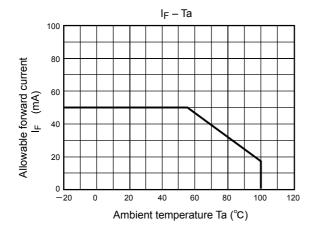
Characteristic		Symbol	Test Condition	Min.	Тур.	Max.	Unit
LED	Forward voltage	V <sub>F</sub>	I <sub>F</sub> = 10mA	1.0	1.15	1.3	V
	Reverse current	I <sub>R</sub>	V <sub>R</sub> = 5V	_	_	10	μA
	Capacitance	C <sub>T</sub>	V = 0, f = 1MHz	_	30	_	pF
Detector	Peak off-state current	I <sub>DRM</sub>	V <sub>DRM</sub> = 600V, Ta = 110°C	_	_	100	μA
	Peak on-state voltage	V <sub>TM</sub>	I <sub>TM</sub> = 1.5A	_	_	3.0	V
	Holding current	lΗ	R <sub>L</sub> = 100Ω	_	_	25	mA
	Critical rate of rise of off–state voltage	dv / dt	$V_{in} = 240V_{rms}$ (Fig.1)	_	500	_	V/µs
	Critical rate of rise of commutating voltage	dv / dt(c)	$V_{in}$ = 240 $V_{rms}$ , $I_T$ = 1.0Arms (Fig.1)	_	5	_	V/µs

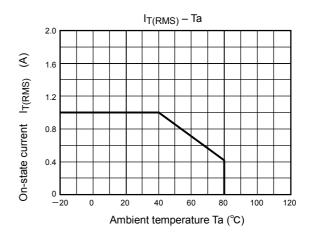
# **Coupled Electrical Characteristics (Ta = 25°C)**

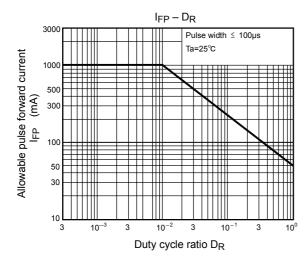
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Trigger LED current	I <sub>FT</sub>	V <sub>T</sub> = 6V	_	_	10	mA
Capacitance (input to output)	C <sub>S</sub>	V <sub>S</sub> = 0, f = 1MHz	_	1.5	-	pF
Isolation resistance	R <sub>S</sub>	V <sub>S</sub> = 500V	5×10 <sup>10</sup>	10 <sup>14</sup>	_	Ω
	BV <sub>S</sub>	AC, 1 minute	2500	_	_	V <sub>rms</sub>
Isolation voltage		AC, 1 second, in oil	_	5000	_	
		DC, 1 minute, in oil	_	5000	_	V <sub>dc</sub>

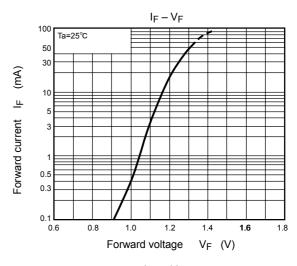
Fig.1: dv / dt test circuit

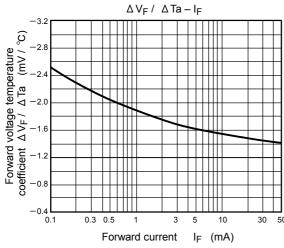


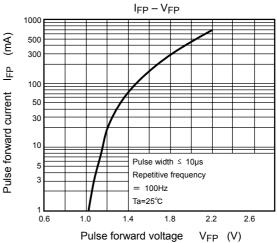


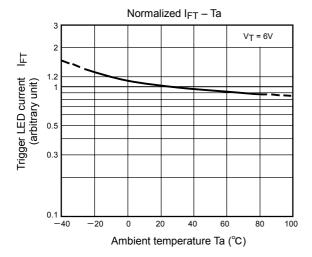


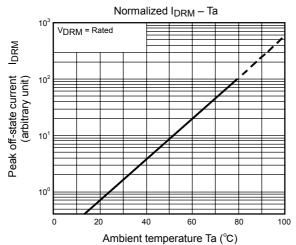


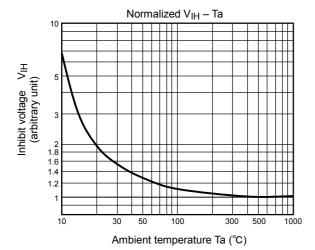


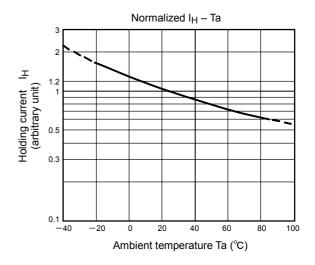


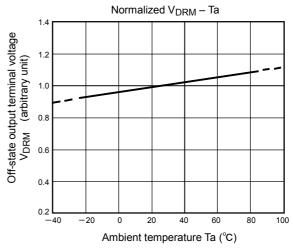












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