TOSHIBA Photocoupler GaAs Ired & Photo-Triac

TLP3502

Trica Driver
Programmable Controllers
AC-Output Module
Solid State Relay

The TOSHIBA TLP3502 consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a 8 lead plastic DIP package.

Peak off-state voltage: 400V(min.)
Trigger LED current: 10mA(max.)
On-state current: 0.5A_{rms}(max.)
Isolation voltage: 2500V_{rms}(min.)

• UL recognized: UL1577, file no. E67349

• Trigger LED Current

	Unit in mm
3 2	8 4 6
9.66 ± 0.2	25 7.62 7.62 7.62 7.62 7.85~8.80 7.85~8.80
	11-10C3
TOSHIBA	11-10C3

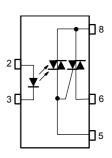
Weight: 0.52 g

Classi-	Trigger LED	Current (mA)	Manking Of		
	V _T =6V, Ta=25°C		Marking Of		
fication*	Min.	Max.	Classification		
(IFT5)	_	5.0	T5		
(IFT7)	_	7.0	T5,T7		
Standard		10	T5,T7, blank		

*Ex. (IFT5); TLP3502(IFT5)

(Note) Application type name for certification test, please use standard product type name, i.e. TLP3502(IFT5): TLP3502

Pin Configurations(top view)



2 : ANODE 3 : CATHODE 5 : TRIAC GATE

6 : TRIAC T1 8 : TRIAC T2

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Maximum Ratings (Ta = 25°C)

Characteristic			Symbol	Rating	Unit
	Forward current	lF	50	mA	
	Forward current derating (Ta ≥	ΔI _F /°C	-0.7	mA/°C	
LED	Peak forward current (100µs pu	lse, 100pps)	IFP	1	Α
	Reverse voltage	V _R	5	V	
	Junction temperature	Tj	125	°C	
	Off-state output terminal voltag	V_{DRM}	400	V	
	On-state RMS Current	Ta=40°C	l=	0.5	Α
_		Ta=60°C	lT(RMS)	0.35	, A
Detector	On-state current derating(Ta ≥	ΔI _T /°C	-7.2	mA/°C	
	Peak current from snubber circupulse, 120pps)	I _{SP}	2	А	
	Peak nonrepetitive surge currer	I _{TSM}	5	Α	
	Junction temperature	Tj	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
Isolatio	Isolation voltage (AC, 1min., R.H. ≤ 60%) (Note)			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.	Тур.	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	Α
Operating temperature	T _{opr}	-25	_	85	°C

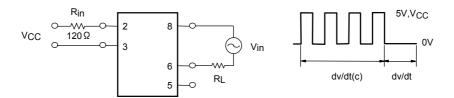
Individual Electrical Characteristics (Ta = 25°C)

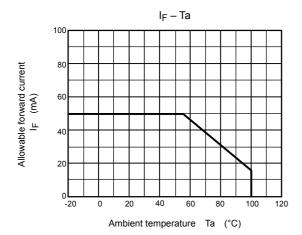
	Characteristic	Symbol	Test Condition		Min.	Тур.	Max.	Unit
LED	Forward voltage	V _F	I _F =10mA		1.0	1.15	1.3	V
	Reverse current	I _R	V _R =5 V		ı	_	10	μA
	Capacitance	C _T	V=0, f=1MHz		-	30	_	pF
Detector	Peak off-state current	I _{DRM}	V _{DRM} =400V,Ta=110°C		_	_	100	μΑ
	Peak on-state voltage	V _{TM}	I _{TM} =0.75A		_	_	3.0	V
	Holding current	lΗ	_		_	_	25	mA
	Critical rate of rise of off–state voltage	dv/dt	V _{in} =120Vrms	(fig.1)	200	500	_	V/µs
	Critical rate of rise of commutating voltage	dv/dt(c)	V _{in} =120Vrms, I _T =0.5Arms	(fig. 1)	-	5	_	V/µs

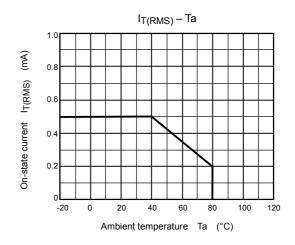
Coupled Electrical Characteristics (Ta = 25°C)

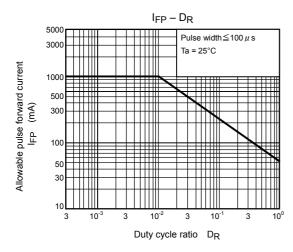
Characteristics	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Trigger LED current	I _{FT}	V _T =6V	_	_	10	mA
Capacitance (input to output)	C _S	V _S =0, f=1MHz	_	1.5	١	pF
Isolation resistance	R _S	V _S =500V	5×10 ¹⁰	10 ¹⁴	_	Ω
	BV _S	AC, 1 minute	2500	_	_	Vrms
Isolation voltage		AC, 1 second, in oil	_	5000	_	VIIIIS
		DC, 1 minute, in oil	_	5000	_	V _{dc}

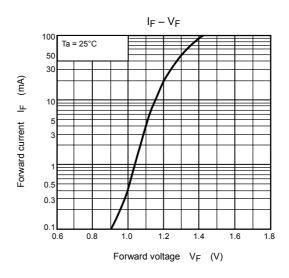
Fig. 1: dv/dt test circuit

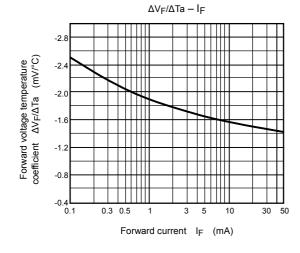


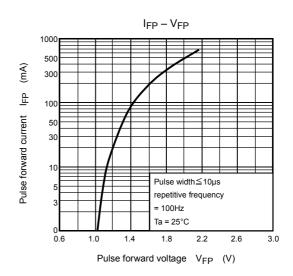


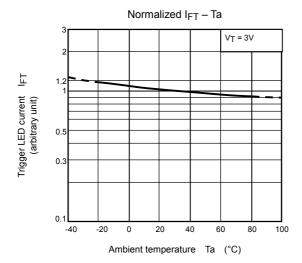


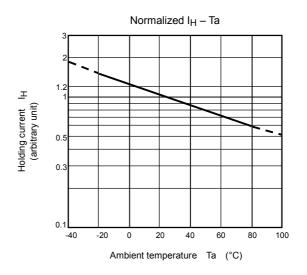


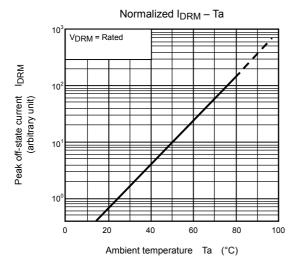


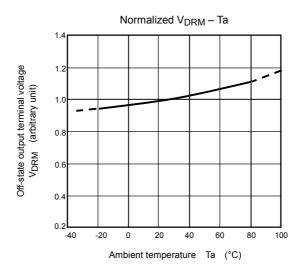


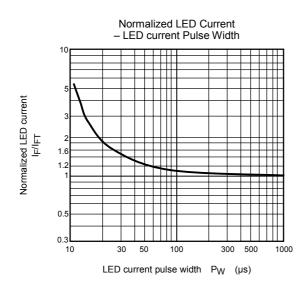












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