TOSHIBA Photocoupler Photo Relay

TLP597G

Cordless Telephone

PBX

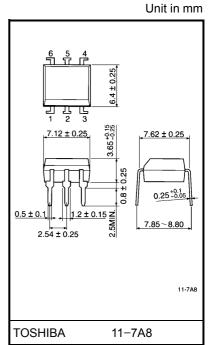
Modem

The TOSHIBA TLP597G consists of a gallium arsenide infrared emitting diode optically coupled to a photo–MOS FET in a six lead plastic DIP package (DIP6).

The TLP597G is a bi-directional switch which can replace mechanical relay in many applications.

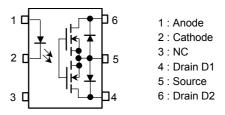
- Peak off-state voltage: 350V (min.)
- Trigger LED current: 3mA (max.)
- On-state current: 120mA (max.) (A connection)
- On-state resistance: 35Ω (max.) (A connection)
- Isolation voltage: 2500V_{rms} (min.)
- Isolation thickness: 0.4mm (min.)
- UL recognized: UL1577, file no. E67349
- BSI approved: BS EN60065: 1994, certificate no. 8275
 BS EN60950: 1992, certificate no. 8276
- Option (D4) type

: TUV approved: DIN VDE0884 / 06.92, Certificate no. R9850585

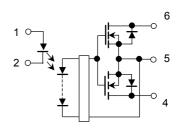


Weight: 0.4 g

Pin Configuration (top view)



Schematic



Maximum Ratings (Ta = 25°C)

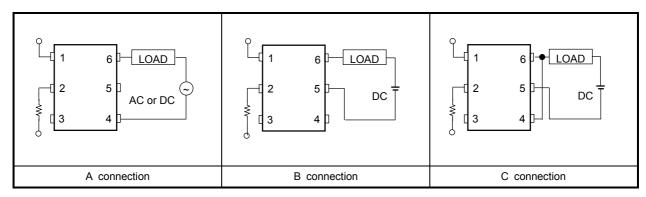
	Characteristic	Symbol	Rating	Unit		
	Forward current	IF	50	mA		
	Forward current derating (Ta	ΔI _F / °C	-0.5	mA / °C		
LED	Peak forward current (100 µs	s pulse, 100 pps)	I _{FP}	1	Α	
	Reverse voltage		V _R	5	V	
	Junction temperature	Tj	125	°C		
	Off-state output terminal vol	V _{OFF}	350	V		
	On-state RMS current	A connection		120		
		B connection	I _{ON}	120	mA	
Detector		C connection		160		
Dete	On–state current derating (Ta ≥ 25°C)	A connection		-1.2		
		B connection	ΔI _{ON} / °C	-1.2	mA / °C	
		C connection		-1.6		
	Junction temperature	Tj	125	°C		
Stora	ige temperature range	T _{stg}	-55~125	°C		
Operating temperature range			T _{opr}	-40~85	°C	
Lead	soldering temperature (10 s)	T _{sol}	260	°C		
Isola	tion voltage (AC, 1 min., R.H.≤	BV _S	2500	V _{rms}		

(Note 1): Device considered a two–terminal device: Pins 1, 2 and 3 shorted together and pins 4, 5 and 6 shorted together.

Recommended Operating Conditions

Characteristic	Symbol	Min.	Тур.	Max.	Unit
Supply voltage	V_{DD}	_	_	280	V
Forward current	l _F	5	7.5	25	mA
On–state current	I _{ON}	_	_	120	mA
Operating temperature	T _{opr}	-20	_	65	°C

Circuit Connections



2

Individual Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min.	Тур.	Max.	Unit
	Forward voltage	V _F	I _F = 10 mA	1.0	1.15	1.3	V
LED	Reverse current	I _R	V _R = 5 V	_	_	10	μΑ
	Capacitance	C _T	V = 0, f = 1 MHz	_	30	_	pF
Detector	Off-state current	l _{OFF}	V _{OFF} = 350 V	1	1	1	μΑ
	Capacitance	C _{OFF}	V = 0, f = 1 MHz	1	40	ı	pF

Coupled Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min.	Тур.	Max.	Unit
Trigger LED current		I _{FT}	I _{ON} = 120 mA	_	1	3	mA
	A connection		I _{ON} = 120 mA, I _F = 5 mA	_	22	35	Ω
On–state Resistance		R _{ON}	I _{ON} = 20 ~ 120mA, I _F = 5 mA	_	26	40	Ω
Resistance	B connection	-	I _{ON} = 120 mA, I _F = 5 mA	_	13	20	Ω
	C connection		I _{ON} = 160 mA, I _F = 5 mA	_	7	10	Ω

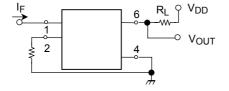
Isolation Characteristics (Ta = 25°C)

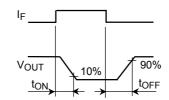
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Capacitance input to output	CS	V _S = 0, f = 1 MHz	_	0.8	_	pF
Isolation resistance	R _S	V _S = 500 V, R.H.≤ 60%	5 × 10 ¹⁰	10 ¹⁴	_	Ω
	BVS	AC, 1 minute	2500	_	_	V _{rms}
Isolation voltage		AC, 1 second, in oil	_	5000	_	
		DC, 1 minute, in oil	_	5000	_	Vdc

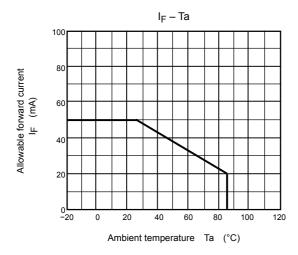
Switching Characteristics (Ta = 25°C)

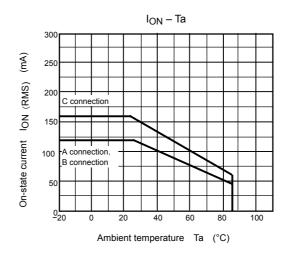
Characteristic	Symbol	Test Condition	Min.	Тур.	Max.	Unit
Turn-on time	t _{ON}	$R_L = 200\Omega$ (Note 2)	_	0.3	1	ms
Turn-off time	t _{OFF}	$V_{DD} = 20 \text{ V}, I_F = 5 \text{ mA}$	_	0.1	1	1113

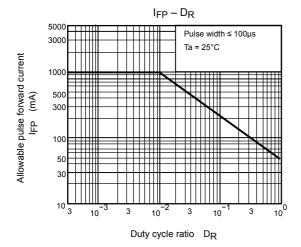
(Note 2): Switching time test circuit

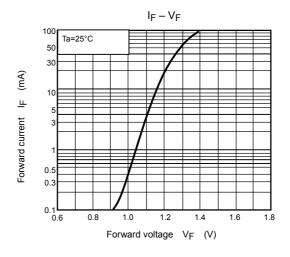


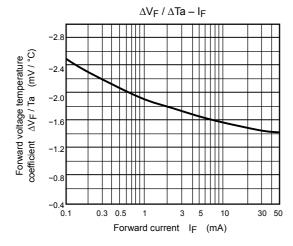


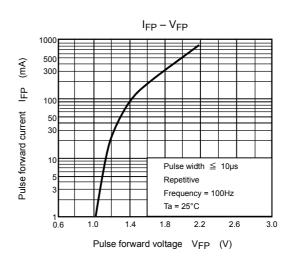


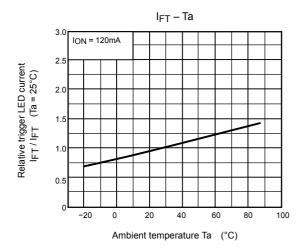


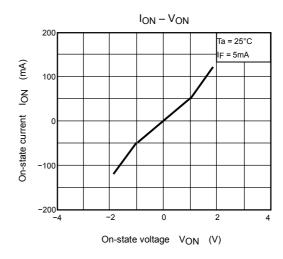


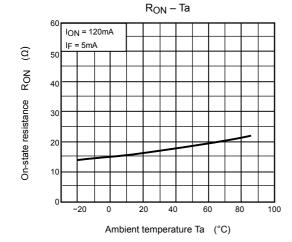


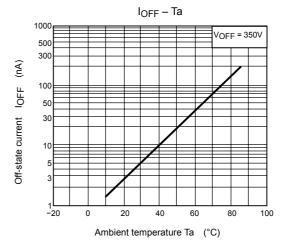












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