

TENTATIVE DATA

(TLP597G)

CORDLESS TELEPHONE

PABX

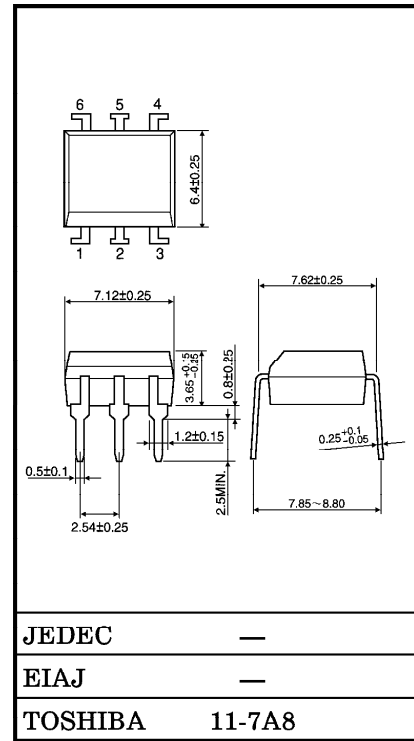
MODEM

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.

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

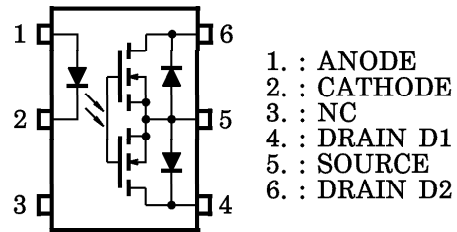
- Peak Off-State Voltage : 350V (MIN.)
- Trigger LED Current : 5mA (MAX.)
- On-State Current : 120mA (MAX.) (A Connection)
- On-State Resistance : 35Ω (MAX.) (A Connection)
- Isolation Voltage : 2500V_{rms} (MIN.)
- UL Recognized : UL1577, File No. E67349

Unit in mm

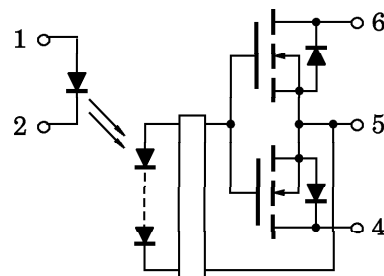


Weight : 0.4g

PIN CONFIGURATION (TOP VIEW)



SCHEMATIC



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TOSHIBA CORPORATION

(TLP597G)

MAXIMUM RATINGS (Ta = 25°C)

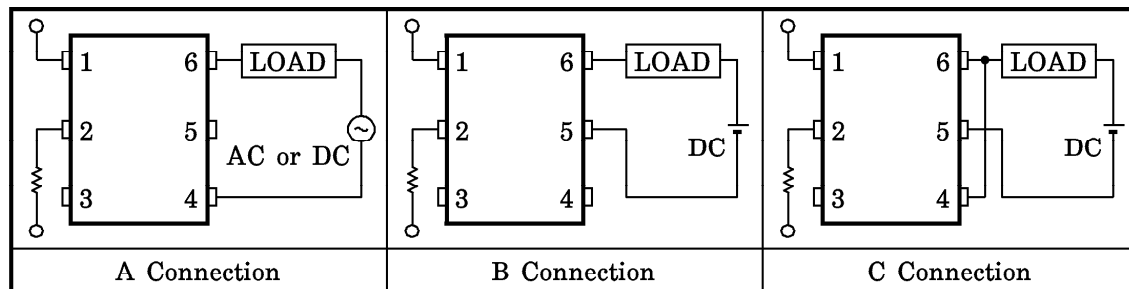
CHARACTERISTIC		SYMBOL	RATING	UNIT	
LED	Forward Current	I_F	50	mA	
	Forward Current Derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.5	mA / °C	
	Peak Forward Current (100 μs pulse, 100pps)	I_{FP}	1	A	
	Reverse Voltage	V_R	5	V	
	Junction Temperature	T_j	125	°C	
DETECTOR	Off-State Output Terminal Voltage	V_{OFF}	350	V	
	On-State RMS Current	A Connection	120	mA	
		B Connection	120		
		C Connection	160		
	On-State Current Derating (Ta ≥ 25°C)	A Connection	$\Delta I_{ON} / ^\circ\text{C}$	-1.2	mA / °C
		B Connection	-1.2		
		C Connection	-1.6		
Junction Temperature	T_j	125	°C		
Storage Temperature Range	T_{stg}	-55~100	°C		
Operating Temperature Range	T_{opr}	-20~85	°C		
Lead Soldering Temperature (10s)	T_{sol}	260	°C		
Isolation Voltage (AC, 1min., R.H. ≤ 60%)	Note 1	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.	TYP.	MAX.	UNIT
Supply Voltage	V_{DD}	—	—	280	V
Forward Current	I_F	7.5	15	25	mA
On-State Current	I_{ON}	—	—	120	mA
Operating Temperature	T_{opr}	-20	—	65	°C

CIRCUIT CONNECTIONS



(TLP597G)

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	Off-State Current	I_{OFF}	$V_{\text{OFF}} = 350\text{V}$	—	—	1	μA
	Capacitance	C_{OFF}	$V = 0, f = 1\text{MHz}$	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Trigger LED Current		I_{FT}	$I_{\text{ON}} = 120\text{mA}$	—	2	5	mA	
On-State Resistance	A Connection	R_{ON}	$I_{\text{ON}} = 120\text{mA}, I_F = 10\text{mA}$	—	22	35	Ω	
			$I_{\text{ON}} = 20 \sim 120\text{mA}, I_F = 10\text{mA}$	—	26	40	Ω	
			B Connection	$I_{\text{ON}} = 120\text{mA}, I_F = 10\text{mA}$	—	13	20	Ω
			C Connection	$I_{\text{ON}} = 160\text{mA}, I_F = 10\text{mA}$	—	7	10	Ω

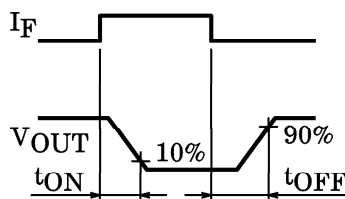
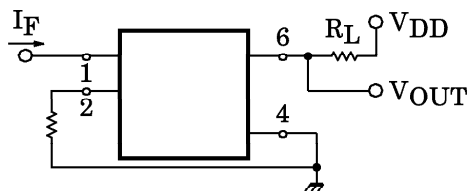
ISOLATION CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}, R.H. \leq 60\%$	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	—	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	t_{ON}	$R_L = 200\Omega$ Note 1	—	—	4	ms
Turn-off Time	t_{OFF}	$V_{\text{DD}} = 20\text{V}, I_F = 10\text{mA}$	—	—	4	

Note 1 SWITCHING TIME TEST CIRCUIT



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