TOSHIBA PHOTOCOUPLER PHOTO RELAY

TLP597A

TELECOMMUNICATION DATA ACQUISITION MEASUREMENT INSTRUMENTATION

The TOSHIBA TLP597A consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a six lead plastic DIP package (DIP6).

The TLP597A is a bi-directional switch can replace mechanical relays in many applications.

FEATURES

• 6 pin DIP (DIP6)

• 1-Form-A

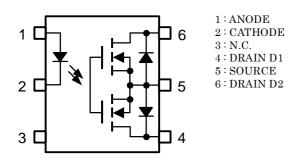
Peak Off-State Voltage : 60 V (MIN.)
 Trigger LED Current : 3 mA (MAX.)
 On-State Current : 500 mA (MAX.)
 On-State Resistance : 2 Ω (MAX.)
 Isolation Voltage : 2500 Vrms (MIN.)

• UL Recognized : UL1577, File No. E67349

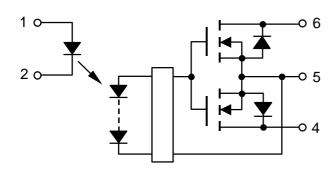
Unit: mm 6 5 4 7.12±0.25 7.62±0.25 0.5±0.1 1.2±0.15 2.54±0.25 7.85~8.80 JEDEC EIAJ TOSHIBA 11-7A8

Weight: 0.4 g

PIN CONFIGURATION (TOL VIEW)



SCHEMATIC



MAXIMUM RATINGS (Ta = 25°C)

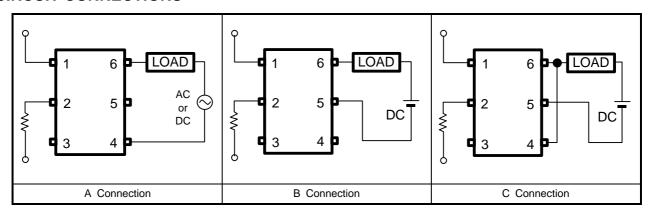
	CHARACTERISTI	SYMBOL	RATING	UNIT		
	Forward Current	l _F	50	mA		
	Forward Current Derating (Ta	ΔI _F /°C	-0.5	mA/°C		
LED	Peak Forward Current (100 μ	s pulse, 100 pps)	I _{FP}	1	А	
	Reverse Voltage		V _R	5	V	
	Junction Temperature	Tj	125	°C		
	Off-State Output Terminal Vo	V _{OFF}	60	V		
	On-State RMS Current	A Connection		500		
~		B Connection	I _{ON}	500	mA	
СТО		C Connection		1000		
DETECTOR	On-State Current Derating	A Connection		-5.0		
□		B Connection	∆I _{ON} /°C	-5.0	mA/°C	
	(Ta ≧ 25°C)	C Connection		-10.0		
	Junction Temperature		Tj	125	°C	
Operating Temperature Range			T _{opr}	-40~85	°C	
Storage Temperature Range			T _{stg}	-55~125	°C	
Lead Soldering Temperature (10 s)			T _{sol}	260	°C	
Isola	tion Voltage (AC, 1 minute, R.F	BVS	2500	Vrms		

(NOTE1) :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}	_	_	48	V
Forward Current	I _F	5	7.5	25	mA
On-State Current	I _{ON}	_	_	400	mA
Operating Temperature	T _{opr}	-20	—	65	°C

CIRCUIT CONNECTIONS



INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 10 mA	1.0	1.15	1.3	V
	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} = 60 V			1	μА
	Capacitance	C _{OFF}	V = 0, f = 1 MHz	1	130	1	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARAC	TERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Curre	ent	I _{FT}	I _{ON} = 500 mA	_	_	3	mA
Close LED Current		I _{FC}	I _{OFF} = 100 μA	0.1	_	_	mA
On-State Resistance	A Connection		$I_{ON} = 500 \text{ mA}, I_F = 5 \text{ mA}$	_	1	2	
	B Connection	R _{ON}	I _{ON} = 500 mA, I _F = 5 mA	_	0.5	1	Ω
	C Connection		I _{ON} = 1000 mA, I _F = 5 mA	_	0.25	_	

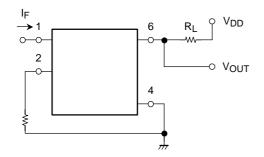
ISOLATION CHARACTERISTICS (Ta = 25°C)

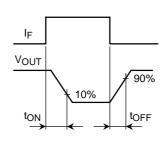
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	CS	V _S = 0 V, f = 1 MHz	_	0.8	_	pF
Isolation Resistance	R _S	V _S = 500 V, R.H. ≦ 60%	5 × 10 ¹⁰	10 ¹⁴	_	Ω
		AC, 1 minute	2500	_	_	Vrms
Isolation Voltage	BVS	AC, 1 second (in oil)	_	5000	_	VIIIIS
		DC, 1 minute (in oil)	_	5000	_	Vdc

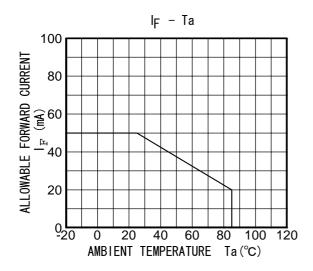
SWITCHING CHARACTERISTICS (Ta = 25°C)

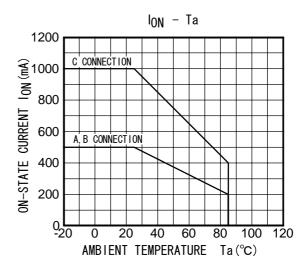
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	ton	$R_L = 200 \Omega$ (NOTE	2) —	0.6	2	ms
Turn-off Time	tOFF	$V_{DD} = 20 \text{ V}, I_{F} = 5 \text{ mA}$		0.1	1	1113
Turn-on Time	t _{ON}	$R_L = 200 \Omega$ (NOTE	2) —	0.3	1	ms
Turn-off Time	tOFF	$V_{DD} = 20 \text{ V}, I_{F} = 10 \text{ mA}$		0.1	1	1113

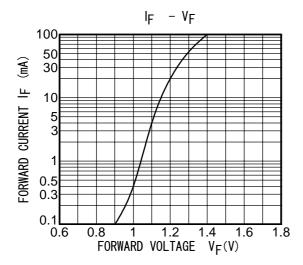
(NOTE 2): SWITCHING TIME TEST CIRCUIT

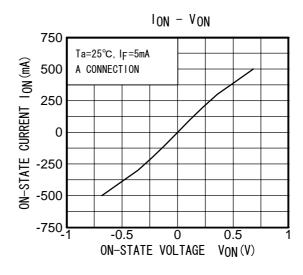


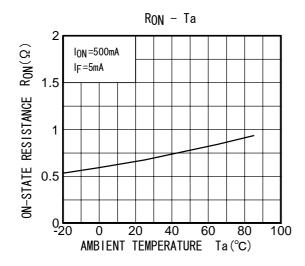


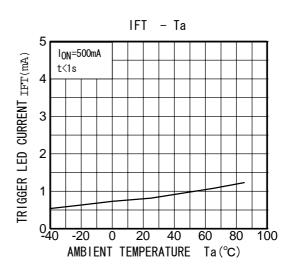


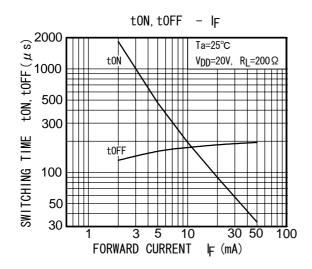


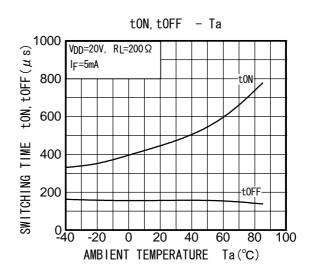


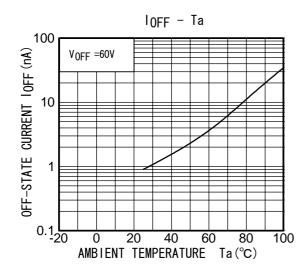












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