

Unit in mm

Telecommunication

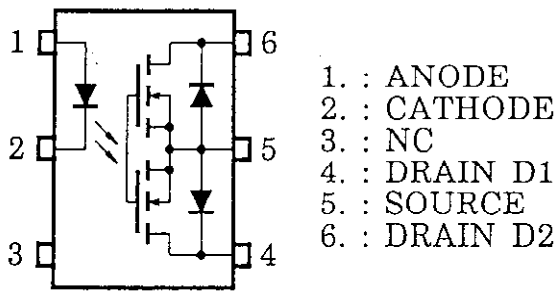
Data Acquisition

Measurement Instrumentation

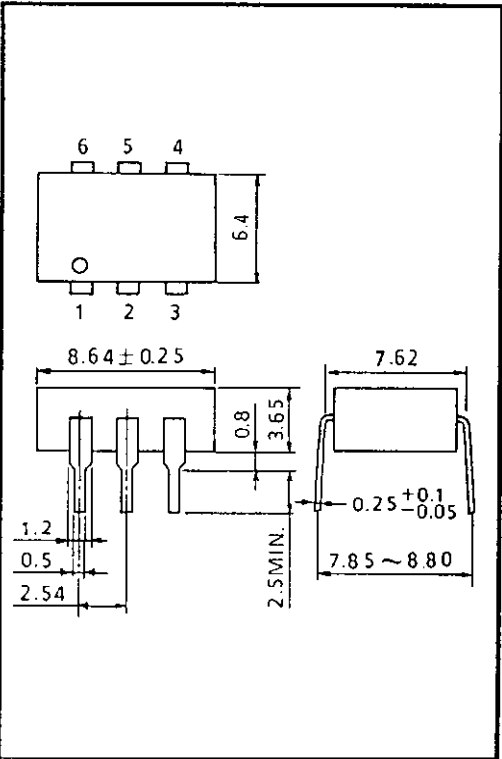
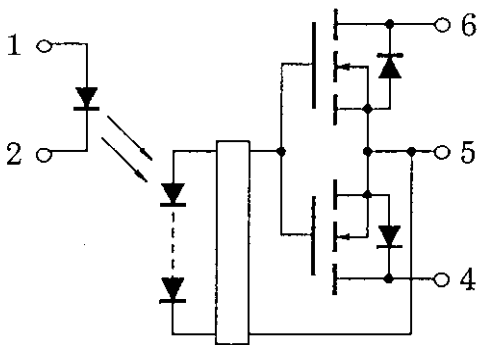
The Toshiba TLP595A consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a photo-MOSFET in a six lead plastic DIP package. The TLP595A is a bi-directional switch which can replace mechanical relays in many applications.

- Peak Off-State Voltage : 60V (Min.)
- On-State Current : 300mA (Max.) (A Connection)
- On-State Resistance : 2Ω (Max.) (A Connection)
- Isolation Voltage : 2500Vrms (Min.)
- UL Recognized : UL1577, File No. E67349
- Trigger LED Current (Ta = 25°C)

Pin Configuration (Top View)



Schematic



JEDEC	—
EIAJ	—
TOSHIBA	11-9A1

Weight : 0.49g

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CLASSIFICATION (Note 1)	TRIGGER LED CURRENT (mA)		MARKING OF CLASSIFICATION
	@I <sub>ON</sub> = 300MA		
	MIN.	MAX.	
(IFT2)	—	2	T2
Standard	—	5	T2, Blank

Note 1: Application type name for certification test, please use standard product type name, i.e., TLP595A (IFT2): TLP595A

### Maximum Ratings (Ta = 25°C)

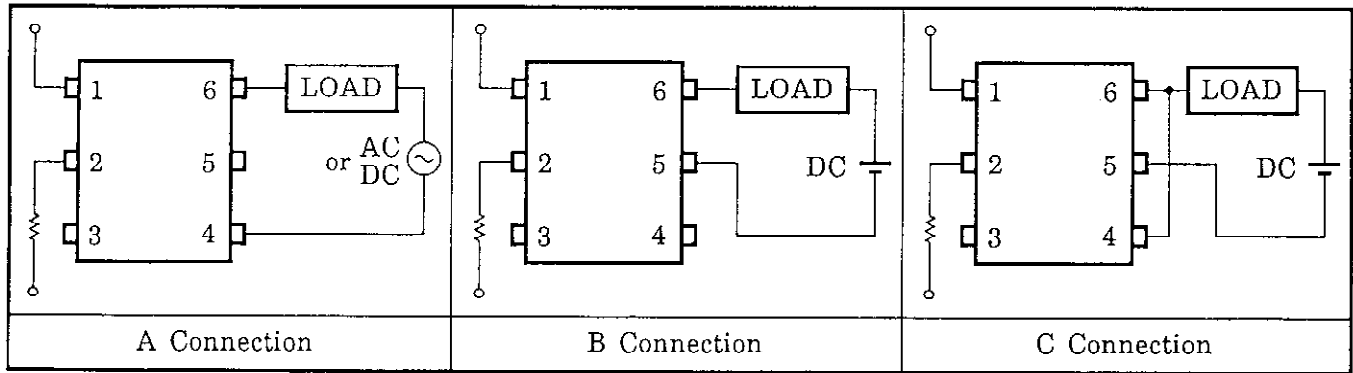
CHARACTERISTIC			SYMBOL	RATING	UNIT
LED	Forward Current		I <sub>F</sub>	30	mA
	Forward Current Derating (Ta ≥ 25°C)		ΔI <sub>F</sub> /°C	-0.3	mA/°C
	Pulse Forward Current (100μs pulse, 100pps)		I <sub>FP</sub>	1	A
	Reverse Voltage		V <sub>R</sub>	5	V
	Junction Temperature		T <sub>j</sub>	125	°C
DETECTOR	Off-State Output Terminal Voltage		V <sub>OFF</sub>	60	V
	On-State RMS Current	A Connection	I <sub>ON</sub>	300	mA
		B Connection		450	
		C Connection		600	
	On-State Current Derating (Ta ≥ 25°C)	A Connection	ΔI <sub>ON</sub> /°C	-3	mA/°C
		B Connection		-4.5	
		C Connection		-6	
	Junction Temperature		t <sub>j</sub>	125	°C
Storage Temperature Range			T <sub>stg</sub>	-55~100	°C
Operating Temperature Range			T <sub>opr</sub>	-20~85	°C
Lead Soldering Temperature (10s)			T <sub>sol</sub>	260	°C
Isolation Voltage (AC, 1 min., R.H. ≤ 60%) (Note 2)			BV <sub>S</sub>	2500	V <sub>rms</sub>

Note 1: Device considered a two terminal device: pins 1, 2 and 3 shorted together, and pins 4 and 8 shorted together.

**Recommended Operating Conditions**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MX.	UNIT
Supply Voltage	$V_D$	—	—	48	V
Forward Current	$I_F$	10	15	20	mA
On-State Current	$I_{ON}$	—	—	300	mA
Operating Temperature	$T_{opr}$	-20	—	80	°C

**Circuit Connections**



Individual Electrical Characteristics (Ta = -25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.*	MX.	UNIT
LED	Forward Voltage	$V_F$	$I_F = 10\text{mA}$	1.2	1.4	1.7	V
	Reverse Current	$I_R$	$V_R = 3\text{V}$	—	—	10	$\mu\text{A}$
	Capacitance	$C_T$	$V = 0, f = 1\text{MHz}$	—	15	—	pF
DETECTOR	Off-State Current	$I_{\text{OFF}}$	$V_{\text{OFF}} = 60\text{V}$	—	—	1	$\mu\text{A}$
	Capacitance	$C_{\text{OFF}}$	$V = 0, f = 1\text{MHz}$	—	—	—	pF

Coupled Electrical Characteristics (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Trigger LED Current		$I_{\text{FT}}$	$I_{\text{ON}} = 300\text{mA}$	—	1	5	mA
On-State Resistance	A Connection	$R_{\text{ON}}$	$I_{\text{ON}} = 300\text{mA}, I_F = 10\text{mA}$	—	1.4	2	$\Omega$
	B Connection		$I_{\text{ON}} = 450\text{mA}, I_F = 10\text{mA}$	—	0.7	1	
	C Connection		$I_{\text{ON}} = 600\text{mA}, I_F = 10\text{mA}$	—	0.35	0.5	

Isolation Characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Capacitance Input to Output	$C_S$	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	$R_S$	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	$5 \times 10^{10}$	$10^{14}$	—	$\Omega$
Isolation Voltage	$BV_S$	AC, 1 minute	2500	—	—	$V_{\text{rms}}$
		AC, 1 second in oil	—	5000	—	
		DC, 1 minute in oil	—	5000	—	$V_{\text{dc}}$

Switching Characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Turn-on Time	$t_{\text{on}}$	$V_{\text{DD}} = 20\text{mA}, R_L = 200\Omega$ $I_F = 10\text{mA}$ (Note 3)	—	0.2	0.4	ms
Turn-off Time	$t_{\text{off}}$		—	0.2	0.4	

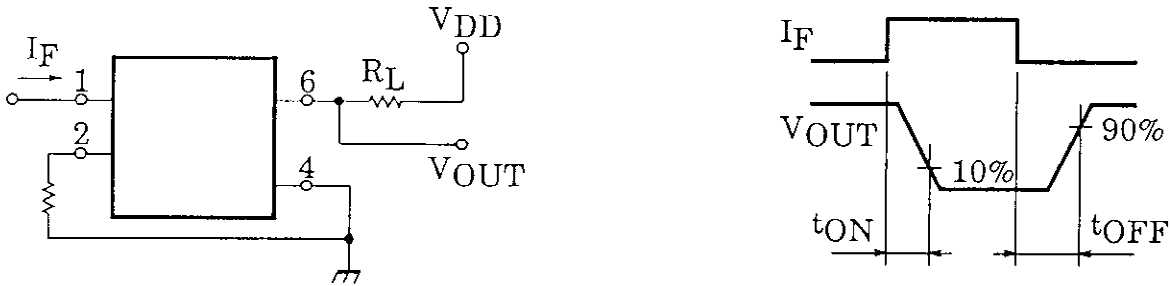


Figure 1. Switching Time Test Circuit

