

(TLP595A)

TELECOMMUNICATION
 DATA ACQUISITION
 MEASUREMENT INSTRUMENTATION

The TOSHIBA TLP595A consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a six lead plastic DIP package.

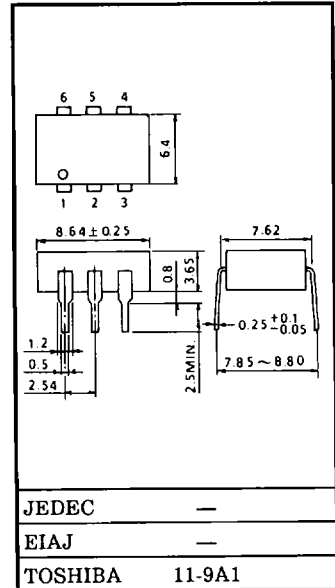
The TLP595A is a bi-directional switch which can replace mechanical relays in many applications.

- 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)

CLASSIFICATION (Note 1)	Trigger LED Current (mA)		MARKING OF CLASSIFICATION
	@ I _{ON} = 300mA		
	Min.	Max.	
(IFT2)	—	2	T2
Standard	—	5	T2, blank

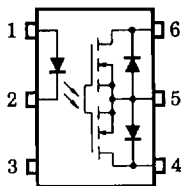
Note 1 : Application type name for certification test,
 please use standard product type name, i.e.
 TLP595A (IFT2) : TLP595A

Unit in mm



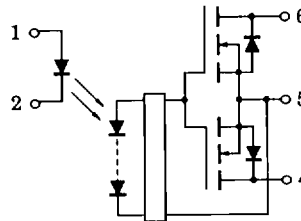
Weight : 0.49g

PIN CONFIGURATION (TOP VIEW)



- 1. : ANODE
- 2. : CATHODE
- 3. : NC
- 4. : DRAIN D1
- 5. : SOURCE
- 6. : DRAIN D2

SCHEMATIC



TLP595A

(TLP595A)

MAXIMUM RATINGS (Ta = 25°C)

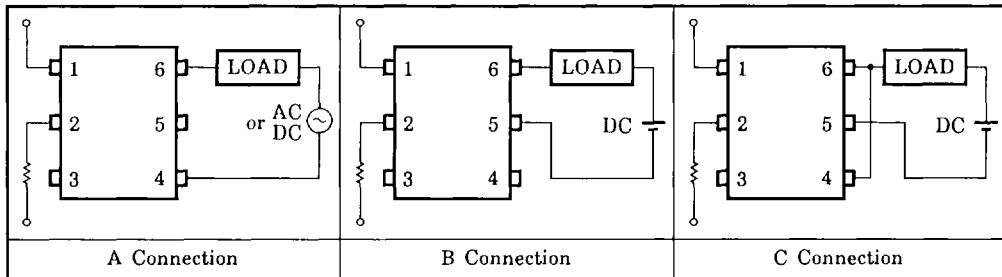
CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	30	mA
	Forward Current Derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.3	mA/°C
	Peak Forward Current (100/μs pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_j	125	°C
DETECTOR	Off-State Output Terminal Voltage	V_{OFF}	60	V
	On-State RMS Current	A Connection	300	mA
		B Connection	450	
		C Connection	600	
	On-State Current Derating (Ta ≥ 25°C)	A Connection	-3	mA/°C
		B Connection	-4.5	
		C Connection	-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 (10sec.)	T_{sol}	260	°C	
Isolation Voltage (AC, 1min., R.H. ≤ 60%)	(Note 2) BV_S	2500	Vrms	

Note 2 : 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	10	15	20	mA
On-State Current	I_{ON}	—	—	300	mA
Operating Temperature	T_{opr}	-20	—	80	°C

CIRCUIT CONNECTIONS



(TLP595A)

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 10mA	1.2	1.4	1.7	V
	Reverse Current	I _R	V _R = 3V	—	—	10	μA
	Capacitance	C _T	V = 0, f = 1MHz	—	15	—	pF
DETECTOR	Off-State Current	I _{OFF}	V _{OFF} = 60V	—	—	1	μA
	Capacitance	C _{OFF}	V = 0, f = 1MHz	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current		I _{FT}	I _{ON} = 300mA	—	1	5	mA
On-State Resistance	A Connection	R _{ON}	I _{ON} = 300mA, I _F = 10mA	—	1.4	2	Ω
	B Connection		I _{ON} = 450mA, I _F = 10mA	—	0.7	1	
	C Connection		I _{ON} = 600mA, I _F = 10mA	—	0.35	0.5	

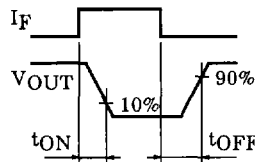
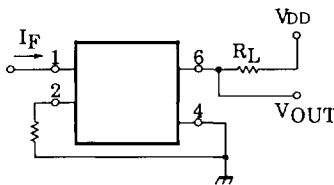
ISOLATION CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output		C _S	V _S = 0, f = 1MHz	—	0.8	—	pF
Isolation Resistance		R _S	V _S = 500V, R.H. ≤ 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	—	V _{DC}

SWITCHING CHARACTERISTICS (Ta = 25°C)

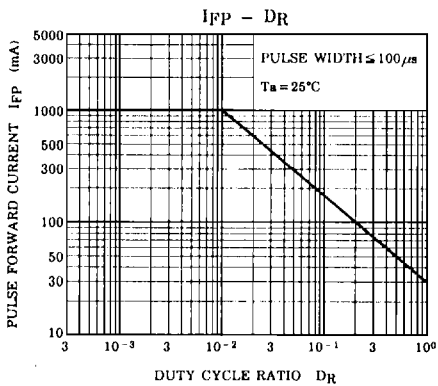
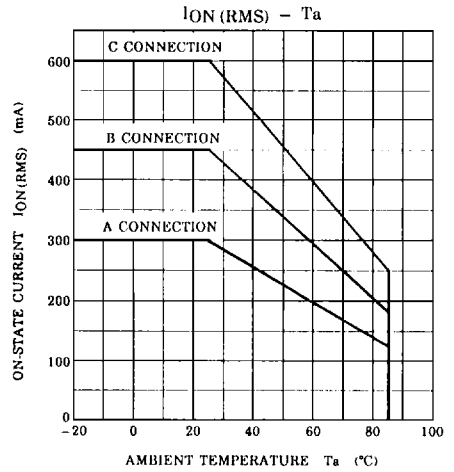
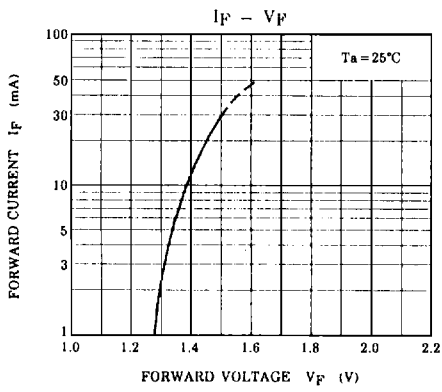
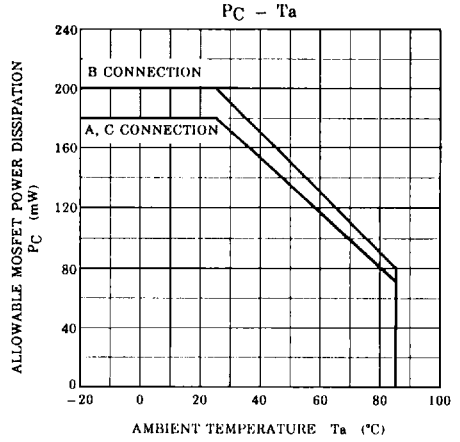
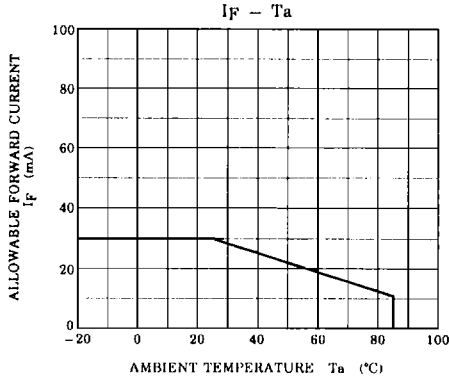
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	t _{ON}	t _{OFF}	V _{DD} = 20V, R _L = 200Ω	—	0.2	0.4	ms
Turn-off Time			I _F = 10mA (Note 3)	—	0.2	0.4	

Note 3 : SWITCHING TIME TEST CIRCUIT



TLP595A

(TLP595A)



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