

(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.

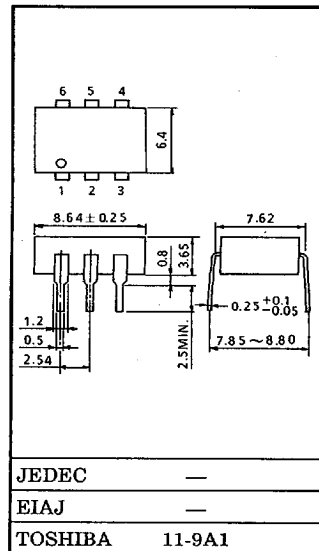
The TLP595A is a bi-directional switch which can replace mechanical relays in many applications.

- 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 ($T_a = 25^\circ\text{C}$)

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

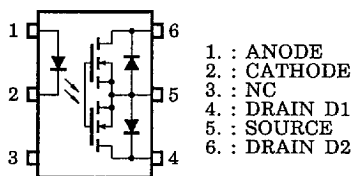
Note 1 : Application type name for certification test,
please use standard product type name, i.e.
TLP595A (IFT2) : TLP595A

Unit in mm

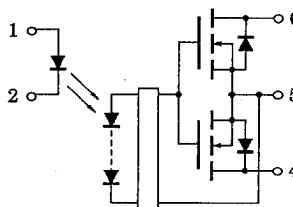


Weight : 0.49g

PIN CONFIGURATION (TOP VIEW)



SCHEMATIC



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MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

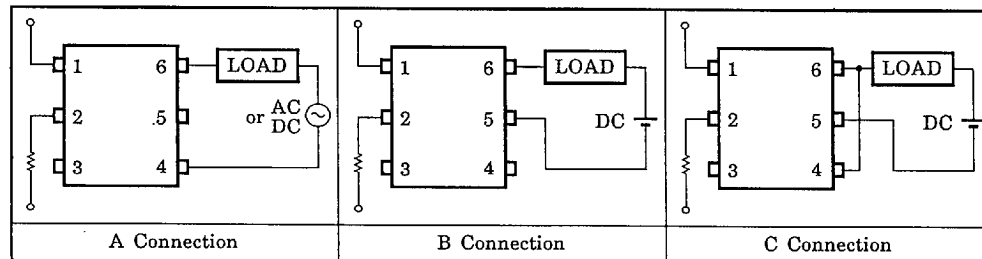
CHARACTERISTIC			SYMBOL	RATING	UNIT
LED	Forward Current		I _F	30	mA
	Forward Current Derating (Ta≥25°C)		ΔI _F /°C	−0.3	mA/°C
	Peak Forward Current (100μs pulse, 100pps)		I _{FP}	1	A
	Reverse Voltage		V _R	5	V
	Junction Temperature		T _j	125	°C
DETECTOR	Off-State Output Terminal Voltage		V _{OFF}	60	V
	On-State RMS Current	A Connection	I _{ON}	300	mA
		B Connection		450	
		C Connection		600	
	On-State Current Derating (Ta≥25°C)	A Connection	ΔI _{ON} /°C	−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 (10s)		T _{sol}	260	°C	
Isolation Voltage (AC, 1min., R.H.≤60%)		(Note 2) BV _S	2500	V _{rms}	

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	$^\circ\text{C}$

CIRCUIT CONNECTIONS



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INDIVIDUAL ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	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	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	15	—	pF
DETECTOR	Off-State Current	I_{OFF}	$V_{\text{OFF}} = 60\text{V}$	—	—	1	μA
	Capacitance	C_{OFF}	$V = 0, f = 1\text{MHz}$	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current		I_{FT}	$I_{\text{ON}} = 300\text{mA}$	—	1	5	mA
On-State Resistance	A Connection	R_{ON}	$I_{\text{ON}} = 300\text{mA}, I_F = 10\text{mA}$	—	1.4	2	Ω
	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	

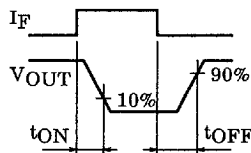
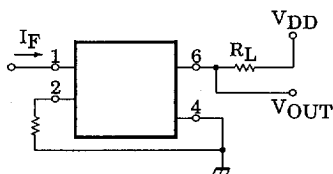
ISOLATION CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	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	—	V_{DC}

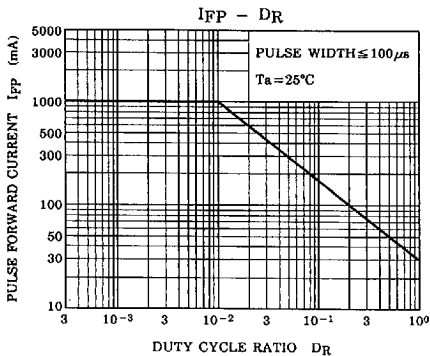
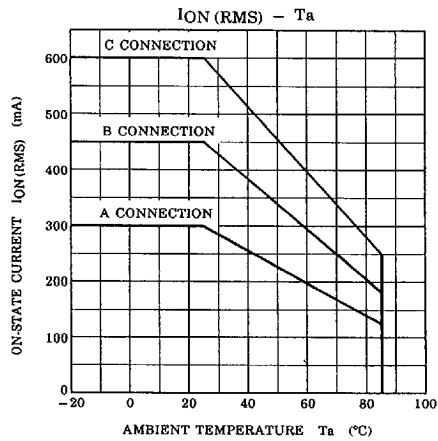
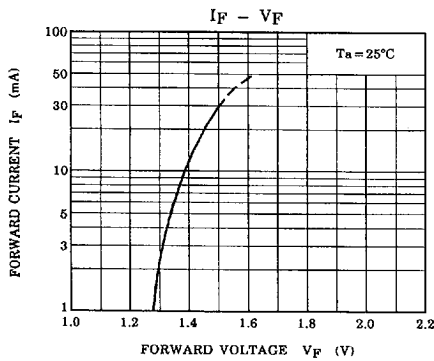
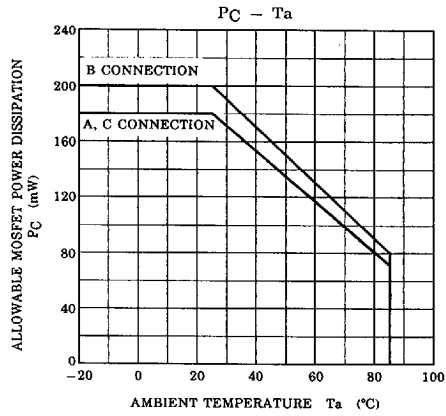
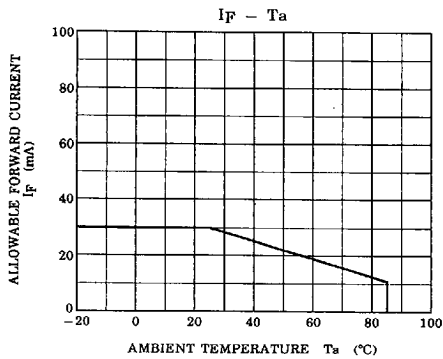
SWITCHING CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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

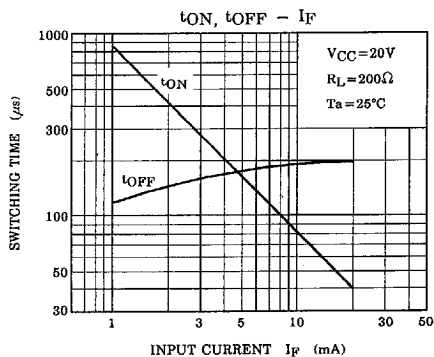
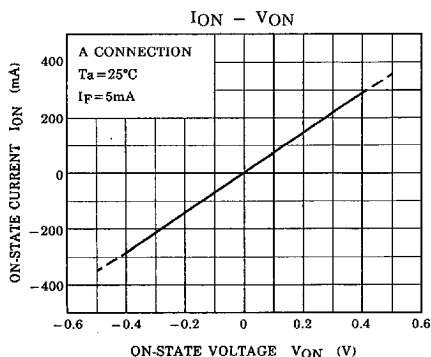
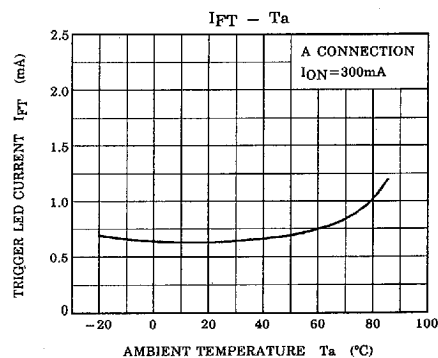
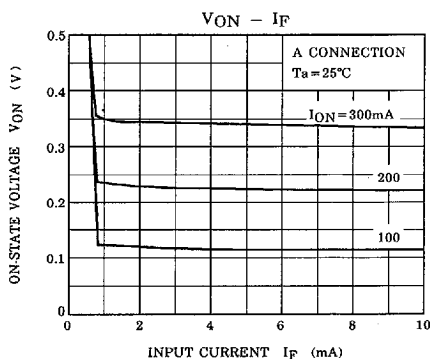
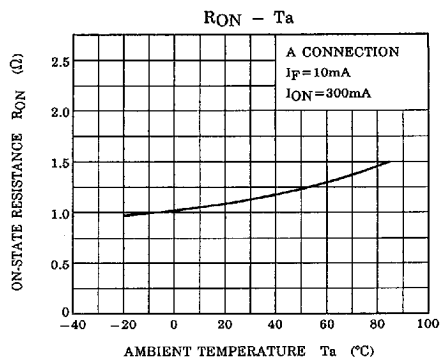
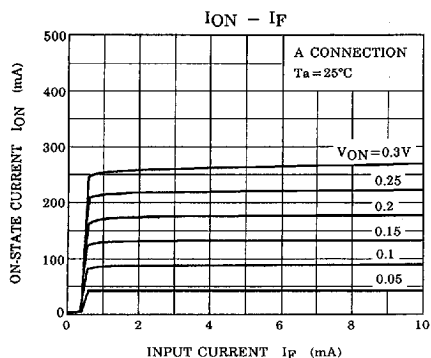
Note 3 : SWITCHING TIME TEST CIRCUIT



(TLP595A)



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