

Unit in mm

Telecommunication

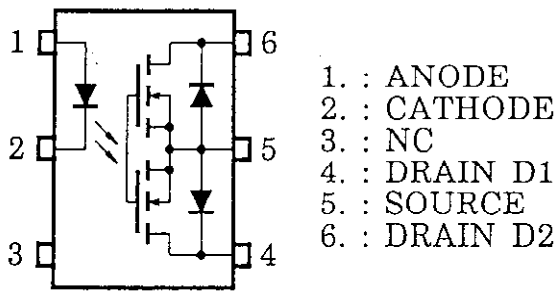
Data Acquisition

Measurement Instrumentation

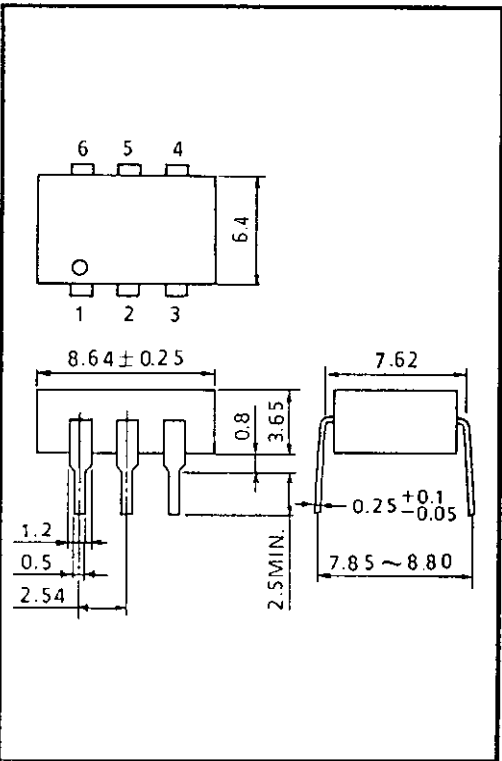
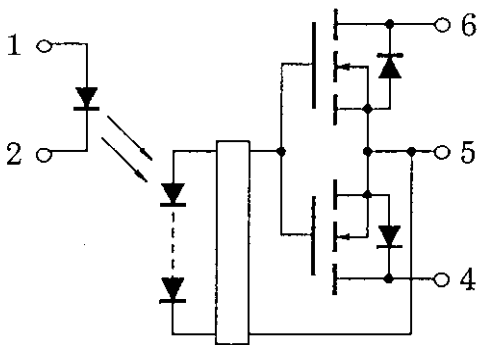
The Toshiba TLP595A consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a photo-MOSFET in a six lead plastic DIP package. The TLP595A is a bi-directional switch which can replace mechanical relays in many applications.

- 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 _{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

Maximum Ratings (Ta = 25°C)

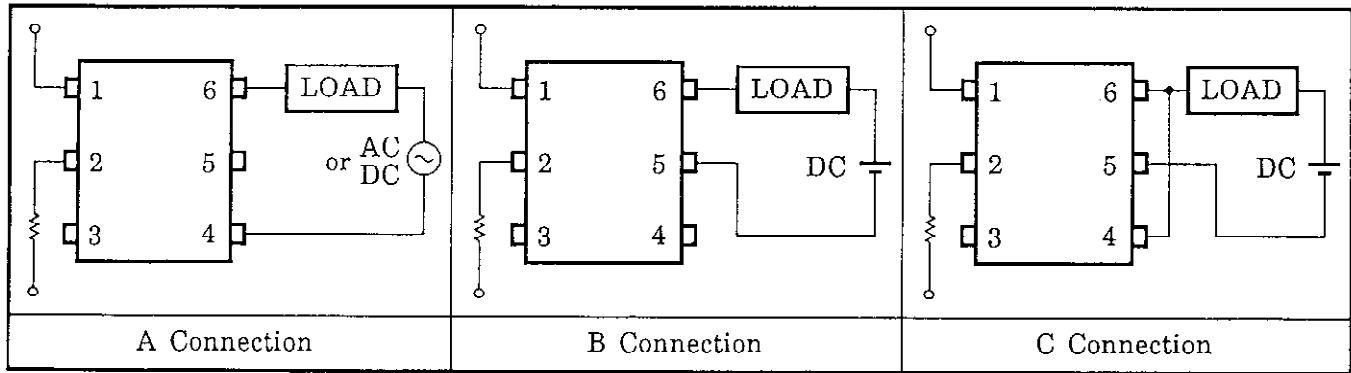
CHARACTERISTIC			SYMBOL	RATING	UNIT
LED	Forward Current		I _F	30	mA
	Forward Current Derating (Ta ≥ 25°C)		ΔI _F /°C	-0.3	mA/°C
	Pulse Forward Current (100μs pulse, 100pps)		I _{FP}	1	A
	Reverse Voltage		V _R	5	V
	Junction Temperature		T _j	125	°C
DETECTOR	Off-State Output Terminal Voltage		V _{OFF}	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, 1 min., R.H. ≤ 60%) (Note 2)			BV _S	2500	V _{rms}

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	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 (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	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 (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	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	5×10^{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.	MX.	UNIT
Turn-on Time	t_{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_{off}		—	0.2	0.4	

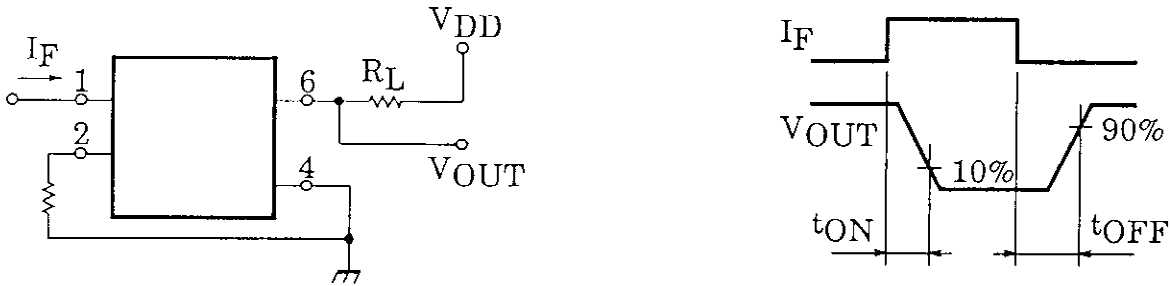
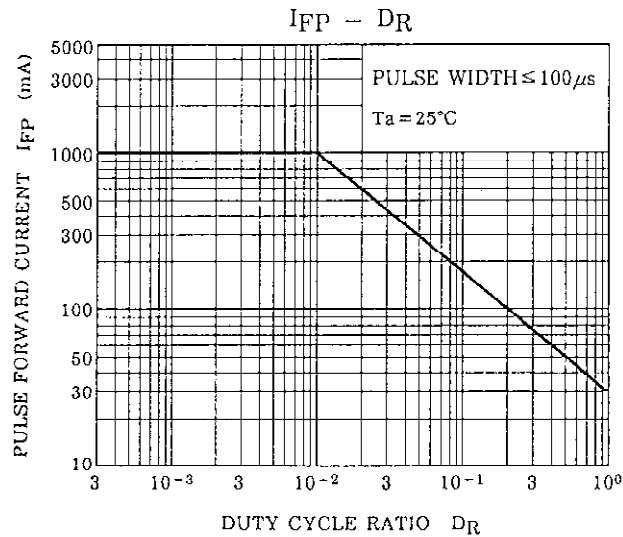
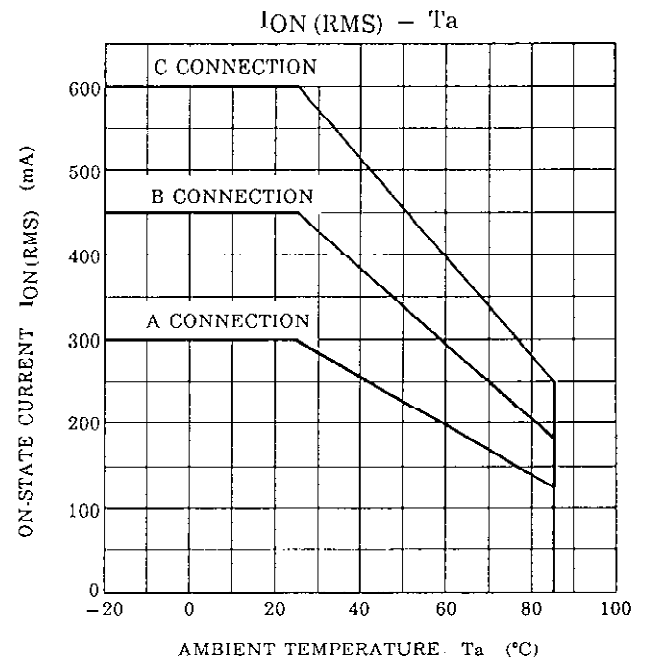
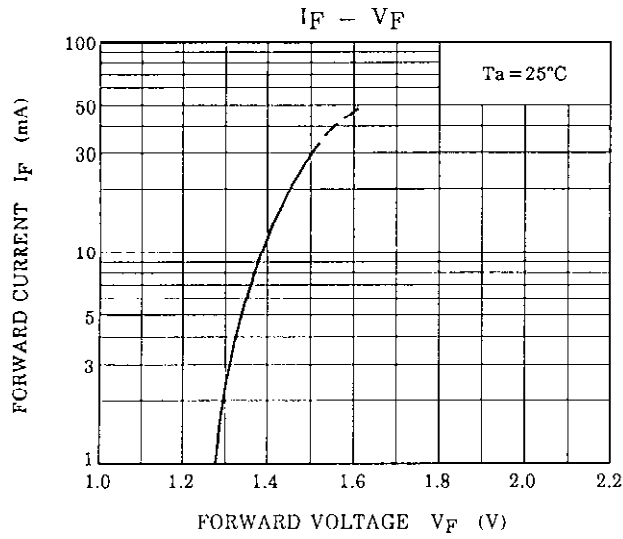
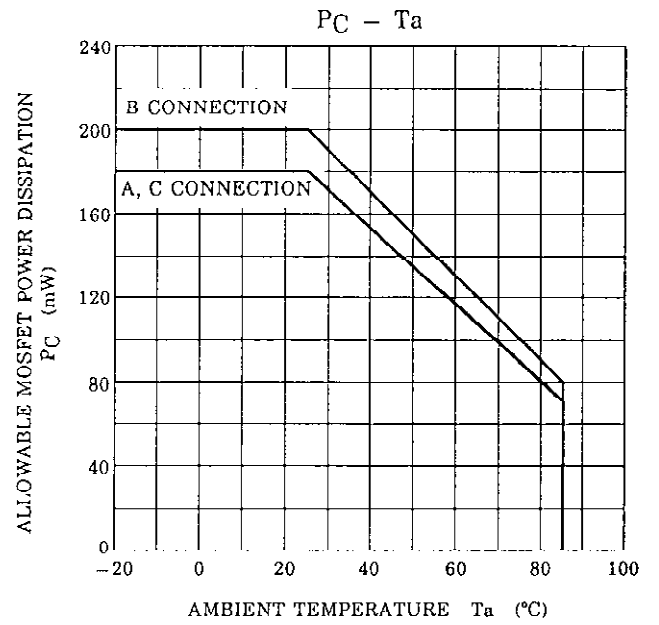
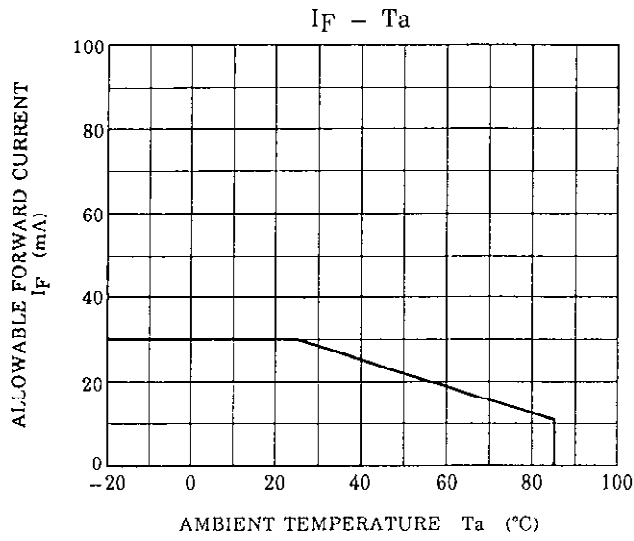
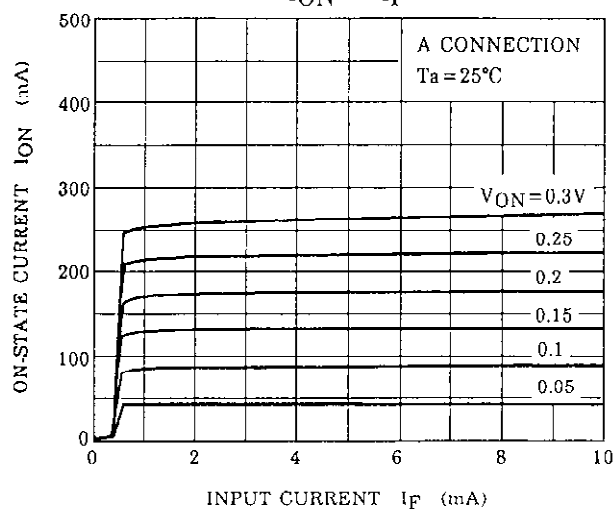
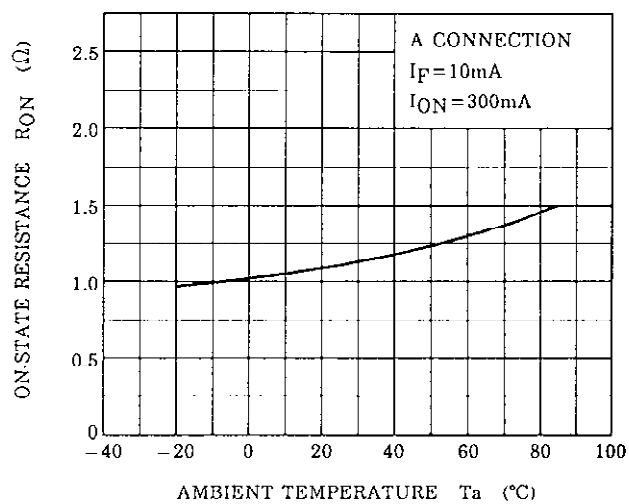
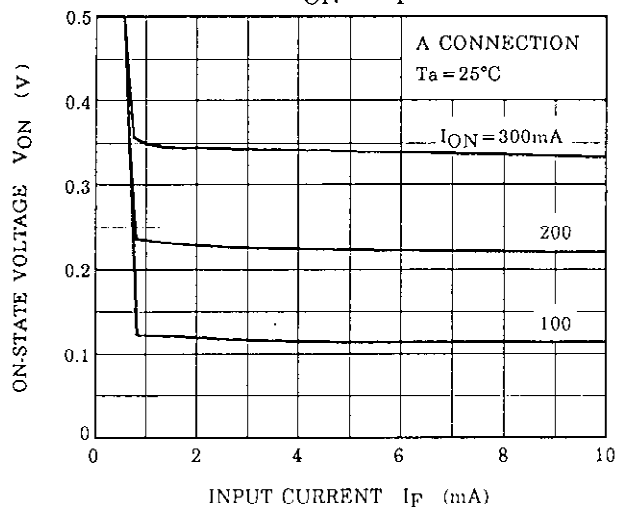
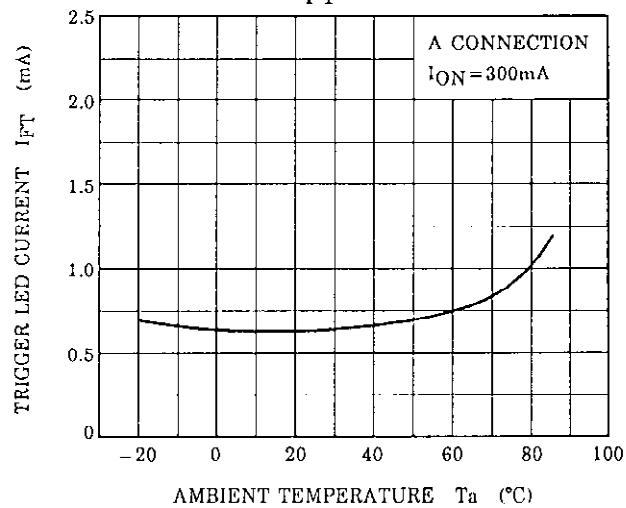
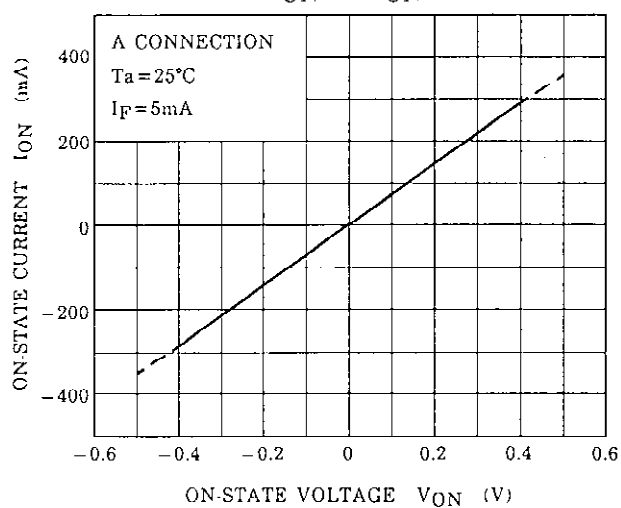


Figure 1. Switching Time Test Circuit



$I_{ON} - I_F$  $R_{ON} - T_a$  $V_{ON} - I_F$  $I_{FT} - T_a$  $I_{ON} - V_{ON}$  $t_{ON}, t_{OFF} - I_F$ 