

TLP598A

Unit in mm

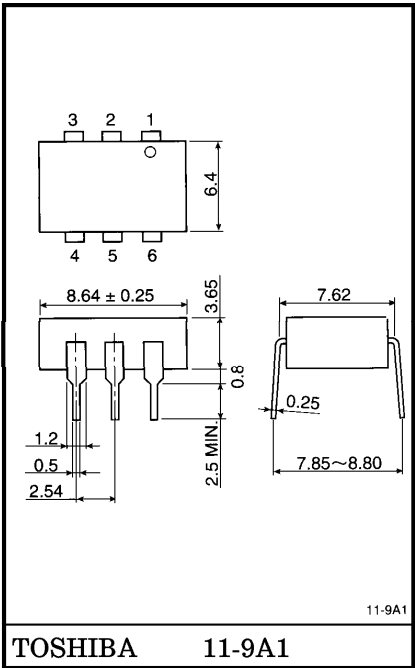
TELECOMMUNICATION
DATA ACQUISITION
MEASUREMENT INSTRUMENTATION

The TOSHIBA TLP598A 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 TLP598A is a bi-directional switch which can replace mechanical relays in many applications.

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

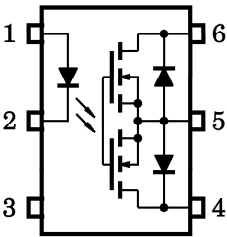
CLASSIFICATION (Note 1)	Trigger LED Current (mA)		MARKING OF CLASSIFICATION
	@I _{ON} = 300 mA		
	Min.	Max.	
(IFT2)	—	2	T2
Standard	—	5	T2, blank

(Note 1) : Application type name for certification test,
please use standard product type name, i.e.
TLP598A (IFT2) : TLP598A



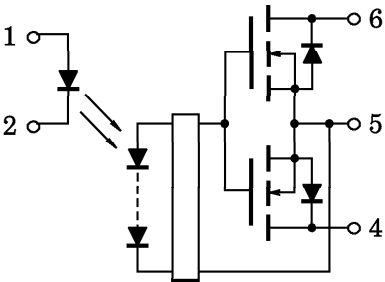
Weight : 0.49 g

PIN CONFIGURATION (TOP VIEW)



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

SCHEMATIC



MAXIMUM RATINGS (Ta = 25°C)

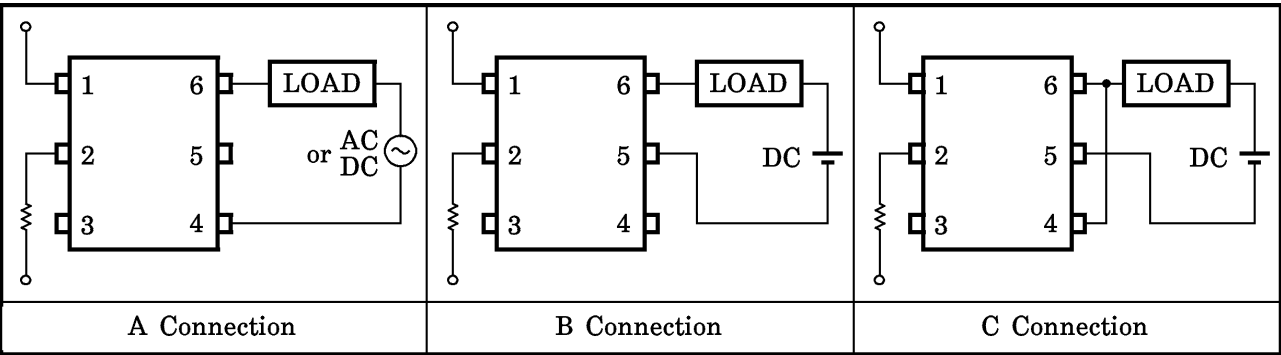
CHARACTERISTIC			SYMBOL	RATING	UNIT
LED	Forward Current		I _F	30	mA
	Forward Current Derating (Ta ≥ 25°C)		ΔI _F / °C	−0.3	mA / °C
	Peak Forward Current (100 μs pulse, 100 pps)		I _{FP}	1	A
	Reverse Voltage		V _R	5	V
	Junction Temperature		T _j	125	°C
DETECTOR	Off-State Output Terminal Voltage		V _{OFF}	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}	−55~125	°C	
Operating Temperature Range		T _{opr}	−40~85	°C	
Lead Soldering Temperature (10 s)		T _{sol}	260	°C	
Isolation Voltage (AC, 1 min., 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	VDD	—	—	48	V
Forward Current	IF	10	15	20	mA
On-State Current	ION	—	—	300	mA
Operating Temperature	Topr	−20	—	80	°C

CIRCUIT CONNECTIONS



INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10 \text{ mA}$	1.2	1.4	1.7	V
	Reverse Current	I_R	$V_R = 3 \text{ V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1 \text{ MHz}$	—	30	—	pF
DETECTOR	Off-State Current	I_{OFF}	$V_{OFF} = 60 \text{ V}$	—	—	1	μA
	Capacitance	C_{OFF}	$V = 0, f = 1 \text{ MHz}$	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

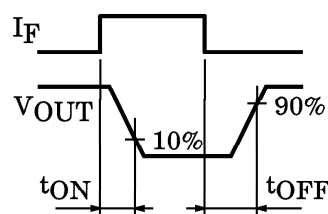
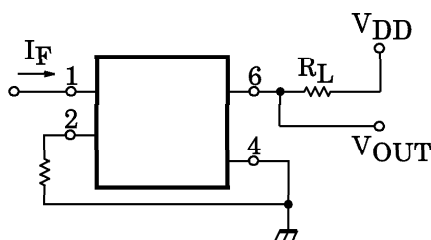
ISOLATION CHARACTERISTICS (Ta = 25°C)

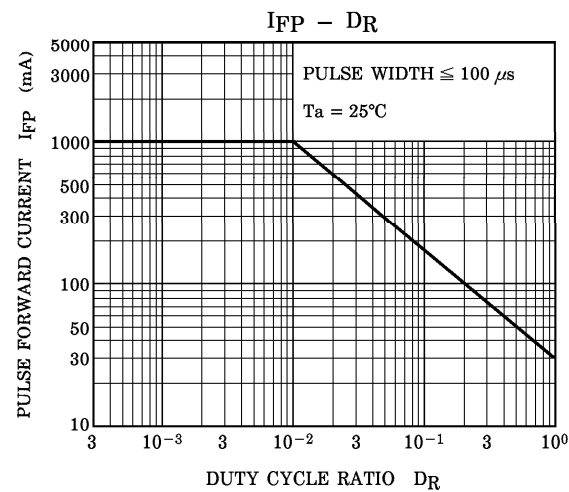
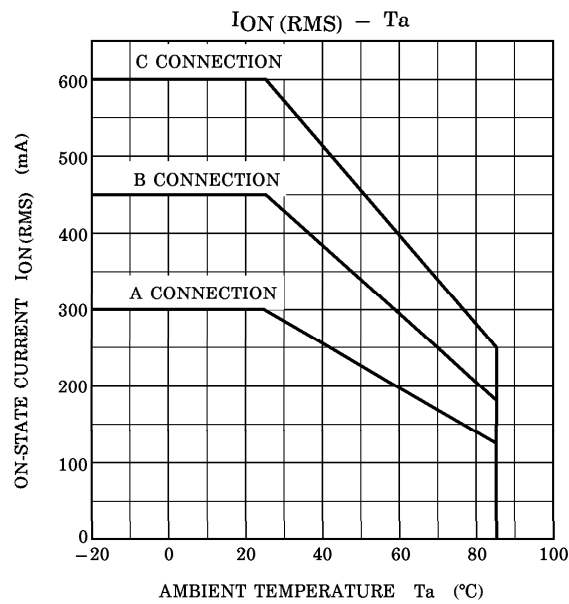
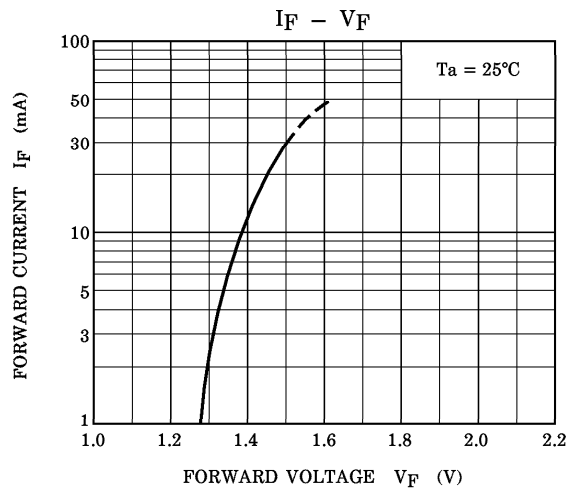
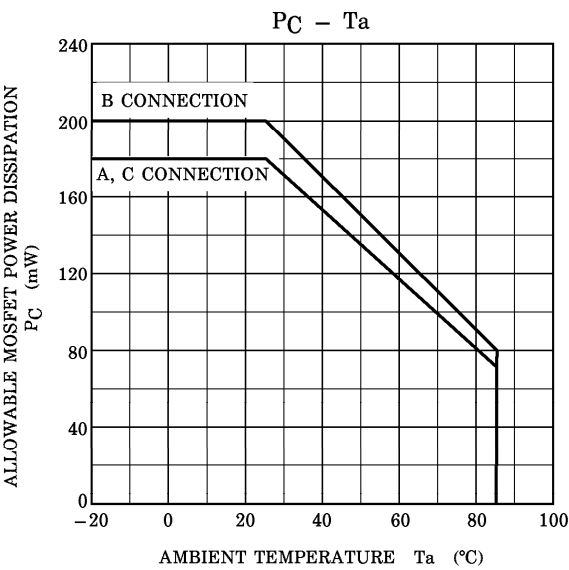
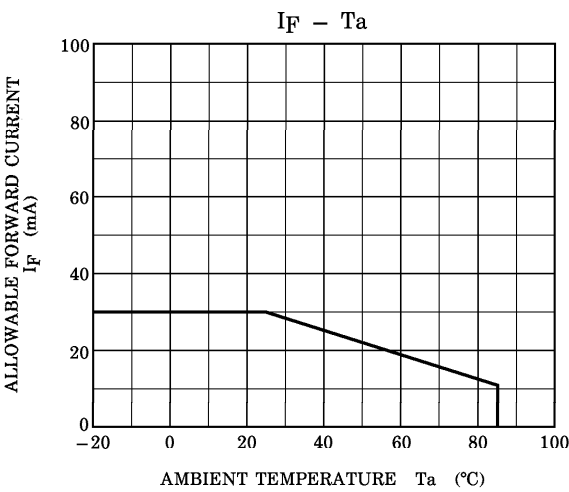
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	C_S	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500 \text{ V}, R.H. \leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V_{rms}
		AC, 1 second (in oil)	—	5000	—	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

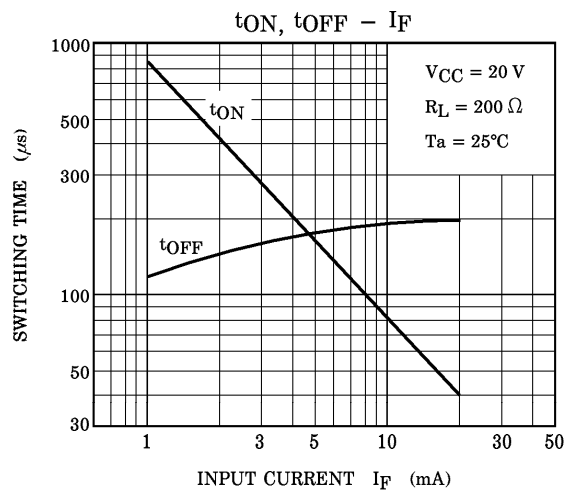
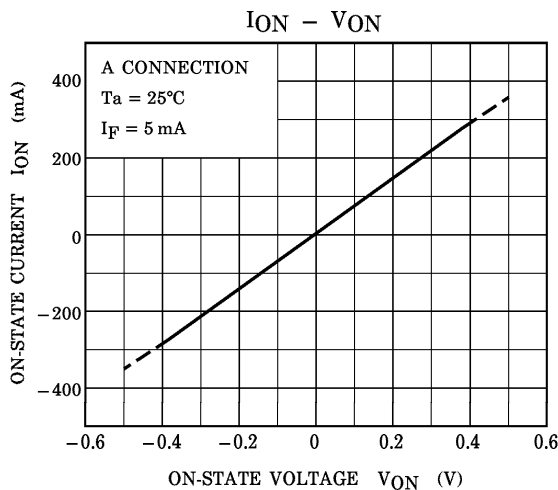
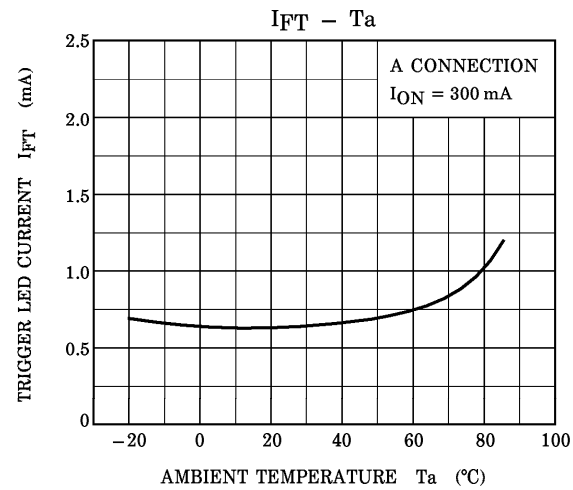
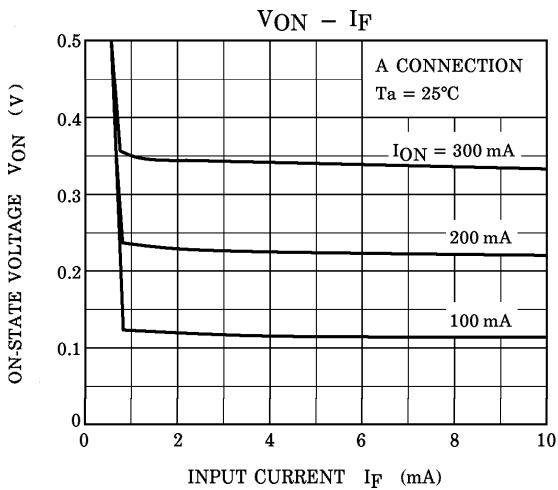
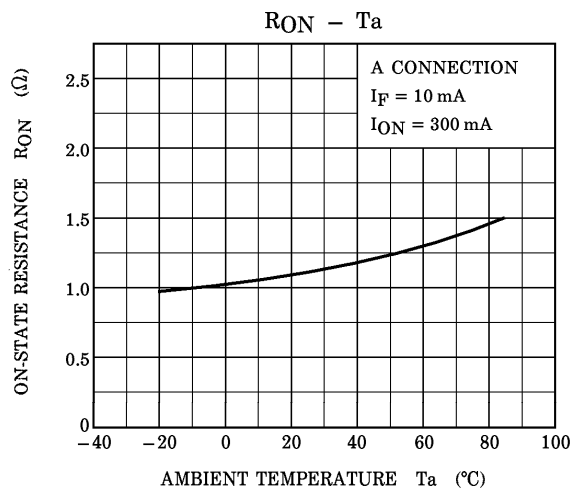
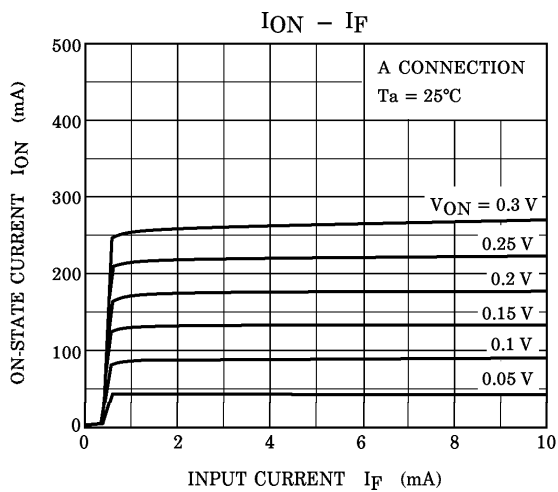
SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	t_{ON}	$V_{DD} = 20 \text{ V}, R_L = 200 \Omega$ $I_F = 10 \text{ mA}$ (Note 3)	—	0.2	0.5	ms
Turn-off Time	t_{OFF}		—	0.2	0.5	

(Note 3) : SWITCHING TIME TEST CIRCUIT







RESTRICTIONS ON PRODUCT USE

000707EBC

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