PHOTO RELAY TLP595G

Telecommunication

Data Acquisition

Measurement Instrumentation

The Toshiba TLP595G consists of an aluminum gallium arsenide infrared emitting diode optically coupled to a photo-MOSFET in a six lead plastic DIP package. The TLP595G is a bi-directional switch which can replace mechanical relays in many applications.

• Peak Off-State Voltage : 400V (Min.)

On-State Current : 150mA (Max.) (A Connection)
 On-State Resistance : 12Ω (Max.) (A Connection)

• Isolation Voltage : 2500Vrms (Min.)

• UL Recognized : UL1577, File No. E67349

• Trigger LED Current (Ta = 25°C)

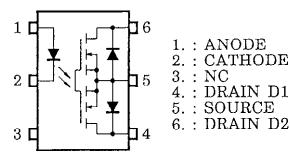
Supplementary Information	Page (s)
Lead Form Options	31-32
Tape and Reel	39-40

JEDEC — EIAJ — TOSHIBA 11-9A1

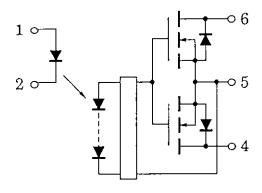
Unit in mm

Weight: 0.49g

Pin Configuration (Top View)



Schematic



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	TRIGGER LED C	URRENT (mA)	
CLASSIFICATION (Note 1)	@I _{ON} = 1	50mA	MARKING OF CLASSIFICATION
	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., TLP595G (IFT2): TLP595G

Maximum Ratings (Ta = 25°C)

CHARACTERISTIC			SYMBOL	RATING	UNIT	
Forward Current				30	mA	
	Forward Current Derating (Ta ≥ 25°C)		ΔI _F /°C	-0.3	mA/°C	
LED	Peak Forward Current (100μs pulse, 100pps)		I _{FP}	1	А	
	Reverse Voltage		V _R	5	V	
	Junction Temperature		Tj	125	°C	
	Off-State Output Terminal Voltage		V _{OFF}	400	V	
	On-State RMS Current	A Connection		150	mA	
		B Connection	I _{ON}	200		
DETECTOR		C Connection		300		
DETECTOR		A Connection		-1.5	mA/°C	
	On-State Current Derating (Ta ≥ 25°C)	B Connection	∆I _{ON} /°C	-2.0		
		C Connection		-3.0	1	
	Junction Temperature	•	t _j	125	°C	
Storage Temperature Range				-55~100	°C	
Operating Temperature Range			T _{opr}	-20~85	°C	
Lead Soldering Temperature (10s)			T _{sol}	260	°C	
Isolation Voltag	e (AC, 1 min., R.H. ≤ 60%)	(Note 2)	BVS	2500	V _{rms}	

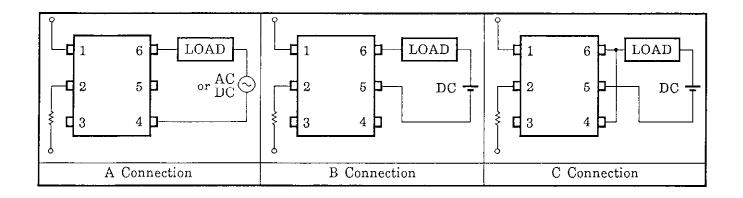
Note 1:Device considered a two terminal device: pins 1, 2 and 3 shorted together, and pins 4, 5 and 8 shorted together.

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Recommended Operating Conditions

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MX.	UNIT
Supply Voltage	V _D	_	_	320	V
Forward Current	l _F	10	15	20	mA
On-State Current	I _{ON}	_	_	150	mA
Operating Temperature	T _{opr}	-20	_	80	°C

Circuit Connections



Individual Electrical Characteristics (Ta = -25°C)

	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.*	MX.	UNIT
	Forward Voltage	V _F	I _F = 10mA	1.2	1.4	1.7	V
LED	Reverse Current	I _R	V _R = 3V	_	_	10	μΑ
	Capacitance	C _T	V = 0, f = 1MHz	_	15	-	pF
DETECTOR	Off-State Current	I _{OFF}	V _{OFF} = 400V	_	_	1	μΑ
DETECTOR	Capacitance	C _{OFF}	V = 0, f = 1MHz	_	_	-	pF

Coupled Electrical Characteristics (Ta = 25°C)

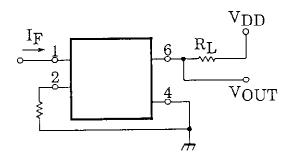
CHARACTER	RISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	UNIT
Trigger LED Current		I _{FT}	I _{ON} = 150mA	_	1	5	mA
	A Connection		I _{ON} = 150mA, I _F = 10mA	_	8	12	
On-State Resistance	B Connection	R _{ON}	I _{ON} = 200mA, I _F = 10mA	_	4	6	Ω
	C Connection		I _{ON} = 300mA, I _F = 10mA	_	2	3	

Isolation Characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MX.	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 x 10 ¹⁰	10 ¹⁴	_	Ω
Isolation Voltage		AC, 1 minute	2500	_	_	V
	BV _S	AC, 1 second in oil	_	5000	_	V _{rms}
		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}	$V_{DD} = 20$ mA, $R_L = 200\Omega$	_	0.3	1.0	me
Turn-off Time	t _{off}	$I_F = 10mA$ (Note 3)	_	0.2	1.0	ms



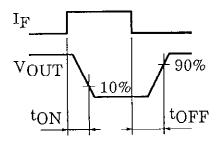
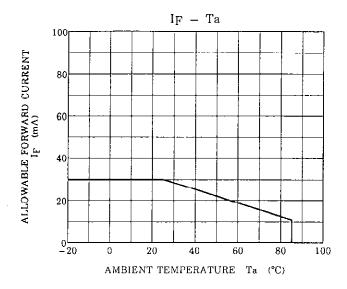
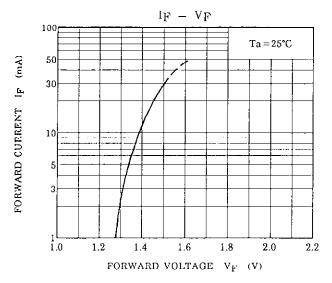
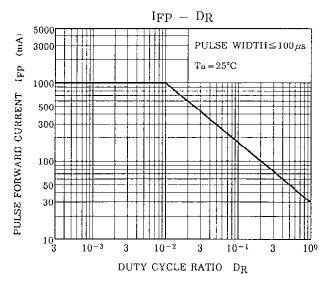
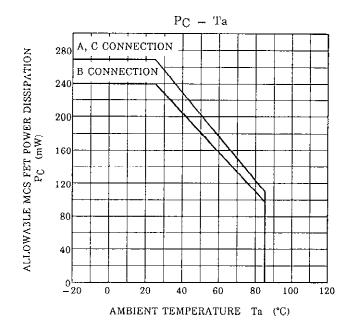


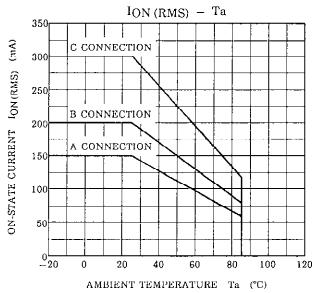
Figure 1. Switching Time Test Circuit

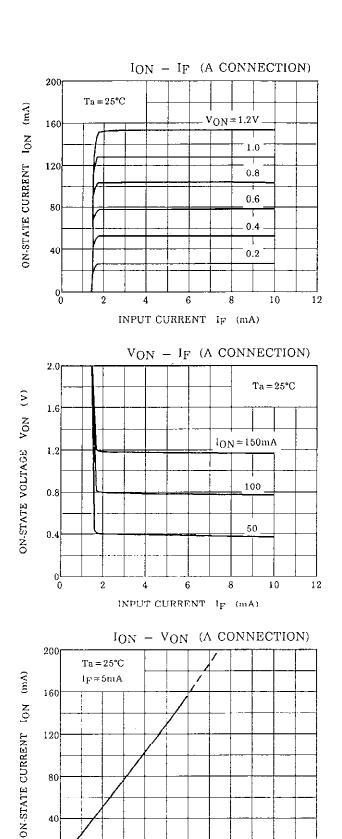




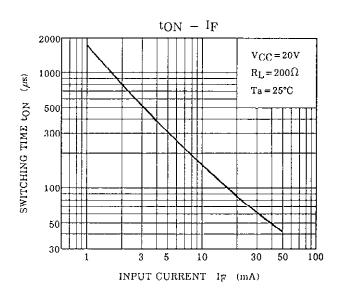


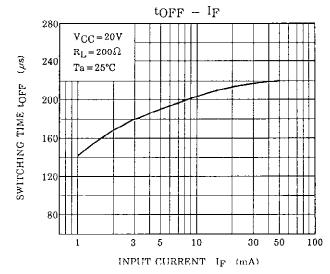


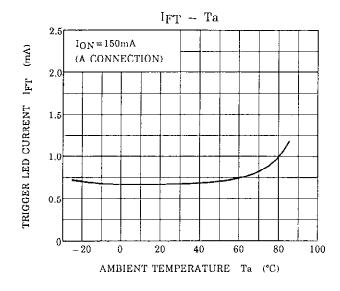


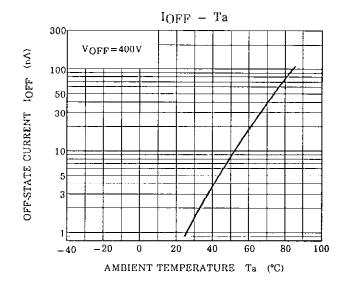


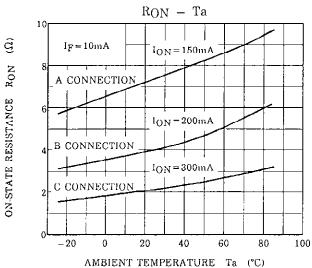
ON STATE VOLTACE V_{ON} (V)

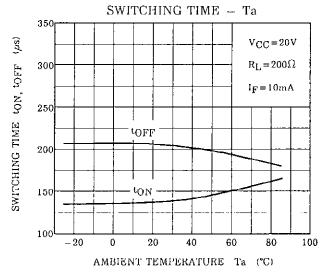












Notes