

TENTATIVE

TOSHIBA PHOTOCOUPLER PHOTO RELAY

TLP227GA, TLP227GA-2

MODEM

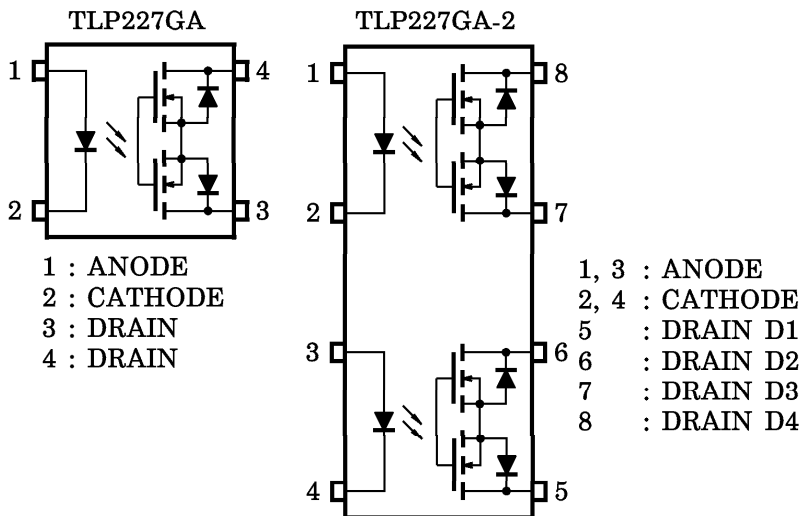
TELECOMMUNICATIONS

PBXs

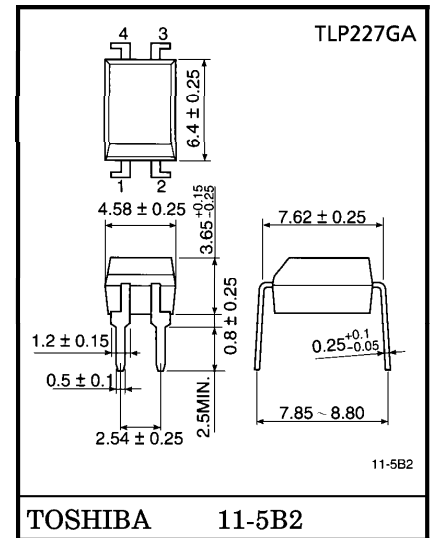
The Toshiba TLP227GA Series consist of a gallium arsenide infrared-emitting diode optically coupled to a photo-MOSFET in a 4-pin DIP or a 8-pin DIP package, and has a peak OFF-State voltage of 400 V.

- Normally OFF function
- TLP227GA : DIP4 (1 Form A)
TLP227GA-2 : DIP8 (2 Form A)
- Peak OFF-State Voltage : 400 V (min)
- Trigger LED Current : 3 mA (max)
- ON-State Current : 120 mA (max)
- ON-State Resistance : 35 Ω (max)
- Isolation Voltage : 2500 Vrms (min)

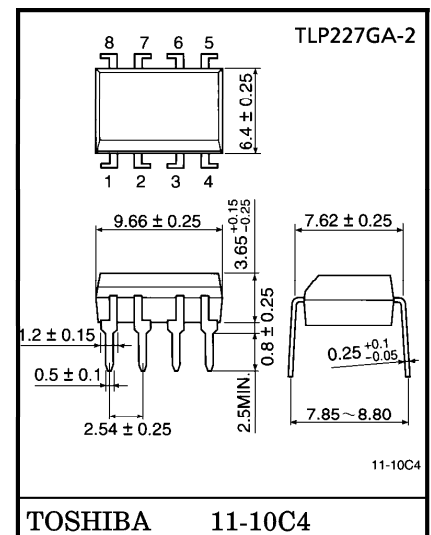
PIN CONFIGURATION (TOP VIEW)



Unit in mm



Weight : 0.26 g



Weight : 0.54 g

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC				SYMBOL	RATING	UNIT
LED	Forward Current			I _F	50	mA
	Forward Current Derating (Ta ≥ 25°C)			ΔI _F / °C	−0.5	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
	OFF-State Output Terminal Voltage			V _{OFF}	400	V
DETECTOR	ON-State Current	TLP227GA		I _{ON}	120	mA
		TLP227GA-2	One Channel			
			Both Channel			
	ON-State Current Derating (Ta ≥ 25°C)	TLP227GA		ΔI _{ON} / °C	−1.2	mA / °C
		TLP227GA-2	One Channel			
			Both Channel			
	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 1)			BV _S	2500	Vrms	

(Note 1) : LED pins are shorted together. Detector pins are also shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN	TYP.	MAX	UNIT
Supply Voltage	V _{DD}	—	—	350	V
Forward Current	I _F	5	7.5	25	mA
On-State Current	I _{ON}	—	—	100	mA
Operating Temperature	T _{opr}	−20	—	65	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
LED	Forward Voltage	V _F	I _F = 10 mA	1.0	1.15	1.3	V
	Reverse Current	I _R	V _R = 5 V	—	—	10	μA
	Capacitance	C _T	V = 0, f = 1 MHz	—	30	—	pF
DETECTOR	Off-State Current	I _{OFF}	V _{OFF} = 400 V	—	—	1	μA
	Capacitance	C _{OFF}	V = 0, f = 1 MHz	—	—	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Trigger LED Current	I_{FT}	$I_{ON} = 120\text{ mA}$	—	1	3	mA
ON-State Resistance	R_{ON}	$I_{ON} = 120\text{ mA}$, $I_F = 5\text{ mA}$	—	18	35	Ω

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 min	2500	—	—	V_{rms}
		AC, 1 s (in oil)	—	5000	—	
		DC, 1 min (in oil)	—	5000	—	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Turn-ON Time	t_{ON}	$R_L = 200\ \Omega$, $V_{DD} = 20\text{ V}$, $I_F = 5\text{ mA}$ (Note 2)	—	—	1	ms
Turn-OFF Time	t_{OFF}		—	—	1	

(Note 2) : Switching time test circuit

