TOSHIBA PHOTOCOUPLER PHOTO RELAY

TLP227G(N),TLP227G-2(N)

CORDLESS TELEPHONE

PBX

MODEM

The TOSHIBA TLP227G series consist of a gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a plastic DIP package.

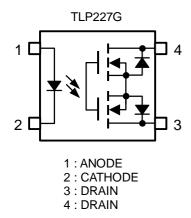
The TLP227G series are a bi-directional switch, which can replace mechanical relays in many applications.

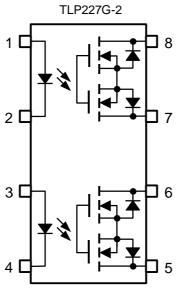
FEATURES

TLP227G : 4 pin DIP (DIP4), 1 Channel Type (1 Form A)
TLP227G-2 : 8 pin DIP (DIP8), 2 Channel Type (2 Form A)

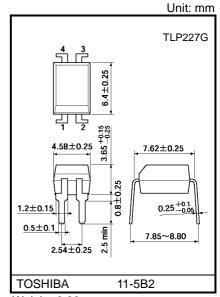
Peak Off-State Voltage: 350 V (MIN.)
 Trigger LED Current: 3 mA (MAX.)
 On-State Current: 120 mA (MAX.)
 On-State Resistance: 25 Ω (MAX.)
 Isolation Voltage: 2500 Vrms (MIN.)

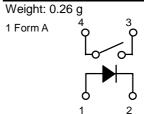
PIN CONFIGURATION (TOP VIEW)

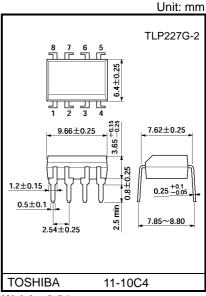


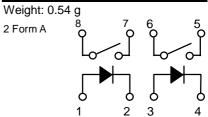


1, 3: ANODE 2, 4: CATHODE 5 : DRAIN D1 6 : DRAIN D2 7 : DRAIN D3 8 : DRAIN D4

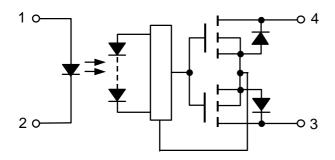








INTERNAL CIRCUIT



MAXIMUM RATINGS (Ta = 25°C)

	CHARACTE	SYMBOL	RATING	UNIT			
	Forward Current	I _F	50	mA			
	Forward Current Derating (Ta ≧ 25°C)	ΔI _F /°C	-0.5	mA/°C			
LED	Peak Forward Current (100μs pulse, 10	0 pps)		I _{FP}	1	Α	
	Reverse Voltage	V _R	5	V			
	Junction Temperature	Tj	125	°C			
	Off-State Output Terminal Voltage				350	V	
		TLP227G					
~	On-State Current	TLP227G-2	One Channel	I _{ON}	120	mA	
STO			Both Channel (Note 1)				
DETECTOR	On-State Current Derating (Ta ≧ 25°C)	TLP227G					
□		Ti D0070 0	One Channel	Δl _{ON} /°C	-1.2	mA/°C	
		TLP227G-2	Both Channel (Note 1)				
	Junction Temperature	Tj	125	°C			
Storage Temperature Range				T _{stg}	-55~125	°C	
Operating Temperature Range			T _{opr}	-40~85	°C		
Lead	Lead Soldering Temperature (10 s)			T _{sol}	260	°C	
Isola	Isolation Voltage (AC, 1 minute, R.H. \leq 60%) (Note 2)				2500	Vrms	

(Note 1): Two channels operating simultaneously.

(Note 2):Device considered a two-terminal device : LED side pins shorted together, and DETECTOR side pins shorted together.

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RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{DD}	_	_	280	V
Forward Current	l _F	5	7.5	25	mA
On-State Current	I _{ON}	_	_	120	mA
Operating Temperature	T _{opr}	-20	_	65	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
	Forward Voltage	V_{F}	I _F = 10 mA	1.0	1.15	1.3	V
LED	Reverse Current	I _R	V _R = 5 V	_	_	10	μА
	Capacitance	C _T	V = 0, f = 1 MHz	_	30	_	pF
DETECTOR	Off-State Current	loff	V _{OFF} = 350 V		_	1	μА
	Capacitance	C _{OFF}	V = 0, f = 1 MHz		40	_	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I _{FT}	I _{ON} = 120 mA		1	3	mA
Close LED Current	I _{FC}	I _{OFF} = 100 μA	0.1	_	_	mA
On-State Resistance	R _{ON}	$I_{ON} = 120 \text{ mA}, I_F = 5 \text{ mA}$	_	14	25	Ω

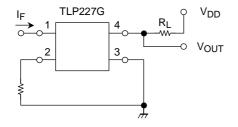
ISOLATION CHARACTERISTICS (Ta = 25°C)

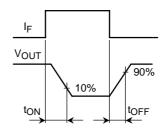
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	C _S	V _S = 0 V, f = 1 MHz	_	0.8	_	pF
Isolation Resistance	R _S	V _S = 500 V, R.H. ≦ 60%	5 × 10 ¹⁰	10 ¹⁴	_	Ω
		AC, 1 minute	2500	_	_	Vrms
Isolation Voltage		AC, 1 second (in oil)	_	5000	_	VIIIIS
		DC, 1 minute (in oil)	_	5000	_	Vdc

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	toN	$R_L = 200 \Omega$	_	0.3	1	ms
Turn-off Time	t _{OFF}	$V_{DD} = 20 \text{ V}, I_F = 5 \text{ mA}$ (Note 3)	_	0.1	1	1115

(Note 3): SWITCHING TIME TEST CIRCUIT





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020704EBC

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