

TLP176G

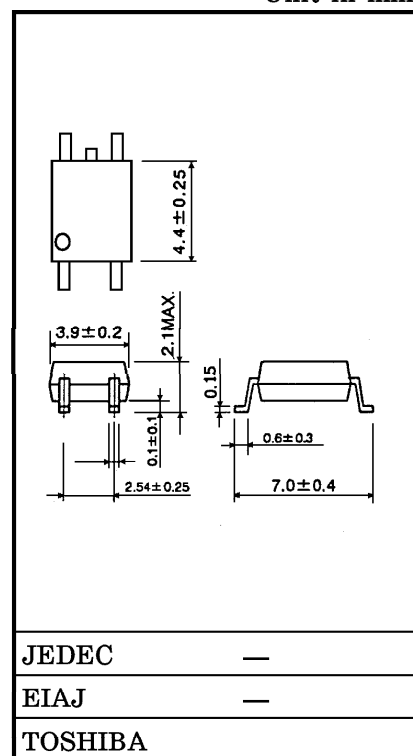
MODEMS IN PC
MODEM-FAX CARDS
TELECOMMUNICATIONS

The TOSHIBA TLP176G consists of gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a SOP, which is suitable for surface mount assembly.

The TLP176G is suitable for the modem applications which require space savings.

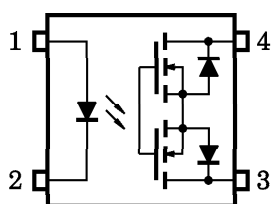
- Peak Off-State Voltage : 350 V (min)
- Trigger LED Current : 3 mA (max)
- On-State Resistance : 35 Ω (max)
- Isolation Voltage : 1500 V_{rms} (min)
- UL Recognized : UL1577, File No. E67349
- BSI Approved
 - : BS EN60065 : 1994, Certificate No. 8273
 - BS EN60950 : 1992, Certificate No. 8274
- SEMKO Approved : SS EN60065
SS EN60950
- Option (V4) type
 - TUV Approved : DIN VDE0884/06.92,
 - Certificate No. R9850580

Unit in mm



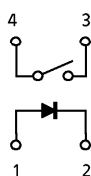
Weight : 0.1 g

PIN CONFIGURATION (TOP VIEW)

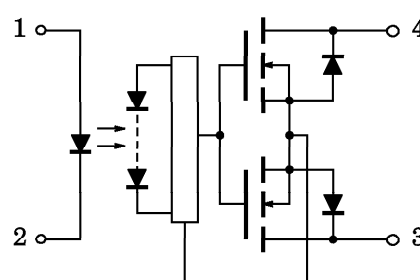


- 1. : ANODE
- 2. : CATHODE
- 3. : DRAIN
- 4. : DRAIN

1 Form A



SCHEMATIC



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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
	Pulse 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}	350	V
	On-State Current	I _{ON}	120	mA
	On-State Current Derating (Ta ≥ 25°C)	ΔI _{ON} / °C	−1.2	mA / °C
	Junction Temperature	T _j	125	°C
Total Power Dissipation		P _T	350	mW
Total Power Dissipation Derating (Ta ≥ 25°C)		ΔP _T / °C	−0.35	mW / °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, 1min., R.H. ≤ 60%) (Note 1)		BV _S	1500	V _{rms}

(Note 1) : Device considered a two-terminal device : Pin 1 and 2 shorted together and pin 3 and 4 shorted together.

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{DD}	—	—	280	V
Forward Current	I _F	5	7.5	25	mA
On-State Current	I _{ON}	—	—	100	mA
Operating Temperature	T _{opr}	−20	—	65	°C

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- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The products described in this document are subject to the foreign exchange and foreign trade laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10 \text{ mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5 \text{ V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1 \text{ MHz}$	—	30	—	pF
DETECTOR	Off-State Current	I_{OFF}	$V_{OFF} = 350 \text{ V}$	—	—	1	μA
	Capacitance	C_{OFF}	$V = 0, f = 1 \text{ MHz}$	—	40	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$I_{ON} = 120 \text{ mA}$	—	1	3	mA
On-State Resistance	R_{ON}	$I_{ON} = 120 \text{ mA}, I_F = 5 \text{ mA}$	—	22	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	$V_S = 500 \text{ V}, \text{R.H.} \leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	1500	—	—	V_{rms}
		AC, 1 second (in oil)	—	3000	—	
		DC, 1 minute (in oil)	—	3000	—	V_{dc}

SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-On Time	t_{ON}	$R_L = 200 \Omega$	—	0.3	1	ms
Turn-Off Time	t_{OFF}	$V_{CC} = 20 \text{ V}, I_F = 5 \text{ mA}$	—	0.1	1	

