

TOSHIBA Photocoupler GaAs Ired & Photo-MOS FET

TLP206G

PBX

Modem · FAX Card

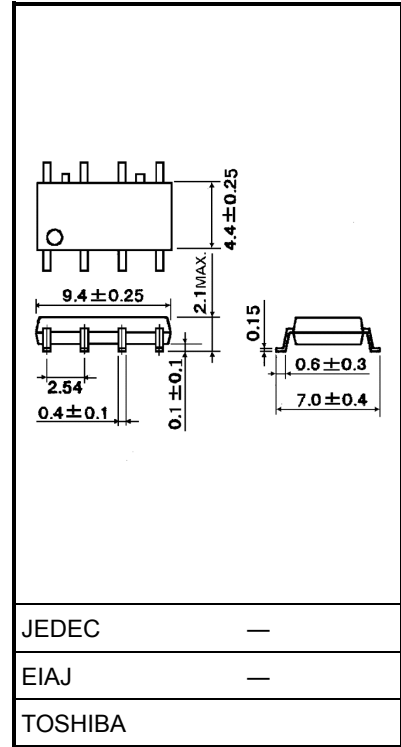
Measurement Instrument

The TOSHIBA TLP206G consists of gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a 8 pin SOP.

The TLP206G is a 2-Form-A switch which is suitable for replacement of mechanical relays in many application.

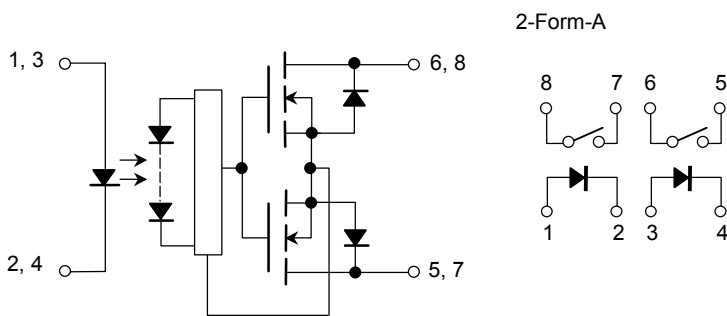
- SOP 8 pin (2.54SOP8): 2-Form-A
- Peak off-state voltage: 350V(min)
- Trigger LED current: 3mA(max)
- On-state current: 120mA(max)
- On-state resistance: 35Ω(max)
- Isolation voltage: 1500V_{rms}(min)
- UL recognized: UL1577, file no.E67349
- BSI approved: BS EN60065: 1994,certificate no.8273
BS EN60950: 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

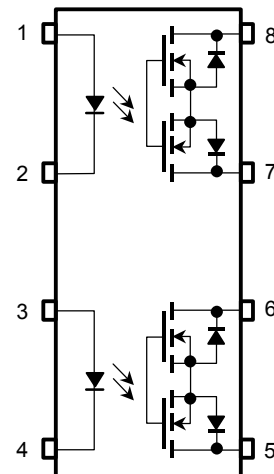


Weight: 0.2 g

Schematic



Pin Configuration (top view)



- 1, 3: Anode
- 2, 4: Cathode
- 5: Drain D1
- 6: Drain D2
- 7: Drain D3
- 8: Drain D4

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
LED	Forward current	I_F	50	mA	
	Forward current derating (Ta ≥ 25°C)	$\Delta I_F / ^\circ\text{C}$	-0.5	mA / °C	
	Pulse forward current (100μs pulse, 100pps)	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	Both channel (Note 1)	I_{ON}	100	mA
		One channel		120	
	On-state RMS current derating (Ta ≥ 25°C)	Both channel (Note 1)	$\Delta I_{ON} / ^\circ\text{C}$	-1.0	mA / °C
		One channel		-1.2	
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	1500	V_{rms}	

(Note 1): Two channels operating simultaneously.

(Note 2): Device considered a two-terminal device: Pins 1,2,3 and 4 shorted together and pins 5,6,7 and 8 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

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

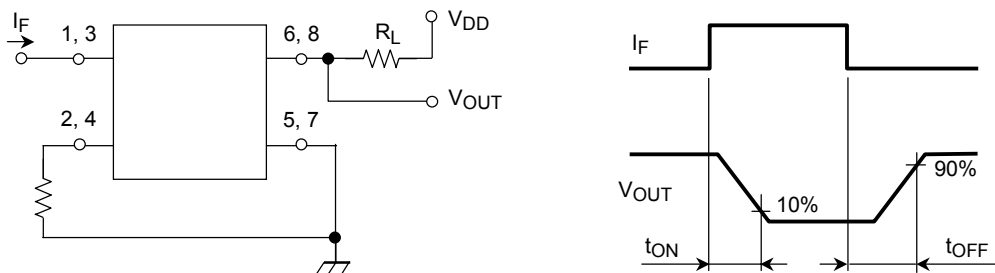
Isolation Characteristics (Ta = 25°C)

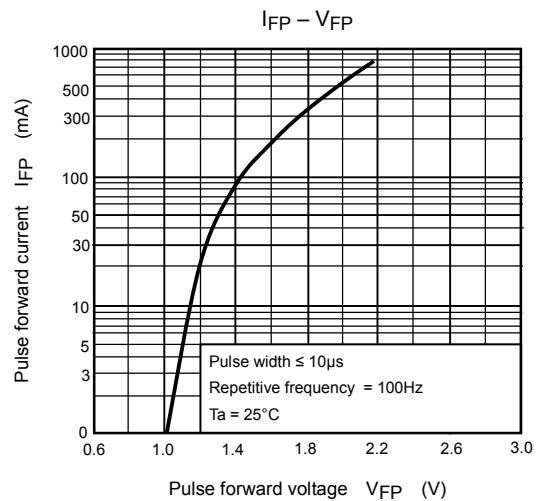
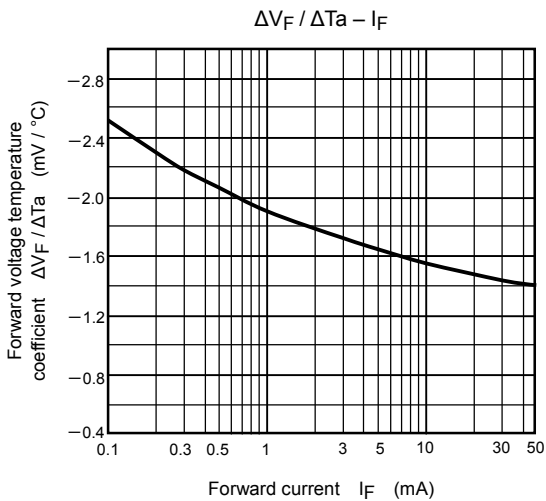
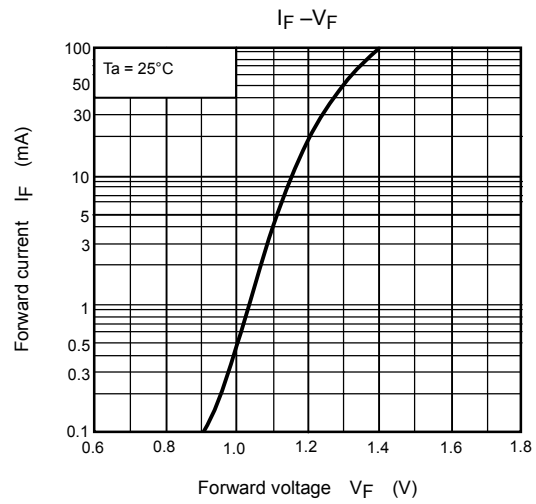
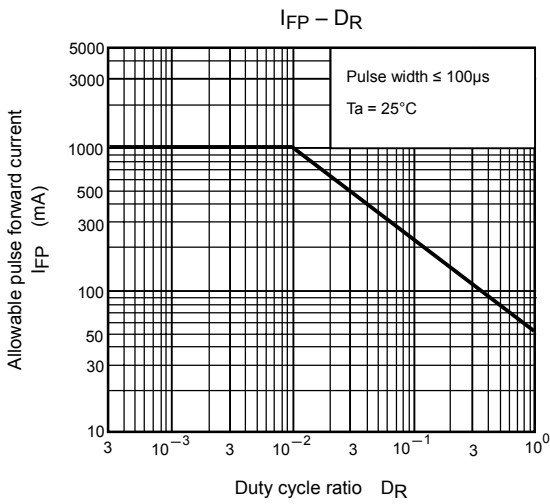
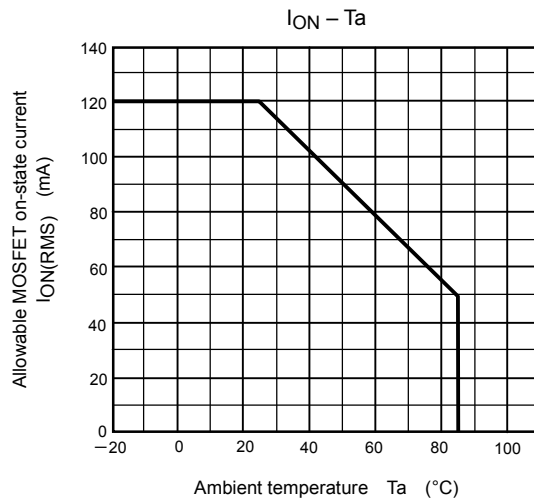
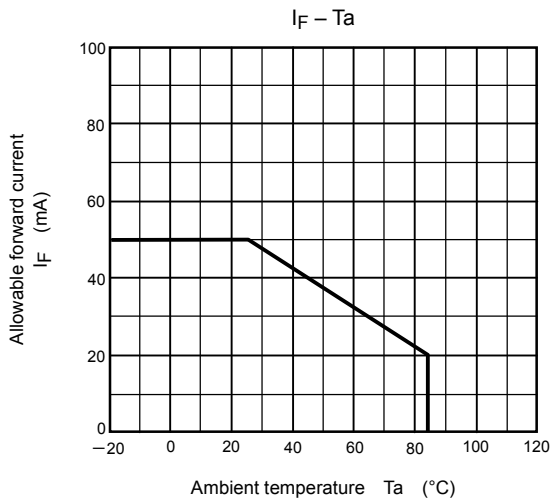
Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Capacitance input to output	C_S	$V_S = 0, f = 1 \text{ MHz}$	—	0.8	—	pF
Isolation resistance	R_S	$V_S = 500 \text{ V}, \text{R.H.} \leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 minute	1500	—	—	V_{rms}
		AC, 1 second, in oil	—	3000	—	
		DC, 1 minute, in oil	—	3000	—	V_{dc}

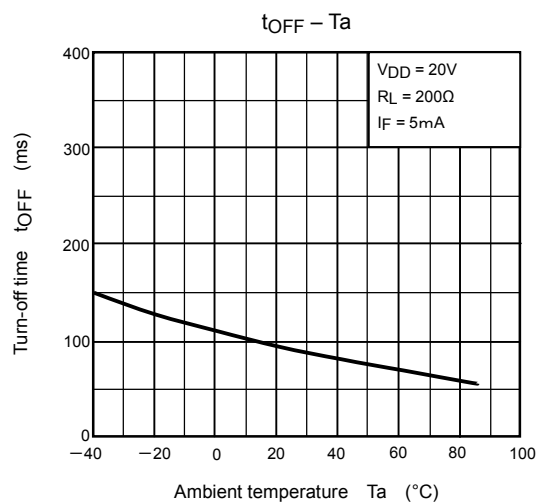
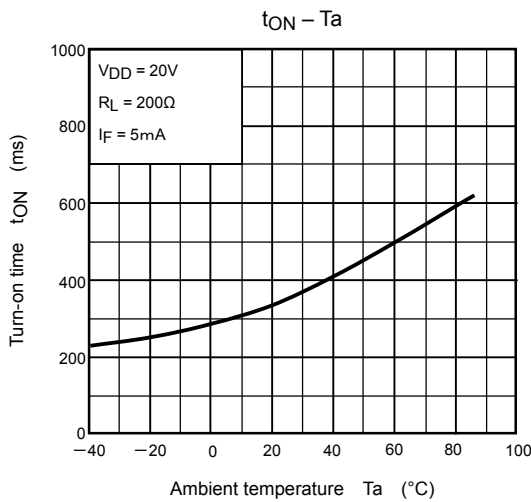
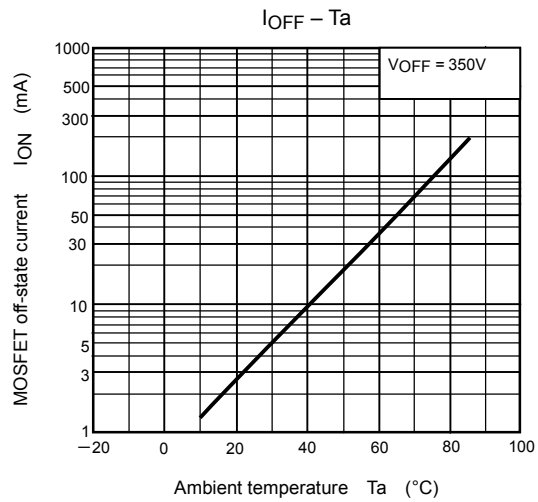
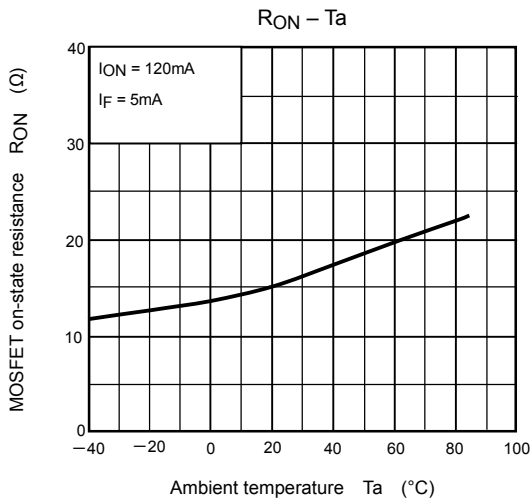
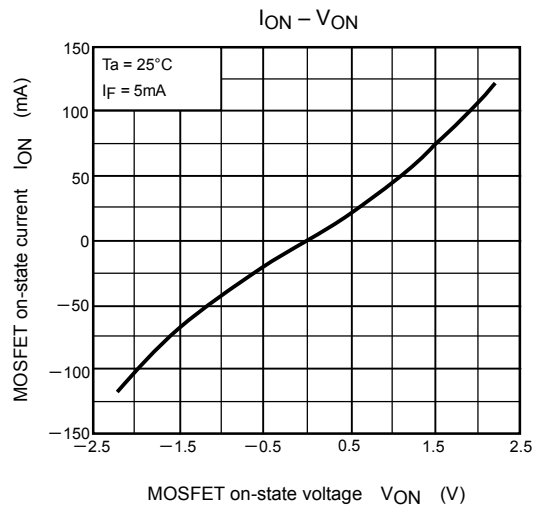
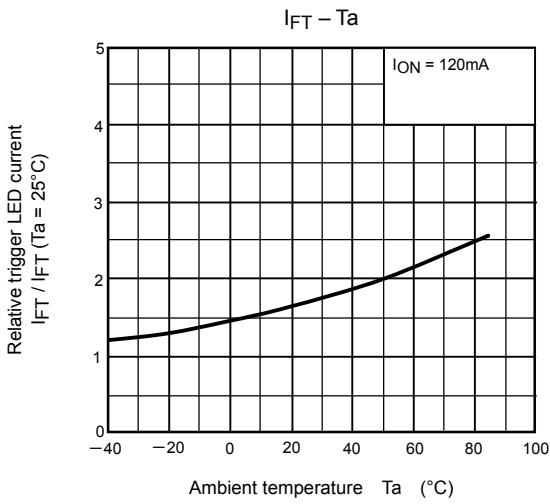
Switching Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Turn-on time	t_{ON}	$R_L = 200 \Omega$ (Note 3) $V_{DD} = 20 \text{ V}, I_F = 5 \text{ mA}$	—	0.3	1	ms
Turn-off time	t_{OFF}		—	0.1	1	

(Note 3): Switching time test circuit







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