

Tentative

TOSHIBA Photocoupler GaAs IRED + Photo-Triac

TLP261J

Triac Drivers

Programmable Controllers

AC-Output Modules

Solid-State Relays

The TOSHIBA mini-flat coupler TLP261J is a small-outline coupler suitable for surface mount assembly.

The TLP261J consists of a photo-triac optically coupled to a gallium arsenide infrared-emitting diode.

- Peak off-state voltage : 600 V (min)
- Trigger LED current : 10 mA (max)
- On-state current : 70 mA (max)
- Isolation voltage : 3000 Vrms (min)
- Zero-crossing function
- UL-recognized : UL1577, file No. E67349
- Option (V4) type
- VDE-approved : EN60747-5-2 satisfied
- Maximum operating insulation voltage : 565 VpK
- Highest permissible overvoltage : 6000 Vpk

Note: When an EN60747-5-2 approved type is needed, be sure to specify "Option (V4)".

- Construction Mechanical Rating
 - Creepage distance : 4.0 mm (min)
 - Clearance : 4.0 mm (min)
 - Insulation thickness : 0.4 mm (min)

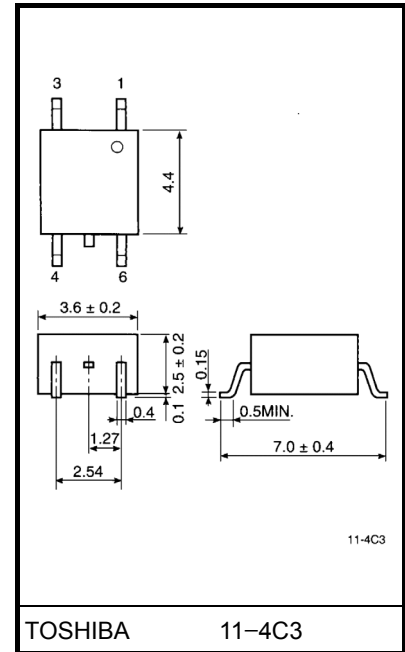
Trigger LED Current

Classification*	Trigger LED Current (mA)		Product Classification Marking
	$V_T = 3\text{ V}, T_a = 25^\circ\text{C}$		
	Min	Max	
(IFT7)	—	7	T7
Standard	—	10	T7, blank

*Ex. (IFT7); TLP261J (IFT7)

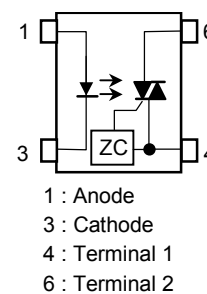
Note: Be sure to use standard product type names when submitting type names for safety certification testing, i.e., TLP261J (IFT7): TLP261J.

Unit: mm



Weight: 0.09 g

Pin Configuration



- 1 : Anode
- 3 : Cathode
- 4 : Terminal 1
- 6 : Terminal 2

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit	
LED	Forward current	I_F	50	mA	
	Forward current derating (Ta ≥ 53°C)	$\Delta I_F / ^\circ\text{C}$	-0.7	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	
Detector	Off-state output terminal voltage	V_{DRM}	600	V	
	On-state RMS current	$I_{T(RMS)}$	Ta = 25°C	70	mA
			Ta = 70°C	40	
	On-state current derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-0.67	mA / °C	
	Peak on-state current (100 μs pulse, 120 pps)	I_{TP}	2	A	
	Peak nonrepetitive surge current (PW = 10 ms, DC = 10%)	I_{TSM}	1.2	A	
	Junction temperature	T_j	100	°C	
Storage temperature range	T_{stg}	-55~125	°C		
Operating temperature range	T_{opr}	-40~100	°C		
Lead soldering temperature (10 s)	T_{sol}	260	°C		
Isolation voltage (AC, 1 min., R.H ≤ 60%)	BV_S	3000	Vrms		

Note 1: Device considered as a two-terminal device: Pins 1 and 3 shorted together and pins 4 and 6 shorted together.

Recommended Operating Conditions

Characteristic	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{AC}	—	—	240	V_{ac}
Forward current	I_F	15	20	25	mA
Peak on-state current	I_{TP}	—	—	1	A
Operating temperature	T_{opr}	-25	—	85	°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	Peak off-state current	I_{DRM}	$V_{\text{DRM}} = 600 \text{ V}$	—	10	1000	nA
	Peak on-state voltage	V_{TM}	$I_{\text{TM}} = 70 \text{ mA}$	—	1.7	2.8	V
	Holding current	I_H	—	—	0.6	—	mA
	Critical rate of rise of off-state voltage	dv / dt	$V_{\text{in}} = 240 \text{ Vrms}, T_a = 85^\circ\text{C}$ (Fig. 1)	200	500	—	$\text{V}/\mu\text{s}$
	Critical rate of rise of commutating voltage	$dv / dt(c)$	$V_{\text{in}} = 60 \text{ Vrms}, I_T = 15 \text{ mA}$ (Fig. 1)	—	0.2	—	$\text{V}/\mu\text{s}$

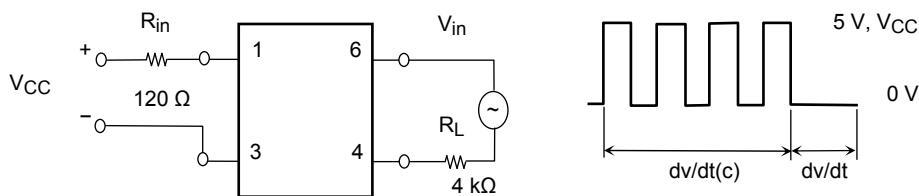
Coupled Electrical Characteristics (Ta = 25°C)

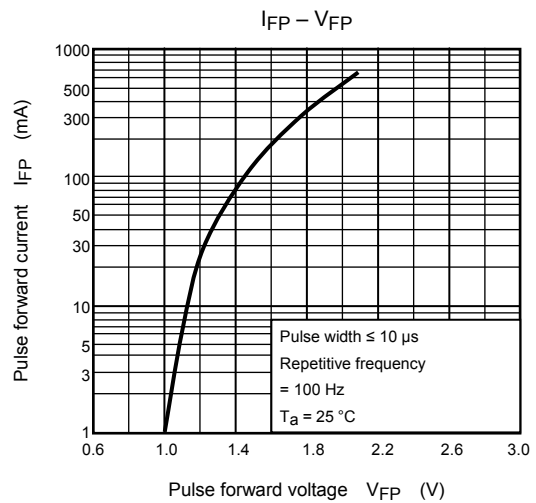
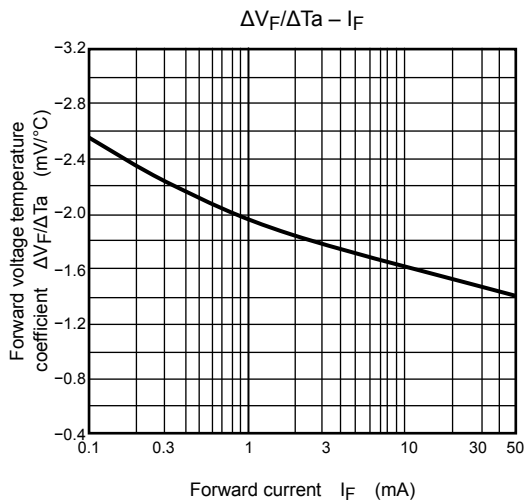
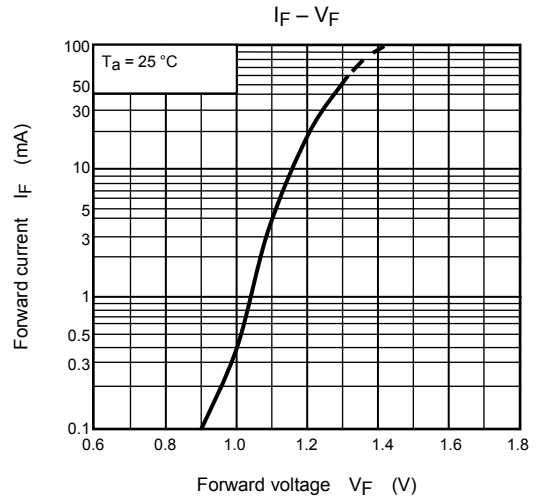
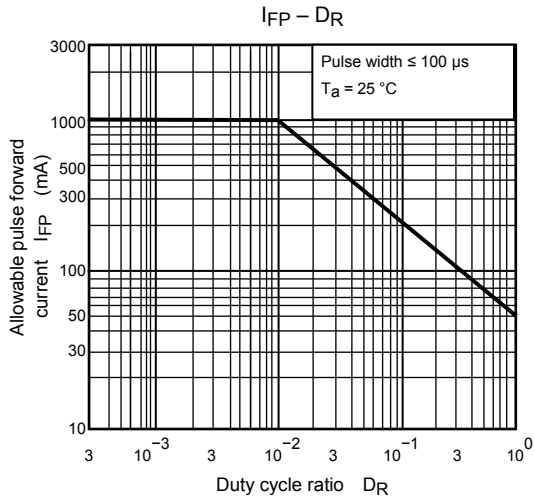
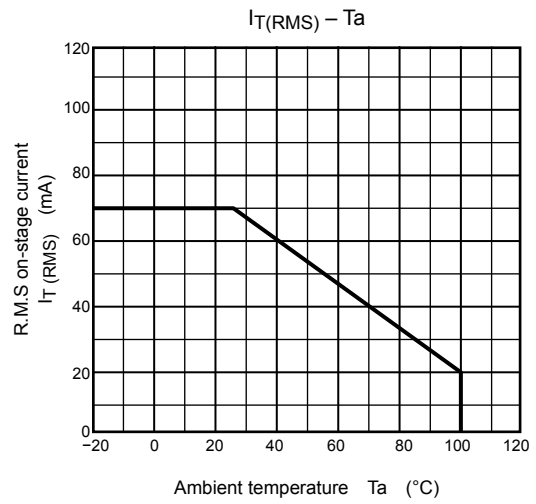
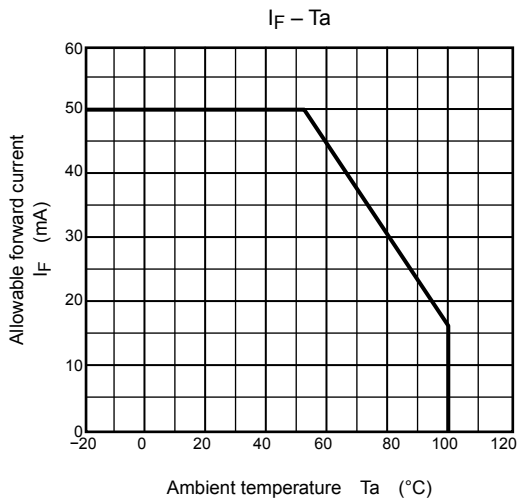
Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Trigger LED current	I_{FT}	$V_T = 3 \text{ V}$	—	—	10	mA
Inhibit voltage	V_{IH}	$I_F = \text{Rated } I_{\text{FT}}$	—	—	20	V
Leakage in inhibited state	I_{IH}	$I_F = \text{Rated } I_{\text{FT}}$ $V_T = \text{Rated } V_{\text{DRM}}$	—	200	600	μA
Turn-on time	t_{ON}	$V_D = 3 \rightarrow 1.5 \text{ V}, R_L = 20 \Omega$ $I_F = \text{rated } I_{\text{FT}} \times 1.5$	—	30	100	μs

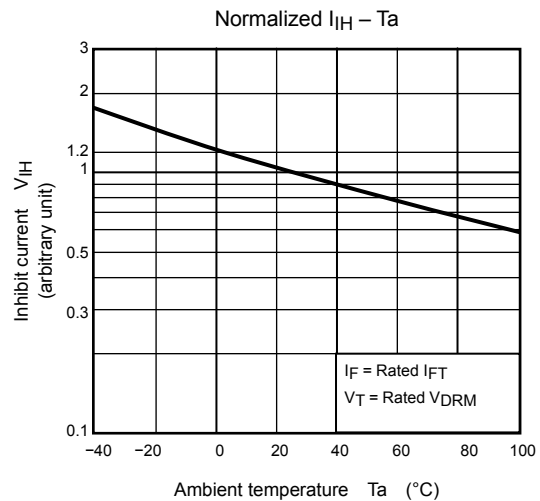
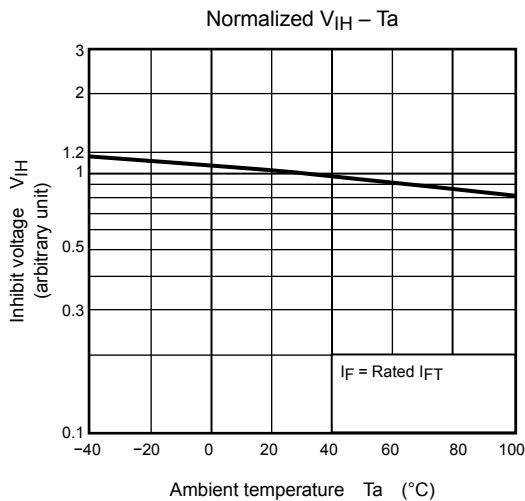
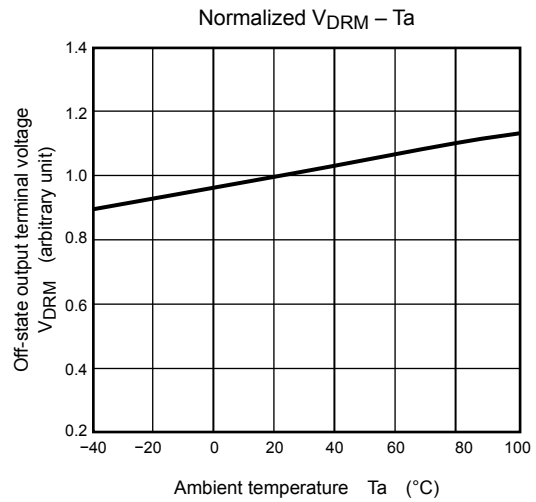
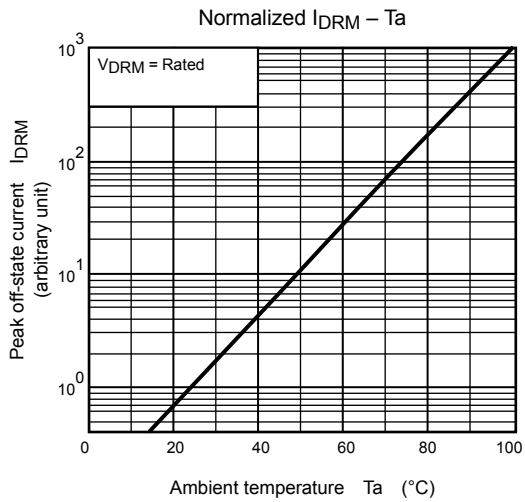
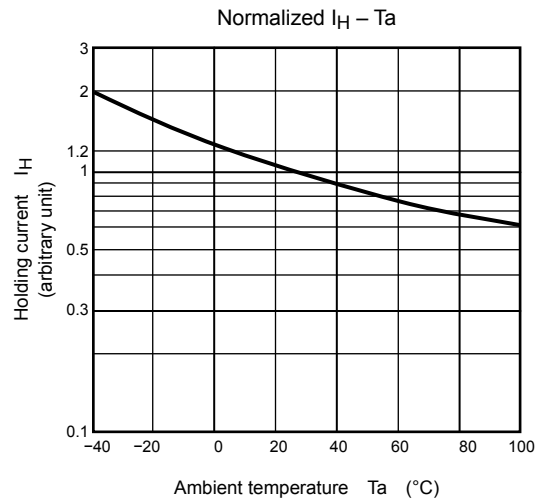
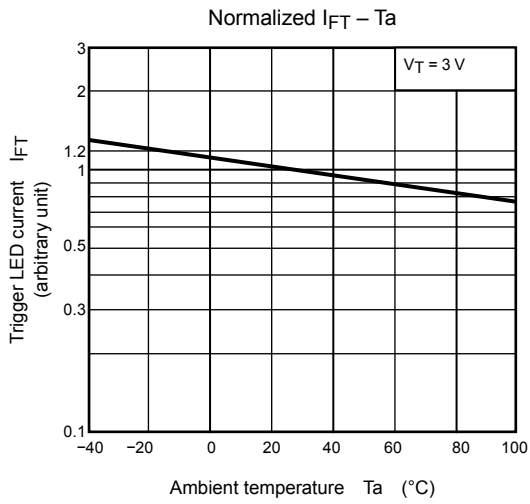
Coupled Electrical Characteristics (Ta = 25°C)

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	3000	—	—	V_{rms}
		AC, 1 second, in oil	—	5000	—	
		AC, 1 minute, in oil	—	5000	—	Vdc

Fig. 1: dv / dt test circuit







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20070701-EN

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