

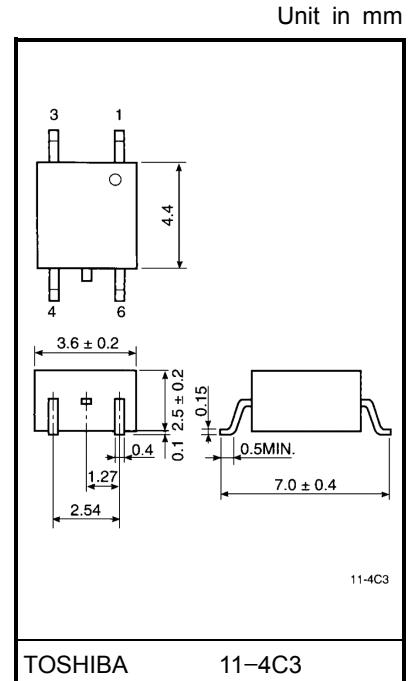
TLP161G

Triac Drive
 Programmable Controllers
 AC-Output Module
 Solid State Relay

The TOSHIBA mini flat coupler TLP161G is a small outline coupler, suitable for surface mount assembly.

The TLP161G consists of a photo triac, optically coupled to a gallium arsenide infrared emitting diode.

- Zero-voltage crossing turn-on
- Peak off-state voltage: 400V(min.)
- Trigger LED current: 10mA(max.)
- On-state current: 70mA(max.)
- Isolation voltage: 2500Vrms(min.)
- UL recognized: UL1577, file no. E67349



Weight: 0.09 g

Trigger LED Current

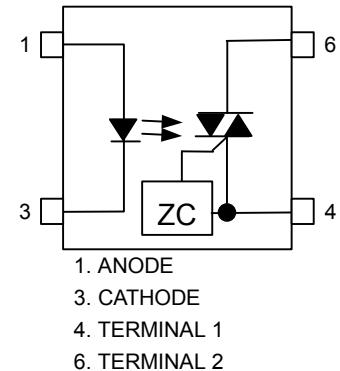
Classi- fication*	Trigger LED Current (mA)		Marking Of Classification	
	$V_T=3V$, $T_a=25^\circ C$			
	Min.	Max.		
(IFT5)	—	5	T5	
(IFT7)	—	7	T5, T7	
Standard	—	10	T5, T7, blank	

*Ex. (IFT5); TLP161G(IFT5)

(Note) Application type name for certification test, please

use standard product type name, i.e.

TLP161G(IFT5): TLP161G

Pin Configurations

Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	Forward current	I _F	50	mA
	Forward current derating (Ta ≥ 53°C)	ΔI _F / °C	-0.7	mA / °C
	Peak 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 _{DRM}	400	V
	On-state RMS current	I _{T(RMS)}	70	mA
	Ta=70°C		40	
	On-state current derating (Ta ≥ 25°C)	ΔI _T / °C	-0.67	mA / °C
	Peak on-state current (100μs pulse, 120pps)	I _{TP}	2	A
	Peak nonrepetitive surge current (PW=10ms, DC=10%)	I _{TSM}	1.2	A
	Junction temperature	T _j	115	°C
Storage temperature range		T _{stg}	-55~125	°C
Operating temperature range		T _{opr}	-40~100	°C
Lead soldering temperature (10s)		T _{sol}	260	°C
Isolation voltage (AC, 1min., R.H.≤ 60%) (Note)		BV _S	2500	Vrms

(Note) Device considered 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}	—	—	120	Vac
Forward current	I _F	15	20	25	mA
Peak on-state current	I _{TP}	—	—	1	A
Operating temperature	T _{opr}	-25	—	85	°C

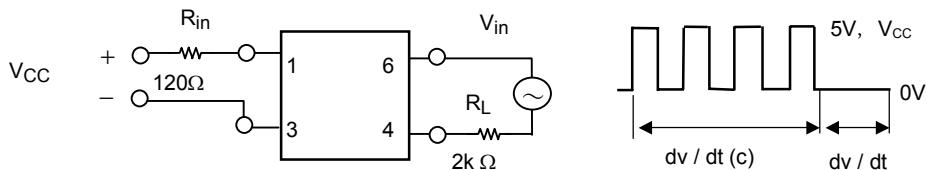
Individual Electrical Characteristics (Ta = 25°C)

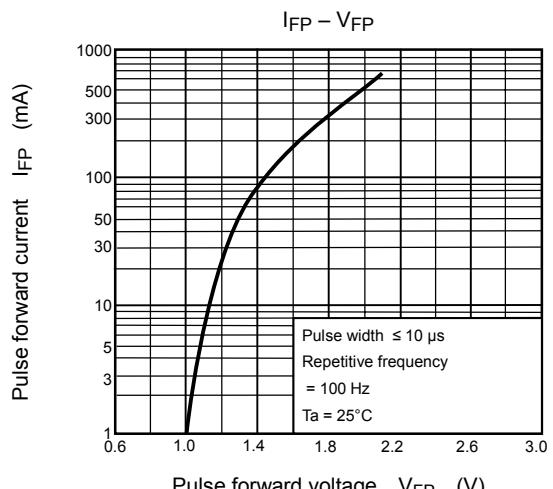
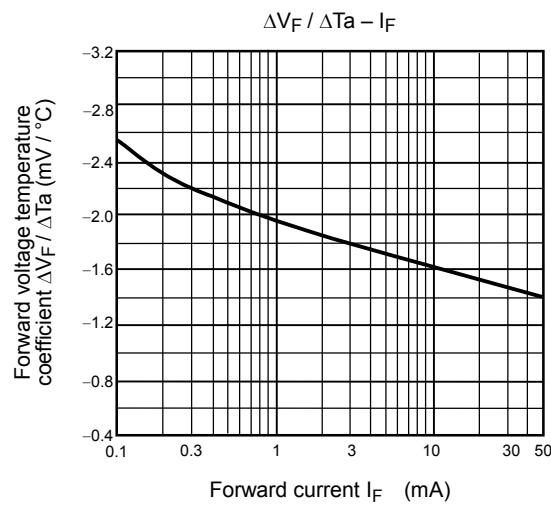
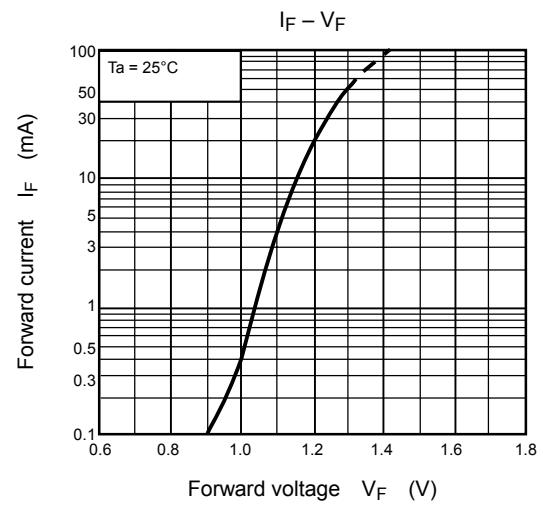
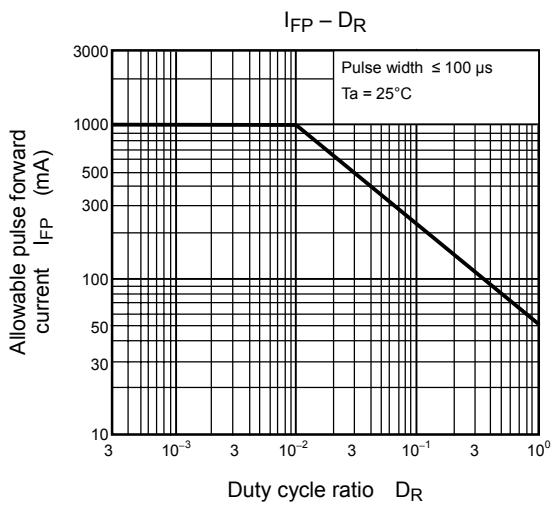
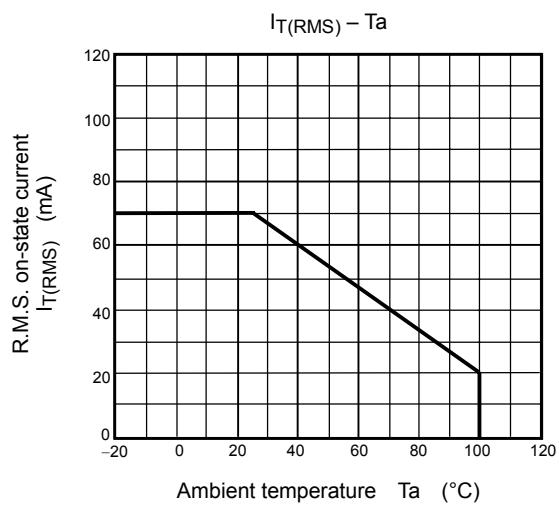
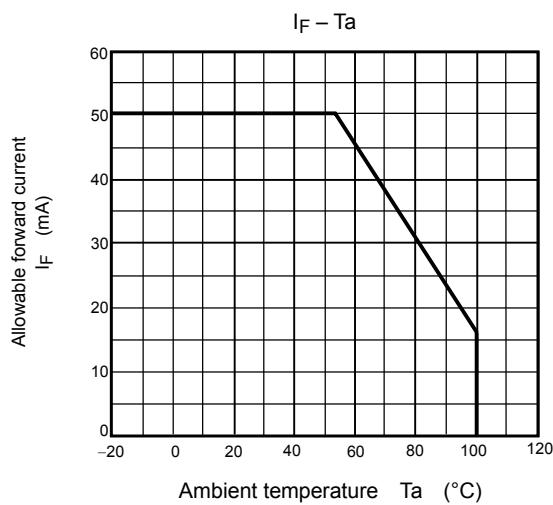
Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
LED	Forward voltage	V _F	I _F =10mA	1.0	1.15	1.3	V
	Reverse current	I _R	V _R =5V	—	—	10	μA
	Capacitance	C _T	V=0, f=1MHz	—	30	—	pF
Detector	Peak off-state current	I _{DRM}	V _{DRM} =400V	—	10	1000	nA
	Peak on-state voltage	V _{TM}	I _{TM} =70 mA	—	1.7	2.8	V
	Holding current	I _H	—	—	0.6	—	mA
	Critical rate of rise of off-state voltage	dv / dt	V _{in} =120Vrms, Ta=85°C (Fig.1)	200	500	—	V / μs
	Critical rate of rise of commutating voltage	dv / dt(c)	V _{in} =30Vrms, I _T =15mA (Fig.1)	—	0.2	—	V / μs

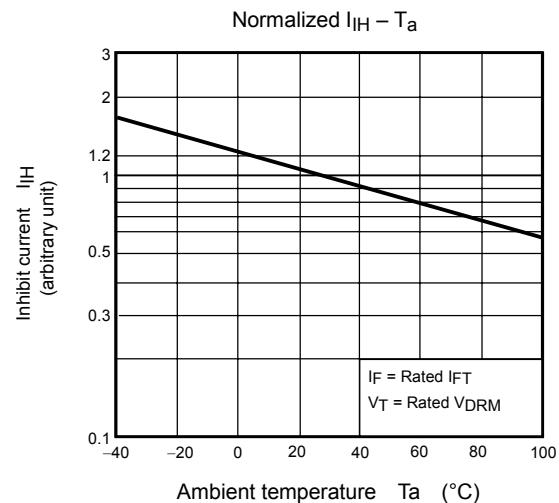
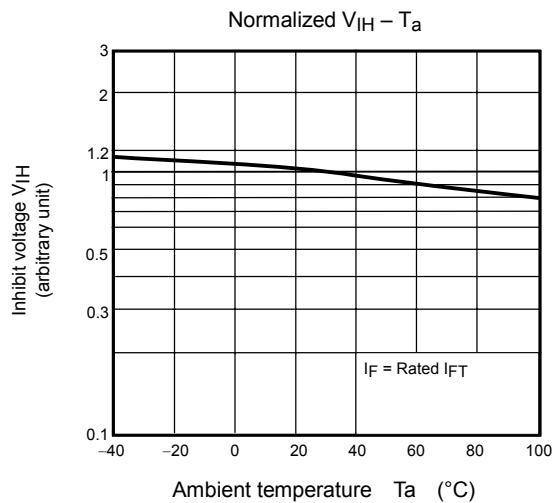
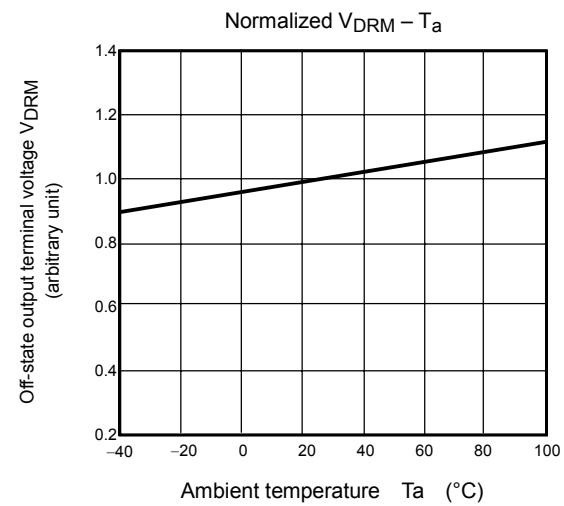
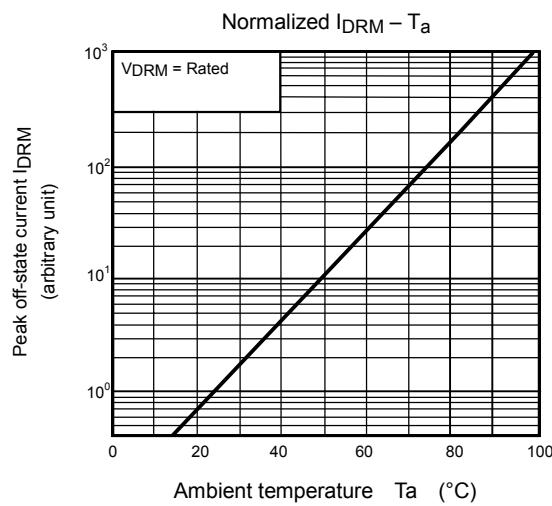
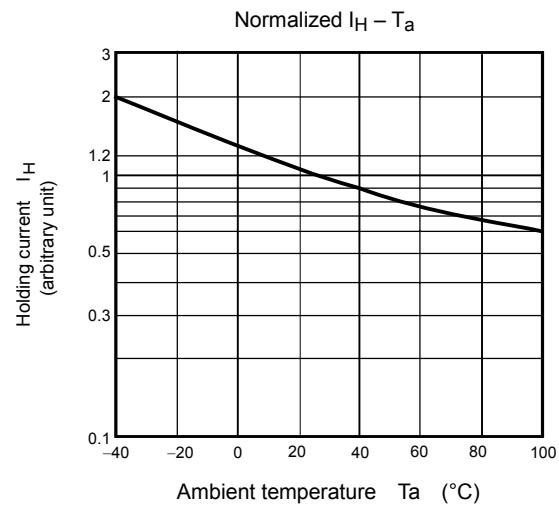
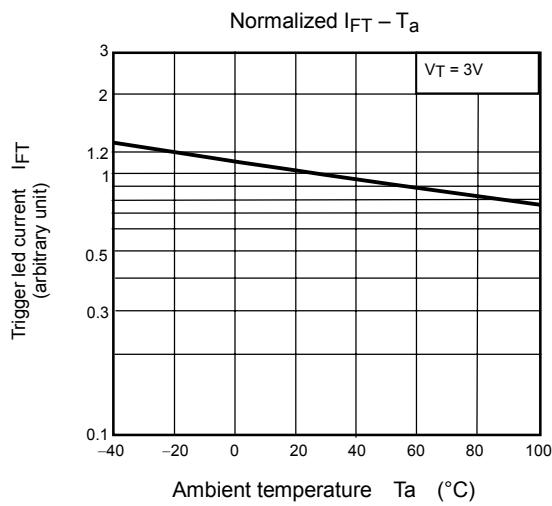
Coupled Electrical Characteristics (Ta = 25°C)

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Trigger LED current	I _{FT}	V _T =3V	—	5	10	mA	
Inhibit voltage	V _{IH}	I _F =rated I _{FT}	—	—	40	V	
Leakage in inhibited state	I _{IH}	I _F =rated I _{FT} V _T =rated V _{DRM}	—	100	300	μA	
Capacitance (input to output)	C _S	V _S =0, f=1MHz	—	0.8	—	pF	
Isolation resistance	R _S	V _S =500V, R.H.≤ 60%	1×10 ¹²	10 ¹⁴	—	Ω	
Isolation voltage	BVs	AC, 1 minute	2500	—	—	Vrms	
		AC, 1 second, in oil	—	5000	—		
		DC, 1 minute, in oil	—	5000	—	Vdc	

Fig.1 dv / dt test circuit







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