

PHOTOCOUPLER GaAlAs IRED & PHOTO-TRIAC

TLP161J

TENTATIVE DATA

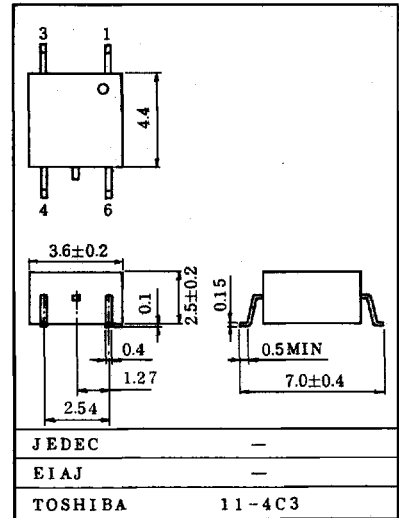
TRIAC DRIVE
PROGRAMMABLE CONTROLLERS
AC-OUTPUT MODULE
SOLID STATE RELAY

The TOSHIBA MINI FLAT COUPLER TLP161J is a small outline coupler, suitable for surface mount assembly.

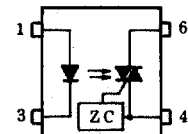
TLP161J consists of a photo triac, optically coupled to a gallium arsemide infrared emitting diode.

- . Zero-Voltage Crossing Turn-on
- . Peak Off-State Voltage : 600V Min.
- . Trigger LED Current : 10mA Max.
- . On-State Current : 70mA Max.
- . Isolation Voltage : 2500V_{rms} Min.

Unit in mm



PIN CONFIGURATIONS



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)		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}	600	V
	On-State RMS Current	Ta=25°C	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 (P _w =10ms, 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 sec.)			T _{sold}	260	°C
Isolation Voltage (AC, 1 min., RH≤60%)			BV _S	2500	V _{rms}

INDIVIDUAL ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

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	$V=0, f=1\text{MHz}$	-	10	-	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM}=600\text{V}$	-	10	1000	nA
	Peak On-State Voltage	V_{TM}	$I_{TM}=70\text{mA}$	-	1.7	2.8	V
	Holding Current	I_H	-	-	0.2	-	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{in}=240\text{V}_{rms}, T_a=85^\circ\text{C}$ (Fig.1)	200	500	-	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in}=60\text{V}_{rms}, I_T=15\text{mA}$ (Fig.1)	-	0.2	-	$\text{V}/\mu\text{s}$

COUPLED ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_T=6\text{V}$	-	5	10	mA
Inhibit Voltage	V_{IH}	$I_F=\text{Rated } I_{FT}$	-	-	50	V
Leakage in Inhibited State	I_{IH}	$I_F=\text{Rated } I_{FT}$ $V_T=\text{Rated } V_{DRM}$	-	100	300	μA
Capacitance (Input to Output)	C_S	$V_S=0, f=1\text{MHz}$	-	0.8	-	pF
Isolation Resistance	R_S	$V_S=500\text{V}$	5×10^{10}	10^{11}	-	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	-	-	V_{rms}
		AC, 1 second, in oil	-	5000	-	
		DC, 1 minute, in oil	-	5000	-	V_{dc}

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	$^\circ\text{C}$

Fig. 1 dv/dt TEST CIRCUIT