

TENTATIVE DATA

(TLP141G)

PROGRAMMABLE CONTROLLERS

AC-OUTPUT MODULE

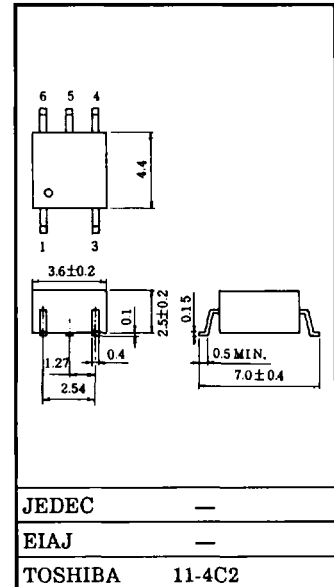
SOLID STATE RELAY

The TOSHIBA MINI FLAT COUPLER TLP141G is a small outline coupler, suitable for surface mount assembly.

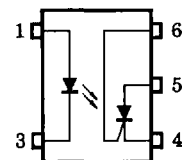
The TLP141G consists of a photo thyristor, optically coupled to a gallium arsenide infrared emitting diode.

- Peak Off-State Voltage : 400V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : 150mA (MAX.)
- Isolation Voltage : 2500Vrms (MIN.)
- UL Recognized : File No. E67349

Unit in mm



Weight: 0.09g

PIN CONNECTIONS

1. ANODE
3. CATHODE
4. CATHODE
5. ANODE
6. GATE

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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 μ s pulse, 100pps)	I_{FP}	1	A
	Reverse Voltage	V_R	5	V
	Junction Temperature	T_j	125	°C
DETECTOR	Peak Forward Voltage (RGK = 27k Ω)	V_{DRM}	400	V
	Peak Reverse Voltage (RGK = 27k Ω)	V_{RRM}	400	V
	On-State Current	$I_{T(RMS)}$	150	mA
	On-State Current Derating (Ta ≥ 25°C)	$\Delta I_T / ^\circ\text{C}$	-2.0	mA / °C
	Peak One Cycle Surge Current	I_{TSM}	2	A
	Peak Reverse Gate Voltage	V_{GM}	5	V
	Junction Temperature	T_j	100	°C
Storage Temperature Range		T_{stg}	-55~125	°C
Operating Temperature Range		T_{opr}	-55~100	°C
Lead Soldering Temperature (10 sec.)		T_{sol}	260	°C
Isolation Voltage (AC, 1 min., RH ≤ 60%)		BV_S	2500	Vrms

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	120	Vac
Forward Current	I_F	15	20	25	mA
Operating Temperature	T_{opr}	-25	—	85	°C
Gate to Cathode Resistance	R_{GK}	—	27	33	k Ω
Gate to Cathode Capacitance	C_{GK}	—	0.01	0.1	μ F

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

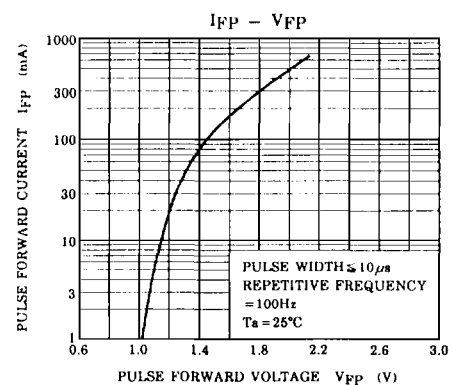
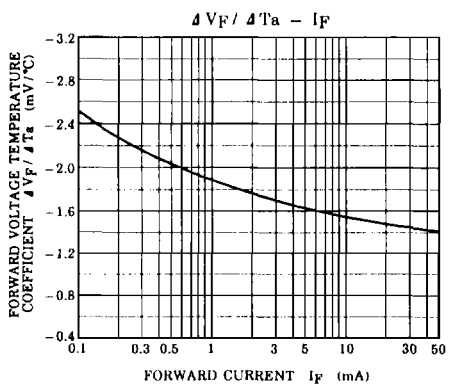
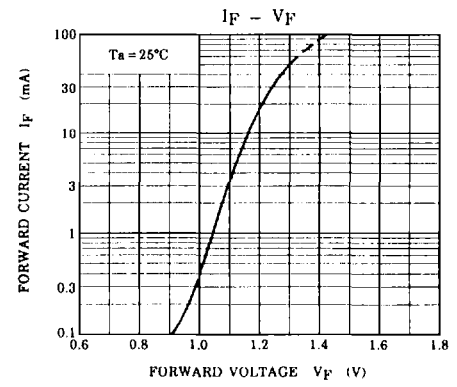
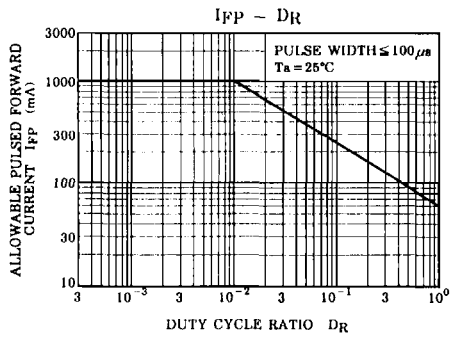
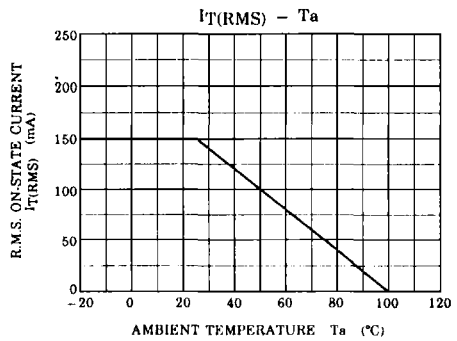
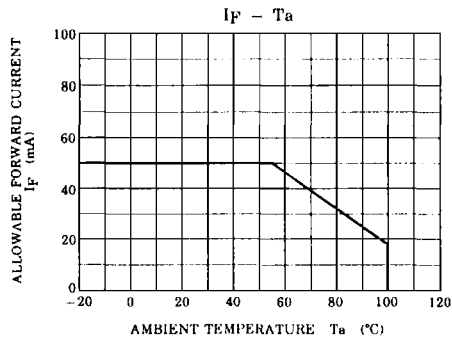
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Off-State Current	I_{DRM}	$V_{AK} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	$T_a = 25^\circ\text{C}$	—	10	5000 nA
				$T_a = 100^\circ\text{C}$	—	1	100 μA
	Reverse Current	I_{RRM}	$V_{KA} = 400\text{V}$ $R_{GK} = 27\text{k}\Omega$	$T_a = 25^\circ\text{C}$	—	10	5000 nA
				$T_a = 100^\circ\text{C}$	—	1	100 μA
	On-State Voltage	V_{TM}	$I_{TM} = 100\text{mA}$	—	0.9	1.3	V
	Holding Current	I_H	$R_{GK} = 27\text{k}\Omega$	—	0.2	1	mA
	Off-State dv/dt	dv/dt	$V_{AK} = 280\text{V}, R_{GK} = 27\text{k}\Omega$	5	10	—	V / μs
	Capacitance	C_j	$V = 0, f = 1\text{MHz}$	Anode to Gate	—	20	pF
				Gate to Cathode	—	350	

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_{AK} = 6\text{V}, R_{GK} = 27\text{k}\Omega$	—	4	10	mA
Turn-on Time	t_{on}	$I_F = 50\text{mA}, R_{GK} = 27\text{k}\Omega$	—	10	—	μs
Coupled dv/dt	dv/dt	$V_S = 500\text{V}, R_{GK} = 27\text{k}\Omega$	500	—	—	V / μs
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}, \text{R.H.} \leq 60\%$	—	10^{11}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	V _{rms}

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