

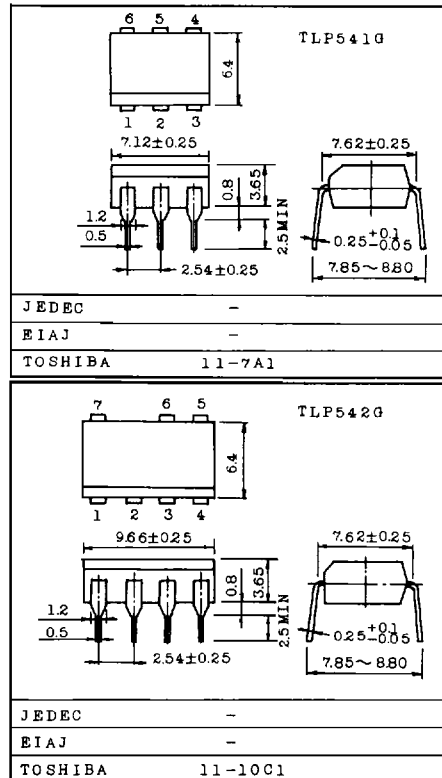
TLP541G, 542G

PROGRAMMABLE CONTROLLERS.
AC-OUTPUT MODULE.
SOLID STATE RELAY.

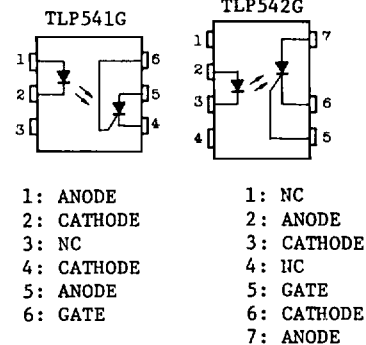
The TOSHIBA TLP541G consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package. The TOSHIBA TLP542G consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a seven lead plastic DIP package.

- Peak Off-State Voltage: 400V Min.
- Trigger LED Current : 7mA Max.
- On-State Current : 150mA Max.
- Isolation Voltage : 2500Vrms Min.
- UL Recognized : File No. E67349

Unit in mm



PIN CONFIGURATIONS (TOP VIEW)



TLP541G, 542G

MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	70	mA
	Forward Current Derating (Ta≥25°C)	$\Delta I_F/^\circ\text{C}$	-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	Peak Forward Voltage (R _{GK} =27KΩ)	V_{DRM}	400	V
	Peak Reverse Voltage (R _{GK} =27KΩ)	V_{RRM}	400	V
	On-State Current	$I_T(\text{RMS})$	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}	-30~100	°C
Lead Soldering Temperature (10sec.)		T_{sold}	260	°C
Isolation Voltage (AC, 1 min, RH≤60%)		BV_S	2500	V_{rms}

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	Off-State Current	I _{DRM}	V _{AK} =400V R _{GK} =27kΩ	Ta=25°C	-	10	5000	nA
				Ta=100°C	-	1	100	μA
	Reverse Current	I _{RRM}	V _{KA} =400V R _{GK} =27kΩ	Ta=25°C	-	10	5000	nA
				Ta=100°C	-	1	100	μA
	On-State Voltage	V _{TM}	I _{TM} =100mA		-	0.9	1.3	V
	Holding Current	I _H	R _{GK} =27kΩ		-	0.2	1	mA
	Off-State dv/dt	dv/dt	V _{AK} =280V, R _{GK} =27kΩ		5	10	-	V/μs
	Capacitance	C _j	V=0, f=1MHz		-	20	-	pF
			Anode to Gate Gate to Cathode		-	350	-	

COUPLED CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I _{FT}	V _{AK} =6V, R _{GK} =27k	1	4	7	mA
Turn-on Time	t _{on}	I _F =50mA R _{GK} =27kΩ	-	10	-	μs
Capacitance (Input to Output)	C _S	V _S =0, f=1MHz	-	0.8	-	pF
Isolation Resistance	R _S	V _S =500V, R.H.≤60%	-	10 ¹⁴	-	Ω
Isolation Voltage	BV _S	AC, 1 minute	2500	-	-	V _{rms}

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{AC}	-	-	120	V _{ac}
Forward Current	I _F	10	16	25	mA
Operating Temperature	T _{opr}	-30	-	85	°C
Gate to Cathode Resistance	R _{GK}	-	27	33	kΩ
Gate to Cathode Capacity	C _{GK}	-	0.01	0.1	μF

