

TLP525G, TLP525G-2, TLP525G-4

TRIAC DRIVE

PROGRAMMABLE CONTROLLERS

AC-OUTPUT MODULE

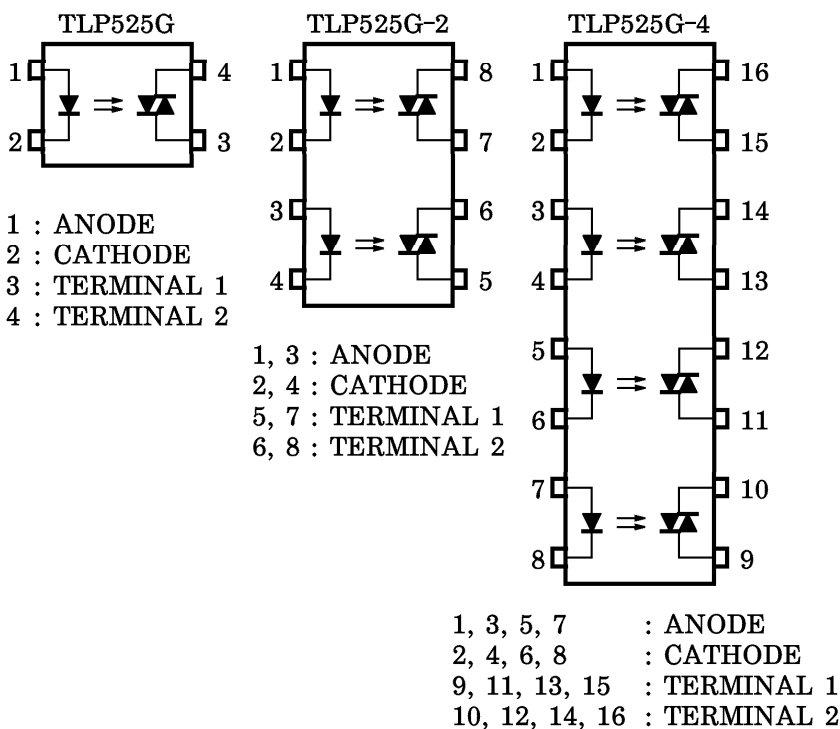
SOLID STATE RELAY

The TOSHIBA TLP525G, -2 and -4 consist of a photo-triac optically coupled to a gallium arsenide infrared emitting diode.

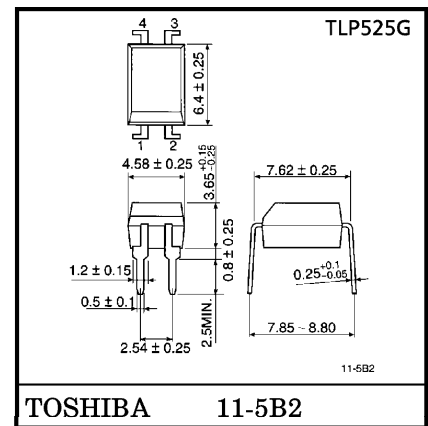
The TLP525G-2 offers two isolated channels in an eight lead plastic DIP package, while the TLP525G-4 provides four isolated channels in a sixteen lead plastic DIP package.

- Peak Off-state Voltage : 400V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- Peak On-state Current : 2Apk (MAX.)
- Isolation Voltage : 2500V_{rms} (MIN.)
- UL Recognized : File No. E67349

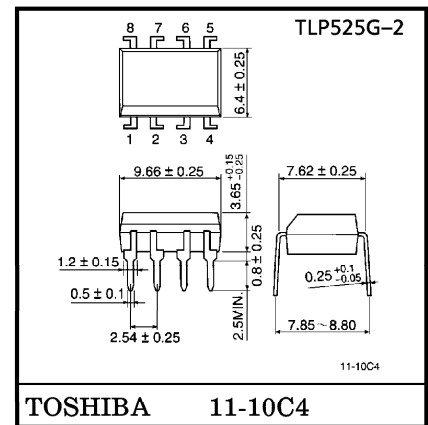
PIN CONFIGURATIONS (TOP VIEW)



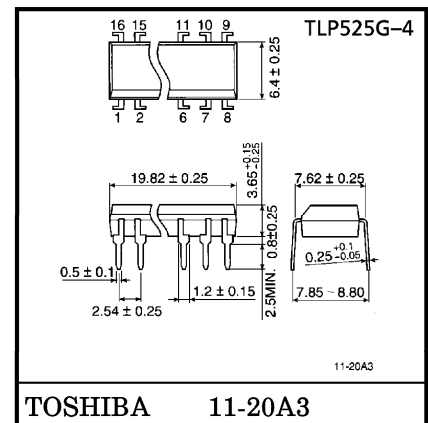
Unit in mm



Weight : 0.26g



Weight : 0.54g



Weight : 1.1g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING		UNIT
			TLP525G	TLP525G-2 TLP525G-4	
LED	Forward Current	I _F	50	50	mA
	Forward Current Derating	I _F / °C	−0.7 (Ta ≥ 53°C)	−0.5 (Ta ≥ 25°C)	mA / °C
	Pulse Forward Current	I _{FP}	1 (100μs pulse, 100pps)		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)	100	80	mA
			50	40	
	On-State Current Derating (Ta ≥ 25°C)	I _T / °C	−1.1	−0.9	mA / °C
	Peak On State Current	I _{TP}	2 (100μs pulse, 120pps)		A
	Peak Nonrepetitive Surge Current (P _w = 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		T _{sol}	260 (10s)		°C
Isolation Voltage (Note)		BV _S	2500 (AC, 1min., R.H. ≤ 60%)		V _{rms}

(Note) Device considered a two terminal device : LED side pins shorted together and DETECTOR side pins shorted together.

RECOMMENDED OPERATING CONDITIONS

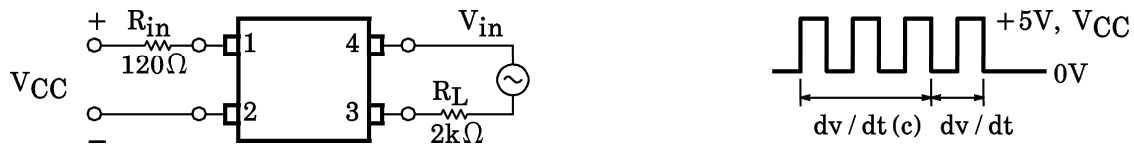
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{AC}	—	—	120	Vac
Forward Current	I _F	15	20	25	mA
Peak On-State Current	I _{TP}	—	—	1	A
Operating Temperature	T _{opr}	−25	—	85	°C

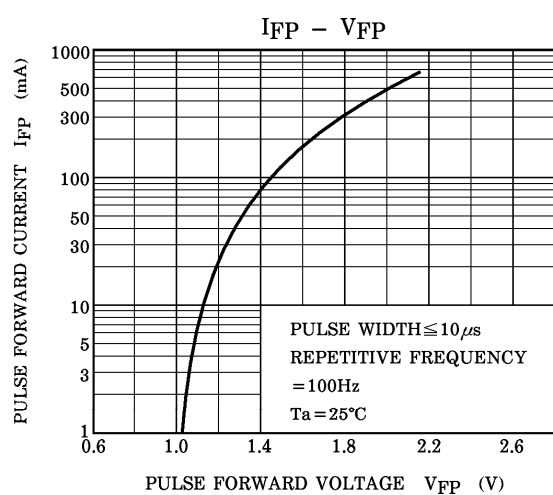
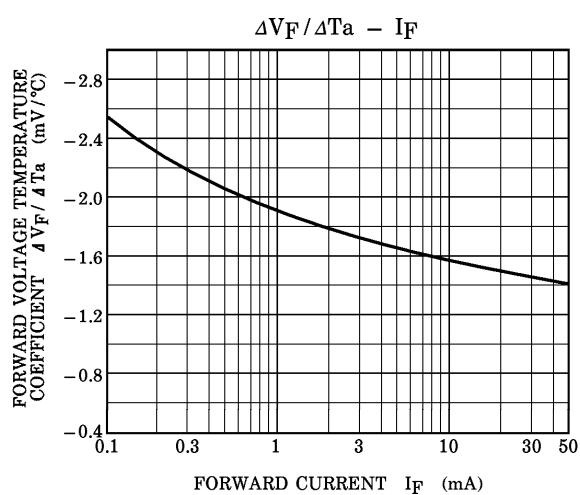
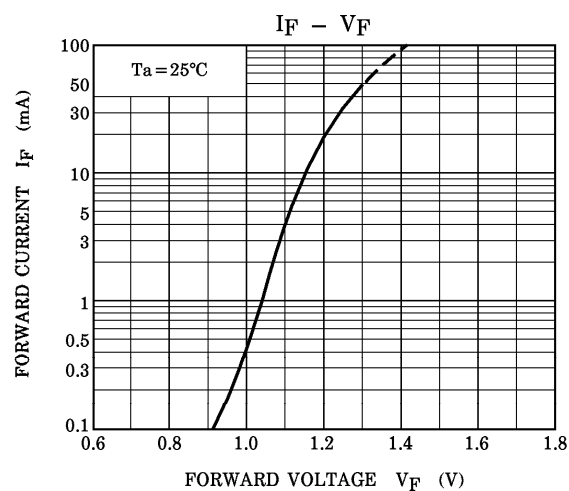
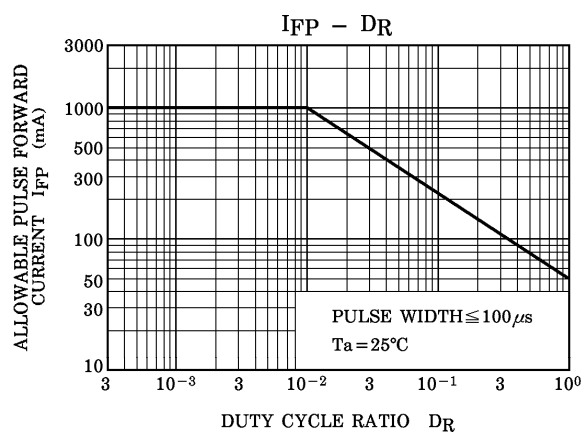
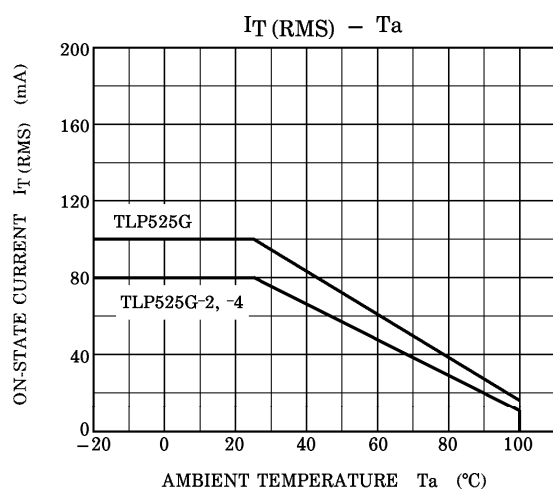
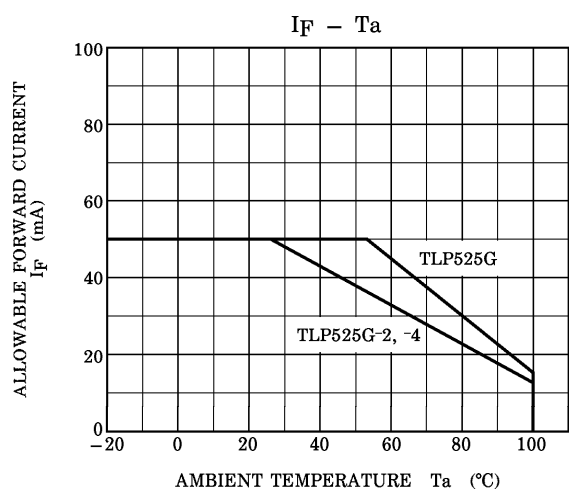
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

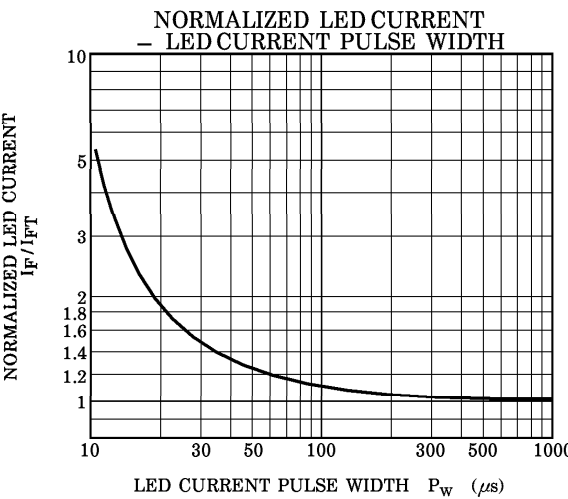
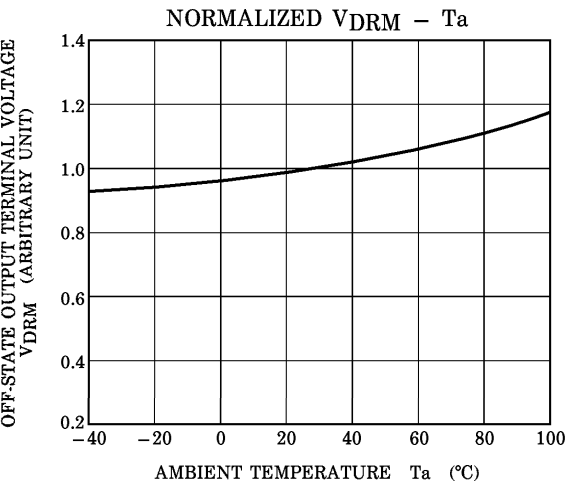
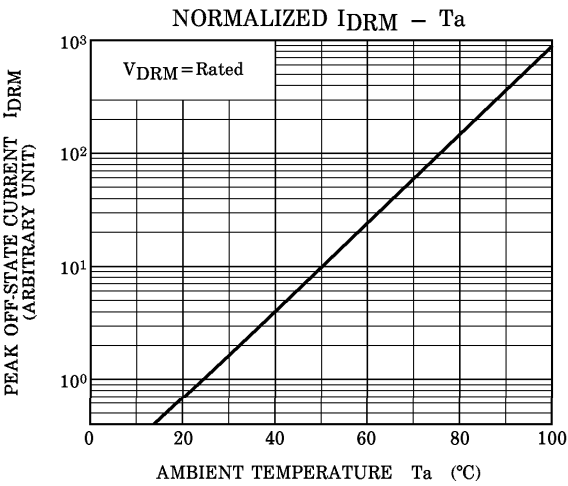
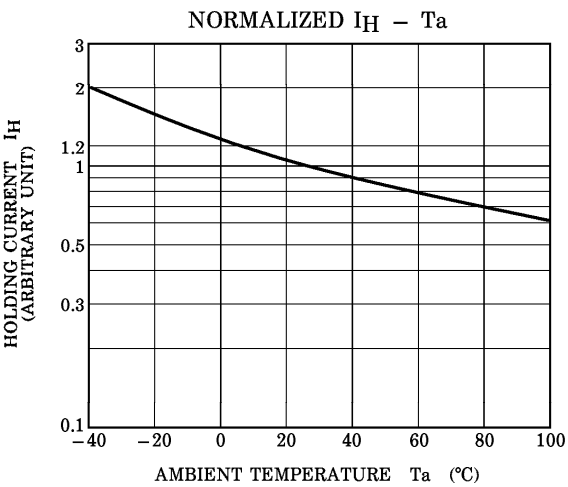
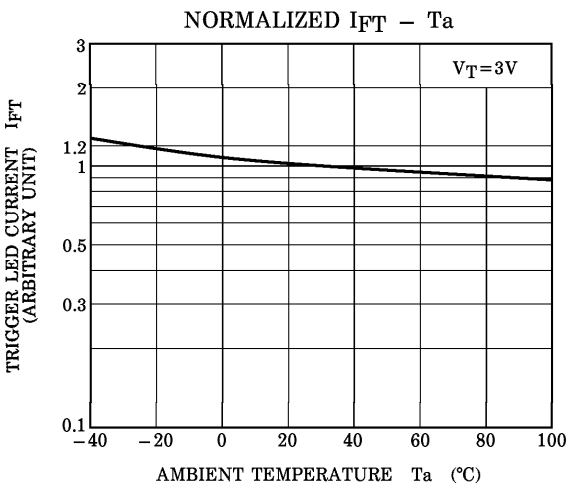
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{\text{DRM}} = 400\text{V}$	—	10	100	nA
	Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 100\text{mA}$	—	1.7	3.0	V
	Holding Current	I_H	—	—	0.2	—	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{\text{in}} = 120V_{\text{rms}}, T_a = 85^\circ\text{C}$ (Figure 1)	200	500	—	$\text{V}/\mu\text{s}$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{\text{in}} = 30V_{\text{rms}}, I_T = 15\text{mA}$ (Figure 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}	$V_T = 3\text{V}$	—	5	10	mA
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	2500	—	—	V_{rms}
		AC, 1 second, in oil	—	5000	—	
		DC, 1 minute, in oil	—	5000	—	V_{dc}

Fig.1 dv/dt TEST CIRCUIT





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