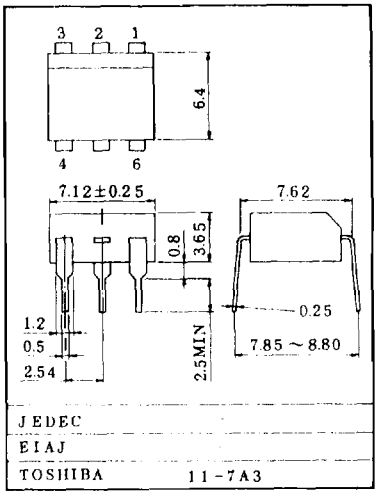
TLP560G

GaAs IRED & PHOTO-TRIAC

TRIAC DRIVER
PROGRAMMABLE CONTROLLERS
AC-OUTPUT MODULE
SOLID STATE RELAY

The TOSHIBA TLP560G consists of a photo-triac optically coupled to a gallium arsenide infreared emitting diode in a six lead plastic DIP package.

Unit in mm



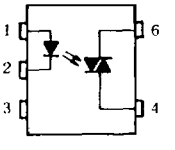
- Peak Off-State Voltage : 400V Min.
- On-State Current : 100mA Max.
- Isolation Voltage : 2500Vrms Min.
- UL Recognized : File No. E67349
- Isolation Operating Voltage
  : 250Vac or 300Vdc for Isolation Groupe C*1
- Trigger LED Current

CLASSIFICATION*	TRIGGER LED CURRENT (mA) V_T=6V, Ta=25°C		MARKING OF CLASSIFICATION
	MIN.	MAX.	
(IFT5)	-	5	T5
(IFT7)	-	7	T5,T7
Standard	-	10	T5,T7,Blank

* Ex. : (IFT5); TLP560G(IFT5)

- Note: Application type name for certification test, please use standard product type name, i.e.
  TLP560G(IFT5): TLP560G

PIN CONFIGURATION (TOP VIEW)



1: ANODE
2: CATHODE
3: NC
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)		$\Delta I_F/°C$	-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	Ta=25°C	$I_{T(RMS)}$	100	mA
		Ta=70°C		50	
	On-State Current Derating (Ta ≥ 25°C)		$\Delta I_T/°C$	-1.1	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 (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	-	10	-	pF
DETECTOR	Peak Off-State Current	I_{DRM}	V_{DRM}=400V	-	10	100	nA
	Peak On-State Voltage	V_{TM}	I_{TM}=100mA	-	1.7	3.0	V
	Holding Current	I_H	-	-	0.2	-	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	Vin=120Vrms, Ta=85°C (Fig. 1)	200	500	-	V/μs
	Critical Rate of Rise of Commutating Voltage	dv/dt(c)	I_T=15mA, Vin=30Vrms (Fig. 1)	-	0.2	-	V/μs

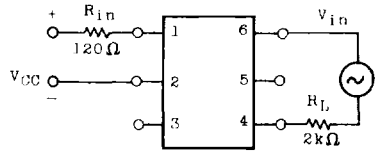
COUPLED ELECTRICAL CHARACTERISTICS (Ta=25°C)

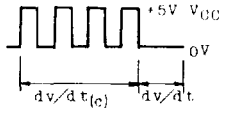
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	V_T=3V	-	5	10	mA
Capacitance(Input to Output)	C_S	VS=0, f=1MHz	-	0.8	-	pF
Isolation Resistance	R_S	VS=500V	5×10^{10}	10^{14}	-	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	-	-	Vrms
		AC, 1 second	-	5000	-	
		DC, 1 minute	-	5000	-	Vdc

RECOMMENDED OPERATING CONDITIONS

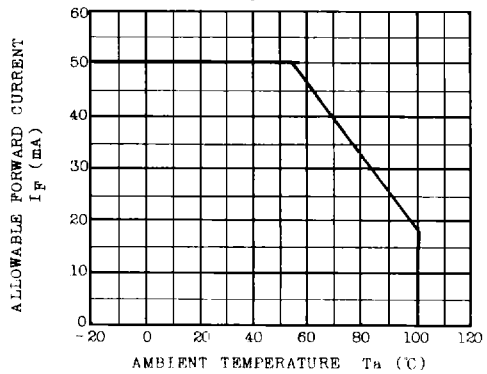
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	-	-	120	V_{ac}
Forward Current	I_F	15	20	25	mA
Peak On-State Current	I_{TP}	-	-	1	A
Operating Temperature	T_{opr}	-25	-	85	°C

Fig.1 : dv/dt TEST CIRCUIT

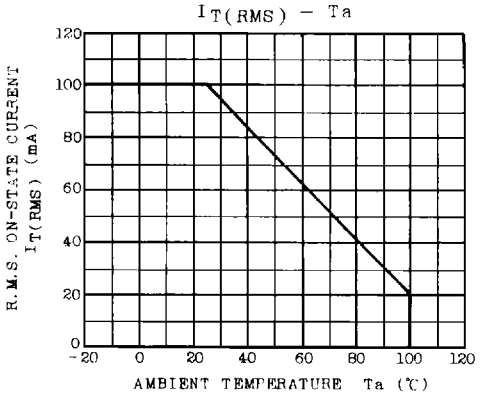




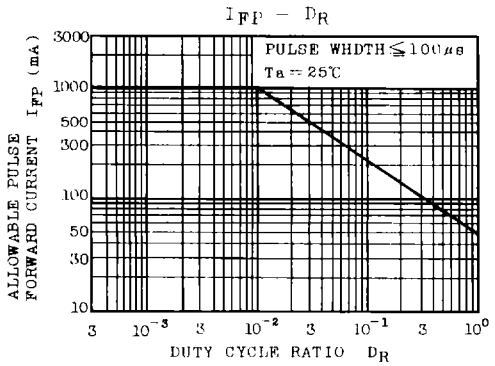
I_F – Ta



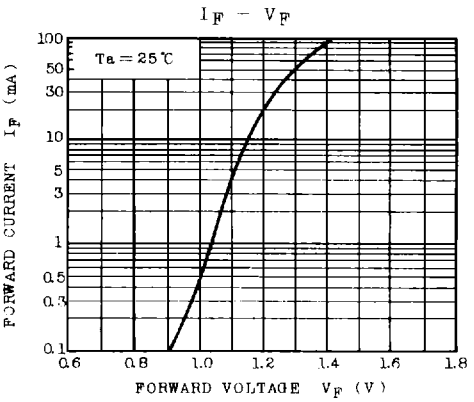
$I_{T(RMS)}$ – Ta



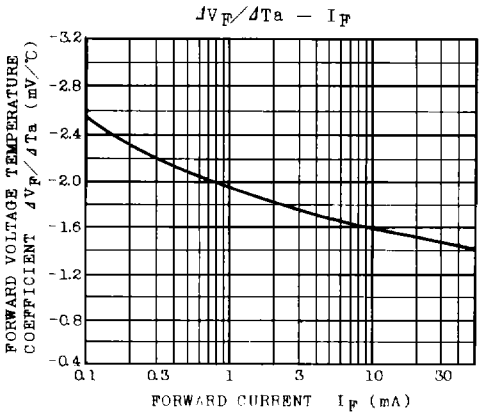
I_{FP} – D_R



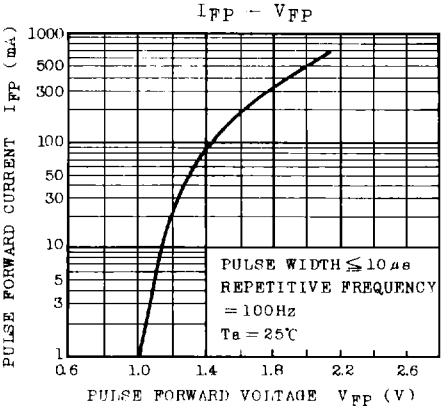
I_F – V_F



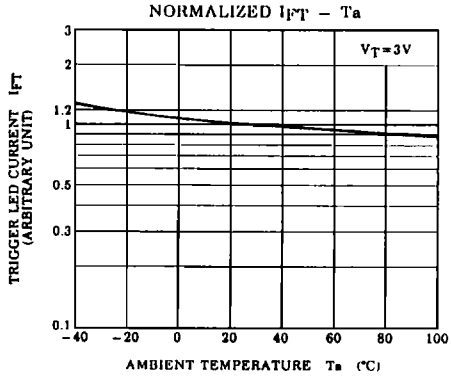
$\Delta V_F/\Delta Ta$ – I_F



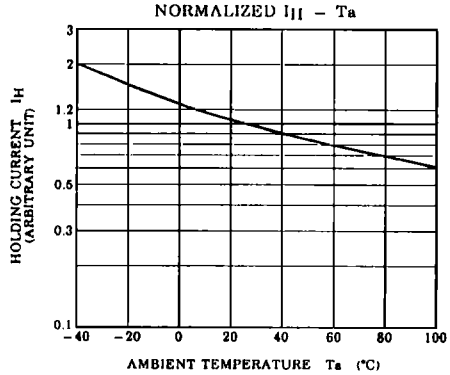
I_{FP} – V_{FP}



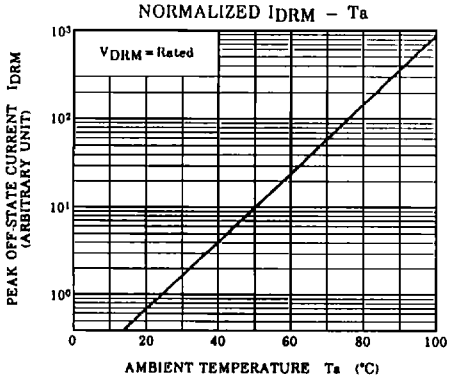
NORMALIZED I_{FT} – Ta



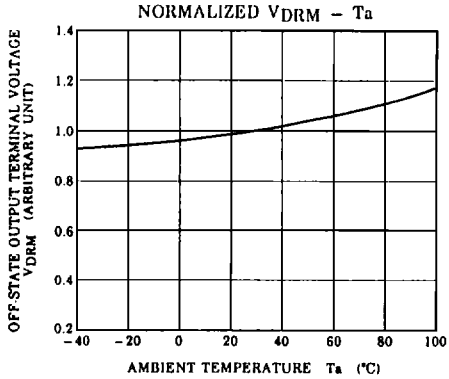
NORMALIZED I_H – Ta



NORMALIZED I_{DRM} – Ta



NORMALIZED V_{DRM} – Ta



NORMALIZED LED CURRENT
– LED CURRENT PULSE WIDTH