

TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

TLP3506

TRIAC DRIVER

PROGRAMMABLE CONTROLLERS

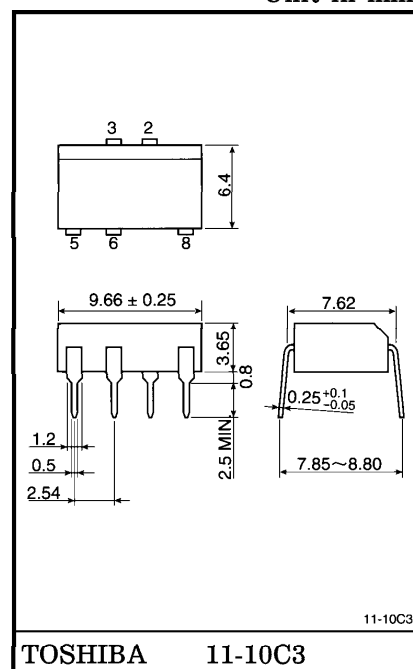
AC-OUTPUT MODULE

SOLID STATE RELAY

The TOSHIBA TLP3506 consists of a photo-triac optically coupled to a gallium arsenide infrared emitting diode in a 8 lead plastic DIP.

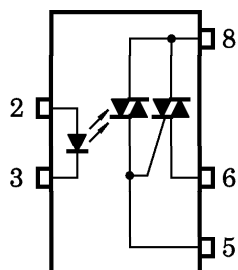
- Peak Off-State Voltage : 600V (MIN.)
- Trigger LED Current : 10mA (MAX.)
- On-State Current : $0.5A_{rms}$ (MAX.)
- Isolation Voltage : $2500V_{rms}$ (MIN.)
- UL Recognized : UL1577, File No. E67349

Unit in mm



Weight : 0.52g

PIN CONFIGURATION (TOP VIEW)



- 2 : ANODE
- 3 : CATHODE
- 5 : TRIAC GATE
- 6 : TRIAC T1
- 8 : TRIAC T2

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	50	mA
	Forward Current Derating (Ta $\geq$ 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	Off-State Output Terminal Voltage	V_{DRM}	600	V
	On-State RMS Current	I_T (RMS)	0.5	A
			0.35	
	On-State Current Derating (Ta $\geq$ 40°C)	$\Delta I_T / ^\circ\text{C}$	-7.2	mA / °C
	Peak Current from Snubber Circuit (100 μ s pulse, 120pps)	I_{SP}	2	A
	Peak Nonrepetitive Surge Current (50Hz, Peak)	I_{TSM}	5	A
	Junction Temperature	T_j	110	°C
Storage Temperature Range		T_{stg}	-40~125	°C
Operating Temperature Range		T_{opr}	-20~80	°C
Lead Soldering Temperature (10s)		T_{sol}	260	°C
Isolation Voltage (AC, 1 min., R.H. $\leq$ 60%) (Note)		BV_S	2500	V_{rms}

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

RECOMMENDED OPERATING CONDITIONS

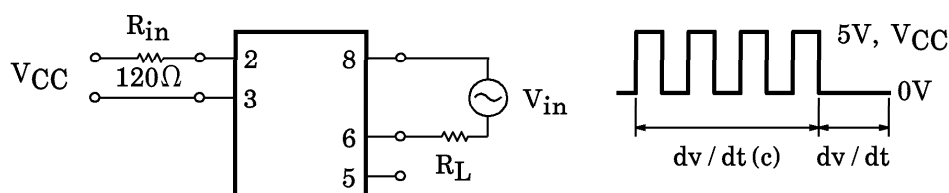
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	—	—	240	V_{ac}
Forward Current	I_F	15	20	25	mA
Peak Current from Snubber Circuit	I_{SP}	—	—	1	A
Operating Temperature	T_{opr}	-20	—	80	°C

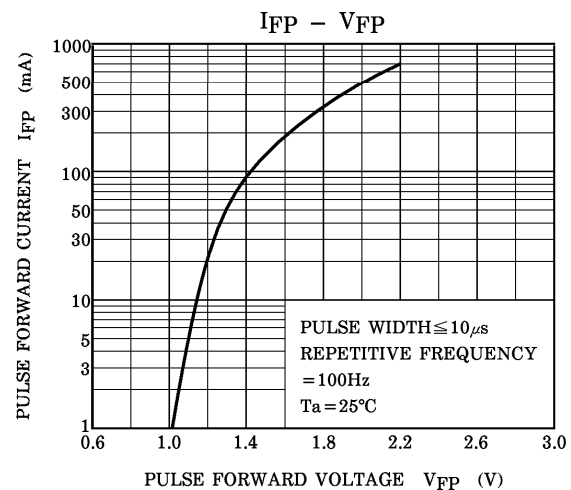
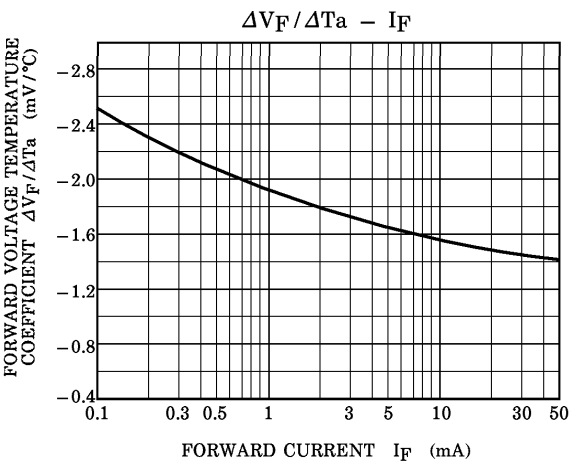
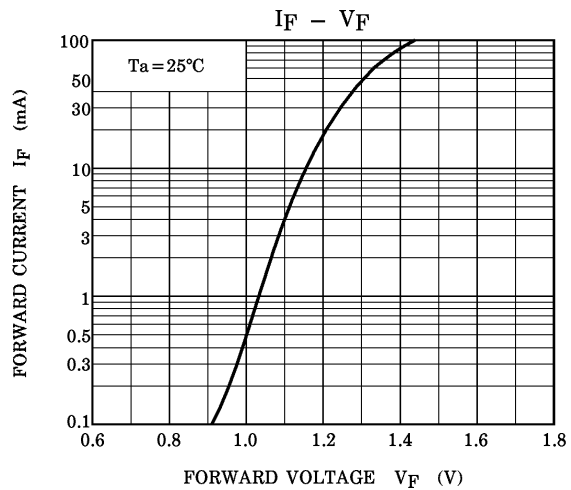
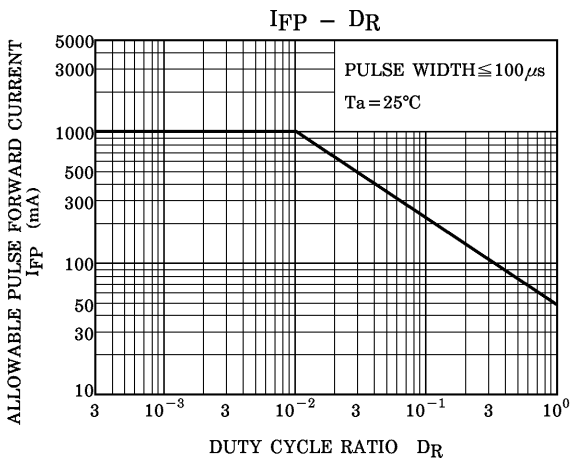
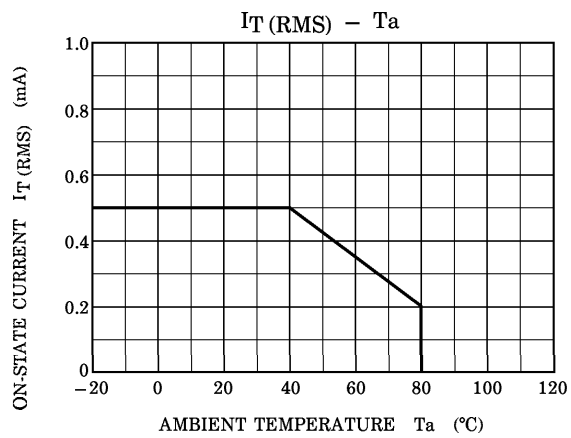
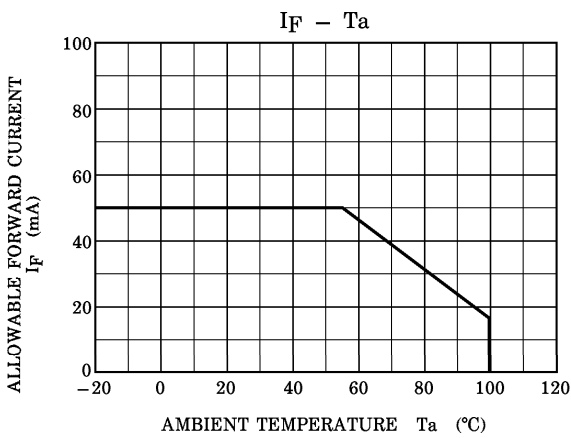
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

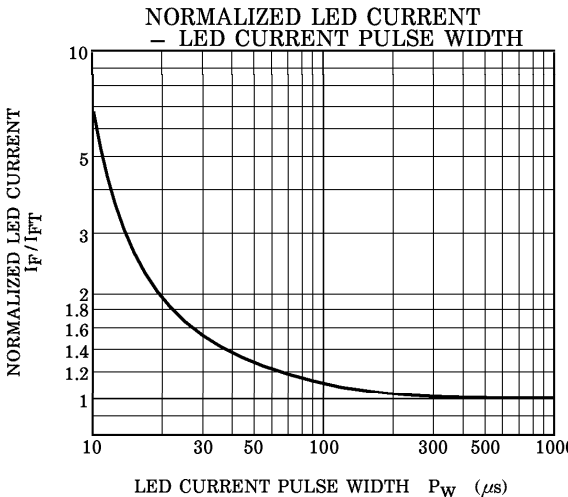
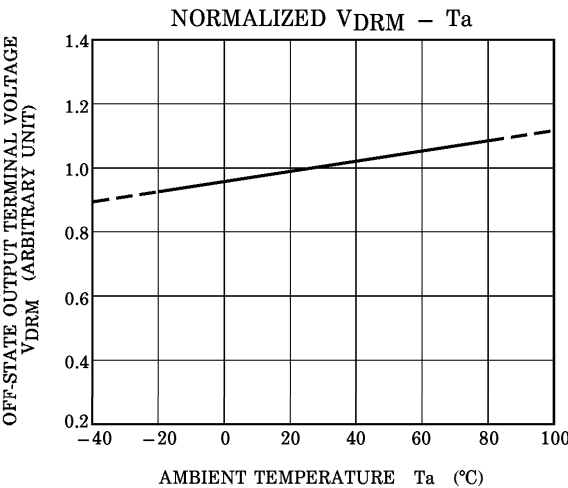
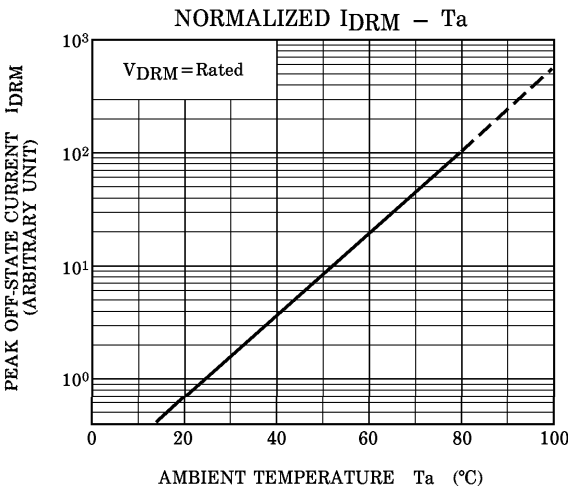
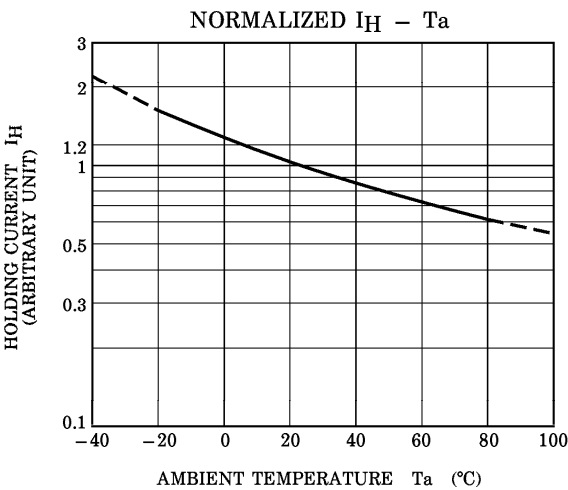
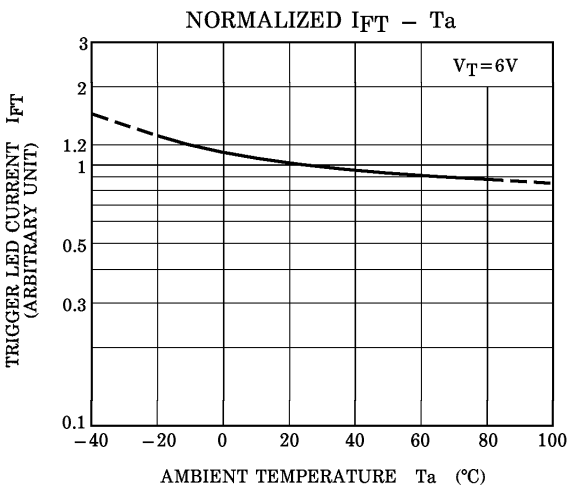
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V_F	$I_F = 10\text{mA}$	1.0	1.15	1.3	V
	Reverse Current	I_R	$V_R = 5\text{V}$	—	—	10	μA
	Capacitance	C_T	$V = 0, f = 1\text{MHz}$	—	30	—	pF
DETECTOR	Peak Off-State Current	I_{DRM}	$V_{DRM} = 600\text{V}, T_a = 110^\circ\text{C}$	—	—	100	μA
	Peak On-State Voltage	V_{TM}	$I_{TM} = 0.75\text{A}$	—	—	3.0	V
	Holding Current	I_H	—	—	—	25	mA
	Critical Rate of Rise of Off-State Voltage	dv/dt	$V_{in} = 240V_{rms}$ (Fig.1)	—	500	—	$V/\mu s$
	Critical Rate of Rise of Commutating Voltage	$dv/dt(c)$	$V_{in} = 240V_{rms}, I_T = 0.5A_{rms}$ (Fig.1)	—	5	—	$V/\mu s$

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_T = 6\text{V}$	—	—	10	mA
Capacitance (Input to Output)	C_S	$V_S = 0, f = 1\text{MHz}$	—	1.5	—	pF
Isolation Resistance	R_S	$V_S = 500\text{V}$	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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