

9097250 TOSHIBA (DISCRETE/OPTO)

99D 17501 D

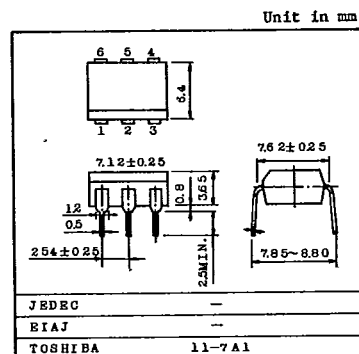
T-41-87

TLP641J

GaAs IRED & PHOTO-THYRISTOR

The TOSHIBA TLP641J consists of a photo-thyristor optically coupled to a gallium arsenide infrared emitting diode in a six lead plastic DIP package.

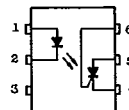
- Peak Off-State Voltage : 600V Min.
- Trigger LED Current : 10mA Max.
- On-State Current : 150mA Max.
- Isolation Voltage : 5000Vrms Min.
- UL Recognized : File No. E67349



MAXIMUM RATINGS (Ta = 25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	I_F	60	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
	Power Dissipation	P_D	100	mW
	Power Dissipation Derating (Ta≥25°C)	$\Delta P_D/^\circ\text{C}$	-1.0	mW/°C
	Reverse Voltage	V_R	5	V
DETECTOR	Junction Temperature	T_j	125	°C
	Peak Forward Voltage (R _{GK} =27kΩ)	V_{DRM}	600	V
	Peak Reverse Voltage (R _{GK} =27kΩ)	V_{RRM}	600	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 On-State Current (100µs pulse, 120pps)	I_{TP}	3	A
	Peak One Cycle Surge Current	I_{TSM}	2	A
	Peak Reverse Gate Voltage	V_{GM}	5	V
	Power Dissipation	P_D	150	mW
	Power Dissipation Derating (Ta≥25°C)	$\Delta P_D/^\circ\text{C}$	-2.0	mW/°C
	Junction Temperature	T_j	100	°C
	Storage Temperature Range	T_{stg}	-55~150	°C
	Operating Temperature Range	T_{opr}	-55~100	°C
	Lead Soldering Temperature (10sec.)	T_{sld}	260	°C
Total Package Power Dissipation		P_T	250	mW
Total Package Power Dissipation Derating (Ta≥25°C)		$\Delta P_T/^\circ\text{C}$	-3.3	mW/°C
Isolation Voltage (AC, 1 min, RH≤60%)		BV_S	5000	Vrms

PIN CONFIGURATION (TOP VIEW)



- 1: ANODE
- 2: CATHODE
- 3: NC
- 4: CATHODE
- 5: ANODE
- 6: GATE

COUPLED CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$V_{AK}=6V, R_{GK}=27k\Omega$	—	5	10	mA
Turn-on Time	t_{on}	$I_F=30mA, V_{AA}=50V, R_{GK}=27k\Omega$	—	10	—	µs
Coupled dv/dt	dv/dt	$V_S=500V, R_{GK}=27k\Omega$	500	—	—	V/µs
Capacitance Input to Output	C_S	$V_S=0, f=1MHz$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S=500V$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	5000	—	—	Vrms
		AC, 1 second	—	10000	—	—
		DC, 1 minute	—	10000	—	Vdc

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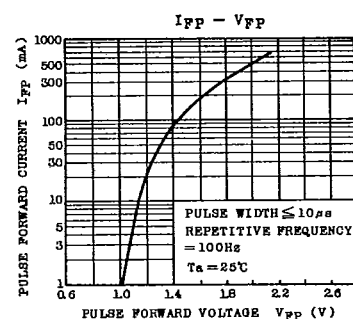
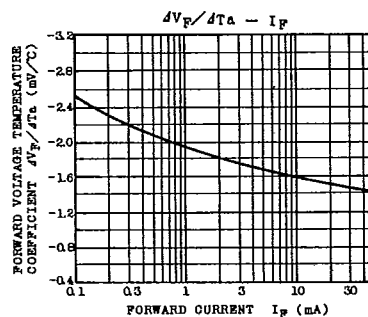
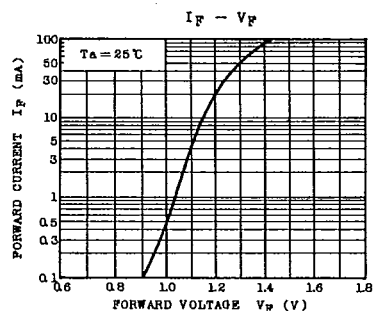
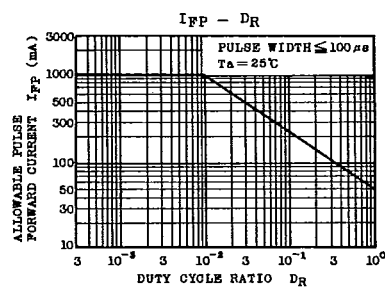
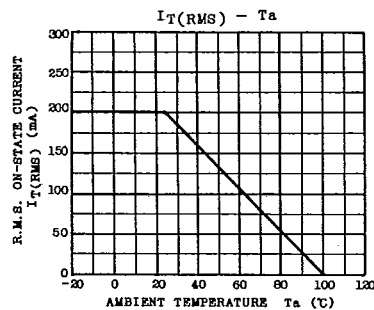
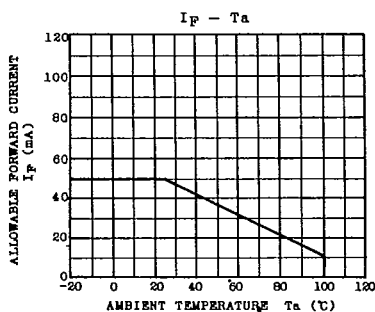
99D 17502 DT-41-87

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}	$V_{AK}=600\text{V}$ $R_{GK}=27\text{k}\Omega$	$T_a=25^\circ\text{C}$ $T_a=85^\circ\text{C}$	- 10	5000 150	nA μA
	Reverse Current	I_{RRM}	$V_{KA}=600\text{V}$ $R_{GK}=27\text{k}\Omega$	$T_a=25^\circ\text{C}$ $T_a=85^\circ\text{C}$	- 10	5000 150	nA 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	-	mA
	Off-State dv/dt	dv/dt	$V_{AK}=420\text{V}, R_{GK}=27\text{k}\Omega$	-	10	-	V/ μs
	Capacitance	C_j	$V=0, f=1\text{MHz}$ Anode to Gate Gate to Cathode	- -	20 350	- -	pF

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{AC}	-	-	240	Vac
Forward Current	I_F	15	20	25	mA
Operating Temperature	T_{opr}	-25	-	85	$^\circ\text{C}$
Gate to Cathode Resistance	R_{GK}	-	10	27	$\text{k}\Omega$
Gate to Cathode Capacity	C_{GK}	-	0.01	0.1	μF



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