

TLP227A,TLP227A-2

CORDLESS TELEPHONE

PBX

MODEM

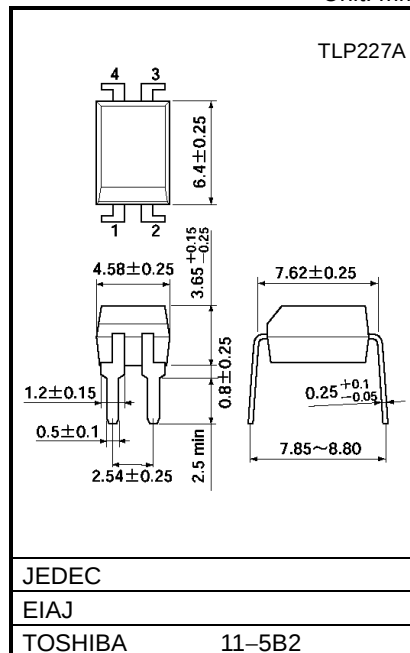
The TOSHIBA TLP227A series consist of a gallium arsenide infrared emitting diode optically coupled to a photo-MOS FET in a plastic DIP package.

The TLP227A series are a bi-directional switch, which can replace mechanical relays in many applications.

FEATURES

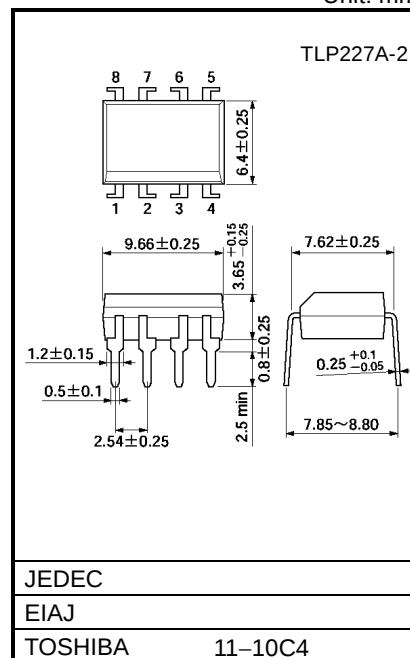
- TLP227A : 4 pin DIP (DIP4)
1 Channel Type (1 Form A)
- TLP227A-2 : 8 pin DIP (DIP8)
2 Channel Type (2 Form A)
- Peak Off-State Voltage : 60 V (MIN.)
- Trigger LED Current : 3 mA (MAX.)
- On-State Current : 500 mA (MAX.)
- On-State Resistance : 2 Ω (MAX.)
- Isolation Voltage : 2500 Vrms (MIN.)
- UL Recognized : UL1577, File No. E67349

Unit: mm



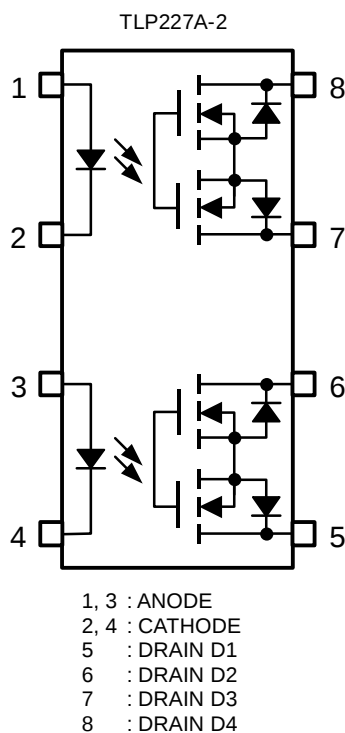
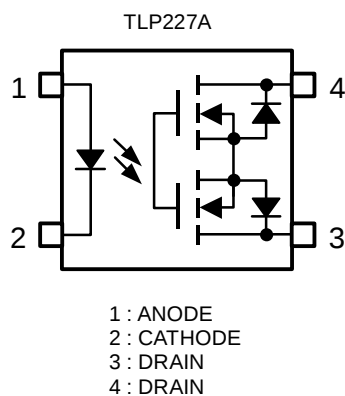
Weight: 0.26 g

Unit: mm



Weight: 0.54 g

PIN CONFIGURATION (TOP VIEW)



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC				SYMBOL	RATING	UNIT
LED	Forward Current			I _F	50	mA
	Forward Current Derating (Ta ≥ 25°C)			ΔI _F /°C	−0.5	mA/°C
	Peak Forward Current (100μs pulse, 100 pps)			I _{FP}	1	A
	Reverse Voltage			V _R	5	V
	Junction Temperature			T _j	125	°C
DETECTOR	Off-State Output Terminal Voltage			V _{OFF}	60	V
	On-State Current	TLP227A		I _{ON}	500	mA
		TLP227A-2	One Channel			
			Both Channel (Note 1)			
	On-State Current Derating (Ta ≥ 25°C)	TLP227A		ΔI _{ON} /°C	−5.0	mA/°C
		TLP227A-2	One Channel			
			Both Channel (Note 1)			
	Junction Temperature			T _j	125	°C
Storage Temperature Range				T _{stg}	−55~125	°C
Operating Temperature Range				T _{opr}	−40~85	°C
Lead Soldering Temperature (10 s)				T _{sol}	260	°C
Isolation Voltage (AC, 1 minute, R.H. ≤ 60%) (Note 2)				BV _S	2500	Vrms

(Note 1) :Two channels operating simultaneously.

(Note 2):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 _{DD}	—	—	48	V
Forward Current	I _F	5	7.5	25	mA
On-State Current	I _{ON}	—	—	400	mA
Operating Temperature	T _{opr}	−20	—	65	°C

INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	V _F	I _F = 10 mA	1.0	1.15	1.3	V
	Reverse Current	I _R	V _R = 5 V	—	—	10	μA
	Capacitance	C _T	V = 0, f = 1 MHz	—	30	—	pF
DETECTOR	Off-State Current	I _{OFF}	V _{OFF} = 60 V	—	—	1	μA
	Capacitance	C _{OFF}	V = 0, f = 1 MHz	—	130	—	pF

COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Trigger LED Current	I_{FT}	$I_{ON} = 300\text{ mA}$	—	1	3	mA
Close LED Current	I_{FC}	$I_{OFF} = 100\text{ }\mu\text{A}$	0.1	—	—	mA
On-State Resistance	R_{ON}	$I_{ON} = 300\text{ mA}$, $I_F = 5\text{ mA}$	—	1	2	Ω

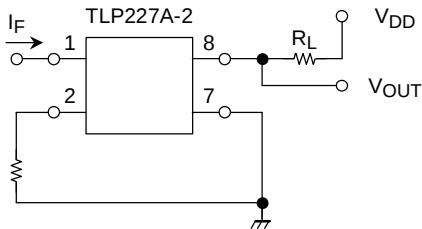
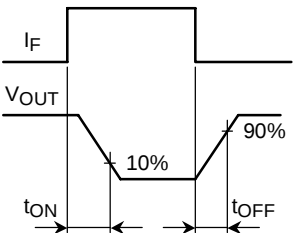
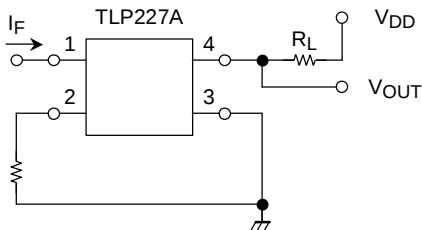
ISOLATION CHARACTERISTICS (Ta = 25°C)

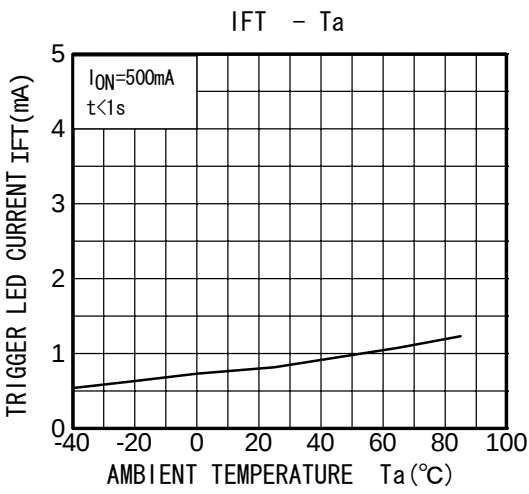
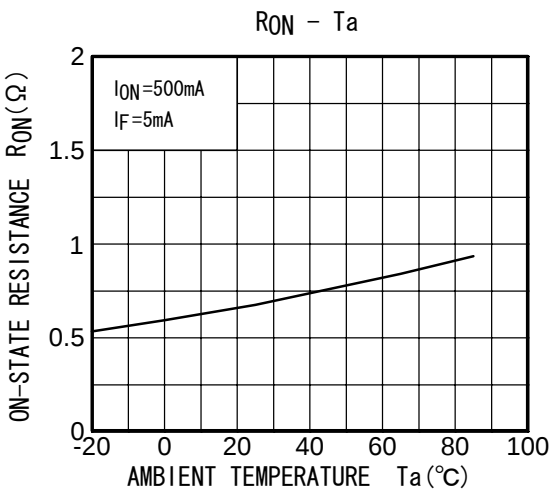
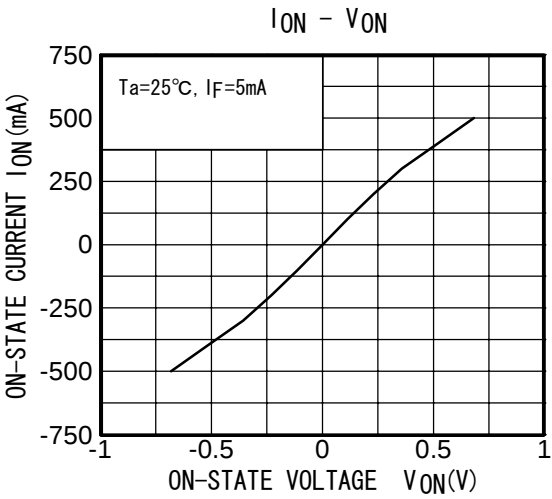
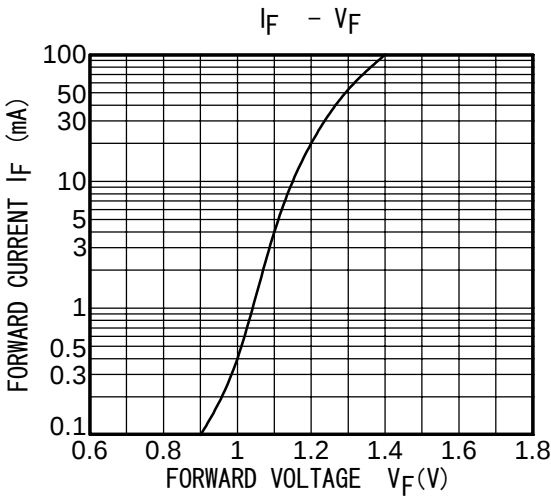
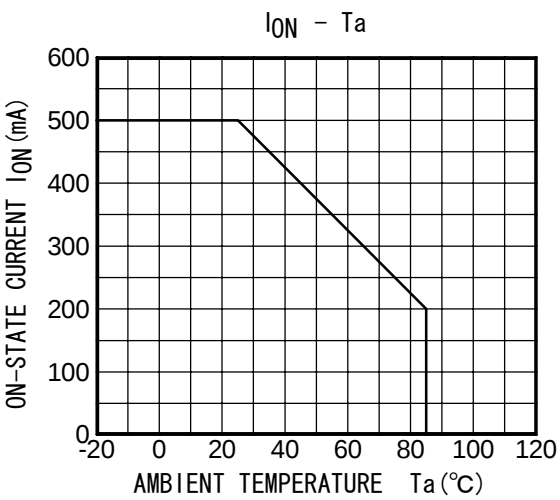
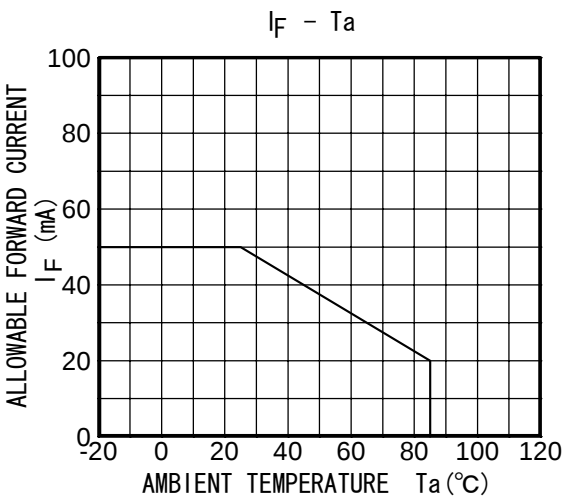
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Capacitance Input to Output	C_S	$V_S = 0\text{ V}$, $f = 1\text{ MHz}$	—	0.8	—	pF
Isolation Resistance	R_S	$V_S = 500\text{ V}$, R.H. $\leq 60\%$	5×10^{10}	10^{14}	—	Ω
Isolation Voltage	BV_S	AC, 1 minute	2500	—	—	Vrms
		AC, 1 second (in oil)	—	5000	—	
		DC, 1 minute (in oil)	—	5000	—	Vdc

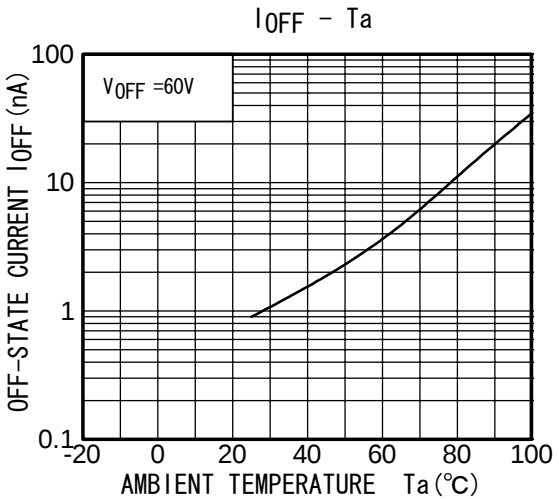
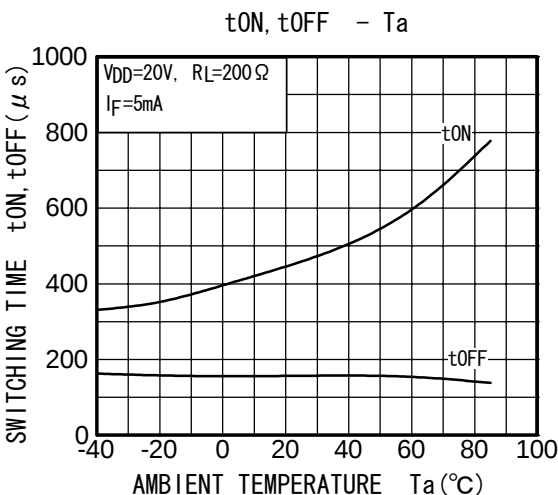
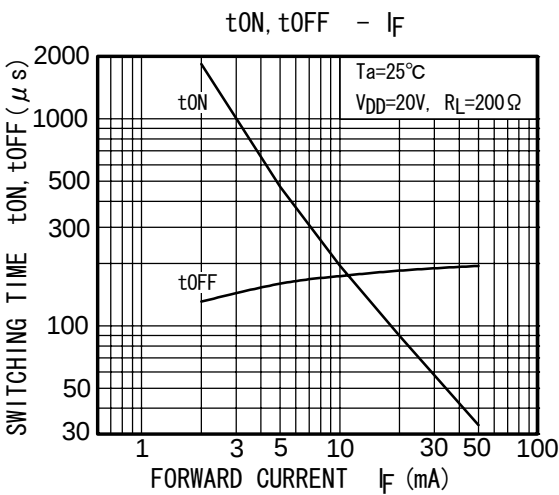
SWITCHING CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Turn-on Time	t_{ON}	$R_L = 200\text{ }\Omega$ $V_{DD} = 20\text{ V}$, $I_F = 5\text{ mA}$ (Note 3)	—	0.6	2	ms
Turn-off Time	t_{OFF}		—	0.1	1	
Turn-on Time	t_{ON}	$R_L = 200\text{ }\Omega$ $V_{DD} = 20\text{ V}$, $I_F = 10\text{ mA}$ (Note 3)	—	0.3	1	ms
Turn-off Time	t_{OFF}		—	0.1	1	

(Note 3) : SWITCHING TIME TEST CIRCUIT







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