

TOSHIBA SOLID STATE I/O INTERFACE MODULE

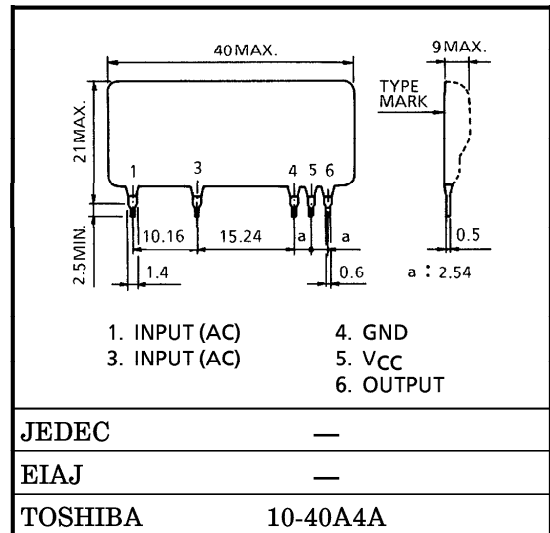
TF1106

AC INPUT MODULE

Unit in mm

TOSHIBA TF1106 is AC Line Voltage Input I/O Interface Module and it includes the optical isolator. Using this Module, you can design high reliability and compact system.

- Recommended Input Voltage : $V_{IN} = 80 \sim 130V$ AC
- Input Impedance : $Z_{IN} = 45k\Omega$
- 1500V AC Optical Isolation
- Wide Supply Voltage : $V_{CC} = 5 \sim 18V$
- Including Delay Time Circuit
- Output is Compatible with TTL and CMOS Logic
- Small Size and Light Weight



Weight : 7g

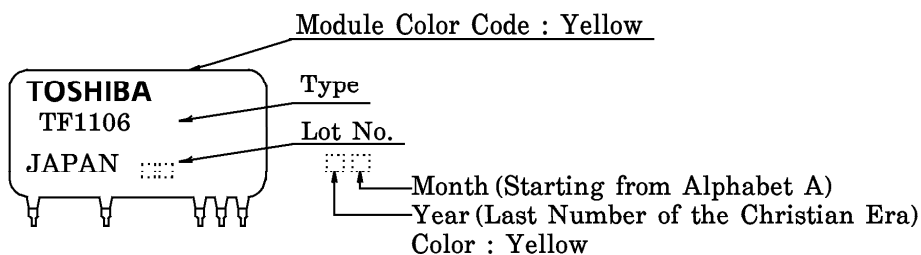
MAXIMUM RATINGS (Ta = 25°C)
INPUT (AC LINE VOLTAGE)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage (AC)	V_{IN}	140	V
Input Current (AC)	I_{IN}	10	mA
Operating Frequency Range	f	45~65	Hz

OUTPUT (LOGIC CONTROL)

Logic Supply Voltage	V_{CC}	20	V
Output Voltage	V_{OUT}	$-0.5 \sim V_{CC} + 0.5$	V
Output Current	I_{OUT}	6	mA
Isolation Voltage (Input-Output) (AC)	BV_S / AC	1500 (1min)	V
Operating Temperature Range	T_{opr}	$-20 \sim 80$	°C
Storage Temperature Range	T_{stg}	$-20 \sim 80$	°C
Lead Soldering Temperature (10s)	T_{sol}	260	°C

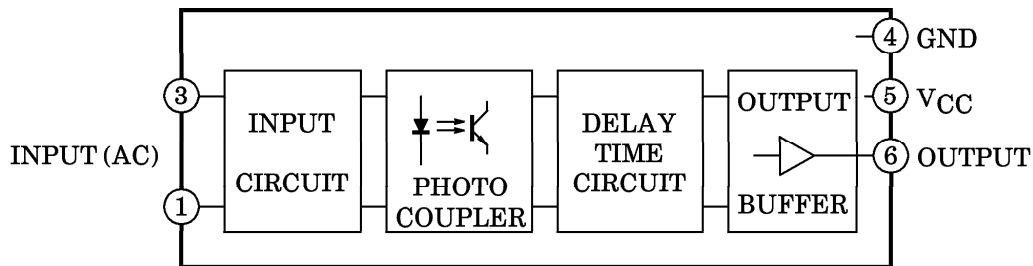
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BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (Ta = 25°C, VCC = 5V, f = 50Hz)
 INPUT (AC LINE VOLTAGE)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Voltage	"H" Level	V _{ILH}	I _{OUT} < 1μA, V _{OUT} > 4.5V	—	51	70	V
	"L" Level	V _{IHL}	I _{OUT} < 1μA, V _{OUT} < 0.5V	30	50	—	
Input Current	"H" Level	I _{ILH}	I _{OUT} < 1μA, V _{OUT} > 4.5V	—	1.07	—	mA
	"L" Level	I _{IHL}	I _{OUT} < 1μA, V _{OUT} < 0.5V	—	1.05	—	
Input Impedance		Z _{IN}	V _{IN} = 100V, f = 50Hz	—	45	—	kΩ

OUTPUT (LOGIC CONTROL)

Output Voltage	"H" Level	V _{OH}	I _{OUT} = -10μA, V _{IN} = 100V	4.5	4.9	—	V
	"L" Level	V _{OL}	I _{OUT} = 2.5mA, V _{IN} = 0V	—	0.3	0.5	
Output Current (sink)		I _{OUT}	V _{OL} = 1.5V, V _{IN} = 0V	6	16	—	mA
Supply Current	"H" Level	I _{CCH}	I _{OUT} < 1μA, V _{IN} = 100V	—	1.0	5	mA
	"L" Level	I _{CCL}	I _{OUT} < 1μA, V _{IN} = 0V	—	1.4	6	
Propagation Delay Time	"H" Level	t _{pLH}	V _{IN} = 0 → 100V	—	7.2	15	ms
	"L" Level	t _{pHL}	V _{IN} = 100 → 0V	—	6.0	15	
Isolation Resistance		R _S	V = 1kV, R.H = 40~60%	—	10 ¹⁰	—	Ω

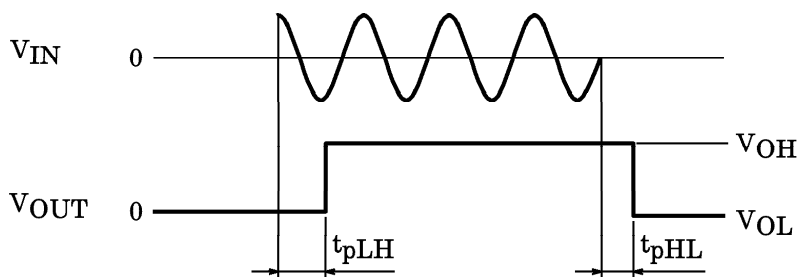


Fig.1 SWITCHING TIME TEST CONDITION

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