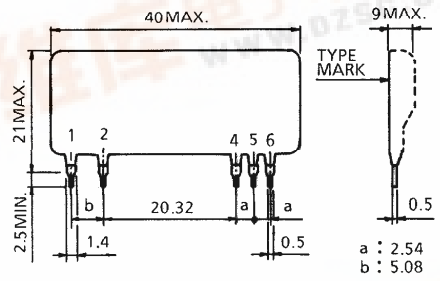
TOSHIBA SOLID STATE I/O INTERFACE MODULE

TF1107

DC INPUT MODULE

Unit in mm



1. INPUT (−)
2. INPUT (+)
4. GND
5. V_{CC}
6. OUTPUT

JEDEC	—
EIAJ	—
TOSHIBA	10-40A1A

Weight : 7g

TOSHIBA TF1107 is DC 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} = 12~24V
- Input Impedance : Z_{IN} = 3.1kΩ
- 1500V AC Optical Isolation
- Wide Supply Voltage : V_{CC} = 5~18V
- Including Delay Time Circuit
- Output is Compatible with TTL and CMOS Logic
- Small Size and Light Weight

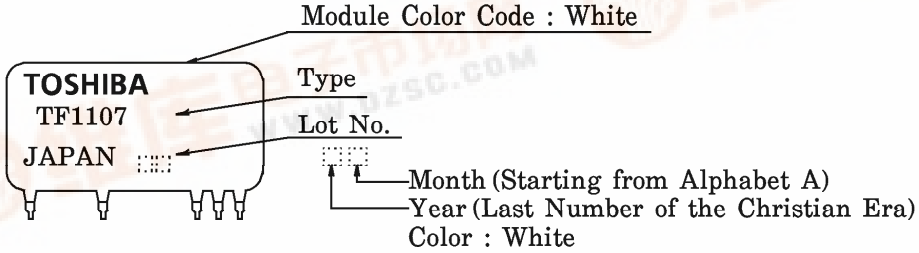
MAXIMUM RATINGS (Ta = 25°C)
INPUT (DC LINE VOLTAGE)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage (DC)	V_{IN}	30	V
Input Current (DC)	I_{IN}	10	mA
Operating Frequency Range	f	65	Hz

OUTPUT (LOGIC CONTROL)

Logic Supply Voltage	V_{CC}	20	V
Output Voltage	V_{OUT}	−0.5~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}	−20~80	°C
Storage Temperature Range	T_{stg}	−20~80	°C
Lead Soldering Temperature (10s)	T_{sol}	260	°C

MARK



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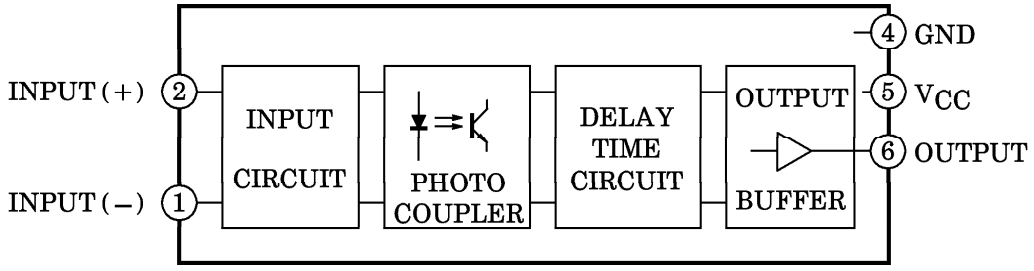
BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 5V)

INPUT (DC LINE VOLTAGE)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Voltage	"H" Level	V_{ILH}	$\|I_{OUT}\|<1\mu A$, $V_{OUT}>4.5V$	—	7.8	12	V
	"L" Level	V_{IHL}	$\|I_{OUT}\|<1\mu A$, $V_{OUT}<0.5V$	5	7.5	—	
Input Current	"H" Level	I_{ILH}	$\|I_{OUT}\|<1\mu A$, $V_{OUT}>4.5V$	—	1.4	—	mA
	"L" Level	I_{IHL}	$\|I_{OUT}\|<1\mu A$, $V_{OUT}<0.5V$	—	1.3	—	
Input Impedance		Z_{IN}	$V_{IN}=24V$	—	3.1	—	kΩ

OUTPUT (LOGIC CONTROL)

Output Voltage	"H" Level	V_{OH}	$I_{OUT}=-10\mu A$, $V_{IN}=24V$	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}	$\|I_{OUT}\|<1\mu A$, $V_{IN}=24V$	—	1.0	5	mA
	"L" Level	I_{CCL}	$\|I_{OUT}\|<1\mu A$, $V_{IN}=0V$	—	1.4	6	
Propagation Delay Time	"H" Level	t_{pLH}	$V_{IN}=0\rightarrow24V$	—	4.2	8	ms
	"L" Level	t_{pHL}	$V_{IN}=24\rightarrow0V$	—	5.5	10	
Isolation Resistance		R_S	V = 1kV, R.H = 40~60%	—	10^{10}	—	Ω

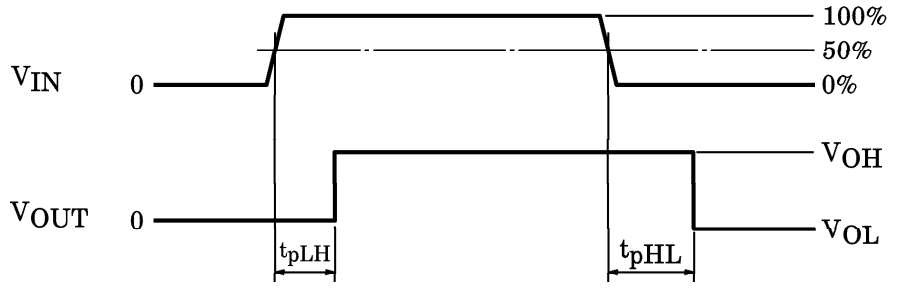


Fig.1 SWITCHING TIME TEST CONDITION