

TOSHIBA**TF1208**

TOSHIBA SOLID STATE IGBT GATE DRIVER MODULE

TF1208

TOSHIBA TF1208 is the IGBT gate driver designed for use with TOSHIBA Insulated Gate Bipolar Transistor Module and it includes the optical isolator and IGBT gate driver circuit. Using this driver, you can design high reliability and compact system.

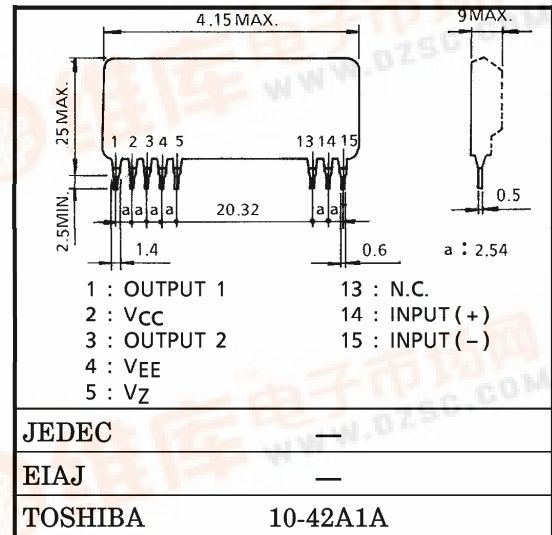
- Recommended Conditions :
Input Current : $I_F = 16\text{mA}$
Output Supply Voltage : $V_{CC} = 15\text{V}$, $V_{EE} = -15\text{V}$
- High Speed Switching Response :
 $t_{pLH} = 1.5\mu\text{s}$ (Typ.)
 $t_{pHL} = 0.8\mu\text{s}$ (Typ.)
- Small Size and Light Weight
- 2500 VAC Optical Isolation

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Current	I_F	25	mA
Reverse Input Voltage	V_R	5	V
Output Supply Voltage	V_{CC}	18	V
	V_{EE}	-18	
Output Voltage	V_{OUT}	$V_{CC} \sim V_{EE}$	V
High Level Peak Output Current (Note 1)	I_{OHP}	2 (10 μs)	A
Low Level Peak Output Current (Note 1)	I_{OLP}	-3 (10 μs)	A
Operating Frequency (Note 2)	f	15	kHz
Isolation (Input-Output)	BV_S / AC	2500 (1min)	V
Operating Temperature	T_{opr}	-20~70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-20~85	$^\circ\text{C}$
Lead Soldering Temperature	T_{sol}	260 $^\circ\text{C}$ (10s)	$^\circ\text{C}$

Note 1 : Exponential Waveform ($f = 10\text{kHz}$, Fig.1)Note 2 : $I_{OHP} = 2\text{A}$ (5 μs), $I_{OLP} = -3\text{A}$ (5 μs), Exponential Waveform (Fig.1)

Unit in mm

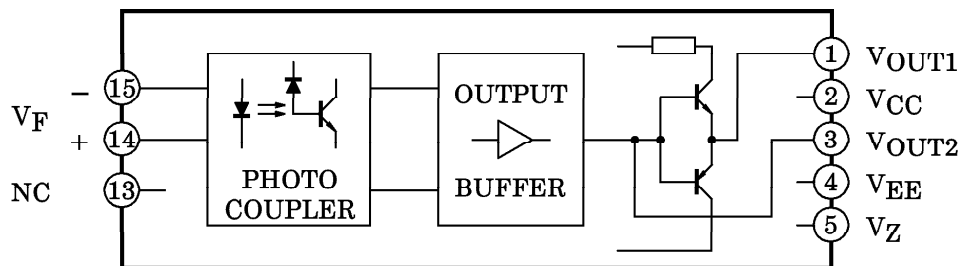


Weight : 8g

961001EBA2

TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_C = 5V, V_{CC} = 15V, V_{EE} = -15V, R_Z = 500Ω, f = 10kHz)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
High Level Input Voltage	V _{FT}	V _{OUT1} > 0V (Fig.2, 3)	—	1.6	1.65	V
High Level Input Current	I _{FT}	V _{OUT1} > 0V (Fig.2, 3)	—	8.0	16	mA
Reverse Current	I _R	V _R = 5V	—	—	10	μA
High Level Output Voltage	V _{OH}	I _F = 16mA, R _L = 200Ω (Fig.2, 3)	13	13.5	—	V
Low Level Output Voltage	V _{OL}	I _F = 0mA, R _L = 200Ω (Fig.2, 3)	—	-13.5	-13	
High Level Supply Current	I _{CCH}	I _F = 16mA, V _{OUT1} > 0V (Fig.2, 3)	—	11	—	mA
Low Level Supply Current	I _{CCL}	I _F = 0mA, V _{OUT1} < 0V (Fig.2, 3)	—	10	—	
Zener Voltage (Coupler Supply)	V _Z	I _Z = 20mA, 4pin to 5pin	—	5.1	—	V
Propagation Delay Time to High Output Level	t _{pLH}	I _F = 16mA, V _{OUT1} > 0V R _L = 200Ω (Fig.2, 3)	—	1.5	2.0	μs
Output Rise Time	t _r		—	0.25	—	
Propagation Delay Time to Low Output Level	t _{pHL}	I _F = 0mA, V _{OUT1} < 0V R _L = 200Ω (Fig.2, 3)	—	0.8	1.5	μs
Output Fall Time	t _f		—	0.10	—	
Isolation Resistance (Input-Output)	R _S	V = 1kV, RH = 40~60%	—	10 ¹⁰	—	Ω

● The products described in this document are subject to foreign exchange and foreign trade control laws.
● The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
● The information contained herein is subject to change without notice.

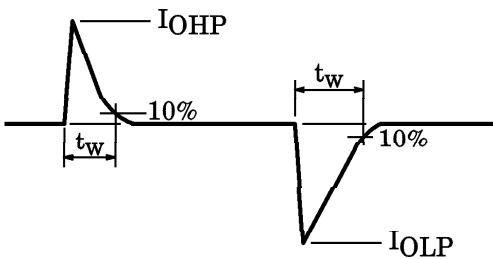


Fig.1 EXPONENTIAL WAVEFORM

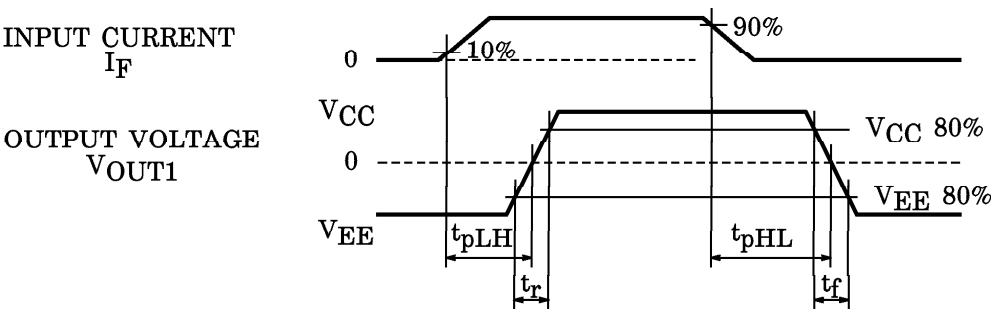


Fig.2 SWITCHING TIME TEST CONDITION

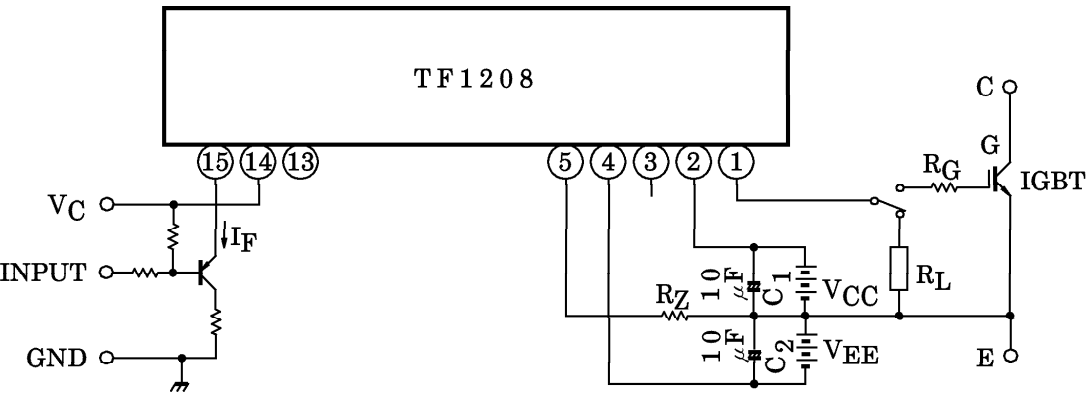


Fig.3 SWITCHING TIME TEST CIRCUIT

