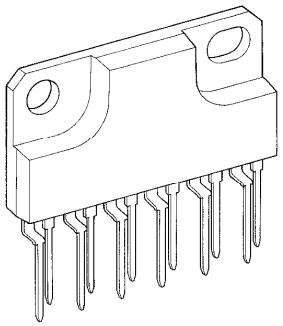
TENTATIVE TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8061H

DUAL HIGHSIDE DRIVER WITH DIAGNOSIS

The TA8061H is a 1.5A highside driver containing two circuits. Each circuit has a self-diagnostic function which produces a diagnostic output. The input is TTL-compatible.
This IC has other various protective functions.



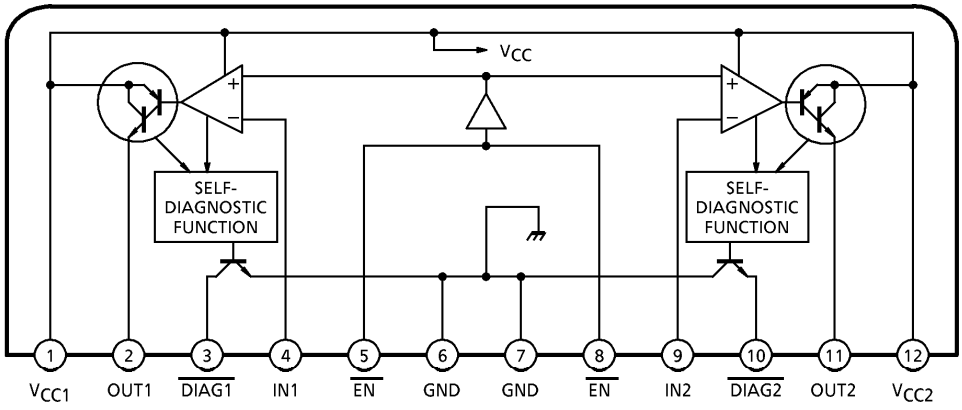
HZIP12-P-1.78B

Weight : 4.0g (Typ.)

FEATURES

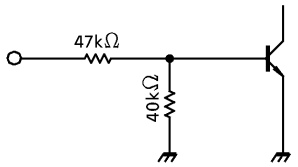
- Output current capacity : 1.5A
- Diagnostic function : Load-open (10mA or less) and over-current (3A or more) detection
- Protective function : Short-circuit protection (latch) and thermal-shutdown / over-voltage protection (nonlatch)
- Low standby current : 0.5mA (Max.)
- Two circuits contained
- Power package HZIP-12pin

BLOCK DIAGRAM AND PIN LAYOUT



980910EBA2

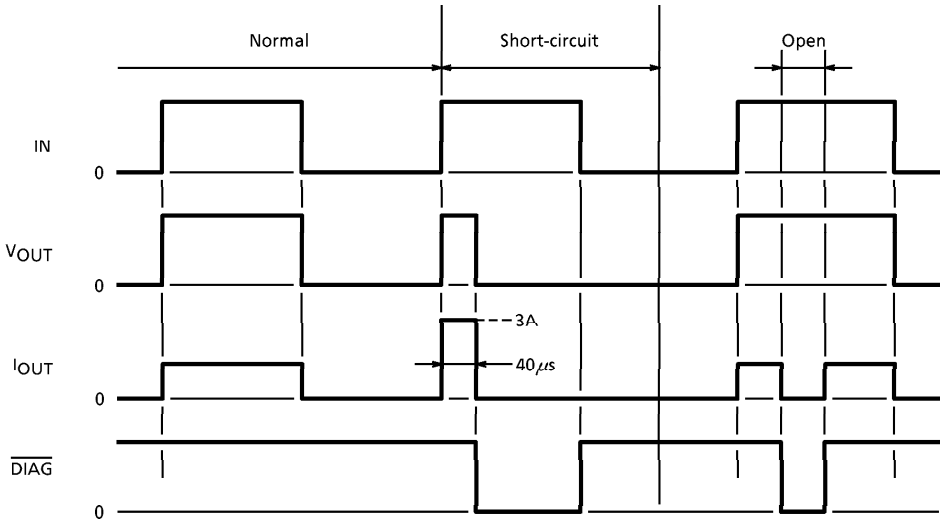
PIN DESCRIPTION

PIN No.	SYMBOL	DESCRIPTION
1, 12	V_{CC}	Power supply pin. A function for protection against over-voltage is provided so that the output will turn off when the applied voltage exceeds 27.5V (Typ.). This function works to protect the IC and load.
2, 11	OUT	PNP-type complementary output pin with a current capacity of 1.5A. When the output pin is supplied with a current exceeding the detection current (typically 3A) because of load short-circuit, the output is latched to the OFF state to protect the IC. To restart, turn off the input once, then raise it high.
3, 10	$\overline{DIAG}$	Self-diagnosis detection pin. This signal goes low when the output is short-circuited or opened while the input is on (high). The output will be latched when the load is short-circuited, but will not when the load is opened. This pin supplies an NPN open-collector output.
4, 9	IN	TTL-compatible input pin. The circuit is shown as follows. 
5, 8	$\overline{EN}$	When this signal goes high, both channels 1 and 2 are placed in standby state (0.5mA Max.).
6, 7	GND	Grounded.

TRUTH TABLE

IN	OUT		$\overline{DIAG}$
H	H (ON)	Normal	H
		Abnormal	L
L	L (OFF)	—	H

TIMING CHART



MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V_{CC}	30	V
	V_{CC}	60 (1s)	
Input Voltage	V_{IN}	18	V
Output Voltage	V_{OUT}	−0.3~V_{CC}	V
Output Current	I_{OUT}	1.5	A
Power Dissipation	P_D	25	W
Operating Temperature	T_{opr}	−40~110	°C
Storage Temperature	T_{stg}	−55~150	°C
Lead Temperature·time	T_{sol}	260 (10s)	°C

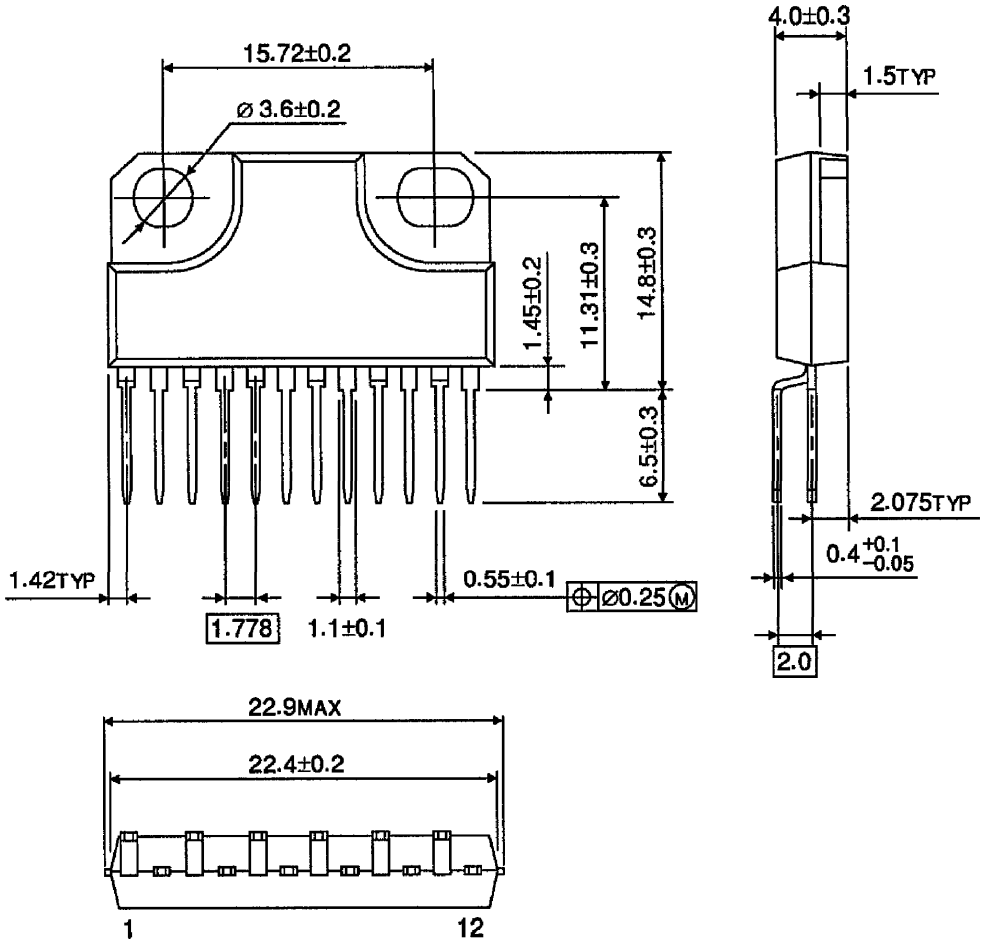
ELECTRICAL CHARACTERISTICS (V_{CC} = 12V, Ta = 25°C)

CHARACTERISTIC	SYMBOL	PIN	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Power Supply Current	I_{CC}	$V_{CC1, 2}$	—	In standby state	—	—	0.5	mA
			—	$\overline{EN}$ = "L" IN = "L"	—	4	8	
			—	CH1 or CH2 = ON	—	20	40	
			—	CH1, CH2 = ON	—	35	60	
Input Voltage	V_{IH}	IN1, 2	—	—	2	—	—	V
	V_{IL}		—	—	−0.3	—	0.8	
Input Current	I_{IH}	IN1, 2	—	V_{IN} = 3V	—	—	0.12	mA
	I_{IL}		—	V_{IN} = 0.8V	—	—	0.03	
Output Voltage	V_{OH}	OUT1, 2	—	I_{OUT} = 1A	—	1.2	1.5	V
	V_{OL}	$\overline{DIAG1}$, $\overline{2}$	—	I_{OUT} = 3mA	—	0.2	0.5	
Output Leakage Current	I_{LEAK}	OUT1, 2	—	V_{OUT} = 0V	—	—	10	μA
		$\overline{DIAG1}$, $\overline{2}$	—	V_{OUT} = 5V	—	—	10	
Over-current Detection	I_{SD1}	OUT1, 2	—	—	—	3.0	—	A
Load-Open Detection	I_{SD2}	OUT1, 2	—	—	—	25	—	mA
Over-voltage Detection	V_{SD}	$V_{CC1, 2}$	—	—	—	27.5	—	V
Shutdown Temperature	T_{SD}	—	—	—	—	150	—	°C
Transfer Delay Time	t_{pLH}	OUT1, 2	—	I_{OUT} = 1A	—	1	—	μs
	t_{pHL}				—	5	—	

OUTLINE DRAWING

HZIP12-P-1.78B

Unit : mm



Weight : 4.0g (Typ.)