

I. HYBRID ICs FOR BASE DRIVING OF POWER TRANSISTOR MODULE

1.1 Fuji Base Driver Module (Hybrid IC) EXB356

* Abstract

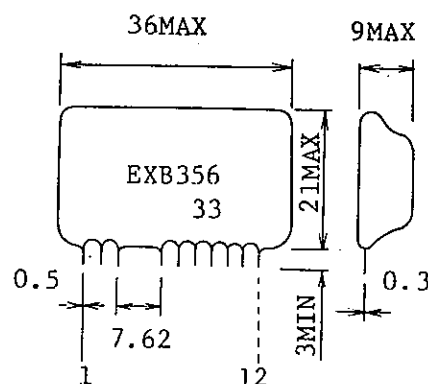
The EXB356 is a hybrid - IC base driver used in Fuji transistor modules. It includes opto-couplers for the electrical isolation between in-put side and output side of base drive circuit and can drive a wide range of transistor modules. The driver is contained in a small-sized 10-pin, in-line package and is most suitable for transistor inverters.

* Special features

- Includes opto-coupler; input and output are isolated electrically. (2500 VAC/1min.)
- IC has a high output current. ($I_{R1} = 1.3 \text{ A}$, $I_{R2} = 3.4 \text{ A}$)
- Drives high dv/dt (4000 V / μs)
- Short switching time. ($t_{stg} < 5.0 \mu\text{s}$)
- CMOS and TTL drives are available

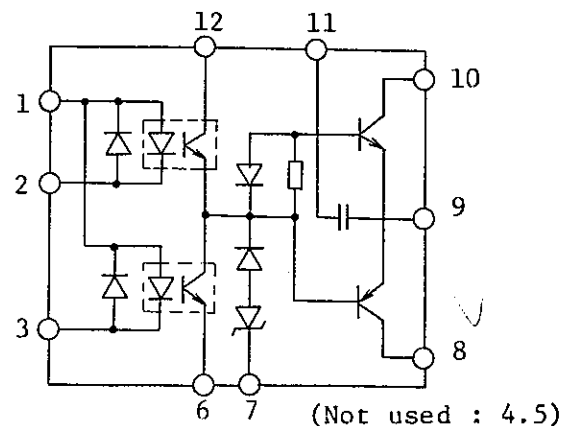
* Applications

Drive for transistors such as transistor inverters.



Pitch 2.54 (Unit: mm)

External View



Circuit diagram

* Ratings and Characteristics

Absolute maximum rating. ($T_a = 25^{\circ}\text{C}$)

Item	Symbol	Condition	Rating	Units
Forward bias supply-voltage	VCC		10	V
Reverse bias supply-voltage	VEE		-10	V
Input current	IIN		2.6~9	mA
Forward bias output current	IB1	duty=0.5	1.3	A
Reverse bias output current	IB2	PW=20 μ s, f=2.5KHZ MAX	3.4	A
Power dissipation	PD	$T_a=55^{\circ}\text{C}$	0.7	W
Isolation voltage	VISO	AC50/60HZ, 1min	2500	V
Operating ambient temperature	T_a		-10~55	$^{\circ}\text{C}$
Surface temperature while operating	T_c		-10~85	$^{\circ}\text{C}$
Storage temperature	T_{stg}		-25~125	$^{\circ}\text{C}$

Electrical characteristics. ($T_a = 25^\circ\text{C}$)

Item	Symbol	Condition	Value			Units
			MIN	TYP	MAX	
Delay time	t_d		-	-	5.0	μs
Rise time	t_r		-	-	1.0	μs
Storage time	t_{stg}		-	-	5.0	μs
Reverse bias current descent rating	$-dib2/dt$		2.0	-	-	A/ μs
dv/dt capability for input and output	dv/dt		4000	-	-	V/ μs

* Conditions

- Case temperature. (T_C) = $-10^\circ\text{C} \sim 85^\circ\text{C}$
- Junction temperature of driving transistor
(T_j) = $-10 \sim 130^\circ\text{C}$
- Driving wire length between base drive circuit and driven transistor module must be less than 30 cm.
- Cut-off current must be less than 150 A.
- $V_{OC} = V_{EE} = 8.5 \text{ V} \pm 15 \%$
- $R_F = 6.8 \Omega$ $R_R = 3.3 \Omega$
- Input current of base drive module

* Application circuit

