

# IGBT Driving Hybrid IC

# EXB 844

## Specification

### 7. Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Conditions	Rated value	Unit
Power supply voltage	Vcc		25	V
Photo coupler input current	Iin		10	mA
Forward bias output current	Igl	Pw=2μs, duty≤0.05	4.0	A
Reverse bias output current	Ig2	Pw=2μs, duty≤0.05	4.0	A
Isolation voltage	VISO	AC50Hz/60Hz, 1minut	2500	V
Operation temperature	Tc		-25~+85	°C
Storage temperature	Tstg		-25~+125	°C

### 8. Recommended Operating Conditions

#### 7-1. Power supply voltage

$$V_{cc} = 20 - 0(V)$$

#### 7-2. Photo Coupler Input Current

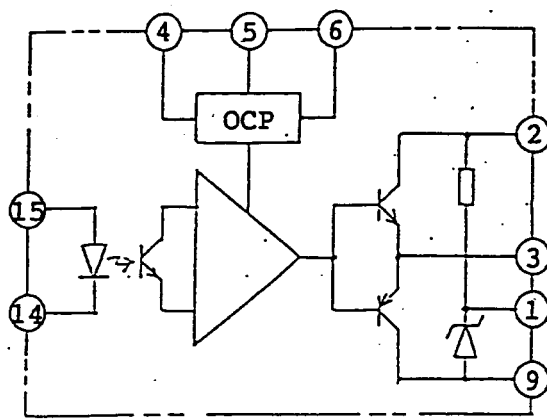
$$I_f = 10(mA)$$

### 9. Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Rated value			Unit
			MIN	TYP	MAX	
Switching time 1	ton	Vcc=20V, If=10mA			2.0	μsec
Switching time 2	t off	Vcc=20V, If=10mA			2.0	μsec
OCP operating voltage	Vocp	Vcc=20V, If=10mA		8.5		V
OCP delay time	t ocp	Vcc=20V, If=10mA			10	μsec
Alarm delay time	t ALM	Vcc=20V, If=10mA			1.5	μsec
Reverse bias power supply voltage	VRB	Vcc=20V		5.0		V
Opto coupler Common mode transient immunity	dv/dt	Vcc=20V, If=10mA	15.0			KV/ μsec
Gate resistance	Rg	Vcc=20V, If=10mA	3.3			Ω

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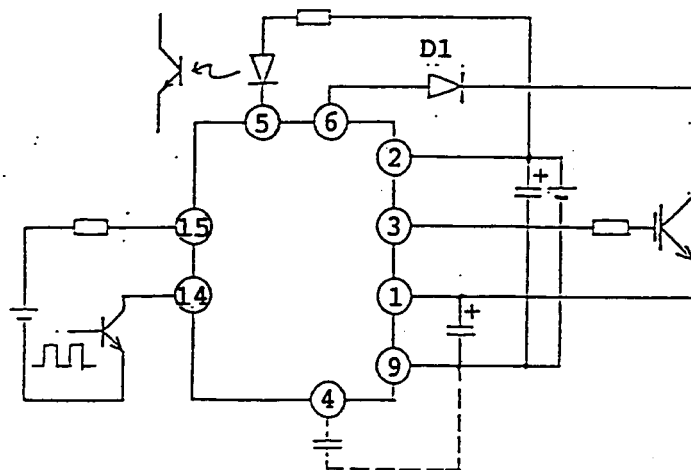
### 5. Equivalent Circuit



Terminal No.	Terminal name
1	Reverse bias power supply
2	Power supply
3	Output
4	OCP time adjustment
5	Alarm output
6	OCP detection
7	N. C.
8	N. C.
9	Power supply (OV)
10	--
11	--
12	--
13	--
14	Input (-)
15	Input (+)

### 6. Application Circuits

Note: D1 requires avoltage resistance equivalent to that of the main frame.



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### 7. Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Conditions	Rated value	Unit
Power supply voltage	V <sub>cc</sub>		25	V
Photo coupler input current	I <sub>in</sub>		10	mA
Forward bias output current	I <sub>g1</sub>	P <sub>w</sub> =2μs, duty≤0.05	4.0	A
Reverse bias output current	I <sub>g2</sub>	P <sub>w</sub> =2μs, duty≤0.05	4.0	A
Isolation voltage	V <sub>ISO</sub>	AC50Hz/60Hz, 1minut	2500	V
Operation temperature	T <sub>c</sub>		-25~+85	°C
Storage temperature	T <sub>stg</sub>		-25~+125	°C

### 8. Recommended Operating Conditions

#### 7-1. Power supply voltage

$$V_{cc}=20\text{--}0(V)$$

#### 7-2. Photo Coupler Input Current

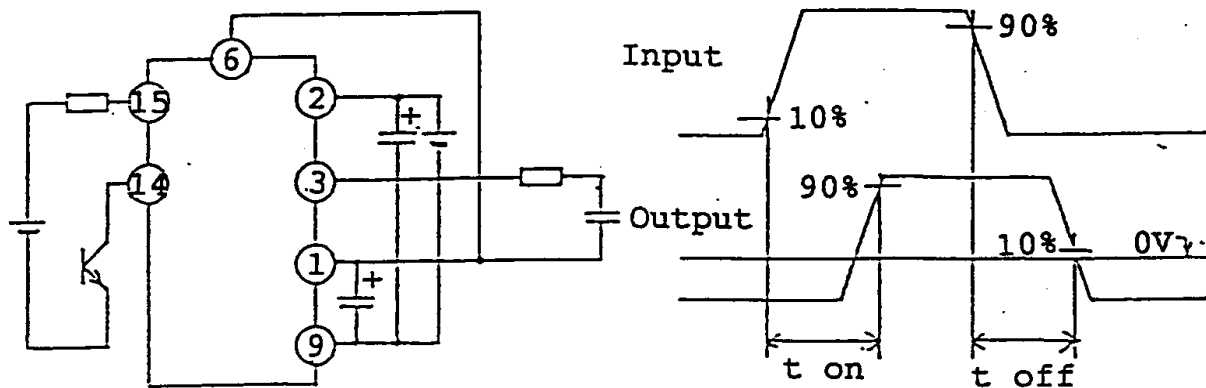
$$I_f=10(mA)$$

### 9. Electrical Characteristics (Ta=25°C)

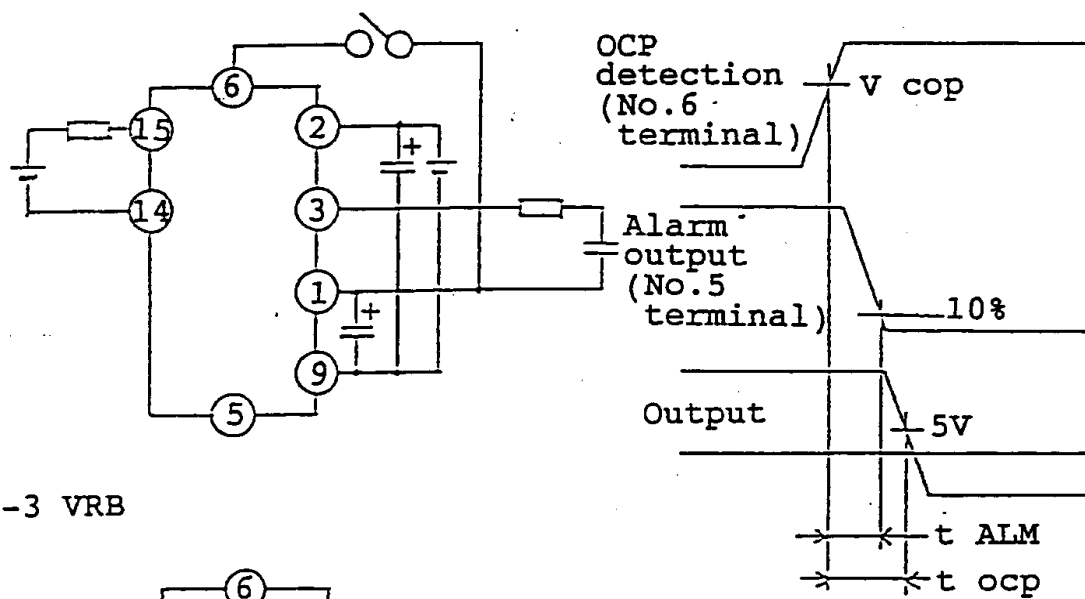
Parameter	Symbol	Conditions	Rated value			Unit
			MIN	TYP	MAX	
Switching time 1	t <sub>on</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA			2.0	μsec
Switching time 2	t <sub>off</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA			2.0	μsec
OCP operating voltage	V <sub>ocp</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA		8.5		V
OCP delay time	t <sub>ocp</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA			10	μsec
Alarm delay time	t <sub>ALM</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA			1.5	μsec
Reverse bias power supply voltage	V <sub>RB</sub>	V <sub>cc</sub> =20V		5.0		V
Opto coupler Common mode transient immunity	dv/dt	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA	15.0			KV/ μsec
Gate resistance	R <sub>g</sub>	V <sub>cc</sub> =20V, I <sub>f</sub> =10mA	3.3			Ω

### 10. Test-Circuits

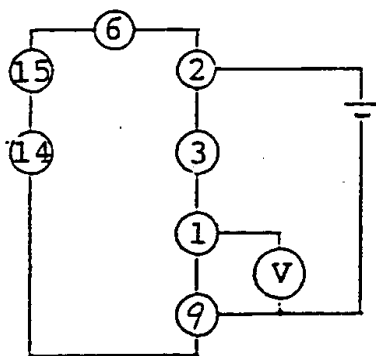
#### 10-1 t on, t off



#### 10-2 V ocp t cop t ALM



#### 10-3 VRB



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## 11. Reliability

Parameter	Conforming standards	Conditions
Soldering heat resistance	EIAJ IC-121-01	260±5°C, 10±S
Solderability	EIAJ IC-121-02	230±5°C, with flux, more than a 95% portion should have been soldered.
Natural fall	EIAJ IC-121-08	75cm, shelf board, 3 cycl
Vibration	EIAJ IC-121-10	10 to 55 Hz, 1.5cm, sweep 1 minut, 6H
Terminal tensile strength	EIAJ IC-121-11	0.5kgf, 10±10 sec
Terminal bending strength	EIAJ IC-121-11	0.25kg, 90°C bend, 2 cycl
Heat shock	EIAJ IC-121-03	0°C to 100 °C, fresh water, 15 sec, transfer 3 sec, 5 cycl
Temperature cycle	EIAJ IC-121-04	-25°C to 125°C, 30 minut, RT = 15 minut, 5 cycl
High temperature storage	EIAJ IC-121-15	125°C, 1000H
Low temperature storage	EIAJ IC-121-17	-25°C, 1000H
Moisture resistance	EIAJ IC-121-17	60±2°C, 90±5%, 1000H
Continuosu operation	EIAJ IC-121-51	Tc = 85°C, 1000H

## 12. Precautions for Use

- 1) No chemical should come into contact with the portion other than lead wires during cleaning because deterioration or a change in appearance of the products may occur.

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