

# CY25BAH-8F

## Nch IGBT for Strobe Flash

REJ03G0284-0300

Rev.3.00

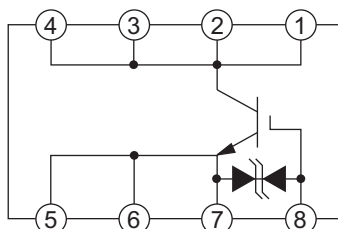
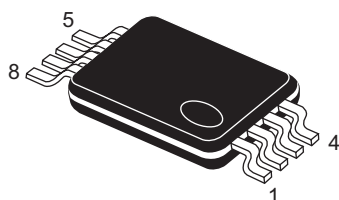
Nov 29, 2005

### Features

- Small surface mount package (TSSOP-8)  
— Terminal Pb free: PTSP0008JA-A (8P2J-A)  
— Complete Pb free: PTSP0008JB-B (TTP-8DV)
- $V_{CES}$  : 400 V
- $I_{CM}$  : 150 A
- Drive voltage : 2.5 V

### Outline

TSSOP-8



1,2,3,4 : Collector  
5,6 : Emitter  
7 : Emitter  
(for the gate drive)  
8 : Gate

Note: Pin 7 is for the gate drive only.

Note that current from the main circuit cannot flow into this section.(Please see page 3.)

### Applications

Strobe flash for cameras

### Maximum Ratings

( $T_c = 25^\circ\text{C}$ )

Parameter	Symbol	Ratings	Unit	Conditions
Collector-emitter voltage	$V_{CES}$	400	V	$V_{GE} = 0 \text{ V}$
Gate-emitter voltage	$V_{GES}$	$\pm 4$	V	$V_{CE} = 0 \text{ V}$
Peak gate-emitter voltage	$V_{GEM}$	$\pm 6$	V	$V_{CE} = 0 \text{ V}$ , $t_w = 10 \text{ s}$
Collector current (Pulse)	$I_{CM}$	150	A	$C_M = 400 \mu\text{F}$ (see performance curve)
Junction temperature	$T_j$	$-40$ to $+150$	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	$-40$ to $+150$	$^\circ\text{C}$	

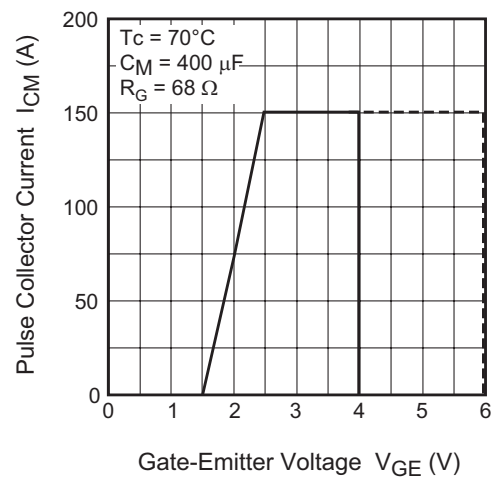
## Electrical Characteristics

(T<sub>j</sub> = 25°C)

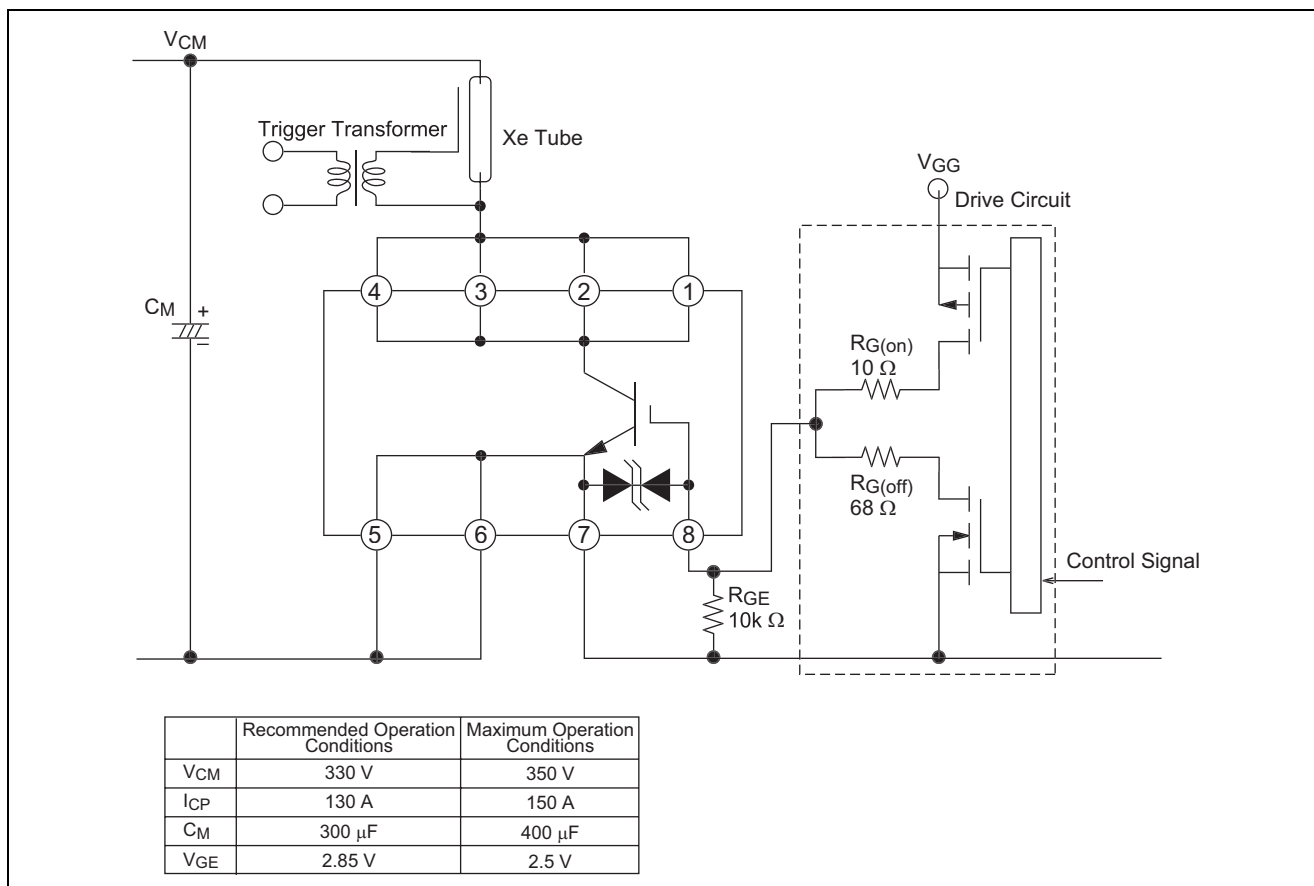
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Collector-emitter breakdown voltage	$V_{(BR)CES}$	450	—	—	V	$I_C = 1\text{ mA}$ , $V_{GE} = 0\text{ V}$
Collector-emitter leakage current	$I_{CES}$	—	—	10	$\mu\text{A}$	$V_{CE} = 400\text{ V}$ , $V_{GE} = 0\text{ V}$
Gate-emitter leakage current	$I_{GES}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GE} = \pm 6\text{ V}$ , $V_{CE} = 0\text{ V}$
Gate-emitter threshold voltage	$V_{GE(th)}$	0.4	0.6	1.2	V	$V_{CE} = 10\text{ V}$ , $I_C = 1\text{ mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	3.5	7.0	V	$I_C = 150\text{ A}$ , $V_{GE} = 2.5\text{ V}$
Input capacitance	$C_{ies}$	—	6500	—	pF	$V_{CE} = 25\text{ V}$ , $V_{GE} = 10\text{ V}$ , $f = 1\text{ MHz}$

## Performance Curves

Maximum Collector Current vs. Gate-Emitter Voltage



## Application Example



## Precautions on Usage

1. IGBT has MOS structure and its gate is insulated by thin silicon oxide. So please handle carefully to protect the device from electrostatic charge.
2. Gate drive voltage during on-period must be applied to satisfy the rating of maximum pulse collector current. And peak reverse gate current during turn-off must become less than 25 mA. (In general, when  $R_{G(off)} = 68\Omega$ , it is satisfied.)
3. The ground of the drive signal must be connected to pin 7 only. If the emitter terminal pins 5 and 6 in which a large currents flow are given to the device as the drive signal emitter, the device may be damaged due to large currents since the specified gate voltage is not applied to the IGBT within the device.
4. The operation life should be endured 5,000 shots under the charge current ( $I_{Xe} \leq 150$  A : full luminescence condition) of main capacitor ( $C_M = 400 \mu F$ ) which can endure repeated discharge of 5,000 times. Repetition period under full luminescence condition is over 3 seconds.
5. Total operation hours applied to the gate-emitter voltage must be within 5,000 hours when  $V_{GE}$  is driven at 4 V..

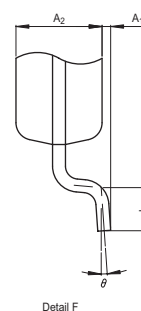
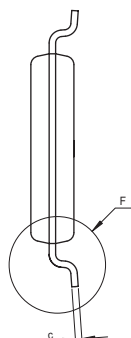
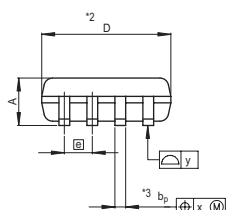
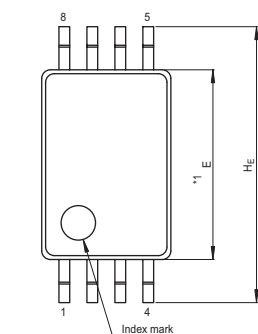
## Order Code

Lead form	Standard packing	Quantity	Standard order code	Standard order code example
Surface-mounted type	Taping	3000	Type name – T +Direction (1 or 2) +3	CY25BAH-8F-T13

Note: Please confirm the specification about the shipping in detail.

## Package Dimensions

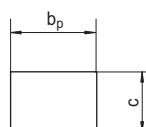
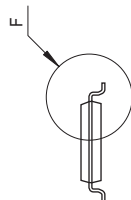
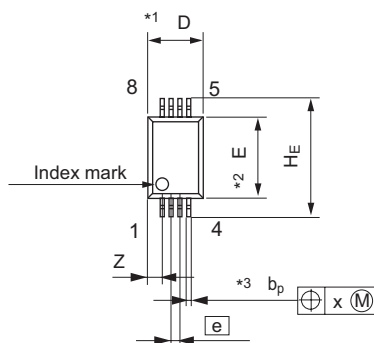
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TSSOP-8	P-TSSOP8-4.4x3-0.65	PTSP0008JA-A	8P2J-A	0.04g



NOTE)  
1. DIMENSIONS \*\*1\* AND \*\*2\*  
DO NOT INCLUDE MOLD FLASH.  
2. DIMENSION \*\*3\* DOES NOT  
INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	2.9	3.0	3.1
E	4.3	4.4	4.5
A <sub>2</sub>	—	1.0	—
A	—	—	1.2
A <sub>1</sub>	0	0.1	0.2
b <sub>p</sub>	0.2	0.25	0.32
c	0.14	0.15	0.2
θ	0°	—	8°
H <sub>E</sub>	6.2	6.4	6.6
[e]	—	0.65	—
x	—	—	0.13
y	—	—	0.10
L	0.3	0.5	0.7

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TSSOP-8	P-TSSOP8-4.4 × 3-0.65	PTSP0008JB-B	TTP-8DV	0.034g



Terminal cross section  
(Ni/Pd/Au plating)

NOTE)  
1. DIMENSIONS \*\*1(Nom)\* AND \*\*2\*  
DO NOT INCLUDE MOLD FLASH.  
2. DIMENSION \*\*3\* DOES NOT  
INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	3.00	3.30
E	—	4.40	—
A <sub>2</sub>	—	—	—
A <sub>1</sub>	0.03	0.07	0.10
A	—	—	1.10
b <sub>p</sub>	0.15	0.20	0.25
b <sub>1</sub>	—	—	—
c	0.10	0.15	0.20
c <sub>1</sub>	—	—	—
θ	0°	—	8°
H <sub>E</sub>	6.20	6.40	6.60
[e]	—	0.65	—
x	—	—	0.13
y	—	—	0.10
Z	—	—	0.805
L	0.40	0.50	0.60
L <sub>1</sub>	—	1.0	—

