CY25CAH-8F

Nch IGBT for Strobe Flash

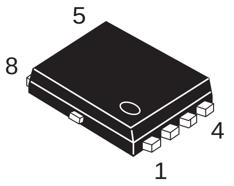
REJ03G1201-0200
Preliminary
Rev.2.00
May 24, 2005

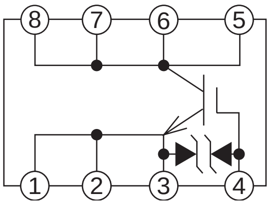
Features

- Ultra small surface mount package (VSON-8)
- V_{CES}: 400 V
- I_{CM}: 150 A
- Drive voltage: 2.5 V

Outline

PVSN0008JA-A
(Package Name: VSON-8<TNP-8DBV>)





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

Note: PIN 3 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

(Tc = 25°C)

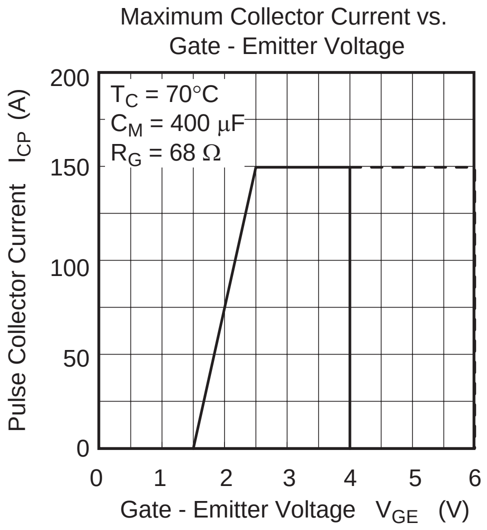
Parameter	Symbol	Ratings	Unit	Conditions
Collector-emitter voltage	V_{CES}	400	V	$V_{GE} = 0$ V
Gate-emitter voltage	V_{GES}	±4	V	$V_{CE} = 0$ V
Peak gate-emitter voltage	V_{GEM}	±6	V	$V_{CE} = 0$ V, tw = 10 s
Collector current (Pulse)	I_{CM}	150	A	$C_M = 400$ µF (see performance curve)
Junction temperature	Tj	– 40 to +150	°C	
Storage temperature	Tstg	– 40 to +150	°C	

Electrical Characteristics

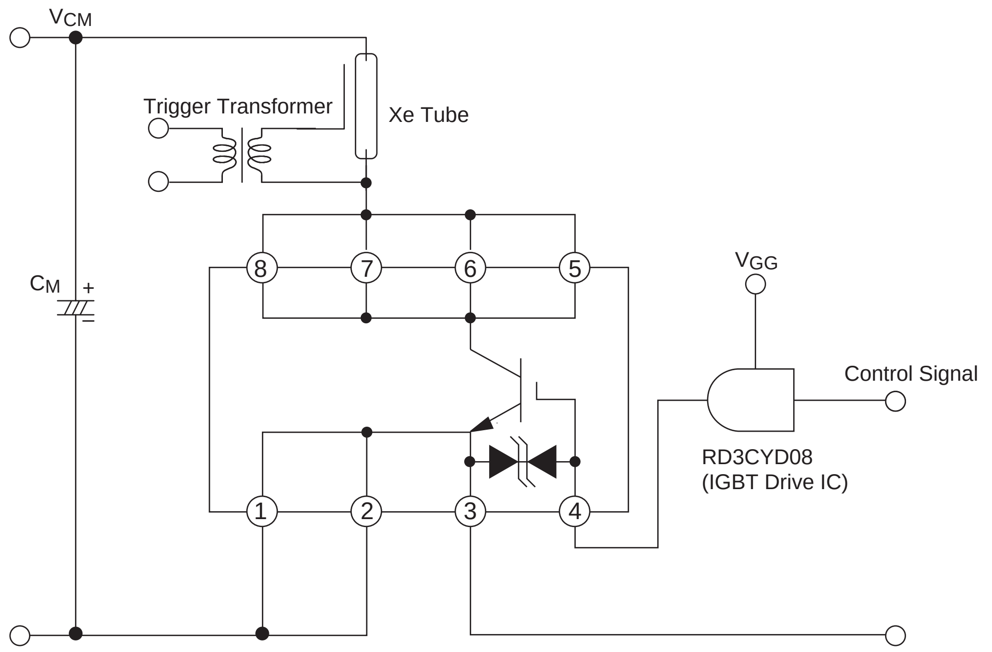
(Tj = 25°C)

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

Performance Curves



Application Example



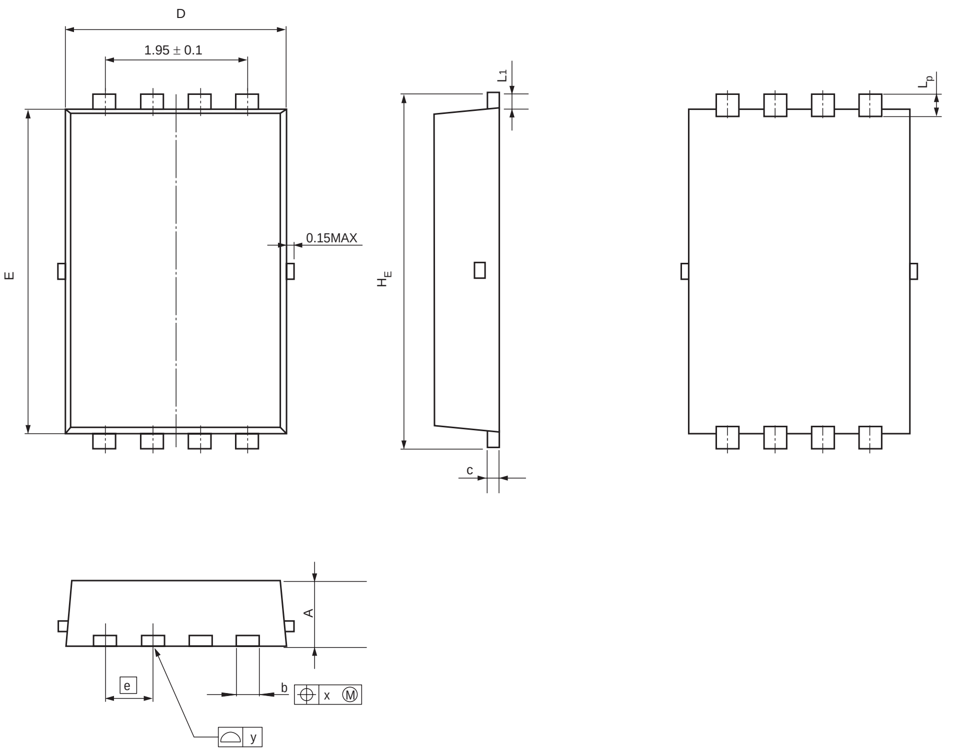
	Recommended Operation Conditions	Maximum Operation Conditions
V_{CM}	330 V	350 V
I_{CP}	130 A	150 A
C_M	300 µF	400 µF
V_{GE}	2.85 V	2.5 V

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 turn-off dv/dt must become less than 400 V/ µs. In general, when $R_{G\ (off)} = 68\ \Omega$, it is satisfied.
3. The ground of the drive signal must be connected to pin 3 only. If the emitter terminal pins 1 and 2 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 until repeated discharge of 5,000 times under the charge current ($I_{Xe} \leq 150$ A : full luminescence condition) of main capacitor. 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 VGE is driven at 4 V.

Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]
P-VSON8-3x4.4-0.65	PVSN0008JA-A	TNP-8DBV	0.032g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	2.90	3.00	3.10
E	4.30	4.40	4.50
A	—	—	0.95
b	0.25	0.30	0.40
e	—	0.65	—
L_p	—	0.35	—
x	—	—	0.08
y	—	—	0.10
c	0.09	0.15	0.25
H_E	4.70	4.80	4.90
L_1	0.10	0.20	0.30

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	CY25CAH-8F-T13

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

Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

Keep safety first in your circuit designs!

1. Renesas Technology Corp. puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.
   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

Notes regarding these materials

1. These materials are intended as a reference to assist our customers in the selection of the Renesas Technology Corp. product best suited to the customer's application; they do not convey any license under any intellectual property rights, or any other rights, belonging to Renesas Technology Corp. or a third party.
2. Renesas Technology Corp. assumes no responsibility for any damage, or infringement of any third-party's rights, originating in the use of any product data, diagrams, charts, programs, algorithms, or circuit application examples contained in these materials.
3. All information contained in these materials, including product data, diagrams, charts, programs and algorithms represents information on products at the time of publication of these materials, and are subject to change by Renesas Technology Corp. without notice due to product improvements or other reasons. It is therefore recommended that customers contact Renesas Technology Corp. or an authorized Renesas Technology Corp. product distributor for the latest product information before purchasing a product listed herein.
   The information described here may contain technical inaccuracies or typographical errors.
   Renesas Technology Corp. assumes no responsibility for any damage, liability, or other loss rising from these inaccuracies or errors.
   Please also pay attention to information published by Renesas Technology Corp. by various means, including the Renesas Technology Corp. Semiconductor home page (http://www.renesas.com).
4. When using any or all of the information contained in these materials, including product data, diagrams, charts, programs, and algorithms, please be sure to evaluate all information as a total system before making a final decision on the applicability of the information and products. Renesas Technology Corp. assumes no responsibility for any damage, liability or other loss resulting from the information contained herein.
5. Renesas Technology Corp. semiconductors are not designed or manufactured for use in a device or system that is used under circumstances in which human life is potentially at stake. Please contact Renesas Technology Corp. or an authorized Renesas Technology Corp. product distributor when considering the use of a product contained herein for any specific purposes, such as apparatus or systems for transportation, vehicular, medical, aerospace, nuclear, or undersea repeater use.
6. The prior written approval of Renesas Technology Corp. is necessary to reprint or reproduce in whole or in part these materials.
7. If these products or technologies are subject to the Japanese export control restrictions, they must be exported under a license from the Japanese government and cannot be imported into a country other than the approved destination.
   Any diversion or reexport contrary to the export control laws and regulations of Japan and/or the country of destination is prohibited.
8. Please contact Renesas Technology Corp. for further details on these materials or the products contained therein.

RENESAS SALES OFFICES

http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, 1 Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2730-6071

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 2713-2999

Renesas Technology (Shanghai) Co., Ltd.
Unit2607 Ruijing Building, No.205 Maoming Road (S), Shanghai 200020, China
Tel: <86> (21) 6472-1001, Fax: <86> (21) 6415-2952

Renesas Technology Singapore Pte. Ltd.
1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Colophon .2.0