

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# RJP4003ASA

Nch IGBT for Strobe Flash

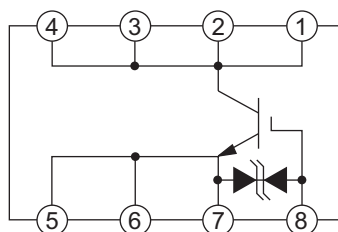
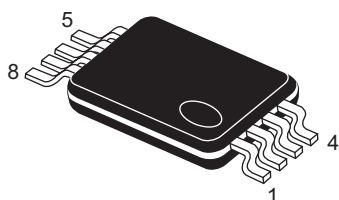
REJ03G1475-0200  
Rev.2.00  
Nov 10, 2008

## Features

- Small surface mount package (TSSOP-8)
- $V_{CES}$  : 400 V
- $I_{CM}$  : 150 A
- Drive voltage : 4 V

## Outline

RENESAS Package code: PTSP0008JB-B  
(Package name: TSSOP-8 <TTP-8DV>)



1, 2, 3, 4 : Collector  
5, 6, 7 : Emitter  
8 : Gate

## Applications

Strobe flash for cameras

## Maximum Ratings

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

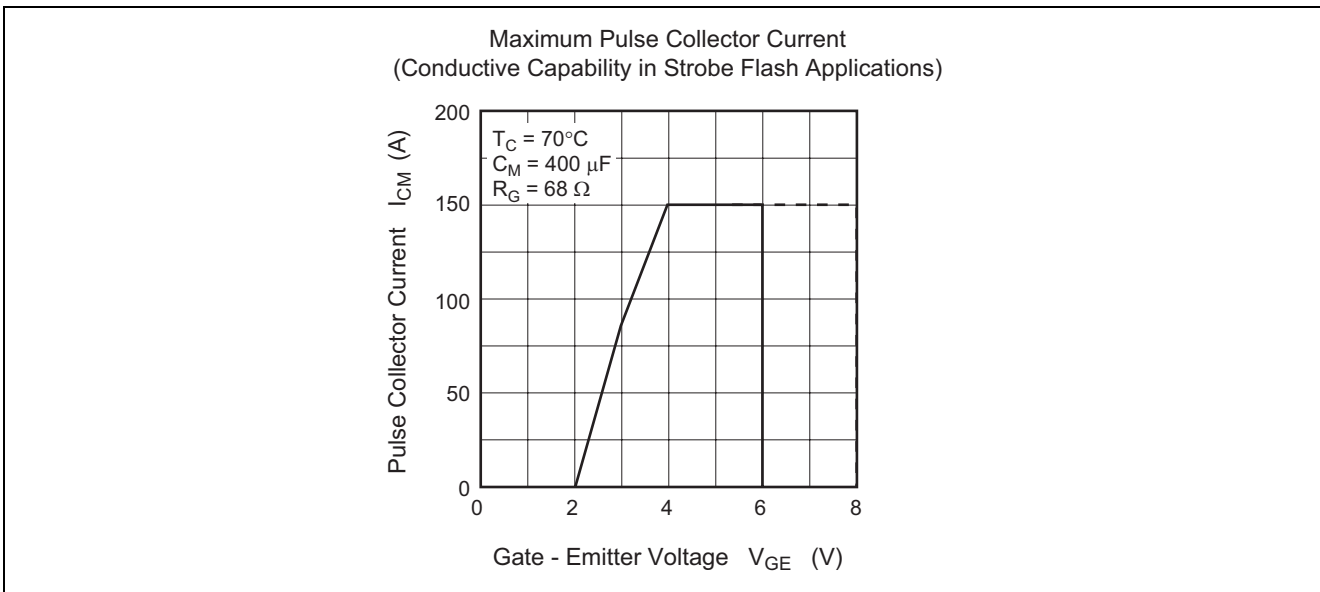
| Parameter                 | Symbol    | Ratings      | Unit             | Conditions   |
|---------------------------|-----------|--------------|------------------|--|
| Collector-emitter voltage | $V_{CES}$ | 400          | V                | $V_{GE} = 0 \text{ V}$                             |
| Gate-emitter voltage      | $V_{GES}$ | $\pm 6$      | V                | $V_{CE} = 0 \text{ V}$                             |
| Peak gate-emitter voltage | $V_{GEM}$ | $\pm 8$      | V                | $V_{CE} = 0 \text{ V}$ , $t_w = 10 \text{ s}$      |
| Collector current (Pulse) | $I_{CM}$  | 150          | A                | $C_M = 400 \mu\text{F}$<br>(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

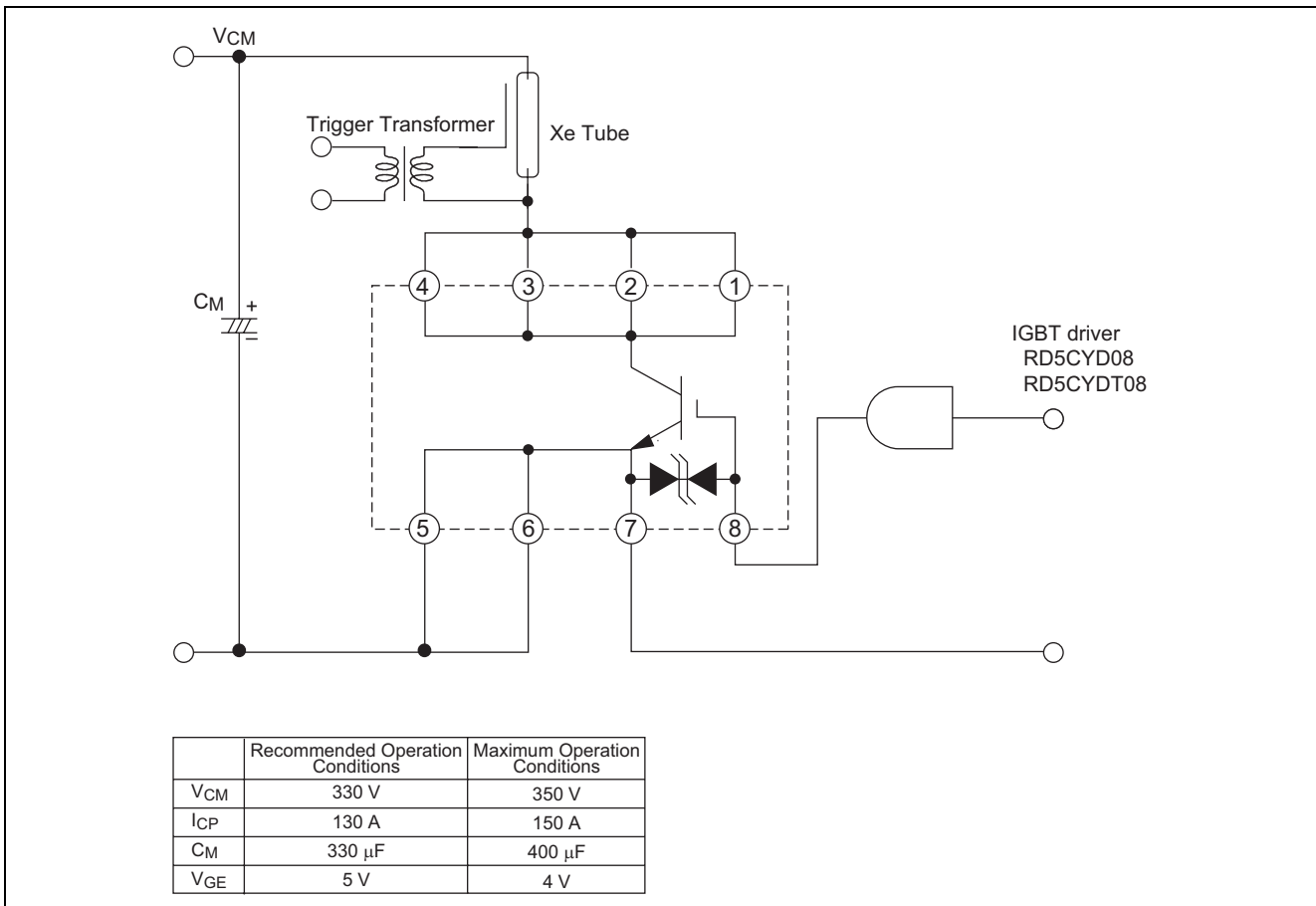
(T<sub>j</sub> = 25°C)

| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Test conditions   |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-emitter breakdown voltage  | V <sub>(BR)CES</sub> | 450  | —    | —    | V    | I <sub>C</sub> = 1 mA, V <sub>GE</sub> = 0 V                |
| Collector-emitter leakage current    | I <sub>CES</sub>     | —    | —    | 10   | μA   | V <sub>CE</sub> = 400 V, V <sub>GE</sub> = 0 V              |
| Gate-emitter leakage current         | I <sub>GES</sub>     | —    | —    | ±10  | μA   | V <sub>GE</sub> = ±6 V, V <sub>CE</sub> = 0 V               |
| Gate-emitter threshold voltage       | V <sub>GE(th)</sub>  | 0.5  | 0.7  | 1.5  | V    | V <sub>CE</sub> = 10 V, I <sub>C</sub> = 1 mA               |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | —    | 5.0  | 10.0 | V    | I <sub>C</sub> = 150 A, V <sub>GE</sub> = 4 V               |
| Input capacitance                    | C <sub>ies</sub>     | —    | 5000 | —    | pF   | V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 10 V,<br>f = 1MHz |

## Performance Curves



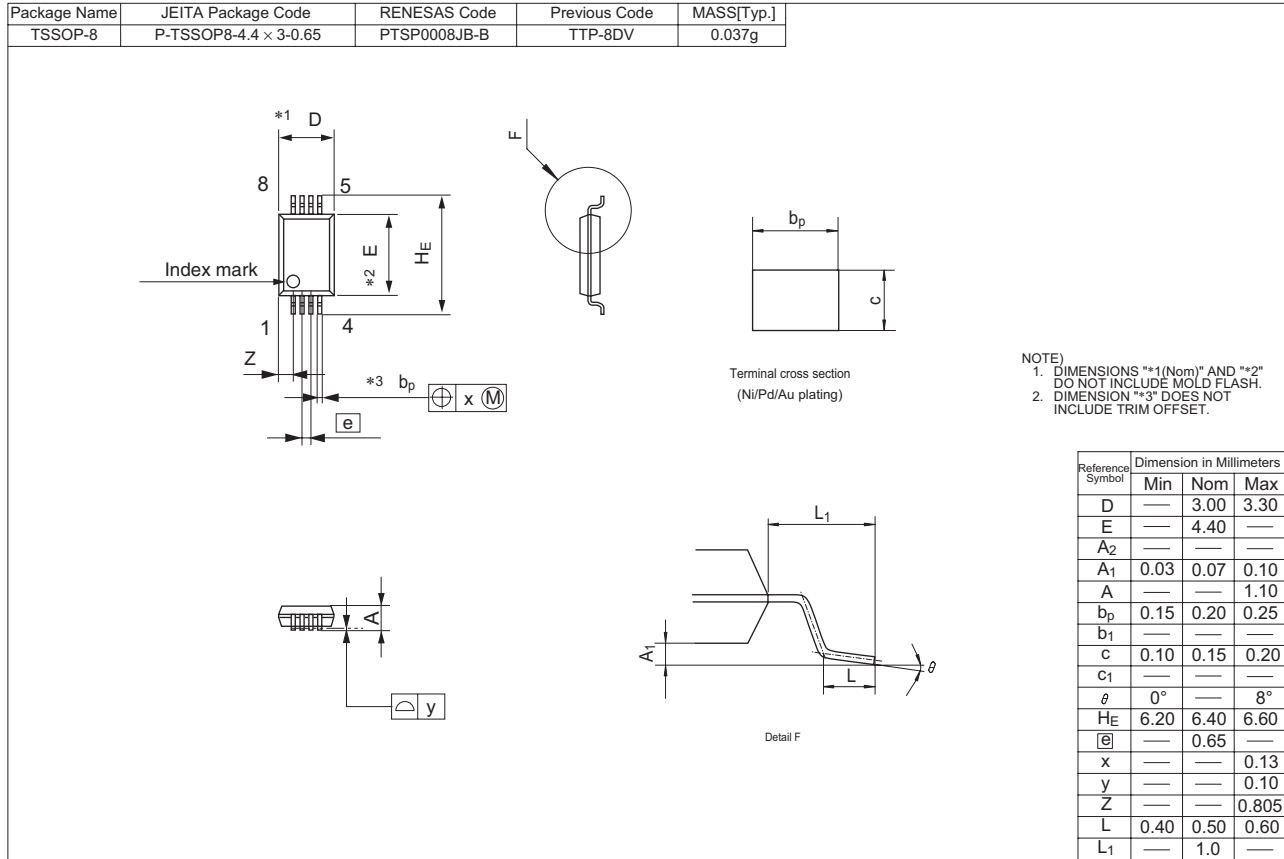
## Application Example



## 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 turn-off  $dv/dt$  must become less than 400 V/ $\mu$ s. In general, when  $R_{G(off)} = 68 \Omega$ , it is satisfied.
3. For safety use, we recommend that the ground of the drive signal is connected to pin 7.
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 ( $C_M = 400 \mu$ F). 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 6 V.

### Package Dimensions



### Order Code

| Lead form            | Standard packing | Quantity | Standard order code | Standard order code example |
|----------------------|------------------|----------|---------------------|-----------------------------|
| Surface-mounted type | Taping           | 3000     | Type name – 00 – Q0 | RJP4003ASA-0-Q0             |

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

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