

To all our customers

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Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

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# 2SD2423

Silicon NPN Epitaxial, Darlington

**RENESAS**

## Application

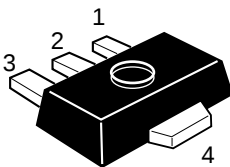
Low frequency power amplifier

## Features

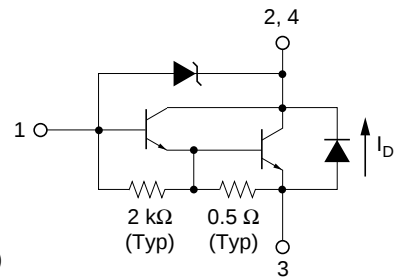
The transistor with a built-in zener diode of surge absorb.

## Outline

UPAK



1. Base
2. Collector
3. Emitter
4. Collector (Flange)



## Absolute Maximum Ratings (Ta = 25°C)

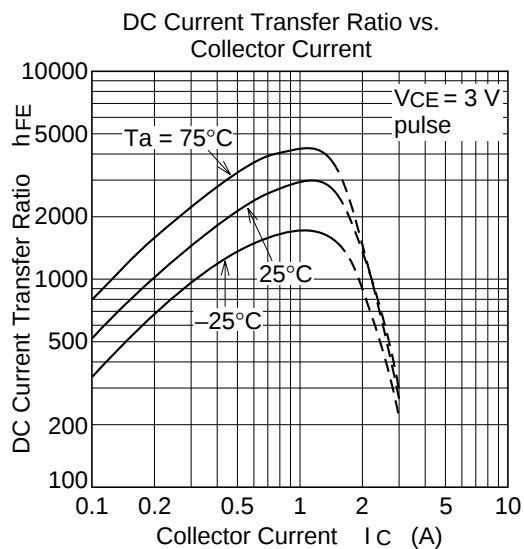
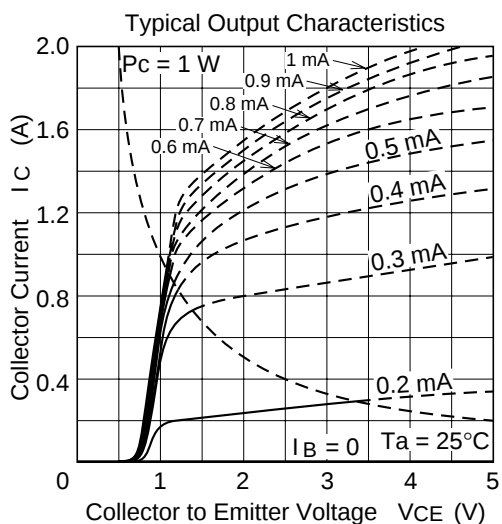
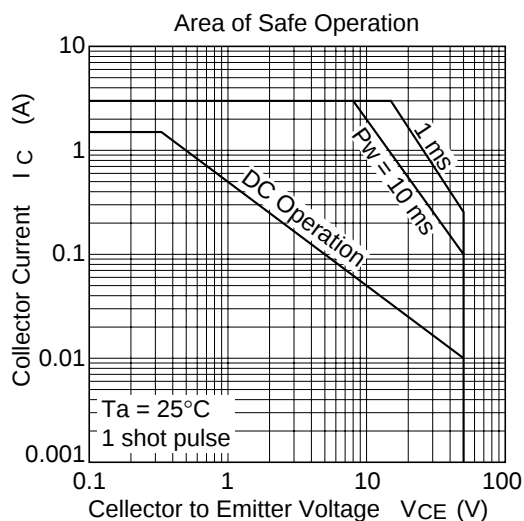
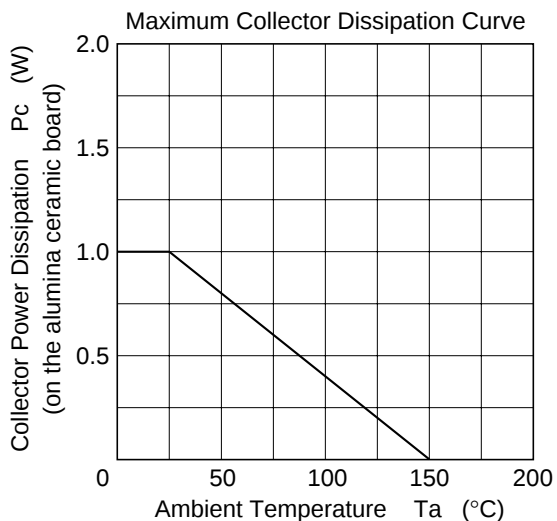
| Item                                       | Symbol     | Ratings     | Unit |
|--------------------------------------------|------------|-------------|------|
| Collector to base voltage                  | $V_{CBO}$  | 50          | V    |
| Collector to emitter voltage               | $V_{CEO}$  | 50          | V    |
| Emitter to base voltage                    | $V_{EBO}$  | 7           | V    |
| Collector current                          | $I_C$      | 1.5         | A    |
| Collector power dissipation                | $P_C^{*1}$ | 1           | W    |
| Junction temperature                       | Tj         | 150         | °C   |
| Storage temperature                        | Tstg       | –55 to +150 | °C   |
| Collector to emitter diode forward current | $I_D$      | 1.5         | A    |

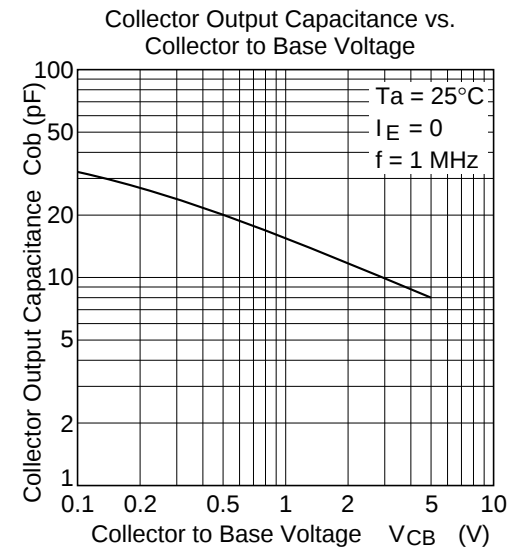
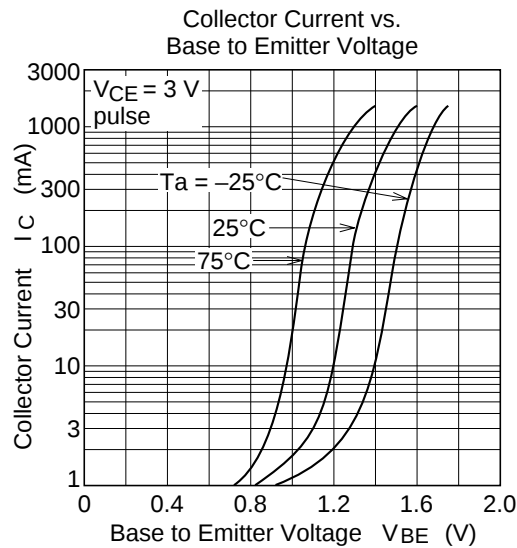
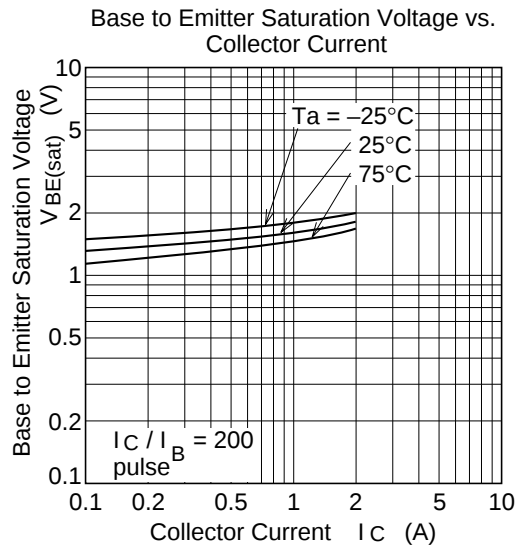
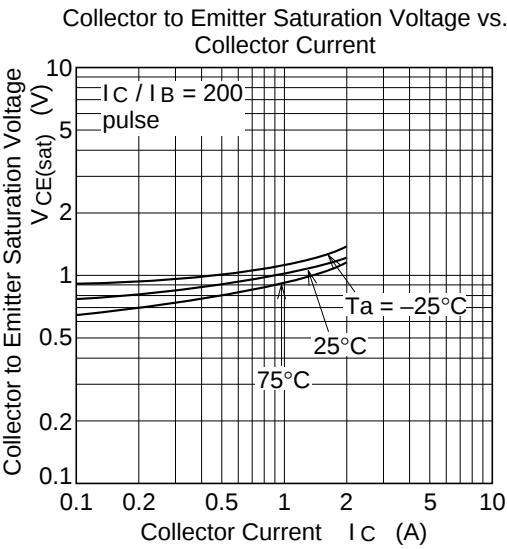
Note: 1. When using the ceramic board 0.7 mm thick (12.5 mm x 20 mm).

## Electrical Characteristics (Ta = 25°C)

| Item                                       | Symbol         | Min  | Typ | Max   | Unit    | Test conditions                                                |
|--------------------------------------------|----------------|------|-----|-------|---------|----------------------------------------------------------------|
| Collector to base breakdown voltage        | $V_{(BR)CBO}$  | 50   | —   | 70    | V       | $I_C = 100 \mu A, I_E = 0$                                     |
| Collector to emitter breakdown voltage     | $V_{(BR)CEO}$  | 50   | —   | —     | V       | $I_C = 10 \text{ mA}, R_{BE} = \infty$                         |
| Collector to emitter sustaining voltage    | $V_{CEO(sus)}$ | 50   | —   | 70    | V       | $I_C = 1.5 \text{ A}, R_{BE} = \infty, L = 10 \text{ mH}^{*1}$ |
| Emitter to base breakdown voltage          | $V_{(BR)EBO}$  | 7    | —   | —     | V       | $I_E = 50 \text{ mA}, I_C = 0$                                 |
| Collector cutoff current                   | $I_{CEO}$      | —    | —   | 10    | $\mu A$ | $V_{CE} = 40 \text{ V}, R_{BE} = \infty$                       |
| DC current transfer ratio                  | $h_{FE}$       | 2000 | —   | 10000 |         | $V_{CE} = 3 \text{ V}, I_C = 1 \text{ A}^{*1}$                 |
| Collector to emitter saturation voltage    | $V_{CE(sat)1}$ | —    | —   | 1.5   | V       | $I_C = 1 \text{ A}, I_B = 1 \text{ mA}^{*1}$                   |
| Collector to emitter saturation voltage    | $V_{CE(sat)2}$ | —    | —   | 2.3   | V       | $I_C = 1.5 \text{ A}, I_B = 1.5 \text{ mA}^{*1}$               |
| Base to emitter saturation voltage         | $V_{BE(sat)1}$ | —    | —   | 2.0   | V       | $I_C = 1 \text{ A}, I_B = 1 \text{ mA}^{*1}$                   |
| Base to emitter saturation voltage         | $V_{BE(sat)2}$ | —    | —   | 2.5   | V       | $I_C = 1.5 \text{ A}, I_B = 1.5 \text{ mA}^{*1}$               |
| Emitter to collector diode forward voltage | $V_D$          | —    | —   | 3.5   | V       | $I_D = 1.5 \text{ A}^{*1}$                                     |

Notes: 1. Pulse test  
2. Marking is "GT".





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