

2SD1421

Silicon NPN Epitaxial

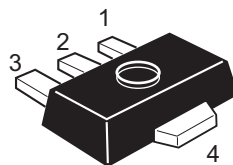
REJ03G0789-0200
(Previous ADE-208-1152)
Rev.2.00
Aug.10.2005

Application

Low frequency power amplifier

Outline

RENESAS Package code: PLZZ0004CA-A
(Package name: UPAK[®])



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

*UPAK is a trademark of Renesas Technology Corp.

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	180	V
Collector to emitter voltage	V_{CEO}	160	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	1.5	A
Collector peak current	$i_{C(peak)}^{*1}$	3	A
Collector power dissipation	P_C^{*2}	1	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10$ ms, Duty cycle $\leq 20\%$

2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

Electrical Characteristics

(Ta = 25°C)

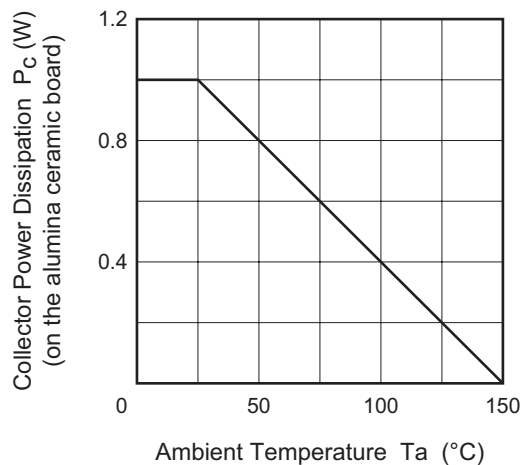
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	180	—	—	V	$I_C = 1 \text{ mA}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	160	—	—	V	$I_C = 10 \text{ mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	5	—	—	V	$I_E = 1 \text{ mA}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	10	μA	$V_{CB} = 160 \text{ V}$, $I_E = 0$
DC current transfer ratio	h_{FE1}^{*1}	60	—	200		$V_{CE} = 5 \text{ V}$, $I_C = 0.15 \text{ A}$
	h_{FE2}	30	—	—		$V_{CE} = 5 \text{ V}$, $I_C = 0.5 \text{ A}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	1.0	V	$I_C = 0.5 \text{ A}$, $I_B = 50 \text{ mA}$, Pulse
Base to emitter voltage	V_{BE}	—	—	0.9	V	$V_{CE} = 5 \text{ V}$, $I_C = 0.15 \text{ A}$, Pulse

Note: 1. The 2SD1421 is grouped by h_{FE1} as follows.

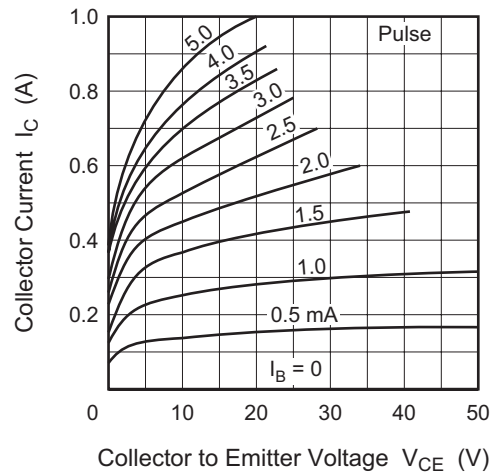
Mark	ED	EE
h_{FE1}	60 to 120	100 to 200

Main Characteristics

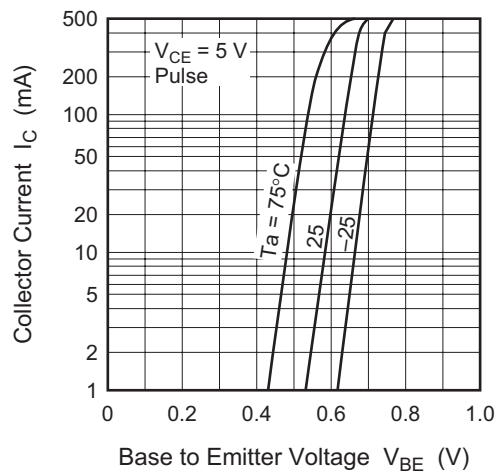
Maximum Collector Dissipation Curve



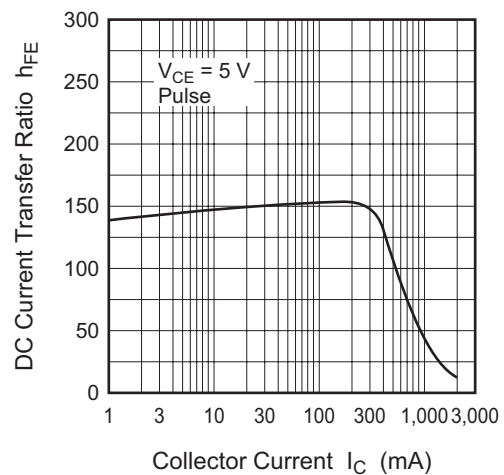
Typical Output Characteristics



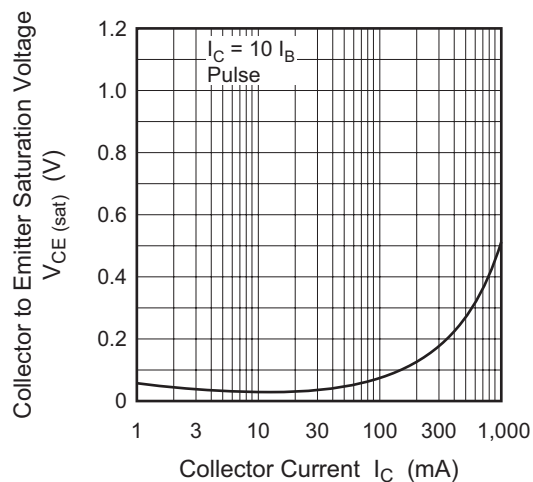
Typical Transfer Characteristics



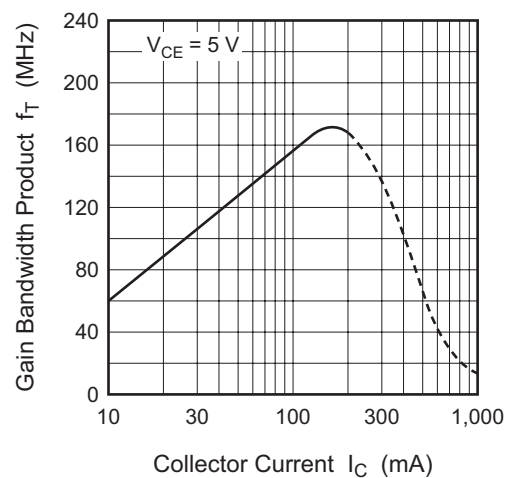
DC Current Transfer Ratio vs. Collector Current

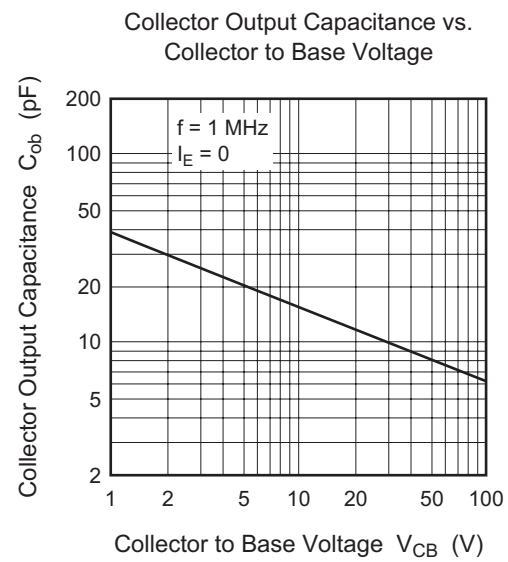


Collector to Emitter Saturation Voltage vs. Collector Current



Gain Bandwidth Product vs. Collector Current





Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]	Unit: mm
SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g	

The drawing shows three views of the package:

- Top View:** Overall width is 4.5 ± 0.1 mm. The central circular feature has a diameter of $\phi 1$ mm. The distance from the center to the nearest edge is 1.8 Max mm. The total height is 2.5 ± 0.1 mm. The distance from the center to the bottom edge is 0.53 Max mm. The distance from the center to the bottom edge is 0.48 Max mm. The distance from the center to the bottom edge is 1.5 mm. The distance from the center to the bottom edge is 1.5 mm. The distance from the center to the bottom edge is 3.0 mm. The distance from the center to the bottom edge is 0.8 Min mm. The distance from the center to the bottom edge is 4.25 Max mm.
- Side View:** The height of the package is 1.5 ± 0.1 mm. The distance from the top edge to the bottom edge is 0.44 Max mm. The distance from the top edge to the bottom edge is 0.44 Max mm.
- End View:** The width of the package is 1.5 mm. The distance from the top edge to the bottom edge is 2.5 mm. The distance from the top edge to the bottom edge is 0.4 mm. The distance from the top edge to the bottom edge is 0.2 mm.

Ordering Information

Part Name	Quantity	Shipping Container
2SD1421EDTR-E	1000	ϕ 178 mm Reel, 12 mm Emboss Taping
2SD1421EETR-E		

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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

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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

Renesas Technology Korea Co., Ltd.

Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> 2-796-3115, Fax: <82> 2-796-2145

Renesas Technology Malaysia Sdn. Bhd.

Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jalan Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510