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# 2SD1974

Silicon NPN Epitaxial

# HITACHI

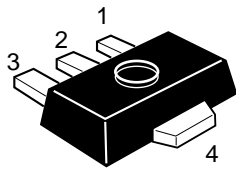
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## Application

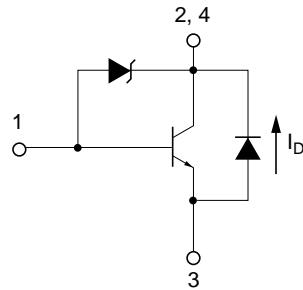
Low frequency power amplifier

## Outline

UPAK



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



**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

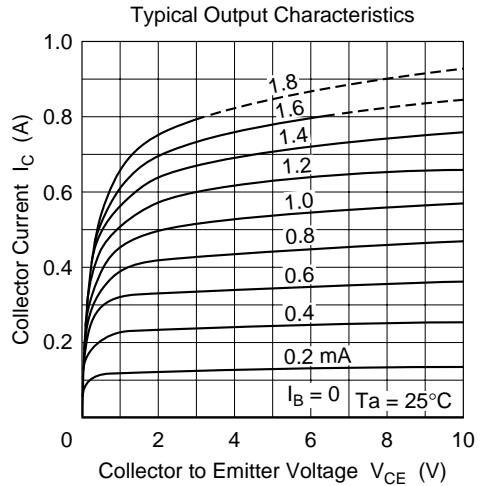
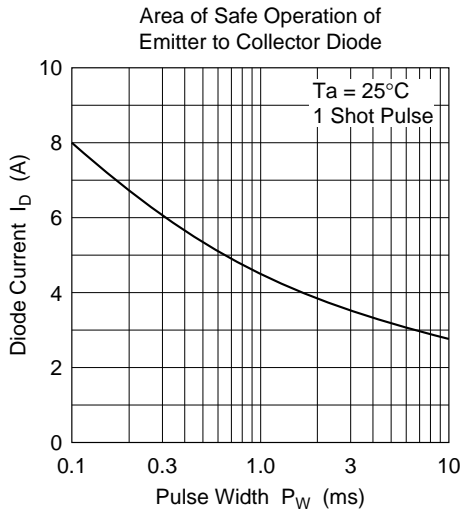
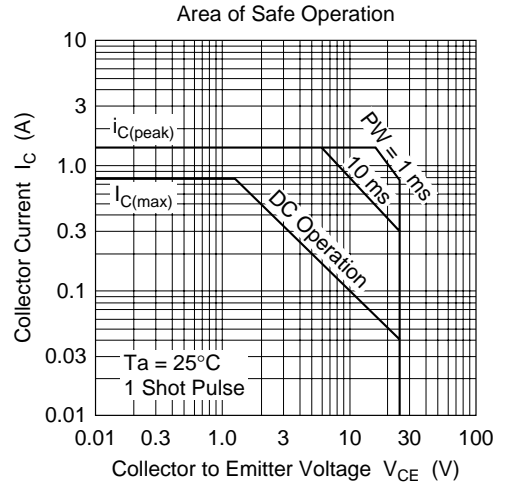
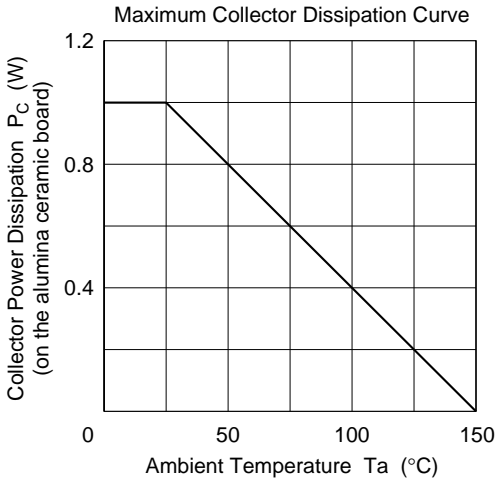
Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{\text{CBO}}$	25	V
Collector to emitter voltage	$V_{\text{CEO}}$	25	V
Emitter to base voltage	$V_{\text{EBO}}$	6	V
Collector current	$I_{\text{C}}$	0.8	A
Collector peak current	$i_{\text{C (peak)}}$	1.5	A
E to C diode forward current	$I_{\text{D}}$	0.6	A
Collector power dissipation	$P_{\text{C}}^{*1}$	1.0	W
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

Note: 1. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

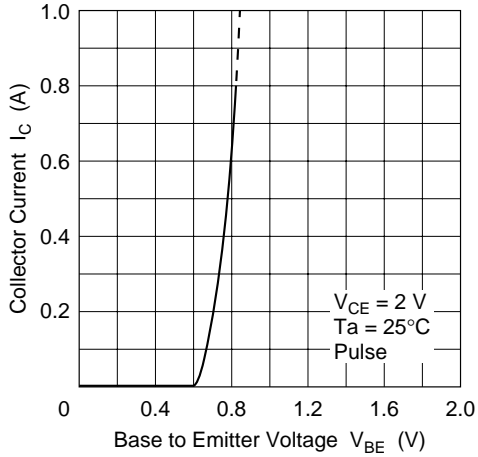
**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	25	—	—	V	$I_{\text{C}} = 10 \mu\text{A}$ , $I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	25	—	35	V	$I_{\text{C}} = 1 \text{ mA}$ , $R_{\text{BE}} = \infty$
Collector to emitter sustaining voltage	$V_{\text{CEO(sus)}}$	25	—	35	V	$I_{\text{C}} = 0.8 \text{ A}$ , $R_{\text{BE}} = \infty$ , $L = 20 \text{ mH}$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	6	—	—	V	$I_{\text{E}} = 10 \mu\text{A}$ , $I_{\text{C}} = 0$
Collector cutoff current	$I_{\text{CBO}}$	—	—	0.2	$\mu\text{A}$	$V_{\text{CB}} = 20 \text{ V}$ , $I_{\text{E}} = 0$
	$I_{\text{CEO}}$	—	—	0.5	$\mu\text{A}$	$V_{\text{CE}} = 20 \text{ V}$ , $R_{\text{BE}} = \infty$
Emitter cutoff current	$I_{\text{EBO}}$	—	—	0.2	$\mu\text{A}$	$V_{\text{EB}} = 5 \text{ V}$ , $I_{\text{C}} = 0$
DC current transfer ratio	$h_{\text{FE}}$	250	—	1200		$V_{\text{CE}} = 2 \text{ V}$ , $I_{\text{C}} = 0.1 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	—	—	0.4	V	$I_{\text{C}} = 0.8 \text{ A}$ , $I_{\text{B}} = 80 \text{ mA}^{*1}$
E to C diode forward voltage	$V_{\text{D}}$	—	—	1.5	V	$I_{\text{D}} = 0.6 \text{ A}^{*1}$

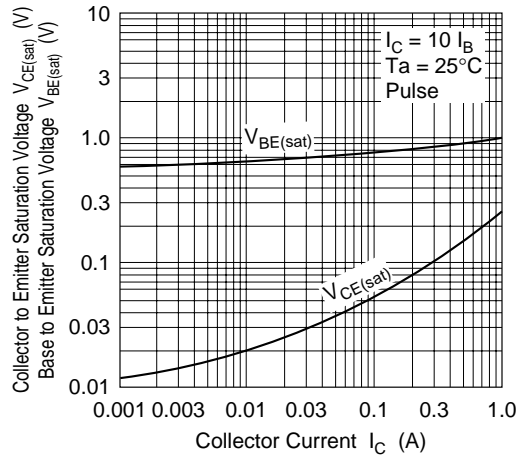
Notes: 1. Pulse test  
2. Marking is "ES".



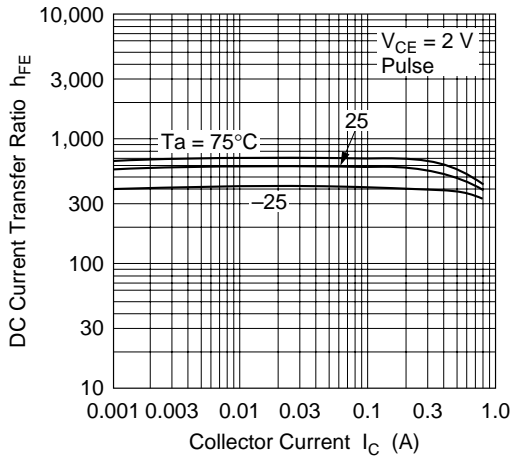
Typical Transfer Characteristics



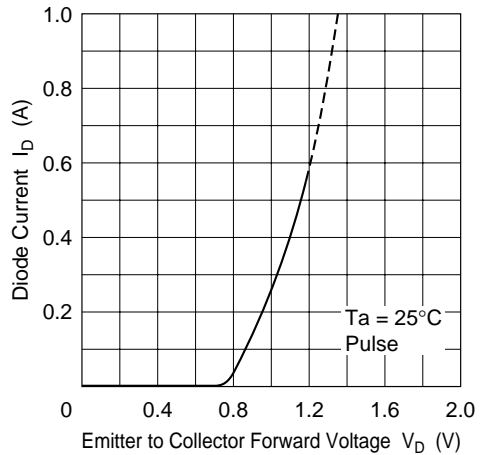
Saturation Voltage vs. Collector Current

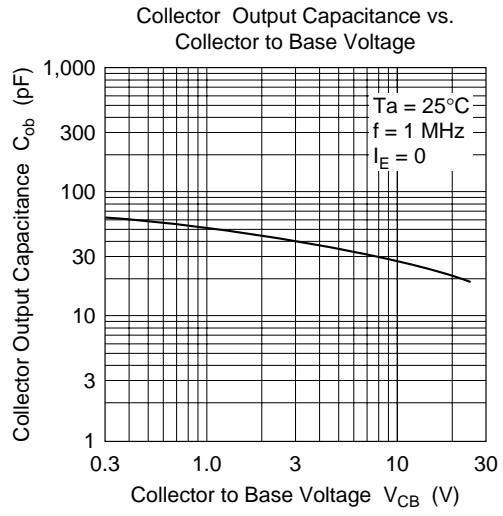


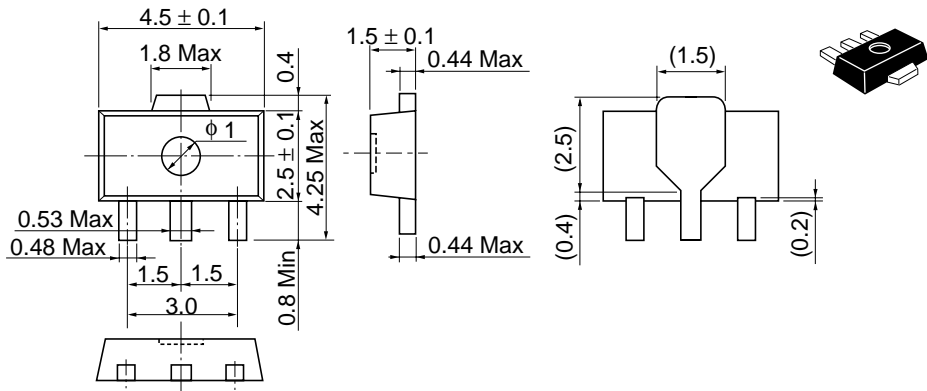
DC Current Transfer Ratio vs. Collector Current



Typical Characteristics of Emitter to Collector Diode







Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.050 g

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# HITACHI

## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
             Europe                 : <http://www.hitachi-eu.com/hel/ecg>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1>(408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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