

2SD1978

Silicon NPN Epitaxial, Darlington

HITACHI

ADE-208-1162 (Z)

1st. Edition

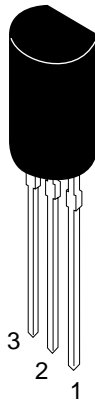
Mar. 2001

Application

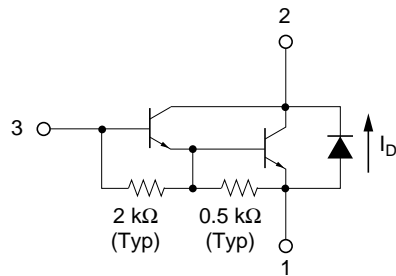
- Low frequency power amplifier
- Complementary pair with 2SB1387

Outline

TO-92MOD



1. Emitter
2. Collector
3. Base



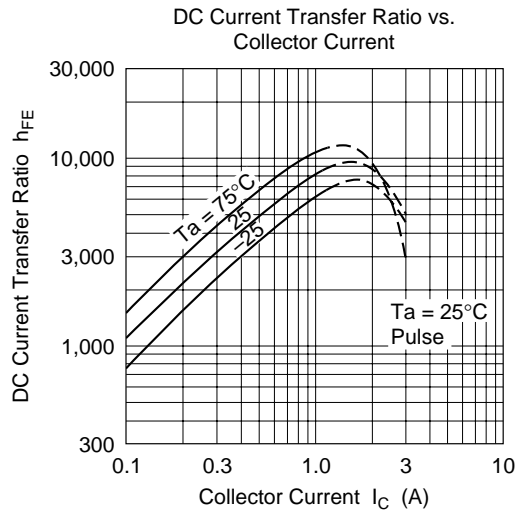
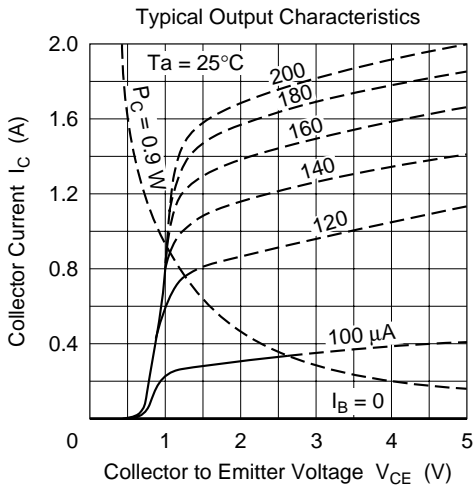
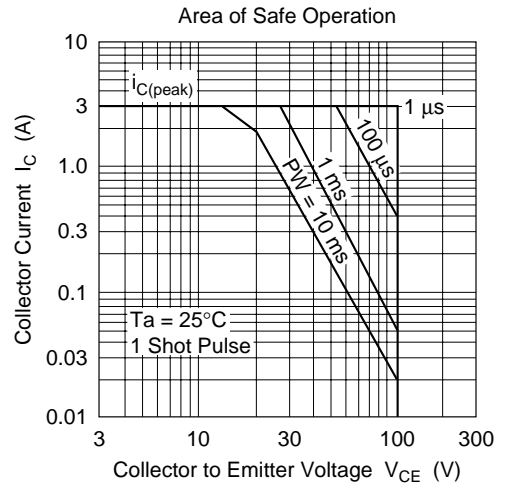
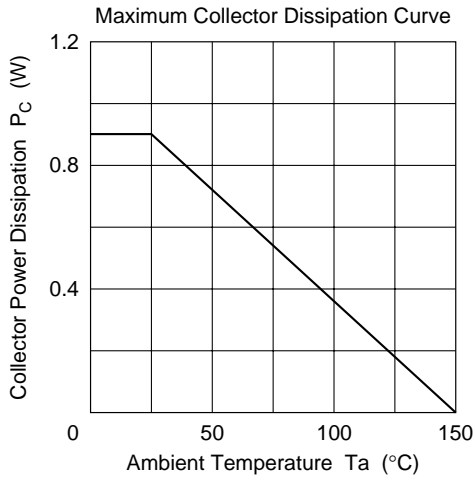
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

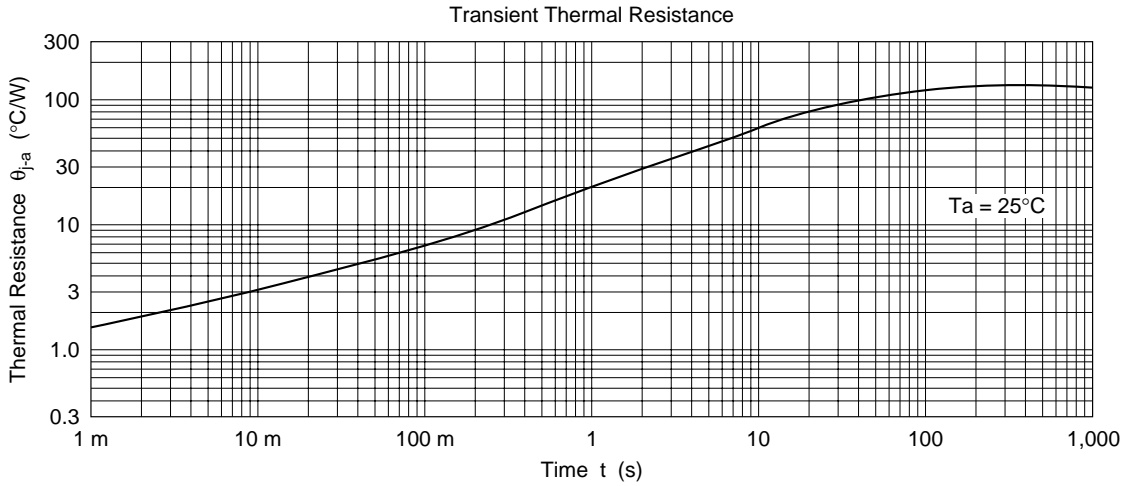
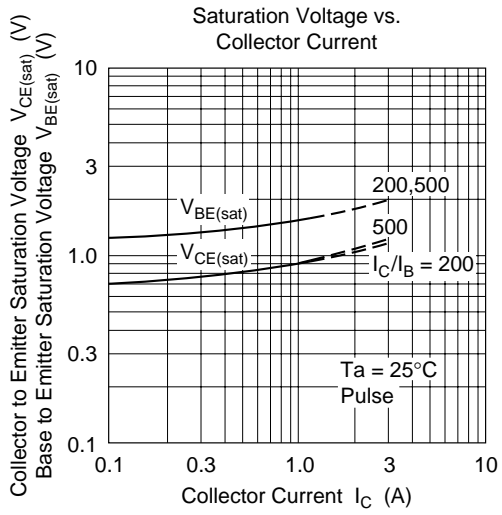
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	120	V
Collector to emitter voltage	V_{CEO}	120	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_{C}	1.5	A
Collector peak current	$i_{\text{C (peak)}}$	3.0	A
Collector power dissipation	P_{C}	0.9	W
Junction temperature	T_{j}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
E to C diode forward current	I_{D}	1.5	A

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	120	—	—	V	$I_{\text{C}} = 0.1 \text{ mA}, I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	120	—	—	V	$I_{\text{C}} = 10 \text{ mA}, R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	7	—	—	V	$I_{\text{E}} = 50 \text{ mA}, I_{\text{C}} = 0$
Collector cutoff current	I_{CBO}	—	—	1.0	μA	$V_{\text{CB}} = 100 \text{ V}, I_{\text{E}} = 0$
	I_{CEO}	—	—	10	μA	$V_{\text{CE}} = 100 \text{ V}, R_{\text{BE}} = \infty$
DC current transfer ratio	h_{FE}	2000	—	30000		$V_{\text{CE}} = 3 \text{ V}, I_{\text{C}} = 1 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)1}}$	—	—	1.5	V	$I_{\text{C}} = 1 \text{ A}, I_{\text{B}} = 1 \text{ mA}^{*1}$
	$V_{\text{CE(sat)2}}$	—	—	2.0	V	$I_{\text{C}} = 1.5 \text{ A}, I_{\text{B}} = 1.5 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{\text{BE(sat)1}}$	—	—	2.0	V	$I_{\text{C}} = 1 \text{ A}, I_{\text{B}} = 1 \text{ mA}^{*1}$
	$V_{\text{BE(sat)2}}$	—	—	2.5	V	$I_{\text{C}} = 1.5 \text{ A}, I_{\text{B}} = 1.5 \text{ mA}^{*1}$
E to C diode forward voltage	V_{D}	—	—	3.0	V	$I_{\text{D}} = 1.5 \text{ A}^{*1}$

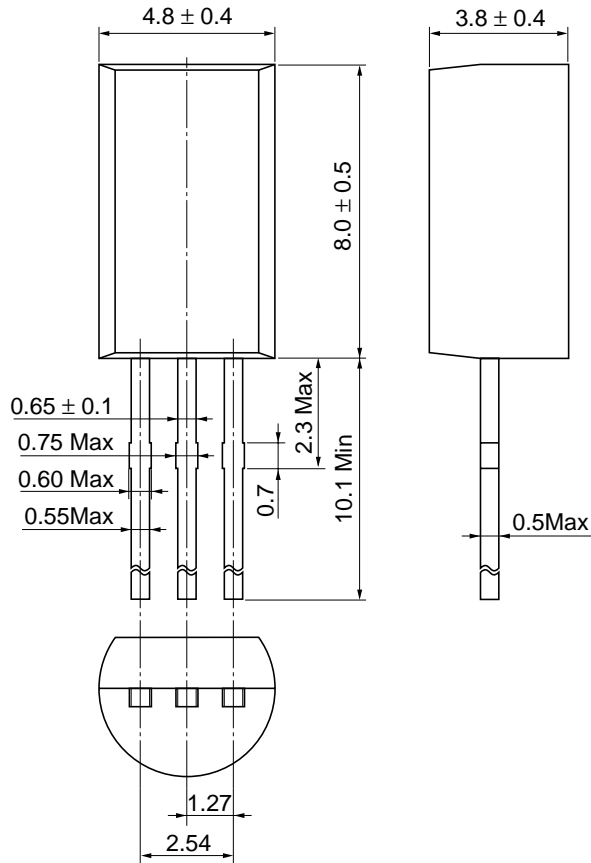
Note: 1. Pulse test





Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 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 NorthAmerica : <http://semiconductor.hitachi.com/>
Europe : <http://www.hitachi-eu.com/hel/ecg>
Asia : <http://sicapac.hitachi-asia.com>
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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) 585160

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00,
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : <http://www.hitachi.com.sg>

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road,
Hung-Kuo Building,
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : <http://www.hitachi.com.tw>

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
URL : <http://www.hitachi.com.hk>

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