

# 2SD2213

Silicon NPN Epitaxial, Darlington

# HITACHI

ADE-208-1165 (Z)

1st. Edition

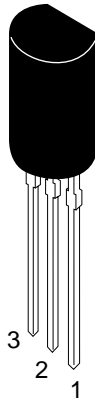
Mar. 2001

## Application

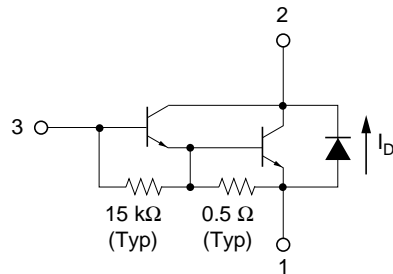
Low frequency power amplifier

## Outline

TO-92MOD



1. Emitter
2. Collector
3. Base



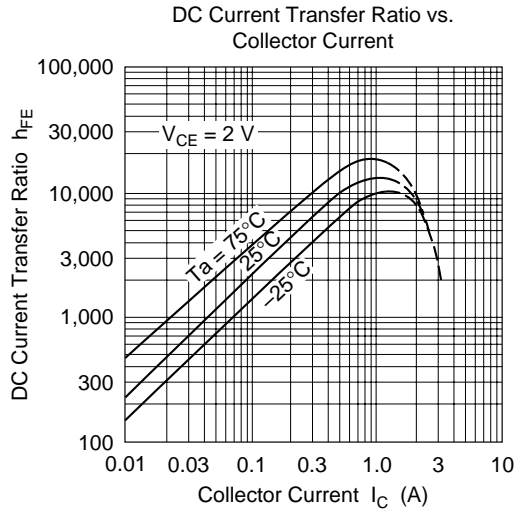
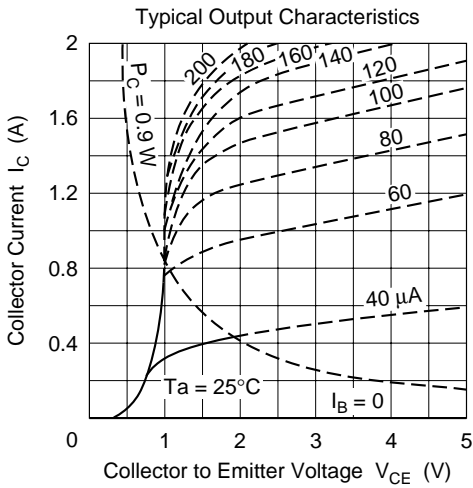
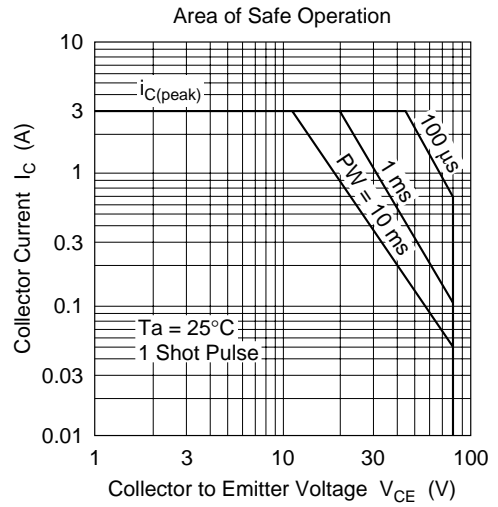
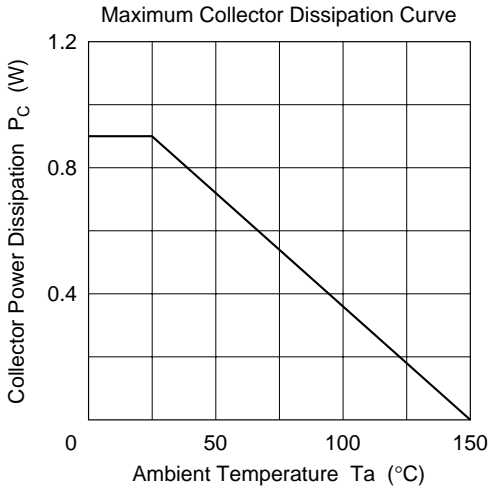
**Absolute Maximum Ratings** ( $T_a = 25^\circ\text{C}$ )

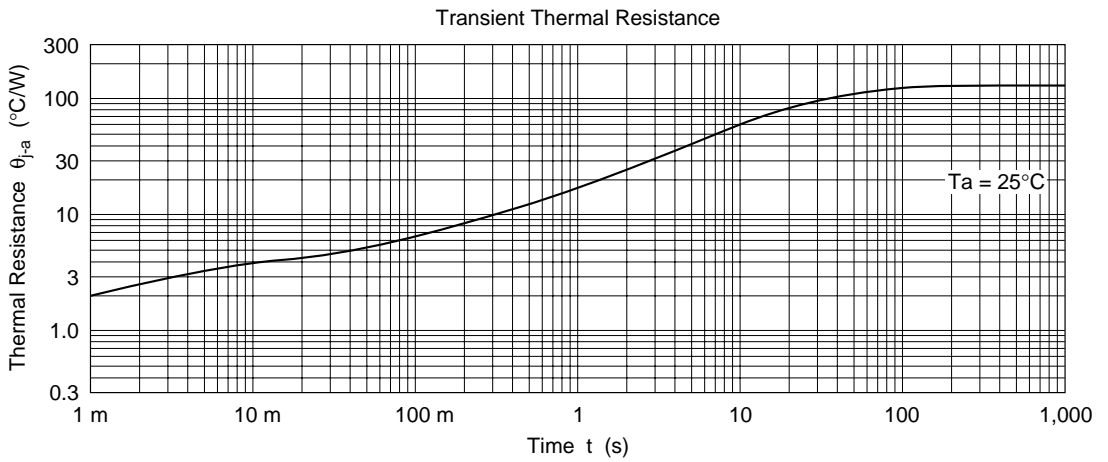
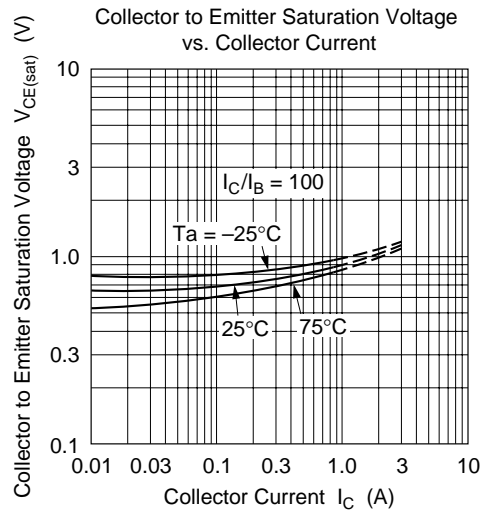
Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{\text{CBO}}$	150	V
Collector to emitter voltage	$V_{\text{CEO}}$	80	V
Emitter to base voltage	$V_{\text{EBO}}$	8	V
Collector current	$I_{\text{C}}$	1.5	A
Collector peak current	$i_{\text{C (peak)}}$	3	A
Collector power dissipation	$P_{\text{C}}$	0.9	W
Junction temperature	$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$
E to C diode forward current	$I_{\text{D}}$	1.5	A

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

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	150	—	—	V	$I_{\text{C}} = 1 \text{ mA}, I_{\text{E}} = 0$
Collector to emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	80	—	—	V	$I_{\text{C}} = 10 \text{ mA}, R_{\text{BE}} = \infty$
Emitter to base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	8	—	—	V	$I_{\text{E}} = 50 \text{ mA}, I_{\text{C}} = 0$
Collector cutoff current	$I_{\text{CBO}}$	—	—	5.0	$\mu\text{A}$	$V_{\text{CB}} = 120 \text{ V}, I_{\text{E}} = 0$
	$I_{\text{CEO}}$	—	—	5.0	$\mu\text{A}$	$V_{\text{CE}} = 65 \text{ V}, I_{\text{E}} = \infty$
DC current transfer ratio	$h_{\text{FE}}$	2000	—	—		$V_{\text{CE}} = 2 \text{ V}, I_{\text{C}} = 0.15 \text{ A}^{*1}$
	$h_{\text{FE}}$	5000	—	30000		$V_{\text{CE}} = 2 \text{ V}, I_{\text{C}} = 1 \text{ A}^{*1}$
	$h_{\text{FE}}$	1000	—	—		$V_{\text{CE}} = 2 \text{ V}, I_{\text{C}} = 1.5 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{\text{CE(sat)}}$	—	—	1.5	V	$I_{\text{C}} = 1 \text{ A}^{*1}, I_{\text{B}} = 1 \text{ mA}$
Base to emitter saturation voltage	$V_{\text{BE(sat)}}$	—	—	2.0	V	$I_{\text{C}} = 1 \text{ A}^{*1}, I_{\text{B}} = 1 \text{ mA}$
E to C diode forward voltage	$V_{\text{D}}$	—	—	3.0	V	$I_{\text{D}} = 1.5 \text{ A}^{*1}$

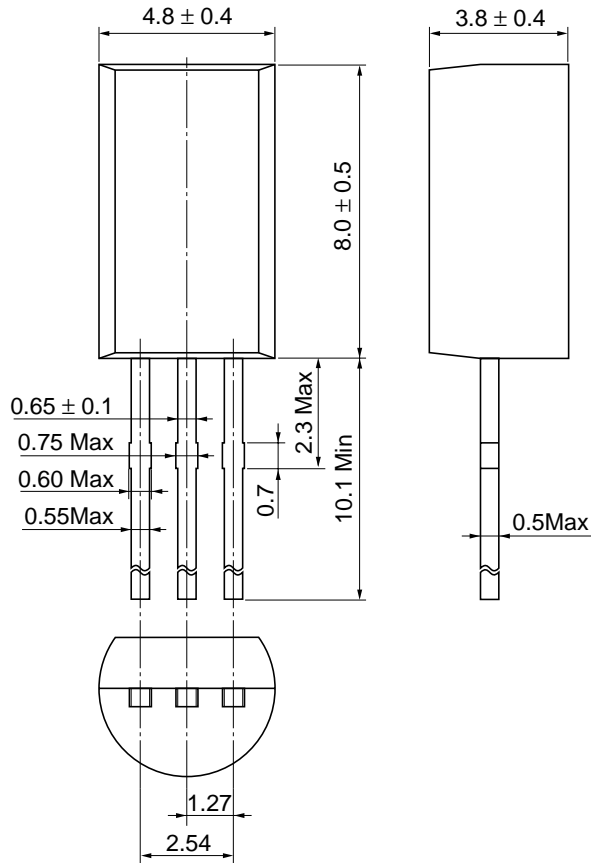
Note: 1. Pulse test





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	: <a href="http://semiconductor.hitachi.com/">http://semiconductor.hitachi.com/</a>
	Europe	: <a href="http://www.hitachi-eu.com/hel/ecg">http://www.hitachi-eu.com/hel/ecg</a>
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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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