
2SA1190, 2SA1191

Silicon PNP Epitaxial

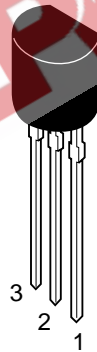
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Application

- Low frequency low noise amplifier
- Complementary pair with 2SC2855 and 2SC2856

Outline

TO-92 (1)



1. Emitter
2. Collector
3. Base

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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	2SA1190	2SA1191	Unit
Collector to base voltage	V_{CBO}	-90	-120	V
Collector to emitter voltage	V_{CEO}	-90	-120	V
Emitter to base voltage	V_{EBO}	-5	-5	V
Collector current	I_C	-100	-100	mA
Emitter current	I_E	100	100	mA
Collector power dissipation	P_C	400	400	mW
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	-55 to +150	-55 to +150	°C

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Electrical Characteristics (T_a = 25°C)

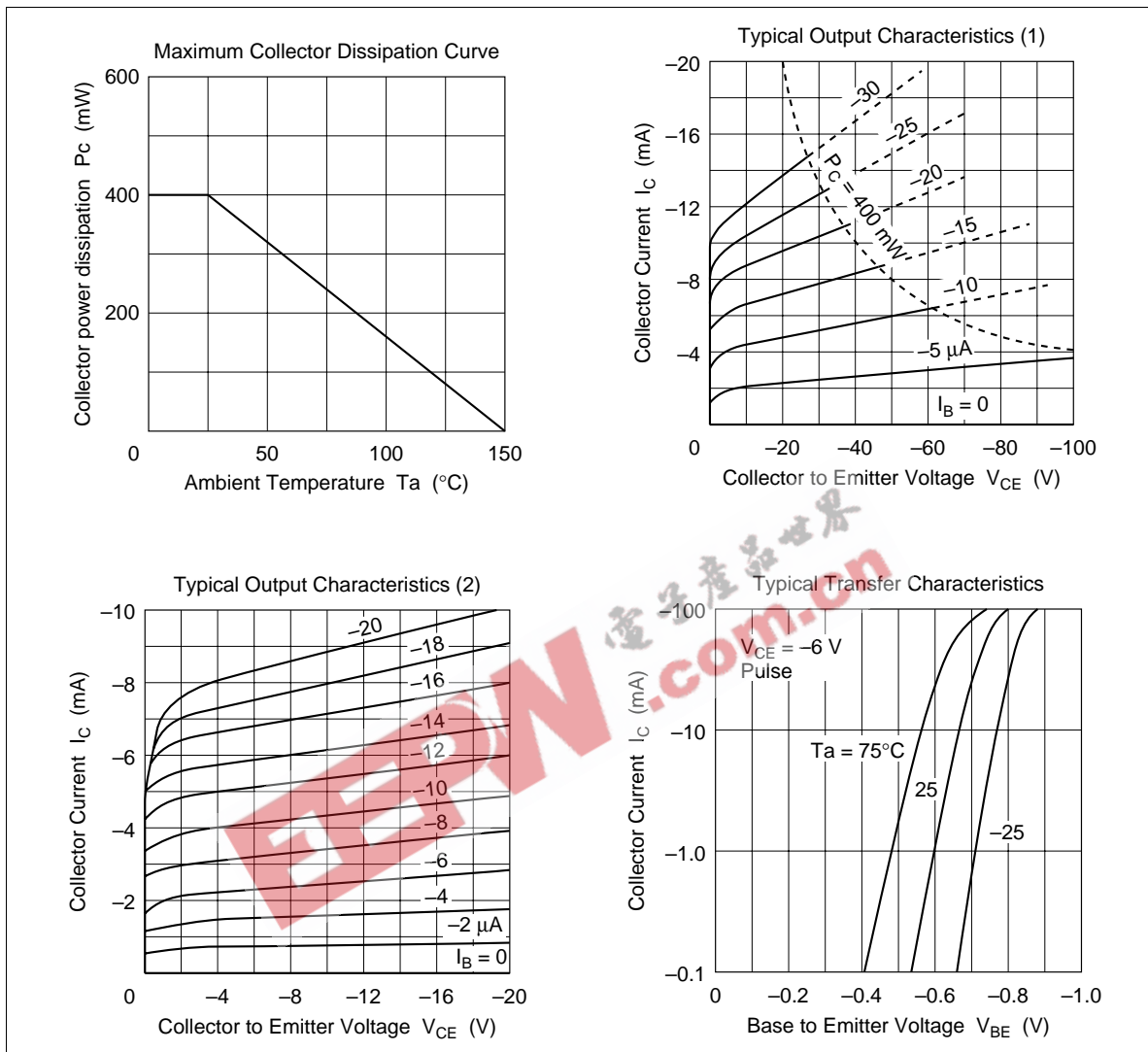
Item	Symbol	2SA1190			2SA1191			Unit	Test conditions
		Min	Typ	Max	Min	Typ	Max		
Collector to base breakdown voltage	V _{(BR)CBO}	-90	—	—	-120	—	—	V	I _C = -10 μA, I _E = 0
Collector to emitter breakdown voltage	V _{(BR)CEO}	-90	—	—	-120	—	—	V	I _C = -1 mA, R _{BE} = ∞
Emitter to base breakdown voltage	V _{(BR)EBO}	-5	—	—	-5	—	—	V	I _E = -10 μA, I _C = 0
Collector cutoff current	I _{CBO}	—	—	-0.1	—	—	-0.1	μA	V _{CB} = -70 V, I _E = 0
Emitter cutoff current	I _{EBO}	—	—	-0.1	—	—	-0.1	μA	V _{EB} = -2 V, I _C = 0
DC current transfer ratio	h _{FE} *1	250	—	800	250	—	800		V _{CE} = -12 V, I _C = -2 mA*2
Collector to emitter saturation voltage	V _{CE(sat)}	—	-0.05	-0.15	—	-0.05	-0.15	V	I _C = -10 mA, I _B = -1 mA*2
Base to emitter saturation voltage	V _{BE(sat)}	—	-0.7	-1.0	—	-0.7	-1.0	V	
Gain bandwidth product	f _T	—	130	—	—	130	—	MHz	V _{CE} = -6 V, I _C = -10 mA
Collector output capacitance	C _{ob}	—	3.2	—	—	3.2	—	pF	V _{CB} = -10 V, I _E = 0, f = 1 MHz
Noise figure	NF	—	0.15	1.5	—	0.15	1.5	dB	V _{CE} = -6 V, I _C = -0.1 mA, R _g = 10 kΩ f = 1 kHz
		—	0.2	2.0	—	0.2	2.0	dB	V _{CE} = -6 V, I _C = -0.1 mA, R _g = 10 kΩ f = 10 Hz
Noise voltage referred to input	e _n	—	0.7	—	—	0.7	—	nV/ √Hz	V _{CB} = -6 V, I _C = -10 mA, R _g = 0, f = 1 kHz

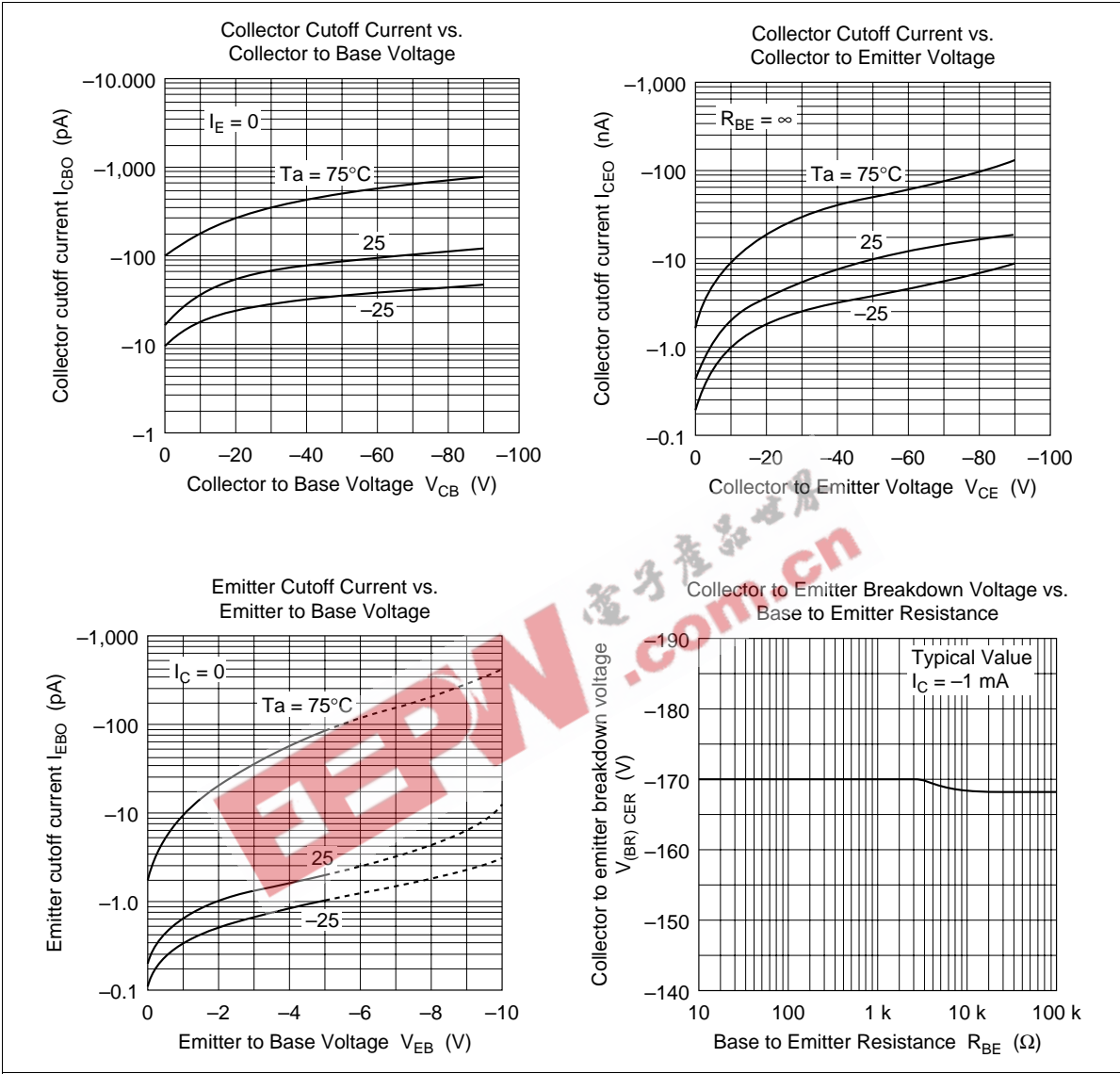
Notes: 1. The 2SA1190 and 2SA1191 are grouped by h_{FE} as follows.

2. Pulse test

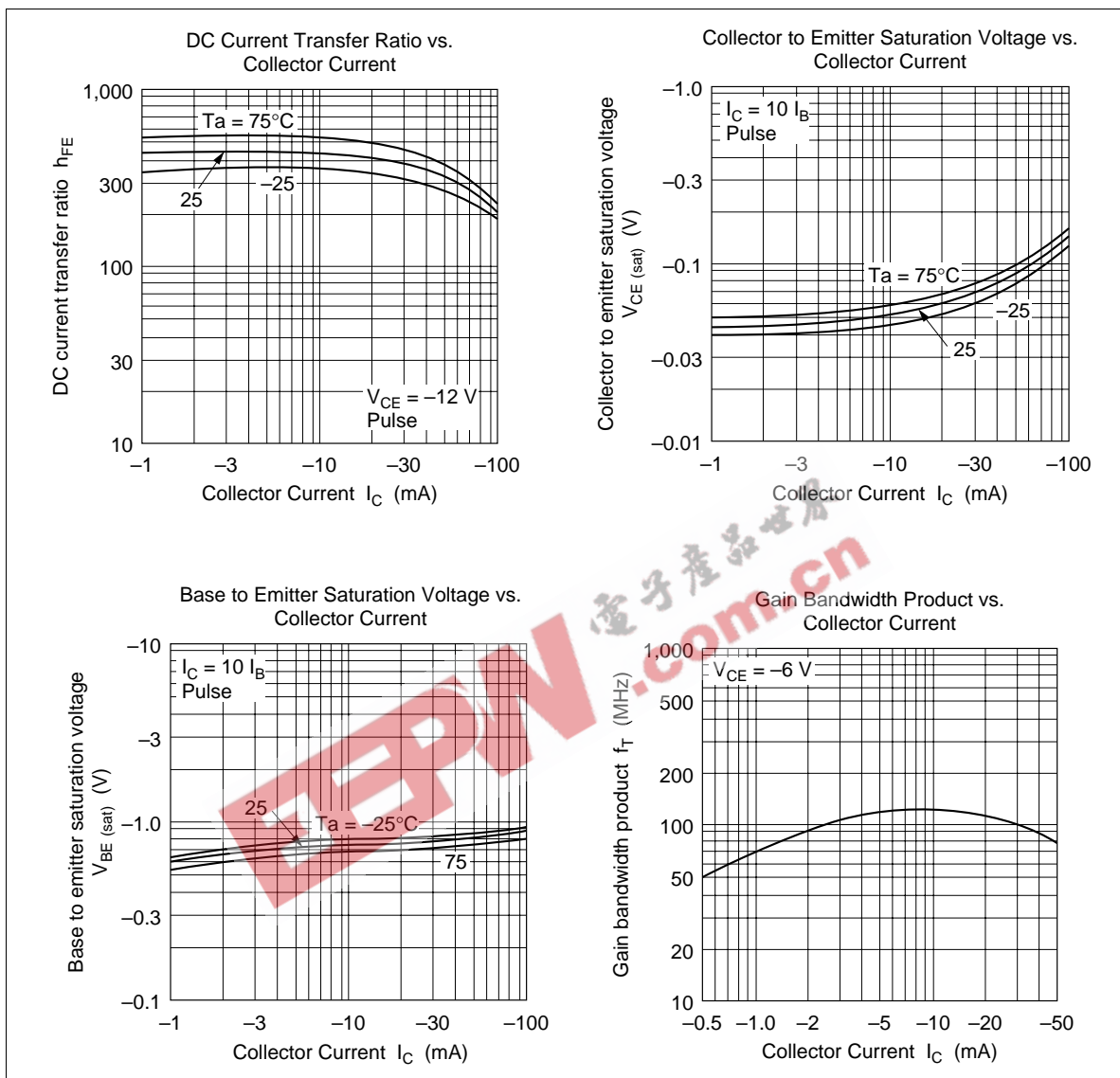
D	E
250 to 500	400 to 800

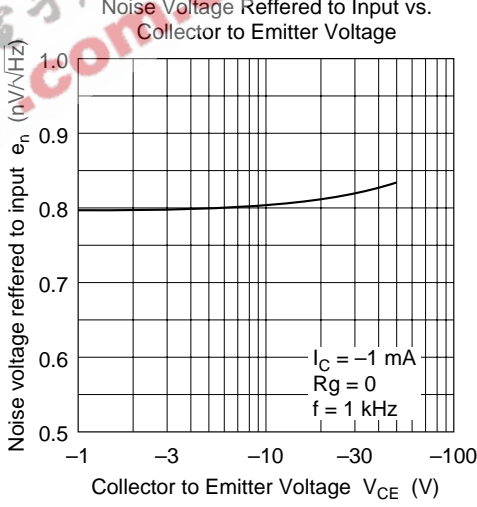
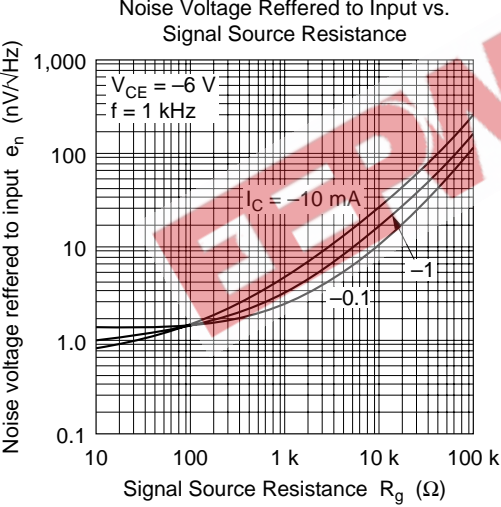
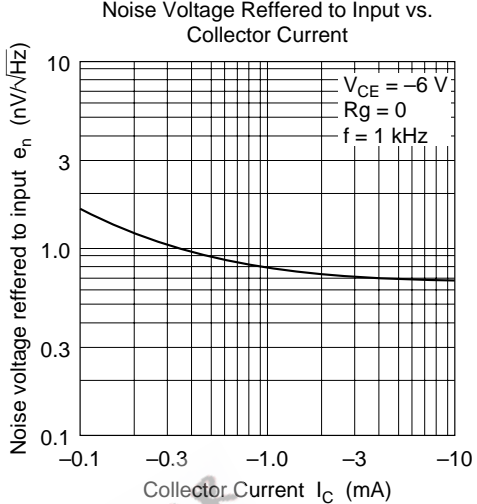
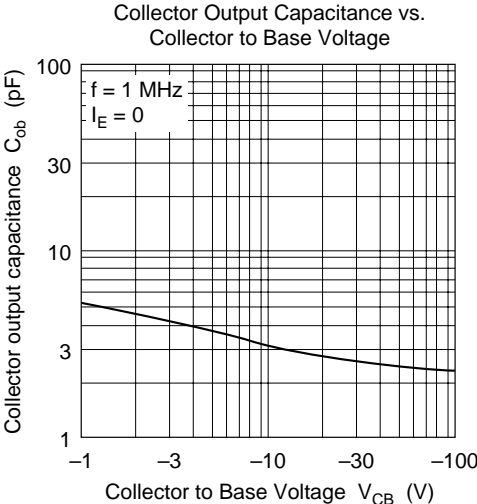
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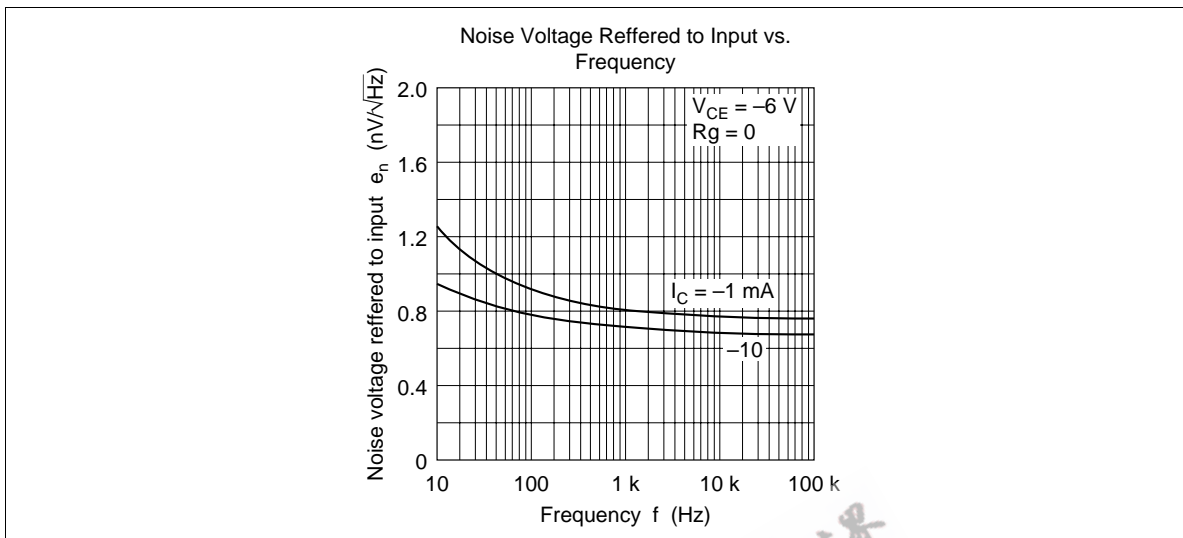


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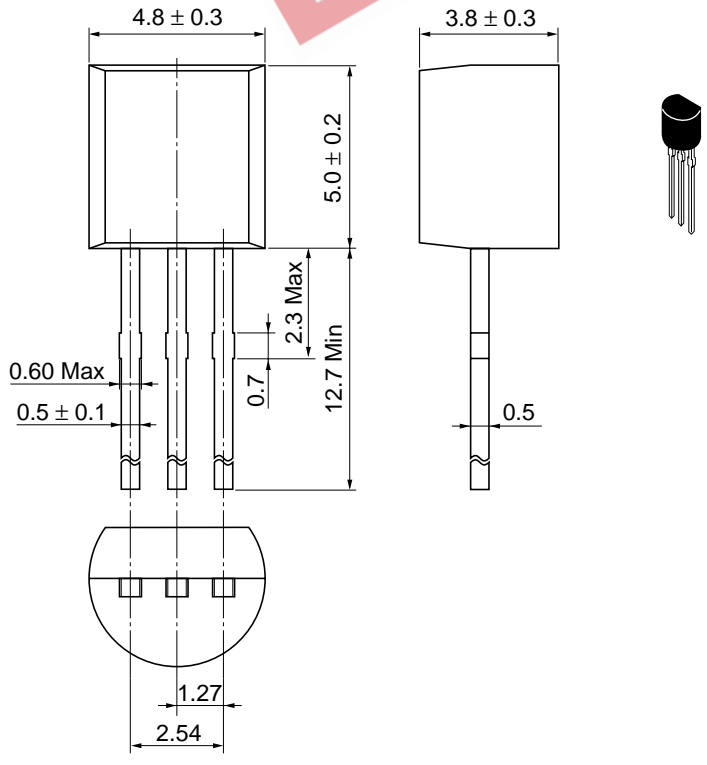
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Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.25 g

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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

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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 StraÙe 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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