
2SC2734

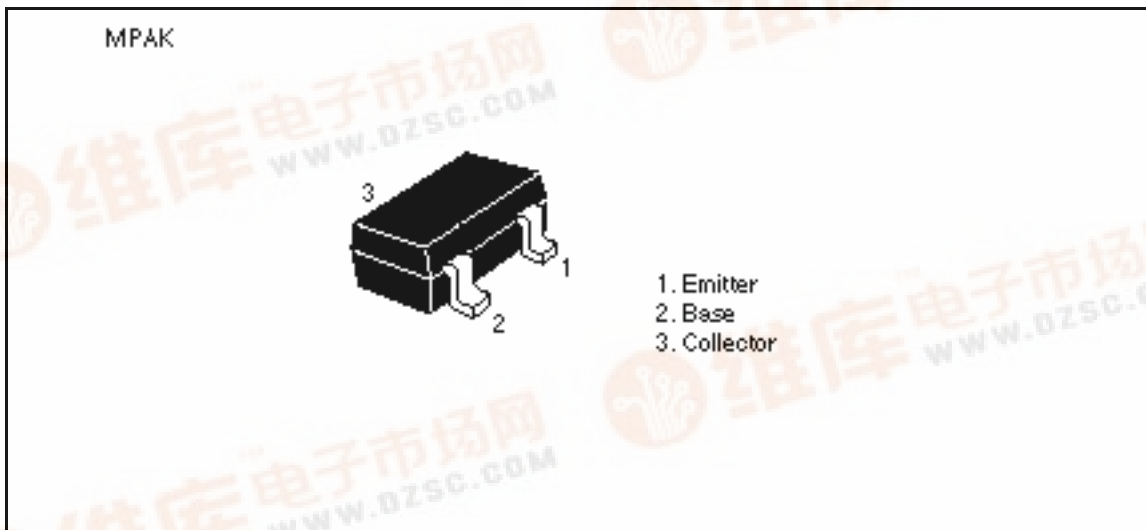
Silicon NPN Epitaxial

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Application

- UHF frequency converter
- Local oscillator, wide band amplifier

Outline



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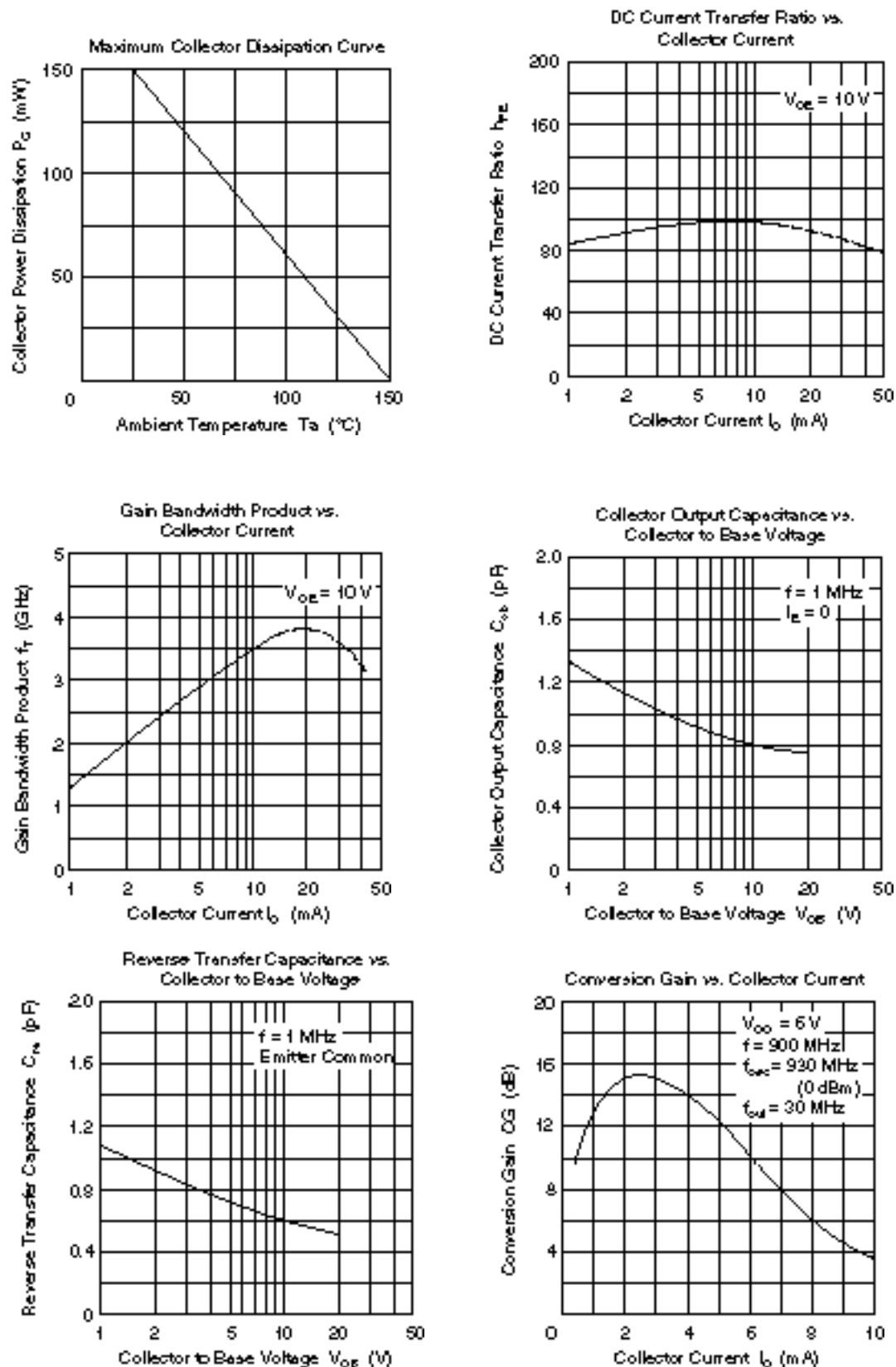
Absolute Maximum Ratings (Ta = 25°C)

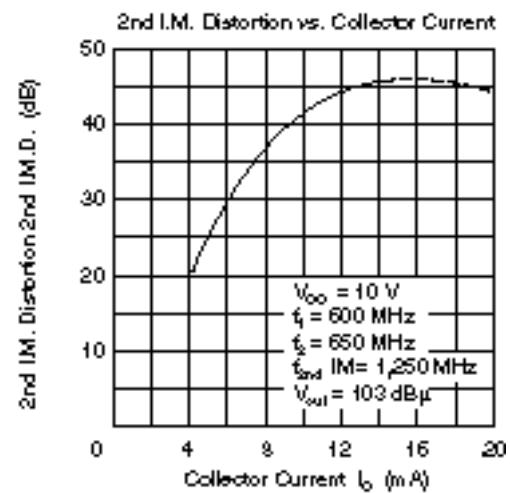
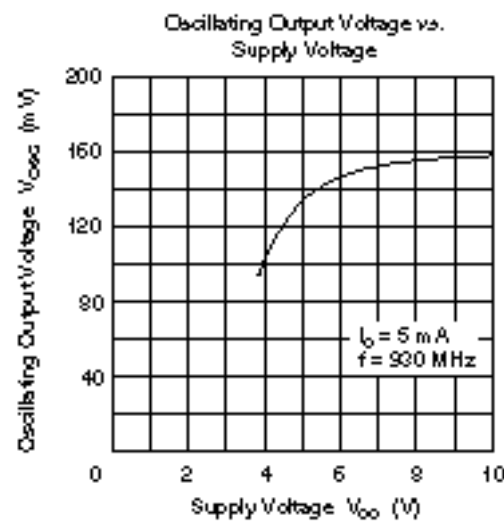
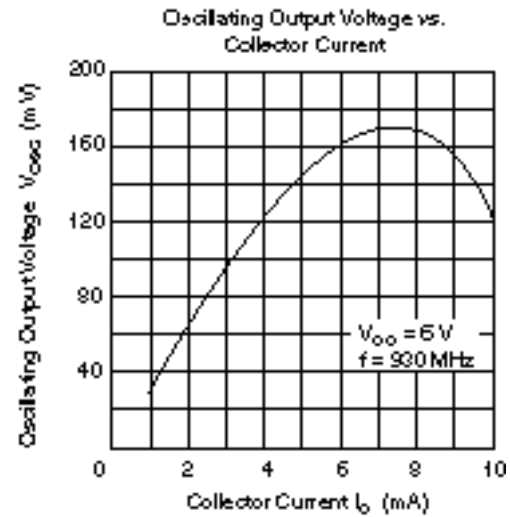
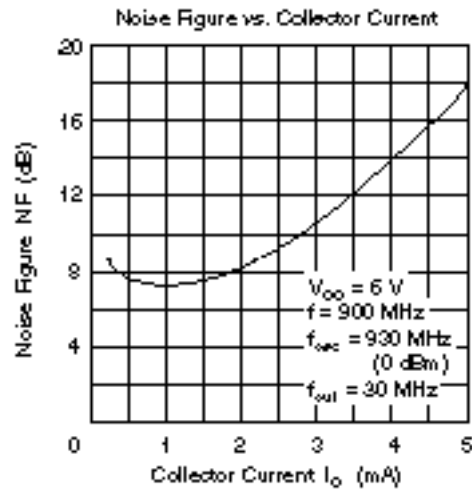
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	11	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

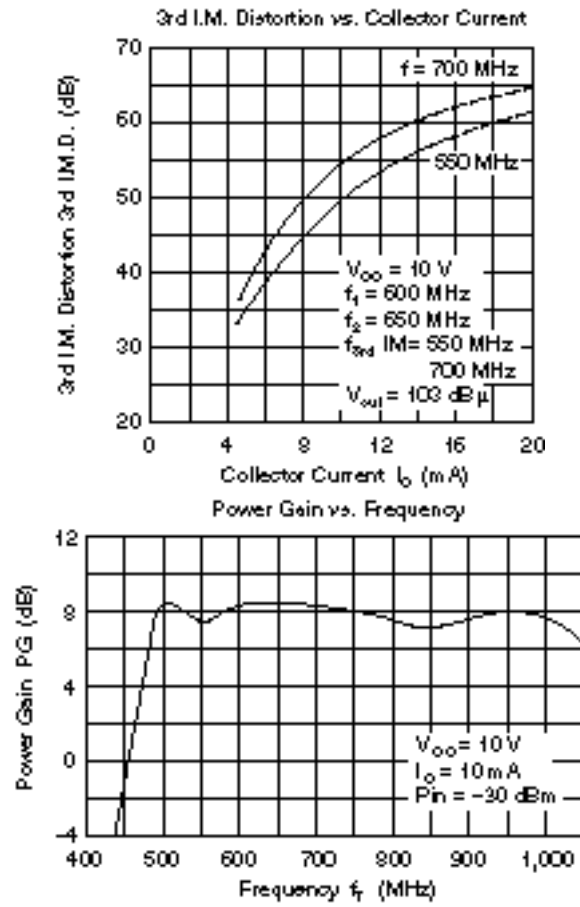
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	11	—	—	V	$I_C = 1 \text{ mA}, R_{BE} =$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_E = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.7	V	$I_C = 10 \text{ mA}, I_B = 5 \text{ mA}$
DC current transfer ratio	h_{FE}	20	90	200		$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}$
Gain bandwidth product	f_T	1.4	3.5	—	GHz	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.9	1.5	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Conversion gain	CG	—	15	—	dB	$V_{CC} = 6 \text{ V}, I_C = 2 \text{ mA},$ $f = 900 \text{ MHz},$ $f_{OSC} = 930 \text{ MHz (0dBm)},$ $f_{out} = 30 \text{ MHz}$
Noise figure	NF	—	9	—	dB	$V_{CC} = 6 \text{ V}, I_C = 2 \text{ mA},$ $f = 900 \text{ MHz},$ $f_{OSC} = 930 \text{ MHz (0dBm)},$ $f_{out} = 30 \text{ MHz}$
Oscillating output voltage	V_{OSC}	—	140	—	mV	$V_{CC} = 6 \text{ V}, I_C = 5 \text{ mA},$ $f = 930 \text{ MHz}$

Note: Marking is "GC".

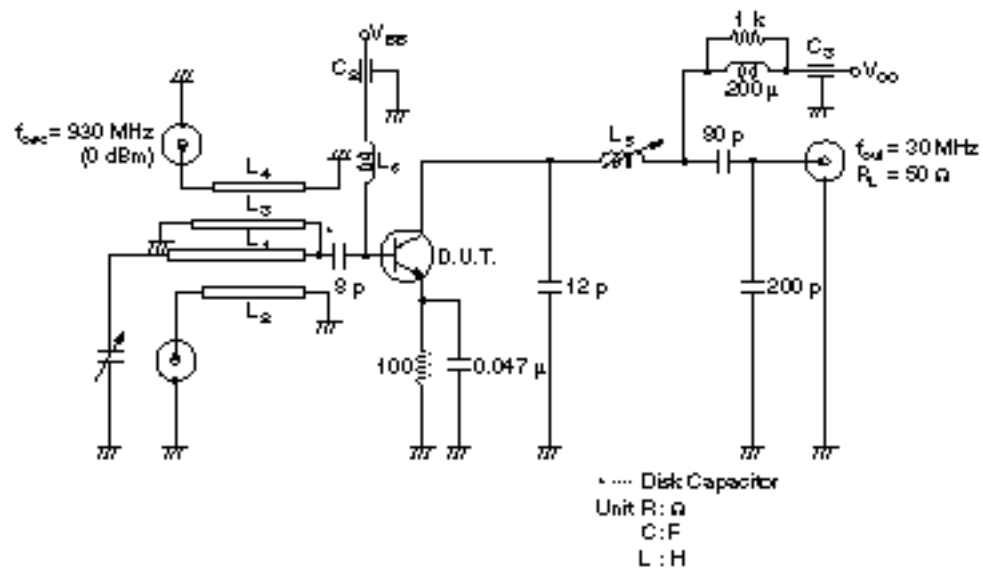






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Conversion Gain, Noise Figure Test Circuit

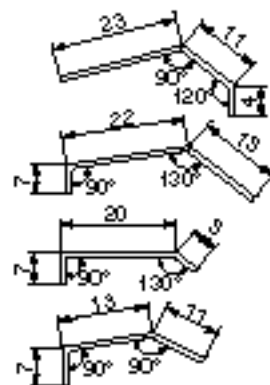


L_1 : $\phi 1 \text{ mm}$ Enameled Copper wire

L_2 : $\phi 1 \text{ mm}$ Enameled Copper wire

L_3 : $\phi 1 \text{ mm}$ Enameled Copper wire

L_4 : $\phi 1 \text{ mm}$ Enameled Copper wire

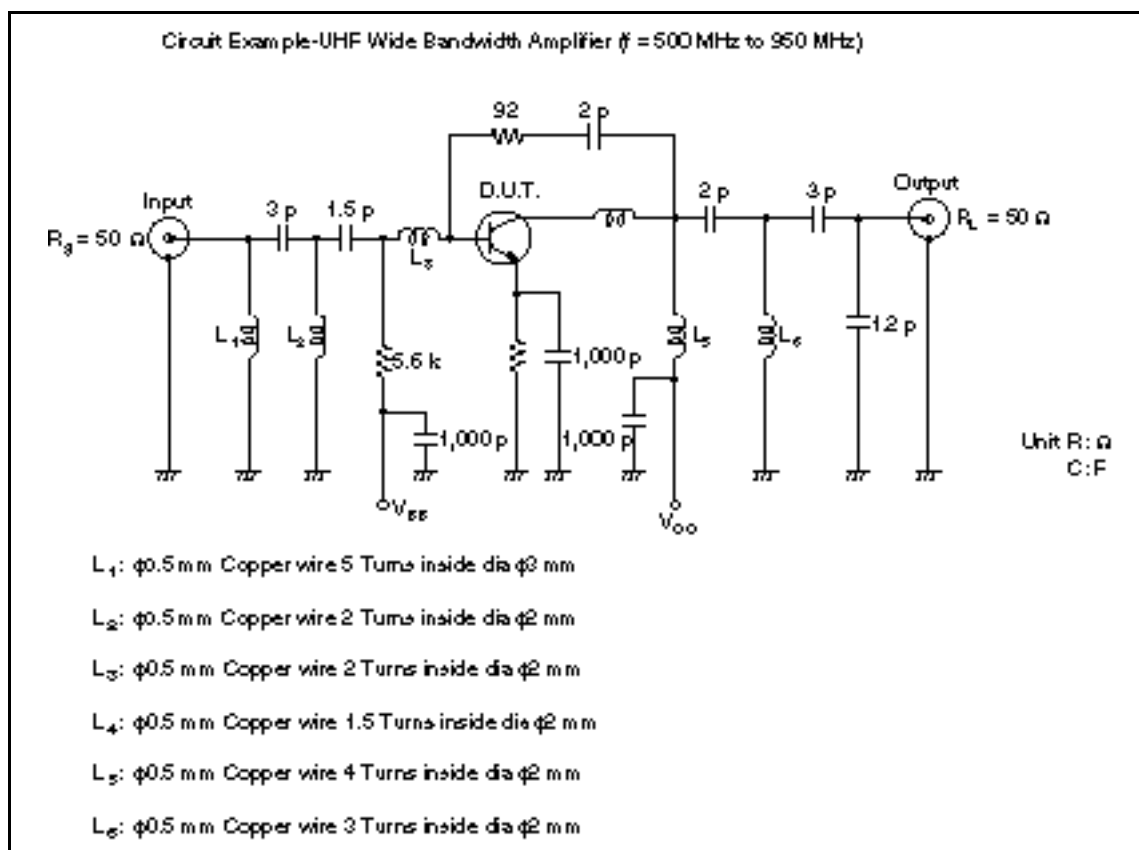
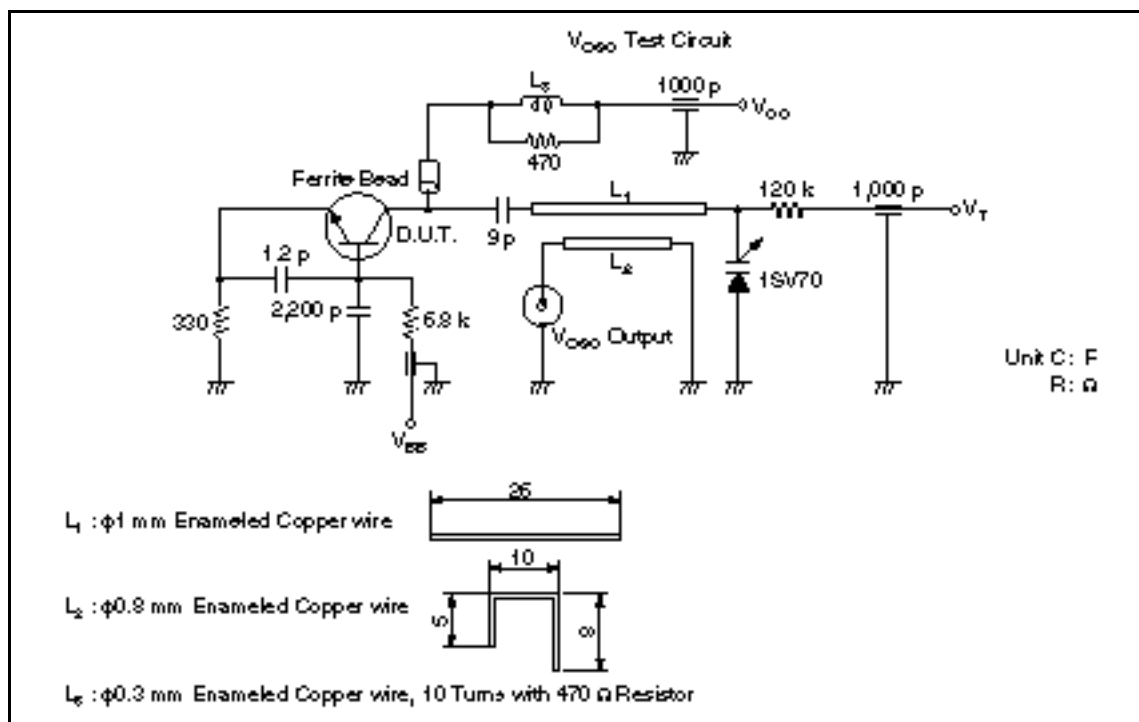


L_5 : Bobbin $\phi 6 \text{ mm}$ inside dia, $\phi 0.2 \text{ mm}$ 20 Turns Enameled Copper wire

L_6 : $\phi 0.5 \text{ mm}$ Enameled Copper wire 1 Turn inside dia $\phi 6 \text{ mm}$

C_1 : 20 pF max. Air Trimmer Condenser

C_2, C_3 : 1000 pF Air Core Capacitor



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HITACHI

Hitachi, Ltd.

Semiconductor & IC Div.

Nippon Bldg., 2-6-2, Ohite-machi, Chiyoda-ku, Tokyo 100, Japan

Tel Tokyo (03) 3270-2111

Fax (03) 3270-5109

For further information write to:

Hitachi America, Ltd.

Semiconductor & IC Div.

2000 Sierra Point Parkway

Brisbane, CA 94005-4835

U.S.A.

Tel 415-589-8300

Fax 415-583-4207

Hitachi Europe GmbH

Electronic Components Group

Continental Europe

Danrecher Straße 3

D-85622 Feldkirchen

München

Tel 089-9 94 80-0

Fax 089-9 29 30 00

Hitachi Europe Ltd.

Electronic Components Div.

Northern Europe Headquarters

Whitbrook Park

Lower Cookham Road

M Maidenhead

Berkshire SL6 8YA

United Kingdom

Tel 0628-585000

Fax 0628-778322

Hitachi Asia Pte. Ltd.

45 Collyer Quay #20-00

Hitachi Tower

Singapore 0104

Tel 535-2100

Fax 535-1533

Hitachi Asia (Hong Kong) Ltd.

Unit 705, North Tower,

World Finance Centre

Harbour City, Canton Road

Tsim Sha Tsui, Kowloon

Hong Kong

Tel 27352218

Fax 27308071