

RNA51943A, B

R03DS0024EJ0201

Rev.2.01

Voltage Detecting, System Resetting IC Series

Sep 16, 2011

Description

RNA51943A,B are semiconductor integrated circuits designed for detecting supply voltage and resetting all types of logic circuits such as CPUs.

They find extensive applications, including battery checking circuit, level detecting circuit and waveform shaping circuit.

Features

- Few external parts
- Wide supply voltage range: 2 V to 17 V
- Wide application range
- Ordering Information

Part Name	Package Type	Package Code	Package Abbreviation	Taping Abbreviation (Quantity)	Surface Treatment
RNA51943AUPH1	UPAK	PLZZ0004CA-A	UP	H (1,000 pcs / Reel)	1 (Sn-Bi)
RNA51943BUPH1	UPAK	PLZZ0004CA-A	UP	H (1,000 pcs / Reel)	1 (Sn-Bi)

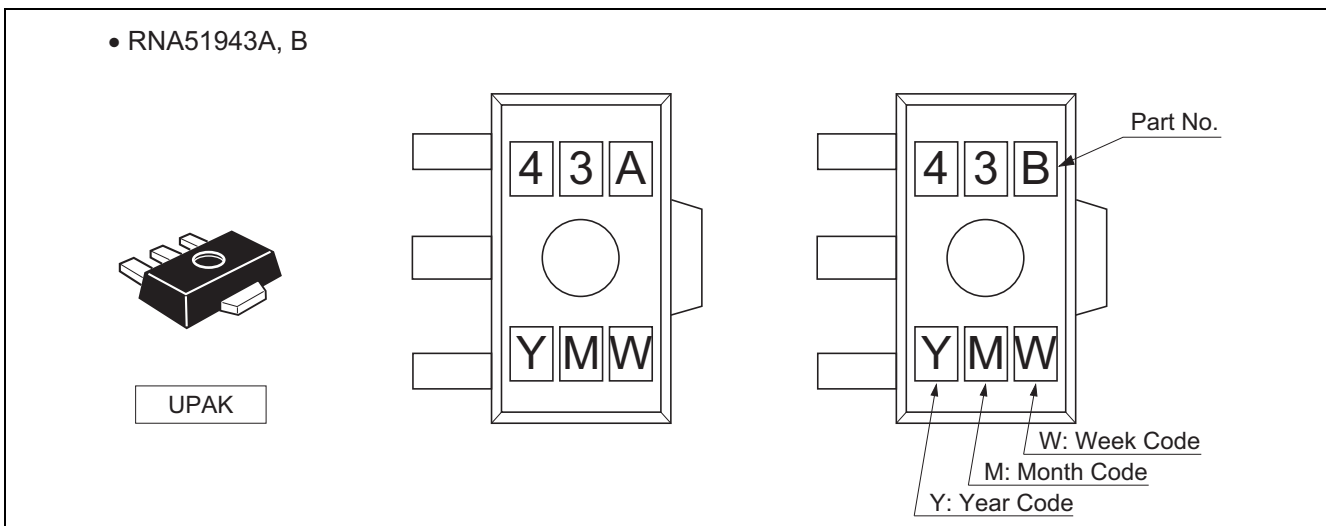
Application

- Reset circuit of Pch, Nch, CMOS, microcomputer, CPU and MCU, Reset of logic circuit, Battery check circuit, switching circuit back-up voltage, level detecting circuit, waveform shaping circuit, delay waveform generating circuit, DC/DC converter, over voltage protection circuit

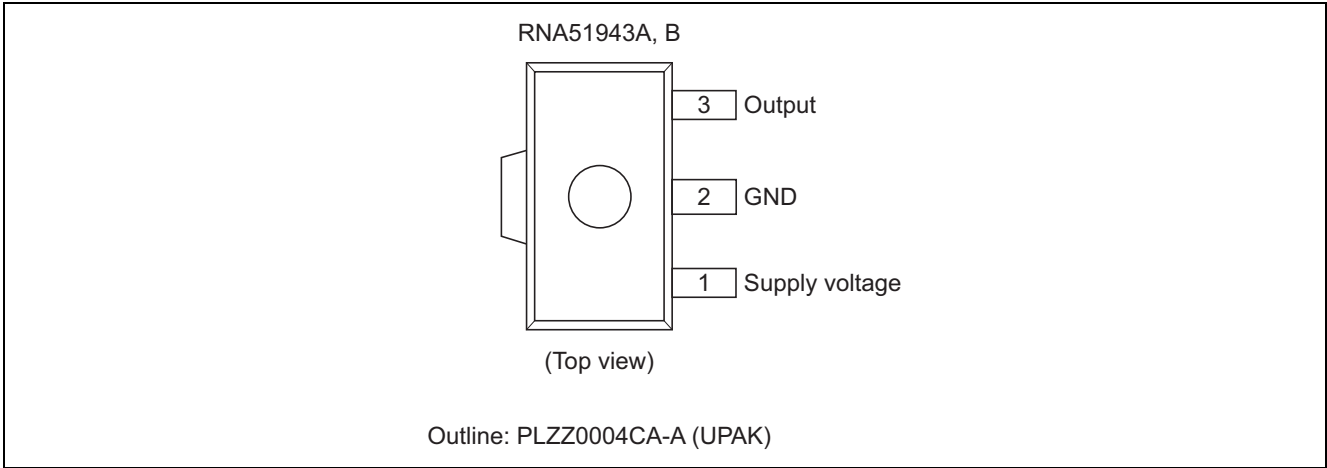
Recommended Operating Condition

- Supply voltage range: 2 V to 17 V

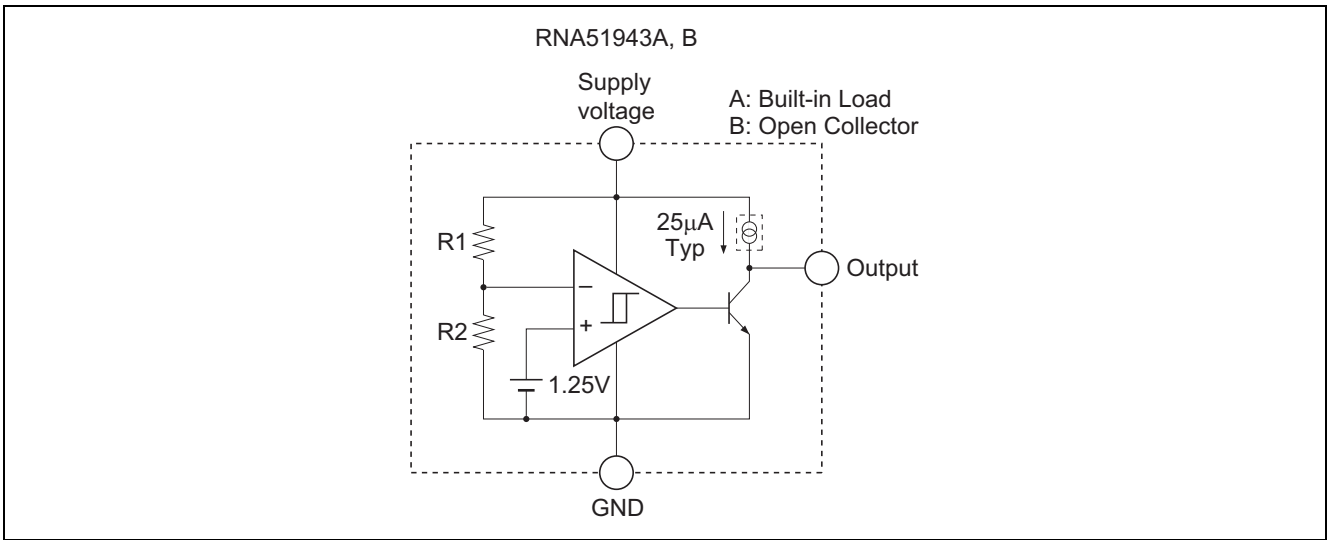
Outline and Article Indication



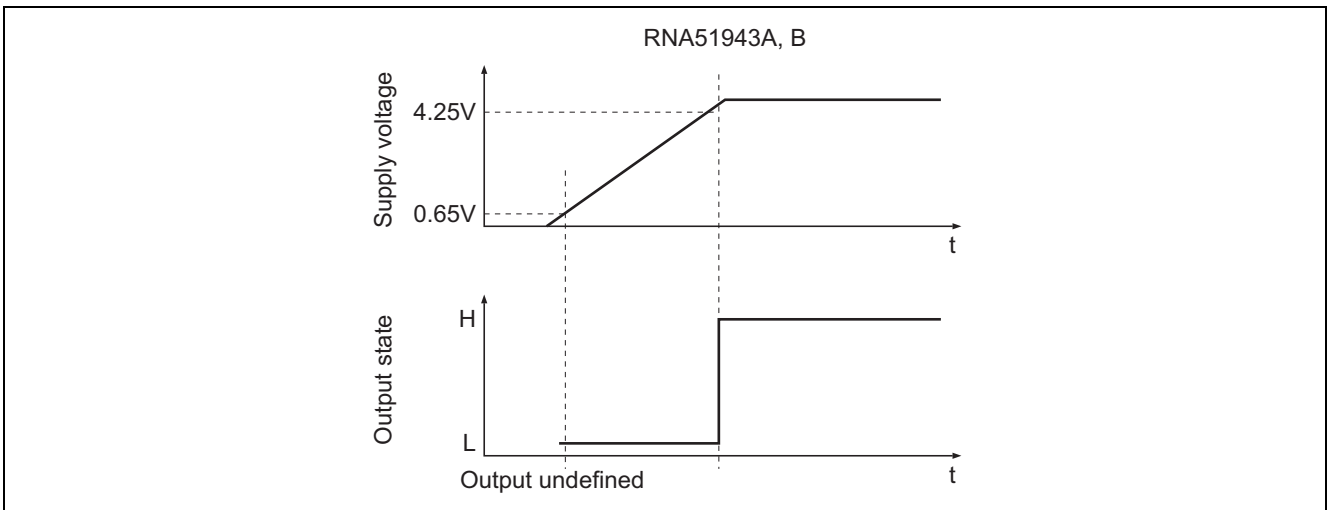
Pin Arrangement



Block Diagram



Operating Waveform



Absolute Maximum Ratings

(Ta = 25°C, unless otherwise noted)

Item	Symbol	Ratings	Unit	Conditions
Supply voltage	V _{CC}	18	V	
Output sink current	I _{sink}	6	mA	
Output voltage	V _O	V _{CC}	V	Type A (output with constant current load)
		18		Type B (open collector output)
Power dissipation	P _d	800 * ¹	mW	
Thermal derating	K _θ	7	mW/°C	Refer to the thermal derating curve.
Operating temperature	T _{opr}	-40 to +85	°C	
Storage temperature	T _{stg}	-55 to +125	°C	

Note: 1. 15 mm × 25 mm × 0.7 mm alumina ceramic board, Ta ≤ 25°C. If Ta > 25°C, derate by 6.4 mW/°C.

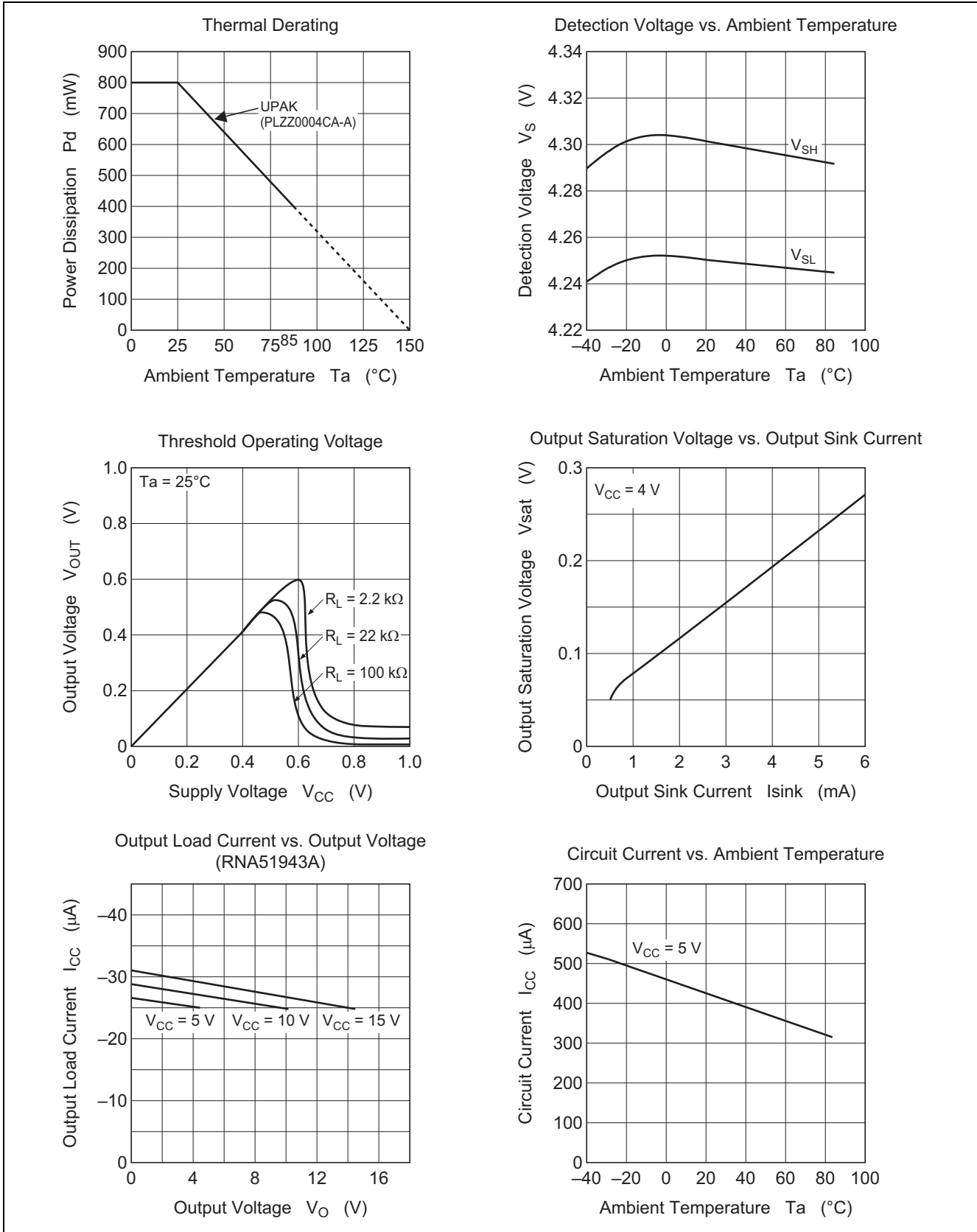
Electrical Characteristics

(Ta = 25°C, unless otherwise noted)

- “L” reset type

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Detecting voltage	V _s	4.05	4.25	4.45	V	
Hysteresis voltage	ΔV _s	30	50	80	mV	
Detecting voltage temperature coefficient	V _s /ΔT	—	0.01	—	%/°C	
Circuit current	I _{CC}	—	370	560	μA	Type A, V _{CC} = 5V
		—	340	510		Type B, V _{CC} = 5V
Output saturation voltage	V _{sat}	—	0.2	0.4	V	V _{CC} = 4V, I _{sink} = 4mA
Threshold operating voltage	V _{OPL}	—	0.67	0.8	V	L reset type minimum supply voltage for IC operation
		—	0.55	0.7		
Output leakage current	I _{OH}	—	—	30	nA	Type B
Output load current	I _{OC}	-40	-25	-17	μA	Type A, V _{CC} = 5V, V _O = 1/2 × V _{CC}
Output high voltage	V _{OH}	V _{CC} -0.2	V _{CC} -0.06	—	V	Type A
Propagation delay time	t _{PHL}	—	6	—	μs	Response time when V _{CC} changes H → L
	t _{PLH}	—	3	—		Response time when V _{CC} changes L → H

Typical Characteristics



Example of Application Circuit

Reset Circuit of RNA51943

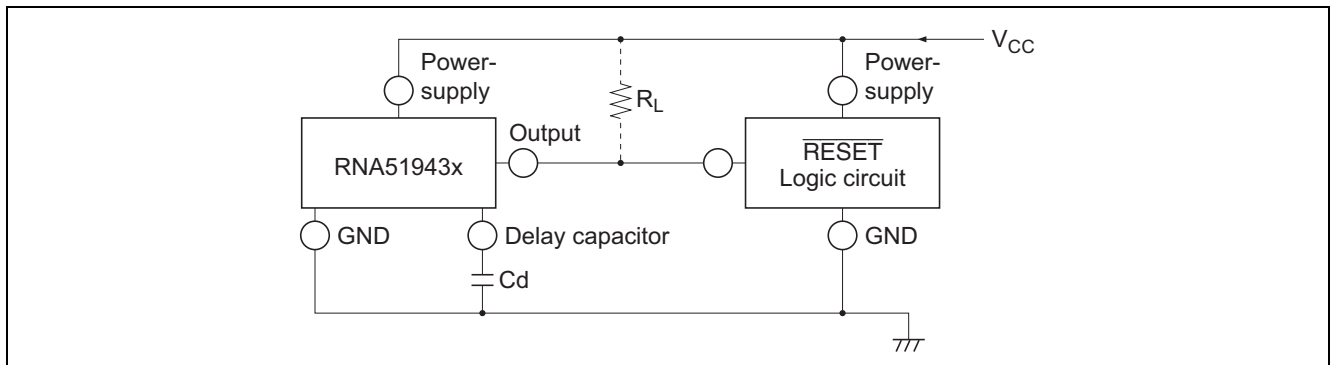


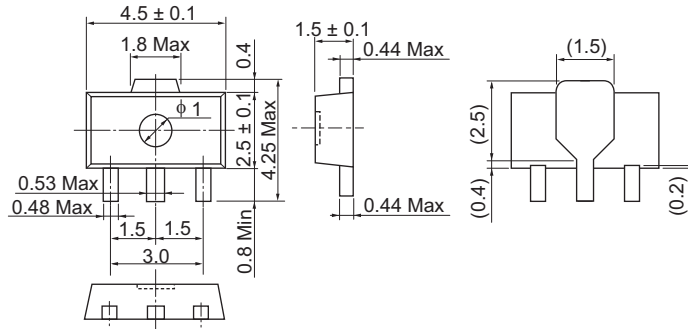
Figure 1 Reset Circuit of RNA51943

- Notes:
1. If the RNA5194xx and the logic circuit share a common power source, type A (built-in load type) can be used whether a pull-up resistor is included in the logic circuit or not.
 2. The logic circuit preferably should not have a pull-down resistor, but if one is present, add load resistor R_L to overcome the pull-down resistor.
 3. It is better to use the RNA5195xx series to cause a delay, but if the delay is caused by the RNA5194xx, the delay capacitor C_d is applied between the output and GND.
 4. When a negative supply voltage is used, the supply voltage side of RNA5194xx and the GND side are connected to GND and the negative supply voltage respectively.

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
UPAK	SC-62	PLZZ0004CA-A	UPAK / UPAKV	0.050g

Unit: mm



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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-586-6000, Fax: +1-408-586-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd., Pudong District, Shanghai 200120, China
Tel: +86-21-5877-1818, Fax: +86-21-6887-7858 / -7898

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
1 HarbourFront Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6276-8001

Renesas Electronics Malaysia Sdn.Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jin Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Lavied' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141