

Winbond
Bus Termination Regulator
W83310U
W83310UG

W83310U, W83310UG



W83310U Data Sheet Revision History

	PAGES	DATES	VERSION	VERSION ON WEB	MAIN CONTENTS
1.		03/Mar.	0.5	N.A.	All versions before 0.5 are for internal use only
2.		04/Feb.	0.51	N.A.	Add the thermal data inside
3		05/Mar.	0.6	N.A	Update the package dimension data.
4		06/Jan.	0.7	N.A	Add pb-free part no:W83310UG

Please note that all data and specifications are subject to change without notice. All the trademarks of products and companies mentioned in this datasheet belong to their respective owners.

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Winbond customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Winbond for any damages resulting from such improper use or sales.

Table of Contents-

1.	GENERAL DESCRIPTION	1
2.	FEATURES	1
3.	APPLICATIONS	1
4.	PIN CONFIGURATION AND DESCRIPTION	2
5.	APPLICATION CIRCUIT	3
6.	INTERNAL BLOCK DIAGRAM	4
7.	ELECTRICAL CHARACTERISTICS	5
7.1	AC CHARACTERISTICS	5
8.	TYPICAL OPERATING WAVEFORM.....	6
9.	PACKAGE DIMENSION (TO252-5L).....	8
10.	THERMAL PERFORMANCE	9
11.	ORDERING INFORMATION	9
12.	HOW TO READ THE TOP MARKING	9

1. GENERAL DESCRIPTION

The W83310U is a linear regulator which provides achieves continuous 2.0 Amp bi-directional sinking and driving capability for DDR SDRAM bus terminator application. The chip simply implement a stable power supply which can track half of input power dynamically for bus terminator with a single chip; that is the chip integrates two power MOSFETs. There is no any external power device needed. The W83310U is promoted with TO252 power package. With W83310U design, a high integration, high performance, and cost-effective solution is promoted.

2. FEATURES

- Regulates a bi-directional power with driving and sinking capability
- Provides achieve continuous 2.0Amp driving and sinking current
- Power MOSFET integrated
- Low external component count
- Low output voltage offset
- Operates with +3.3V and +2.5V control power
- Power package TO252-5L
- Low cost and easy to use

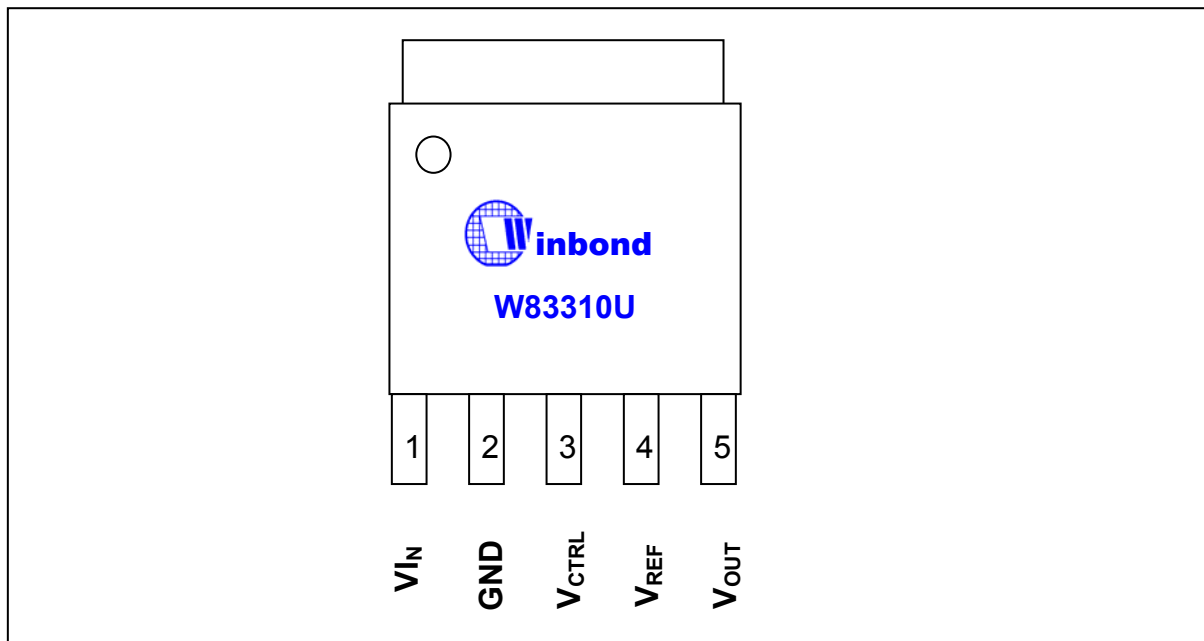
3. APPLICATIONS

- DDR and DDR II Bus Termination Regulator
- Active Termination Bus
- SSTL-2
- SSTL-3

W83310U, W83310UG



4. PIN CONFIGURATION AND DESCRIPTION

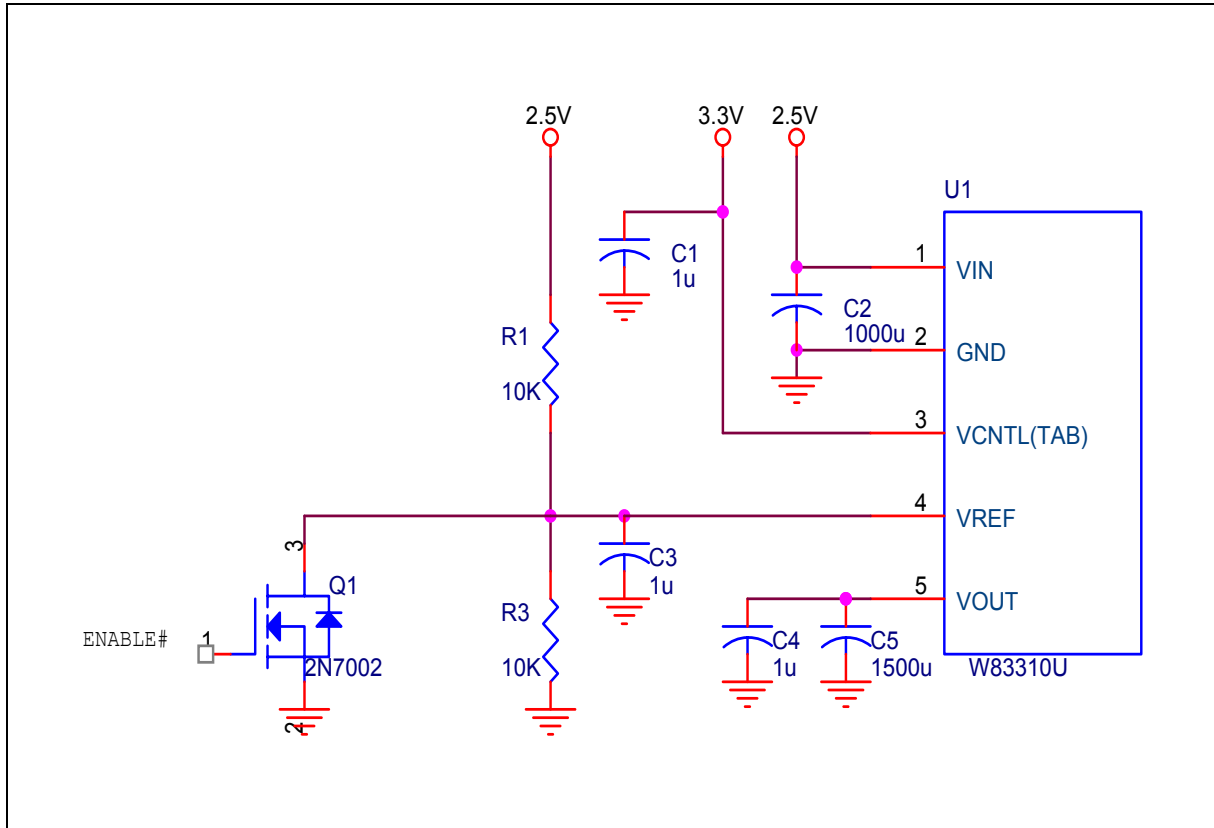


SYMBOL	PIN	FUNCTION
VIN	1	Power input pin.
GND	2	Ground.
VCNTL	3	Gate drive voltage.
VREF	4	Reference voltage and Chip enable.
VOUT	5	Output voltage.

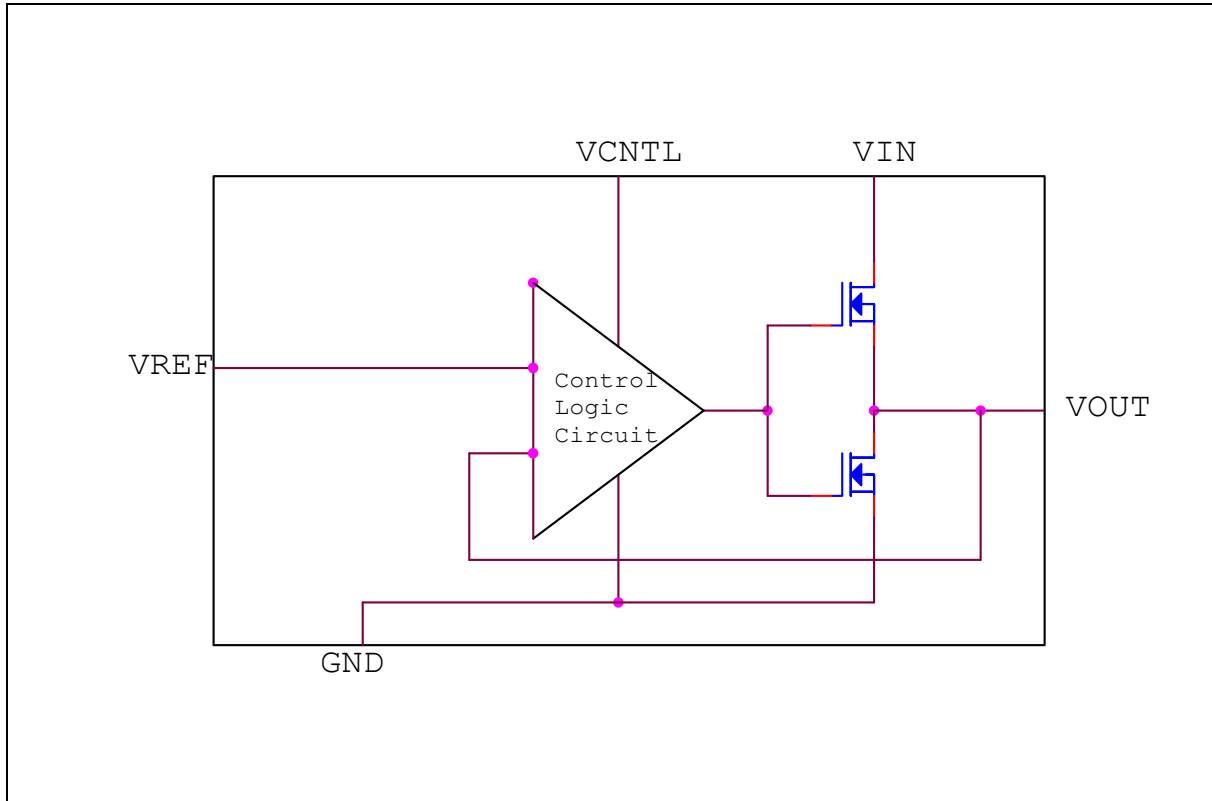
W83310U, W83310UG



5. APPLICATION CIRCUIT



6. INTERNAL BLOCK DIAGRAM - W83310U



W83310U, W83310UG



7. ELECTRICAL CHARACTERISTICS

7.1 AC CHARACTERISTICS

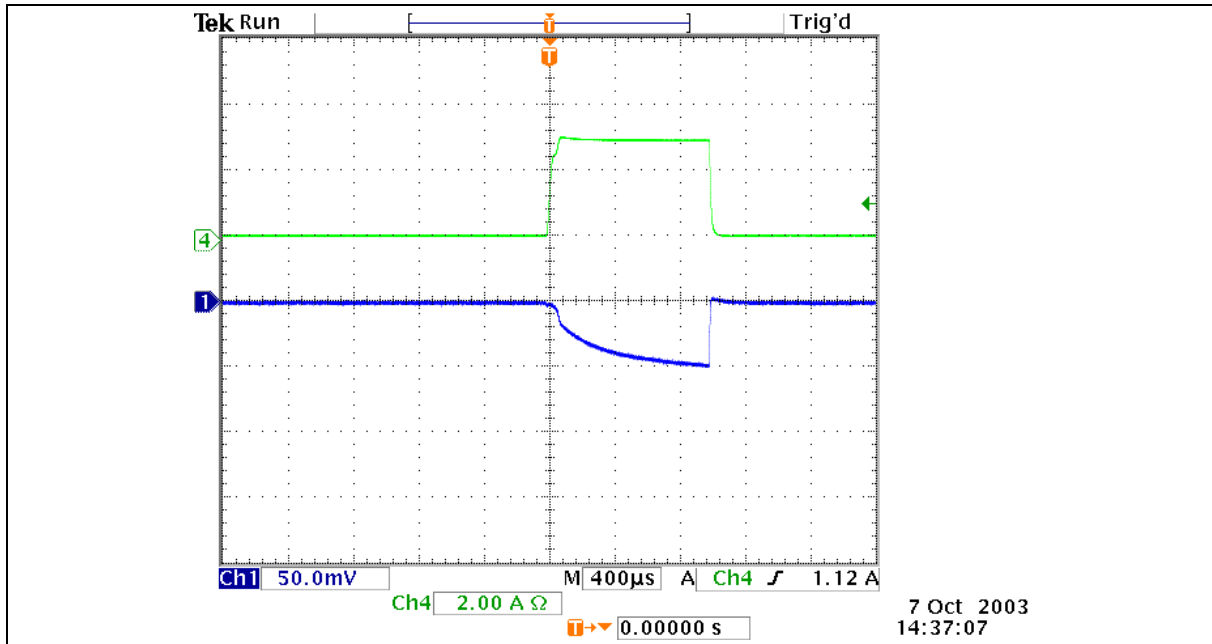
W83310U						
VIN=2.5V, VCNTL=3.3V, VREF=1.25V, Cout=100uF, TA = 0°C to +70°C						
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Output Offset Voltage	V _{OS}	-5	0	+5	mV	I _{OUT} =0A
Load Regulation			1.0		%	Loading: 0A→2.0A
			1.0			Loading: 0A→-2.0A
Input Voltage Range	V _{IN}	1.62	2.5	3.63	V	
	V _{CNTL}		3.3	3.63		
Operating Current of VCNTL	I _{CNTL}		0.5	1.0	mA	No Load(I _{OUT} =0A)
Shutdown Threshold Trigger		0.8			V	Output=High
				0.2	V	Output=Low
Shutdown Current	I _{SHDN}		10		uA	VREF<0.2V Loading=0.7A
Short Current Limit	I _{LMT}	4.0			A	

Note: Load regulation is tested with a 1ms duty pulse current and measuring V_{OUT}.

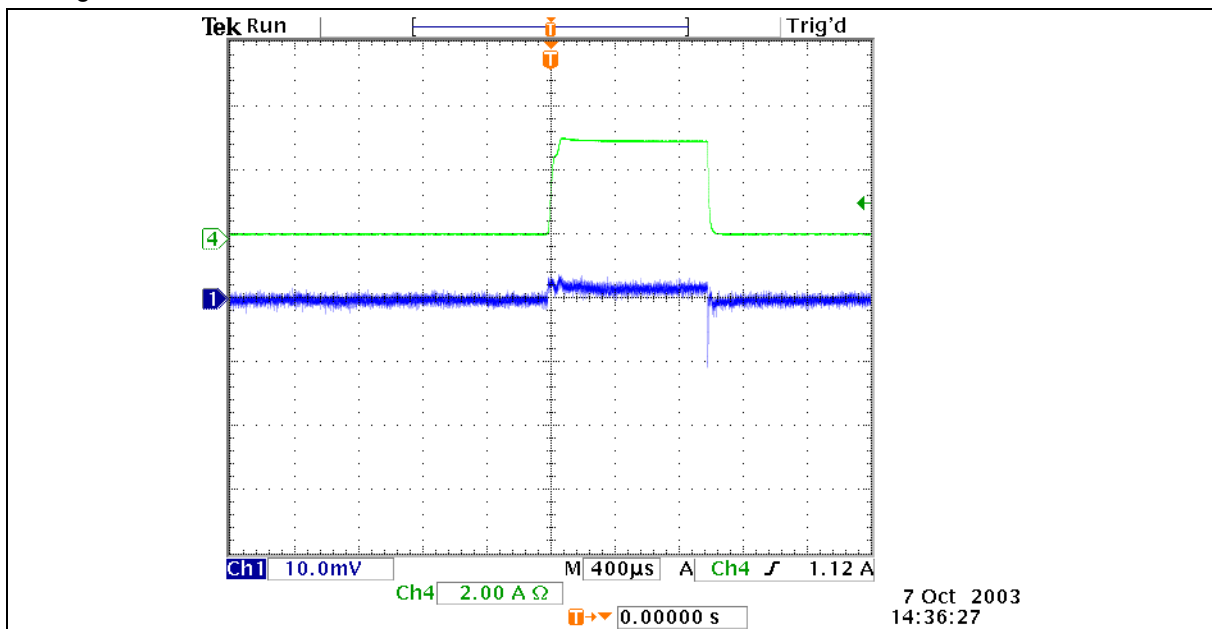


8. TYPICAL OPERATING WAVEFORM

-- Load regulation with test condition - $V_{CTRL}=3.3V$; $V_{IN}=2.5V$; $V_{OUT}=1.25V$; 3.0Amp 1ms duty pulse driving current. $\Delta V \approx 50mV$.



-- Load regulation with test condition - $V_{CTRL}=3.3V$; $V_{IN}=2.5V$; $V_{OUT}=1.25V$; 3.0Amp 1ms duty pulse sinking current. $\Delta V \approx 5mV$.



Tek Run Auto

4

1

Ch1 20.0mV M 400µs A Ch4 J 1.12 A

Ch4 2.00 A Ω

0.00000 s

7 Oct 2003 14:38:42

Tek Run Auto

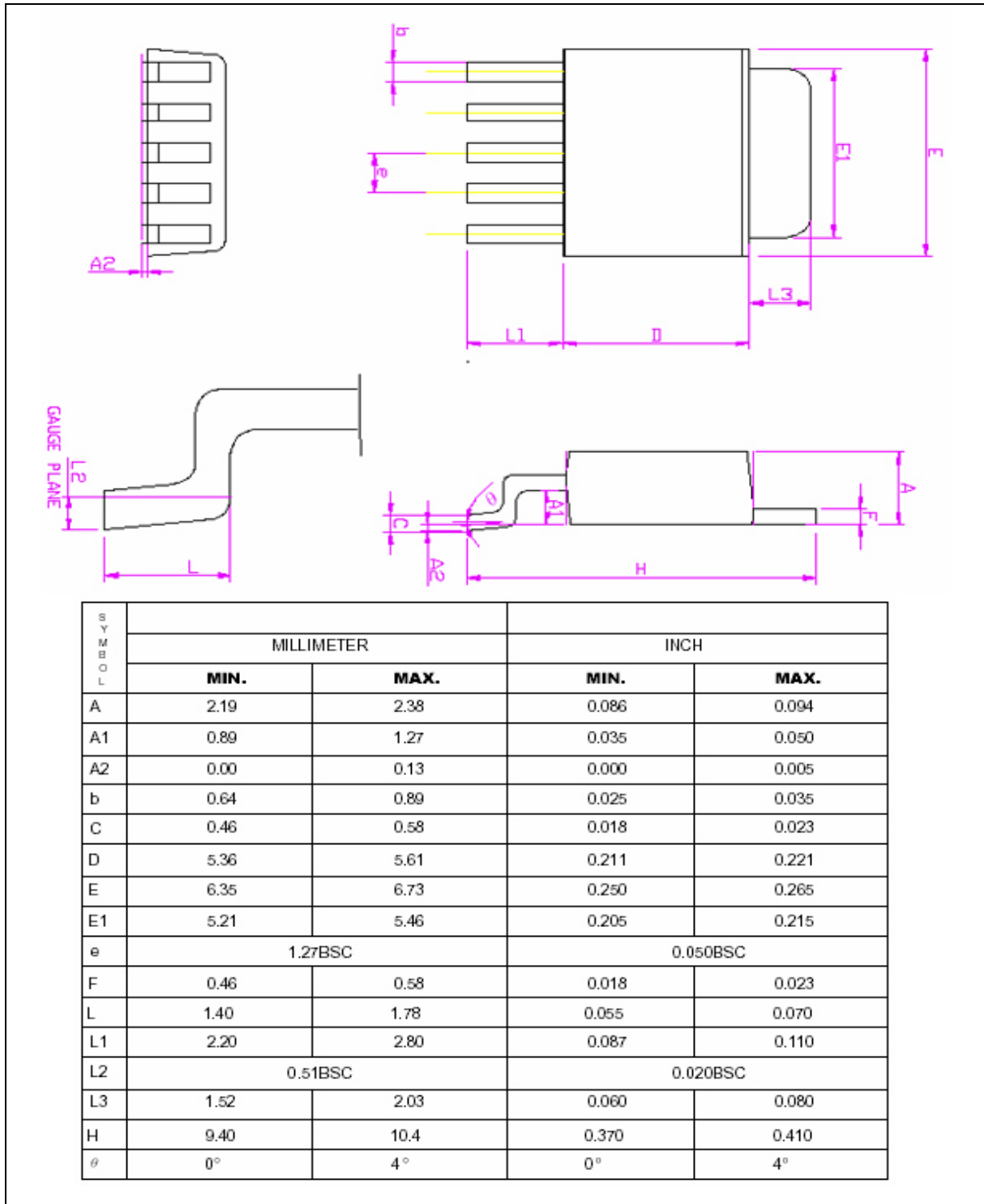
Ch1 10.0mV M 400µs A Ch4 2.00 A Ω 0.00000 s

7 Oct 2003 14:41:05

W83310U, W83310UG



9. PACKAGE DIMENSION (TO252-5L)



W83310U, W83310UG



10. THERMAL PERFORMANCE

Test on Four-Layer (2S2P) JEDEC Test Board							
Package	Power (W)	Component Temp. (°C)					Θ_{jc} (°C /W)
		Package	Die	Downset	Lead	Ambient	
TO-252-5L	3.18	96	145	79	78	25	15.5

11. ORDERING INFORMATION

PART NUMBER	PACKAGE TYPE	PRODUCTION FLOW
W83310U	5L TO-252	

12. HOW TO READ THE TOP MARKING



Left line: Winbond logo

1st line: W83310U, W83310UG (Pb-free package) – the part number

2nd line: Tracking code Tracking code 316 G B

316: Packages assembled in Year 03', week 16

G: assembly house ID; O means OSE, G means GR, etc.

B: The IC version

Publication Release Date: January 17, 2006

Revision 0.7



Important Notice

Winbond products are not designed, intended, authorized or warranted for use as components in systems or equipment intended for surgical implantation, atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, or for other applications intended to support or sustain life. Further more, Winbond products are not intended for applications wherein failure of Winbond products could result or lead to a situation wherein personal injury, death or severe property or environmental damage could occur.

Winbond customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Winbond for any damages resulting from such improper use or sales.



Headquarters

No. 4, Creation Rd. III,
Science-Based Industrial Park,
Hsinchu, Taiwan
TEL: 886-3-5770066
FAX: 886-3-5665577
<http://www.winbond.com.tw/>

Taipei Office

9F, No.480, Rueiguang Rd.,
Neihu District, Taipei, 114,
Taiwan, R.O.C.
TEL: 886-2-8177-7168
FAX: 886-2-8751-3579

Winbond Electronics Corporation America

2727 North First Street, San Jose,
CA 95134, U.S.A.
TEL: 1-408-9436666
FAX: 1-408-5441798

Winbond Electronics Corporation Japan

7F Daini-ueno BLDG, 3-7-18
Shinyokohama Kohoku-ku,
Yokohama, 222-0033
TEL: 81-45-4781881
FAX: 81-45-4781800

Winbond Electronics (Shanghai) Ltd.

27F, 2299 Yan An W. Rd. Shanghai,
200336 China
TEL: 86-21-62365999
FAX: 86-21-62365998

Winbond Electronics (H.K.) Ltd.

Unit 9-15, 22F, Millennium City,
No. 378 Kwun Tong Rd.,
Kowloon, Hong Kong
TEL: 852-27513100
FAX: 852-27552064

*Please note that all data and specifications are subject to change without notice.
All the trade marks of products and companies mentioned in this data sheet belong to their respective owners.*