Winbond Electronics Corp.

Winbond
Single-Slot PC Card Power Interface Switch for Parallel PCMCIA Controller
W83L350R
W83L350G

W83L350R/W83L350G
Datasheet Revision History

	PAGES	DATES	VERSION	VERSION ON WEB	MAIN CONTENTS
1.		Apr./06	0.5	N.A	All versions before 0.5 are for internal use only.

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

The W83L350R PC Card power-interface switch provides an integrated power-management solution for a single PC Card. All of the discrete power MOSFETs, a logic section, current limiting, and thermal protection for PC Card control are combined on a single integrated circuit. The circuit allows the distribution of 3.3-V, 5-V,and/or 12-V card power, and is compatible with many PCMCIA controllers. The current-limiting feature eliminates the need for fuses, which reduces component count and improves reliability. Current-limit reporting can help the user isolate a system fault to the PC Card. controllers. The W83L350R features a 3.3-V low-voltage mode that allows for 3.3-V switching without the need for 5 V. Bias power can be derived from either the 3.3-V or 5-V inputs. This facilitates low-power system designs such as sleep mode and pager mode where only 3.3 V is available. End equipment for the W83L350R includes notebook computers, desktop computers, personal digital assistants (PDAs), digital cameras, and bar-code scanners.

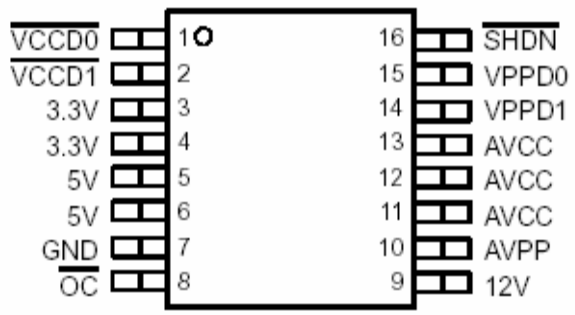
2. FEATURES

- Fully Integrated VCC and VPP Switching for Single-Slot PC Card Interface
- Low $r_{DS(on)}$ (70-mΩ 5-V VCC Switch and 3.3-V VCC Switch)
- Compatible With Industry-Standard Controllers
- Meets PC Card Standards
- Short-Circuit and Thermal Protection
- 12-V Supply Can Be Disabled Except During 12-V Flash Programming
- Space-Saving 16-Pin SSOP (DB)
- Compatible With 3.3-V, 5-V, and 12-V PC Cards
- Break-Before-Make Switching

3. APPLICATIONS

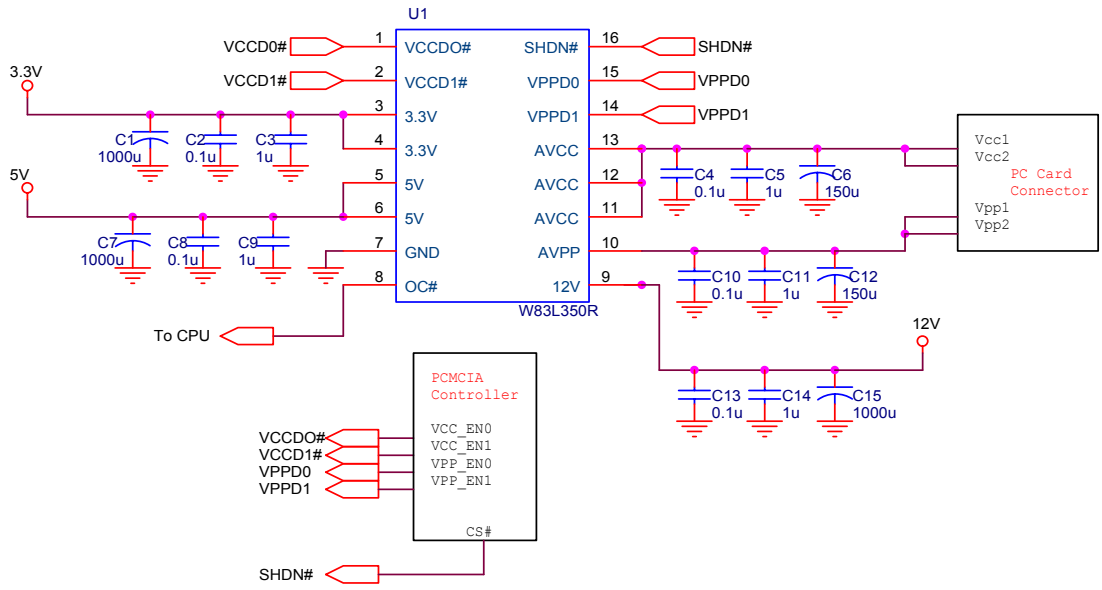
- Notebook computer
- Desktop computer
- Personal digital assistant (PDA)
- Bar-code scanner

4. PIN CONFIGURATION AND DESCRIPTION



SYMBOL	PIN	I/O	
VCCD0#	1	I	Logic input that controls voltage of AVCC(see control logic table)
VCCD1#	2	I	Logic input that controls voltage of AVCC(see control logic table)
3.3V	3	I	3.3V VCC input for card power and/or chip power
3.3V	4	I	3.3V VCC input for card power and/or chip power
5V	5	I	5V VCC input for card power and/or chip power
5V	6	I	5V VCC input for card power and/or chip power
GND	7		Ground
OC#	8	O	Logic-level over-current reporting output that goes low when an over-current conditions exists
12V	9	I	12V VPP input for card power
AVPP	10	O	Switched output that delivers 0V,3.3V,5V,12V or high impedance to card
AVCC	11	O	Switched output that delivers 0V,3.3V,5V or high impedance to card
AVCC	12	O	Switched output that delivers 0V,3.3V,5V or high impedance to card
AVCC	13	O	Switched output that delivers 0V,3.3V,5V or high impedance to card
VPPD1	14	I	Logic input that controls voltage of AVPP(see control logic table)
VPPD0	15	I	Logic input that controls voltage of AVPP(see control logic table)
SHDN#	16	I	Login input that shuts down the device and sets all power outputs to high impedance state

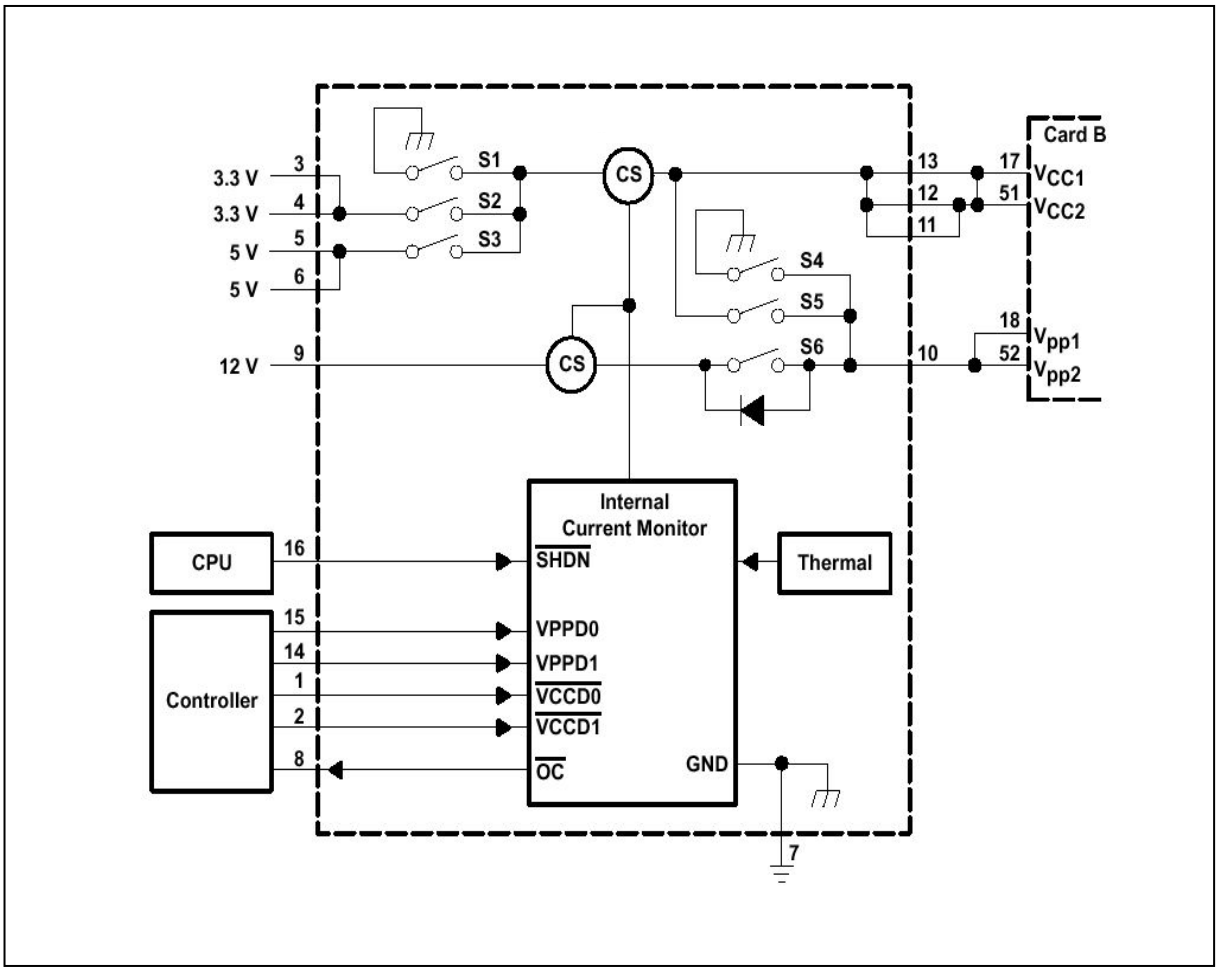
5. APPLICATION CIRCUIT



Note: We suggest that the 3 AVCC pins be tied together externally as close as possible to the device to minimize power loss.

6. INTERNAL BLOCK DIAGRAM & CONTROL LOGIC TABLE

Block Diagram



Control Logic Table

AVPP

CONTROL SIGNALS			OUTPUT
SHDN#	VPPD0	VPPD1	AVPP
1	0	0	0V
1	0	1	AVCC
1	1	0	12V
1	1	1	Hi-Z
0	X	X	Hi-Z

AVCC

CONTROL SIGNALS			OUTPUT
SHDN#	VCCD1#	VCCD0#	AVCC
1	0	0	0V
1	0	1	3.3V
1	1	0	5V
1	1	1	0V
0	X	X	Hi-Z

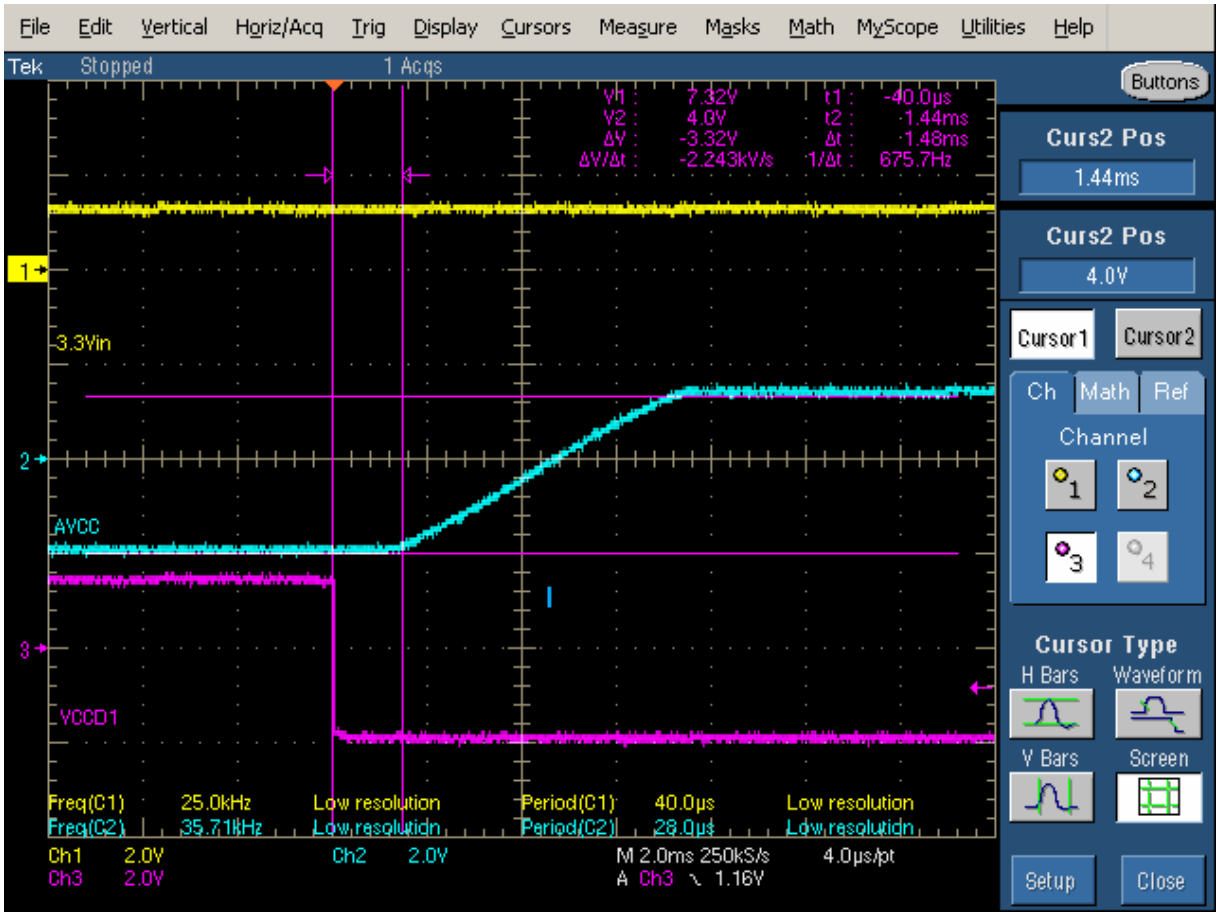
7. ELECTRICAL CHARACTERISTICS

Power switch

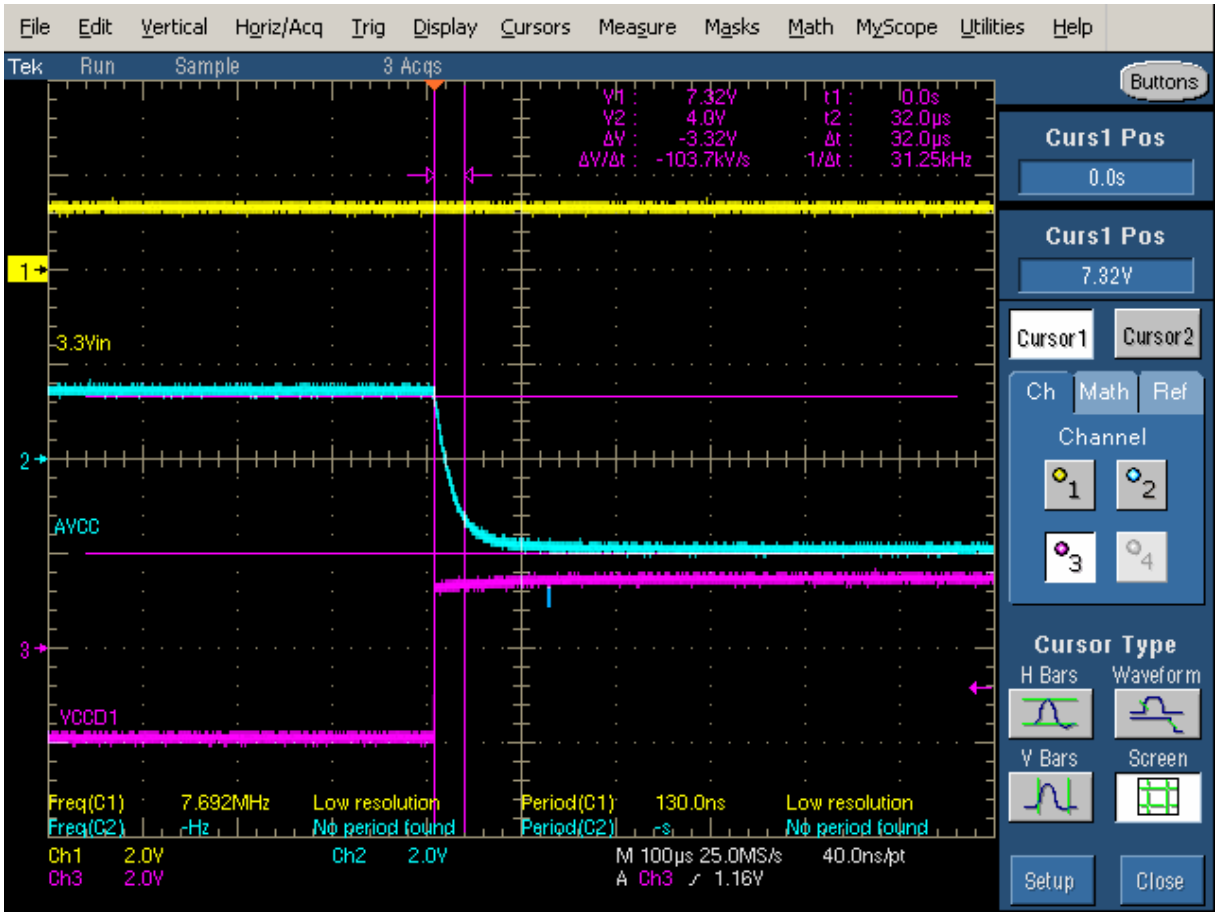
PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
Switch resistance	5 V to AVCC	AVCC V I(5V) = 5 V		120		mΩ
	3.3 V to AVCC	V I(3.3V) = 3.3 V		125		
	5 V to AVPP	TA = 25°C		2		Ω
	3.3 V to AVPP	TA = 25°C		1.5		
	12 V to AVPP	TA = 25°C		1.5		
Vo(AVPP) Clamp low voltage		Ipp at 10 mA		0.3	0.8	V
Vo(AVCC) Clamp low voltage		Icc at 10 mA		0.1	0.8	V
I OS Short-circuit Output current limit	I O(AVCC)	TA = 25°C, output powered into a short to GND		1	2.5	A
	I O(AVPP)			180	400	mA
Logic input high level	VIH		2.0			V
Logic input low level	VIL				0.8	V
Logic output high level, OC#	VOH		2.4			V
Logic output low level, OC#	VOL				0.4	V

8. TYPICAL OPERATING WAVEFORM &TIMING DIAGRAMS

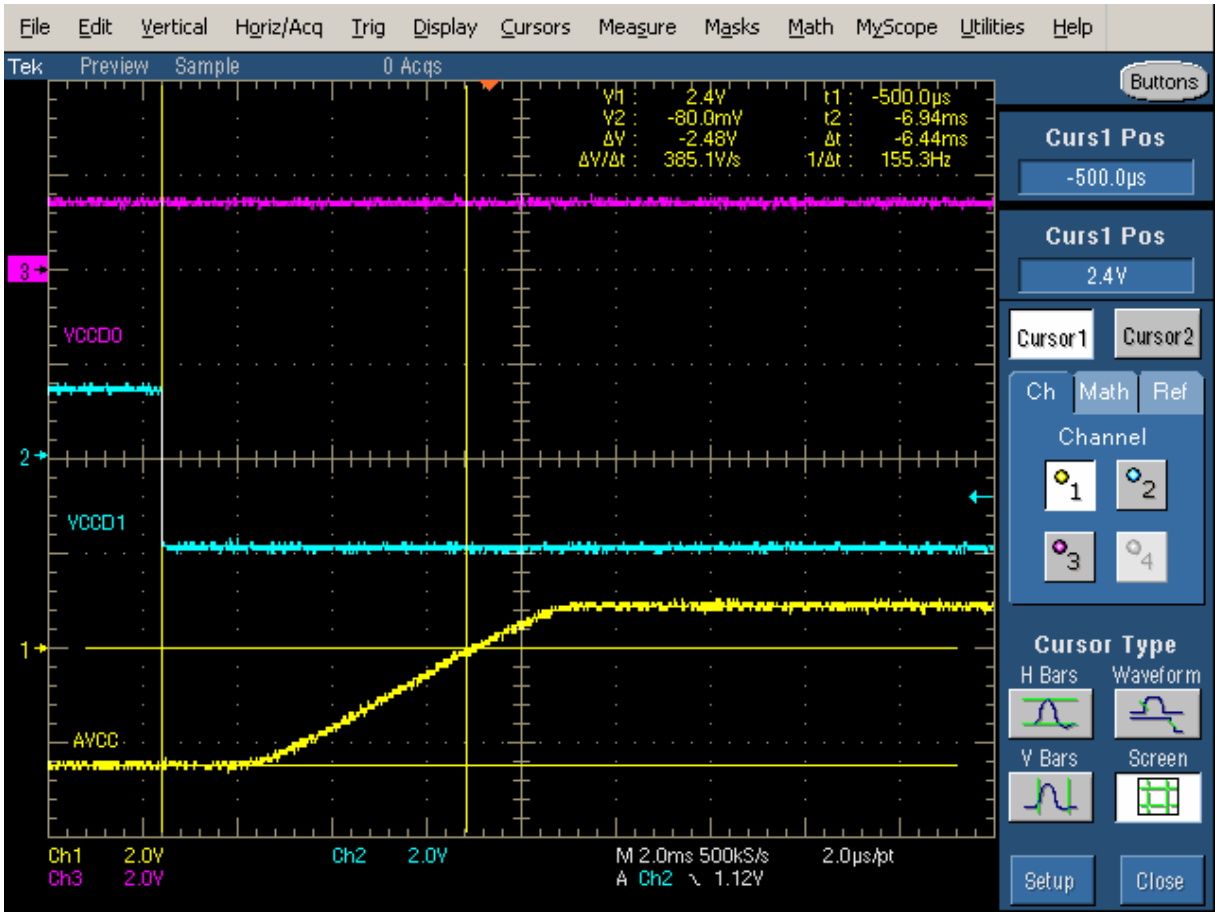
a. AVCC propagation delay and rise time with 1uF load , 3.3V switch



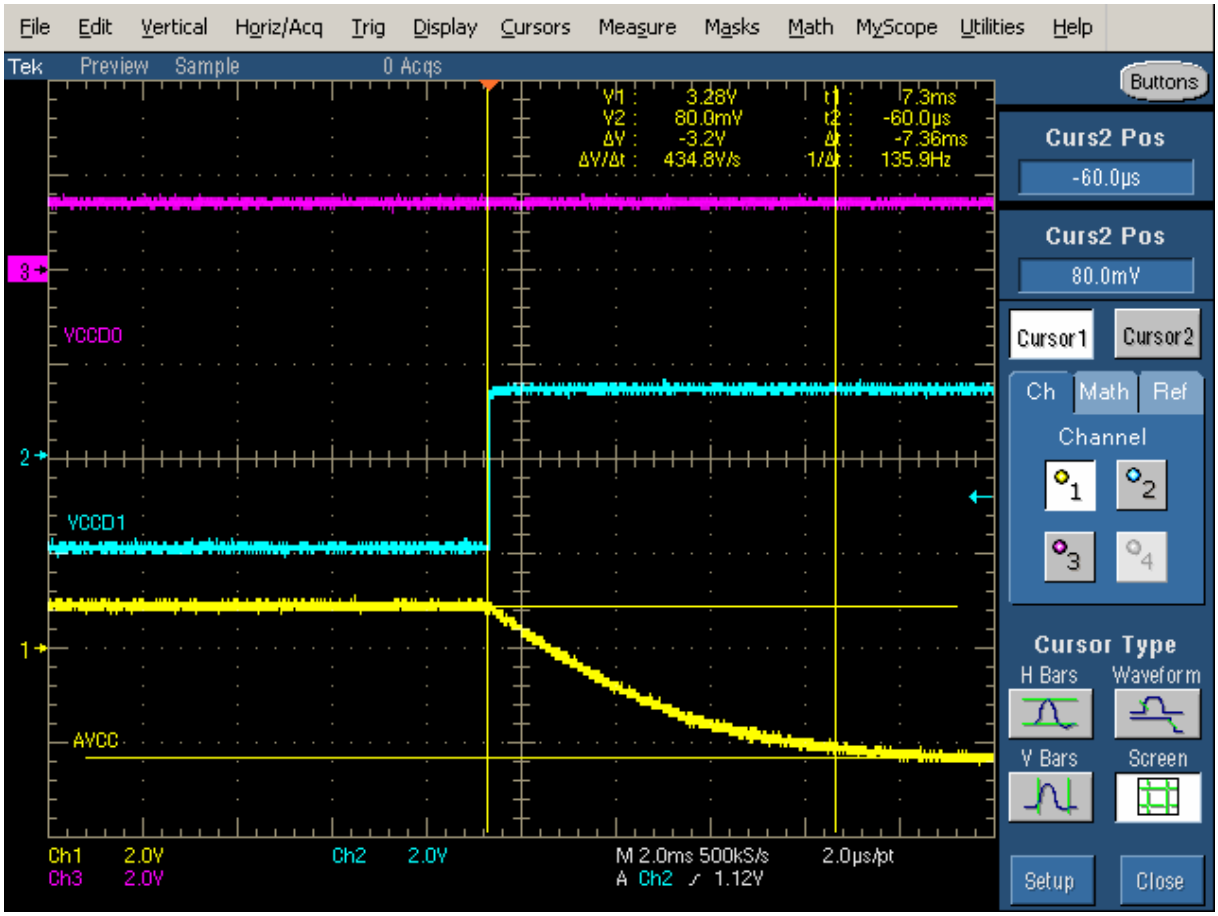
b. AVCC propagation delay and fall time with 1uF load , 3.3V switch



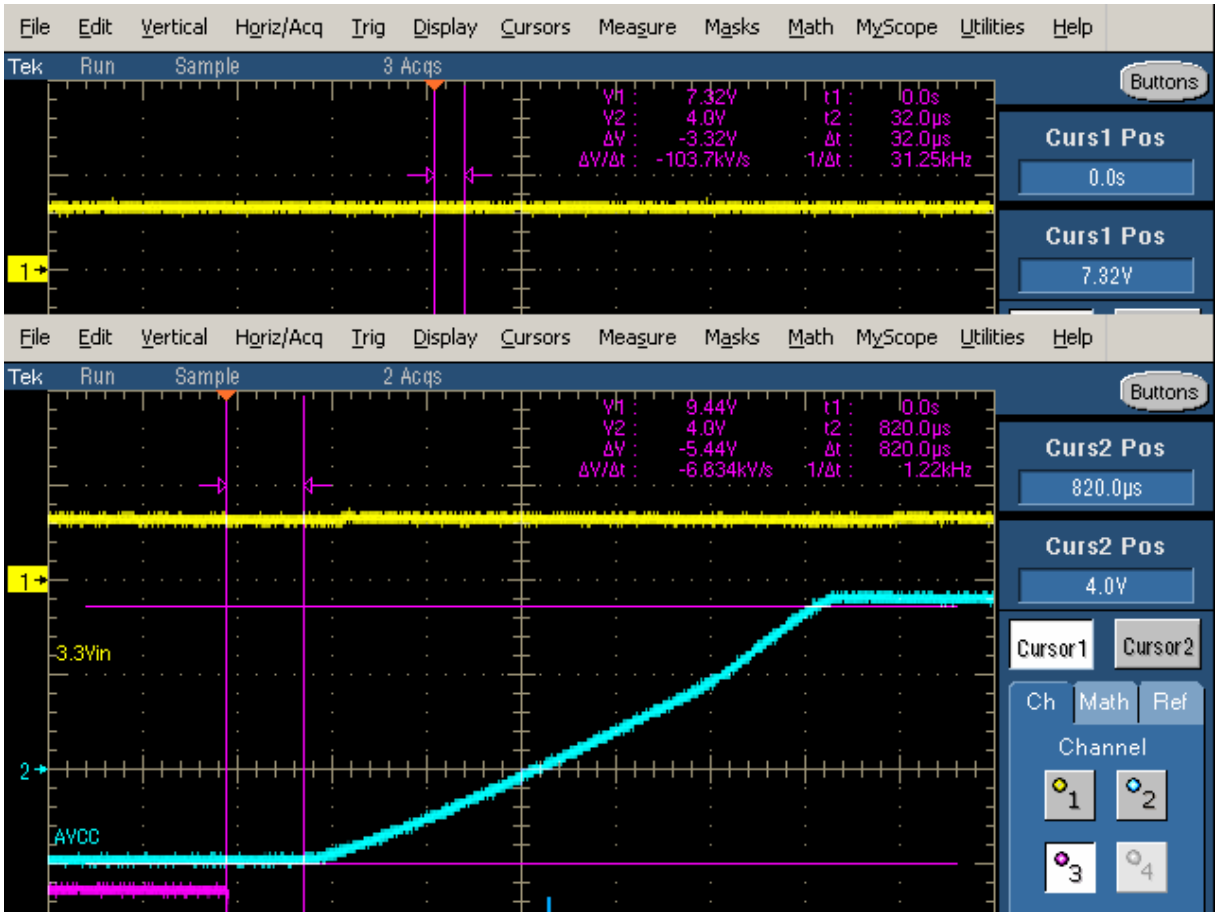
c. AVCC propagation delay and rise time with 150uF load , 3.3V switch



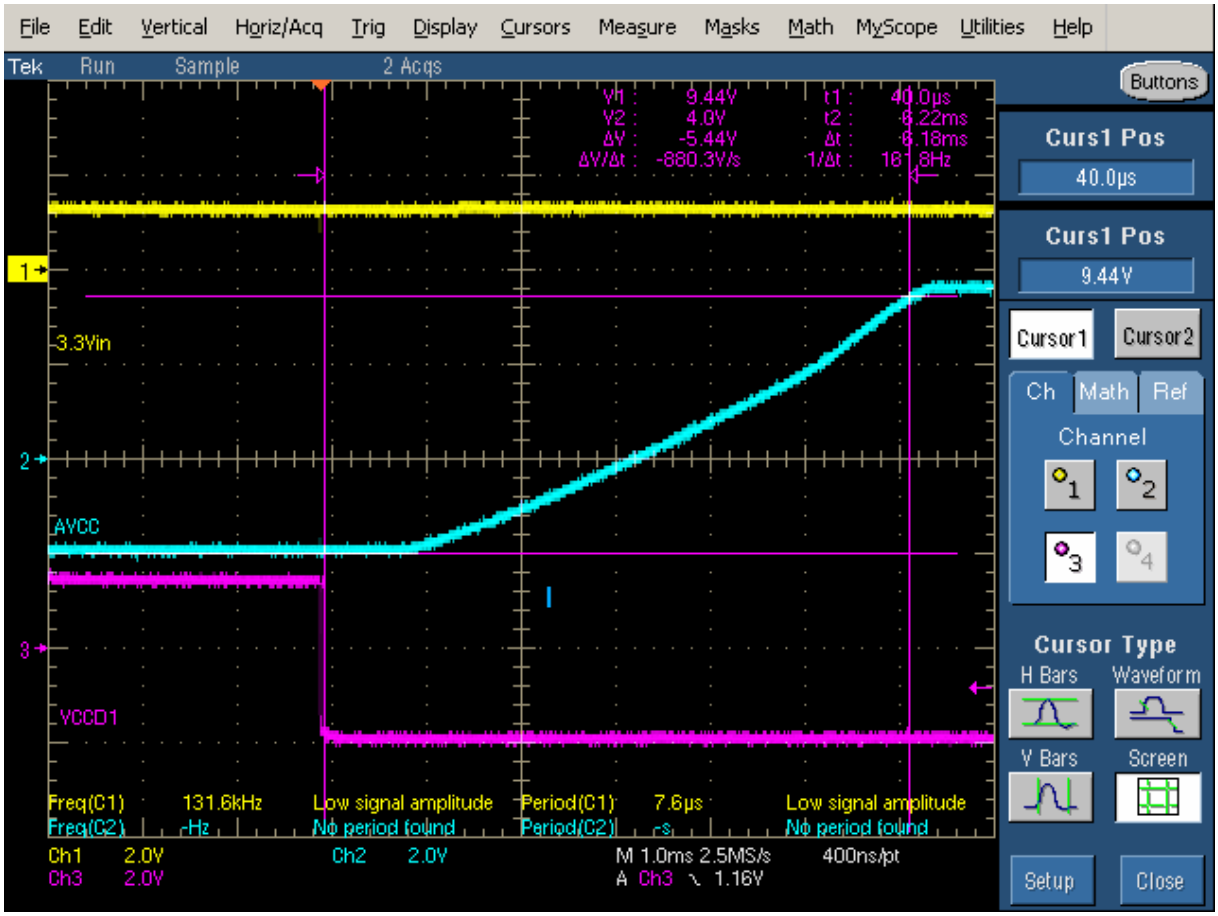
d. AVCC propagation delay and fall time with 150uF load , 3.3V switch



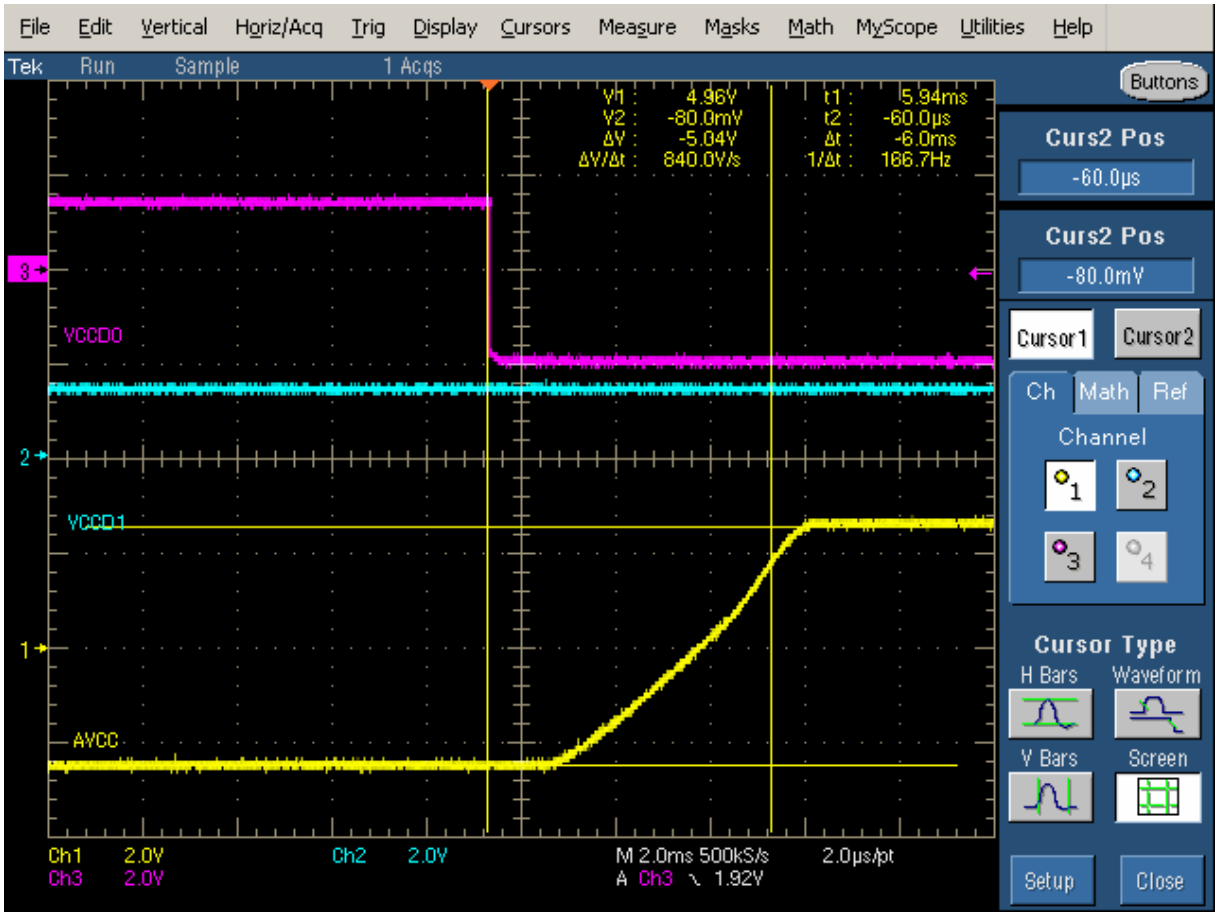
e. AVCC propagation delay and rise time with 1uF load , 5V switch



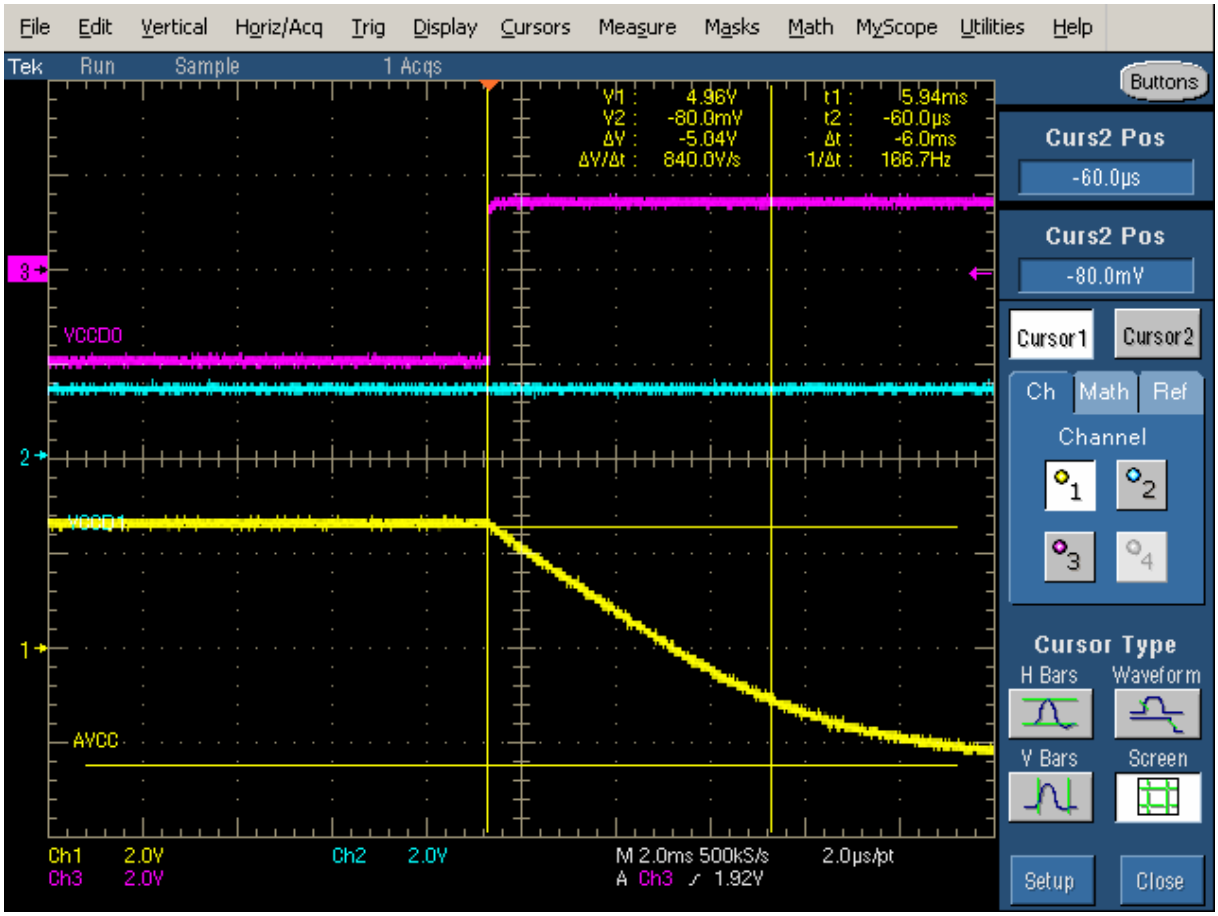
f. AVCC propagation delay and fall time with 1uF load , 5V switch



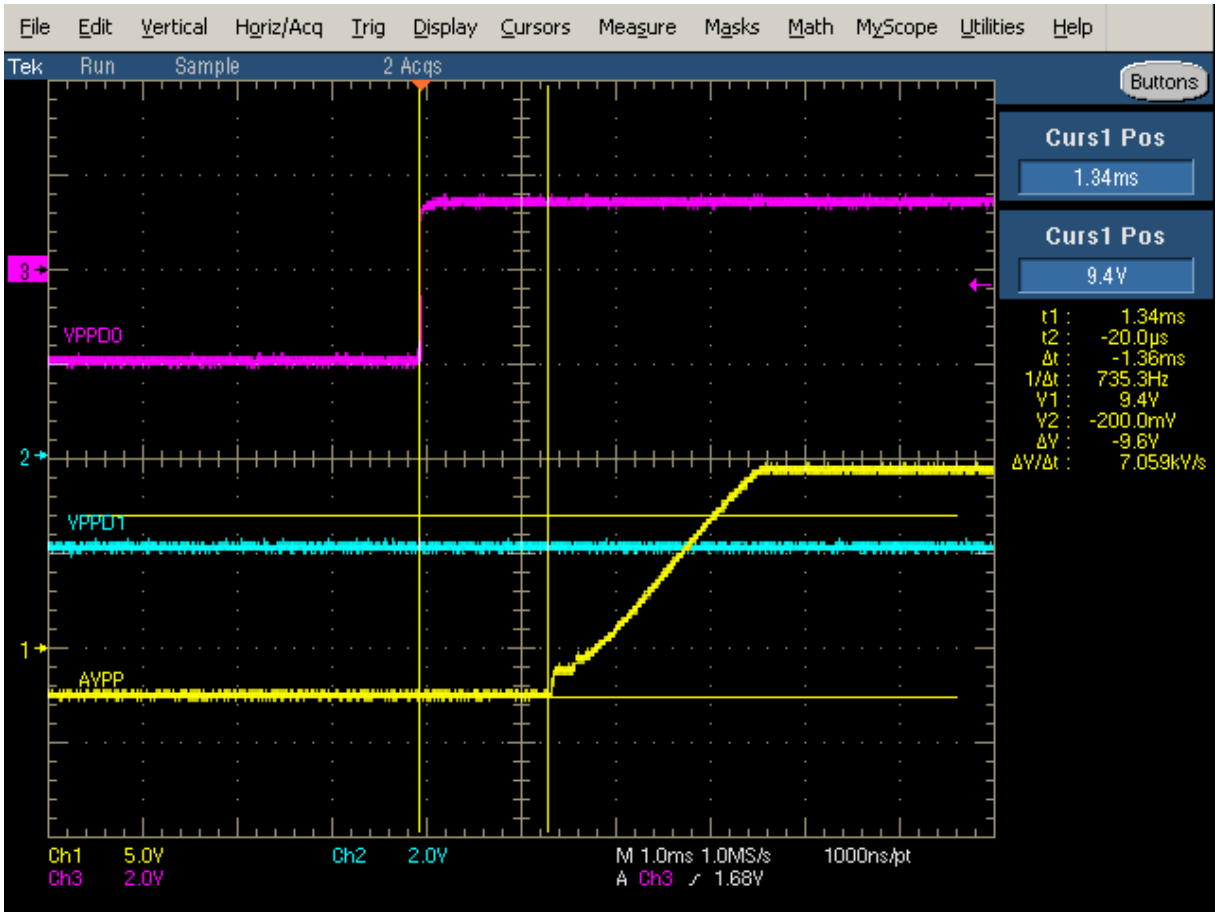
g. AVCC propagation delay and rise time with 150uF load , 5V switch



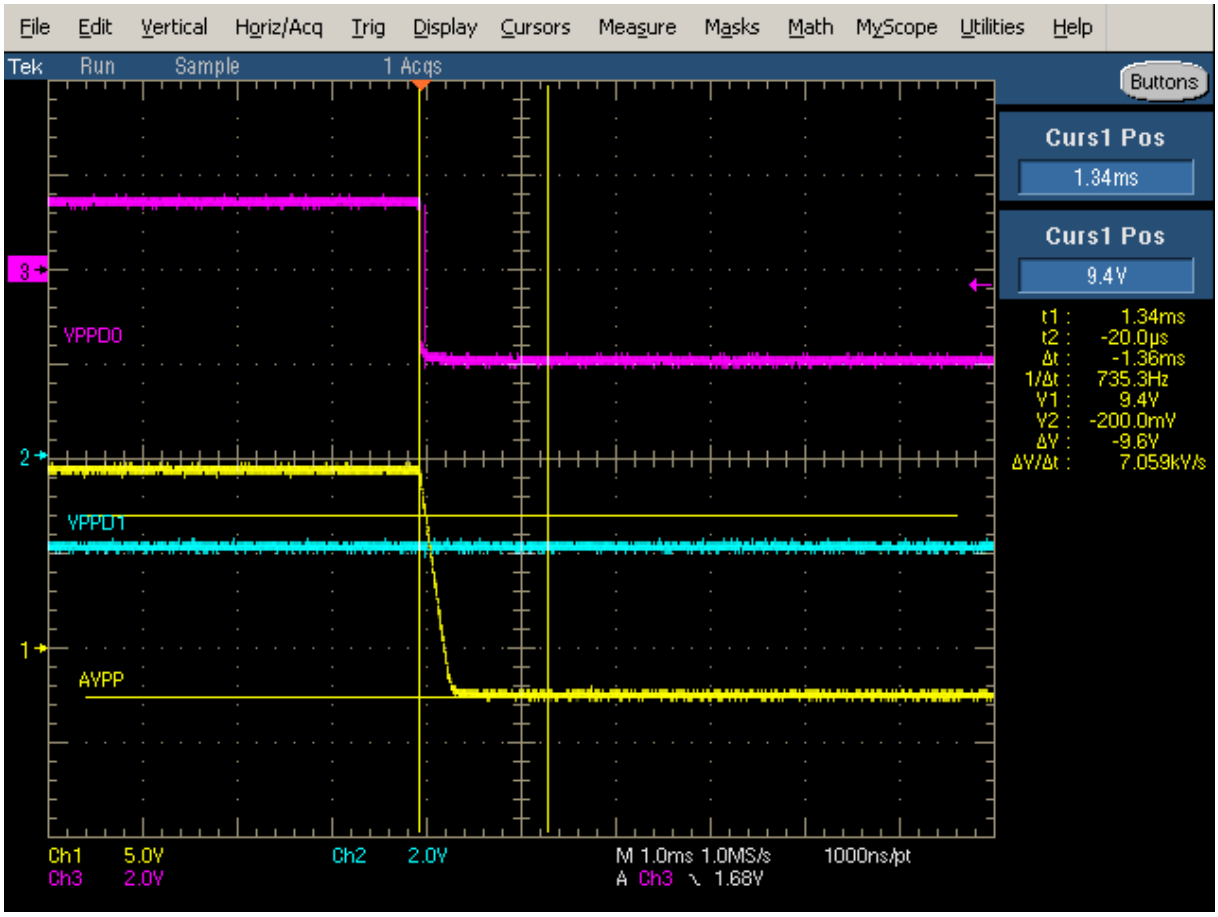
h. AVCC propagation delay and fall time with 150uF load , 5V switch



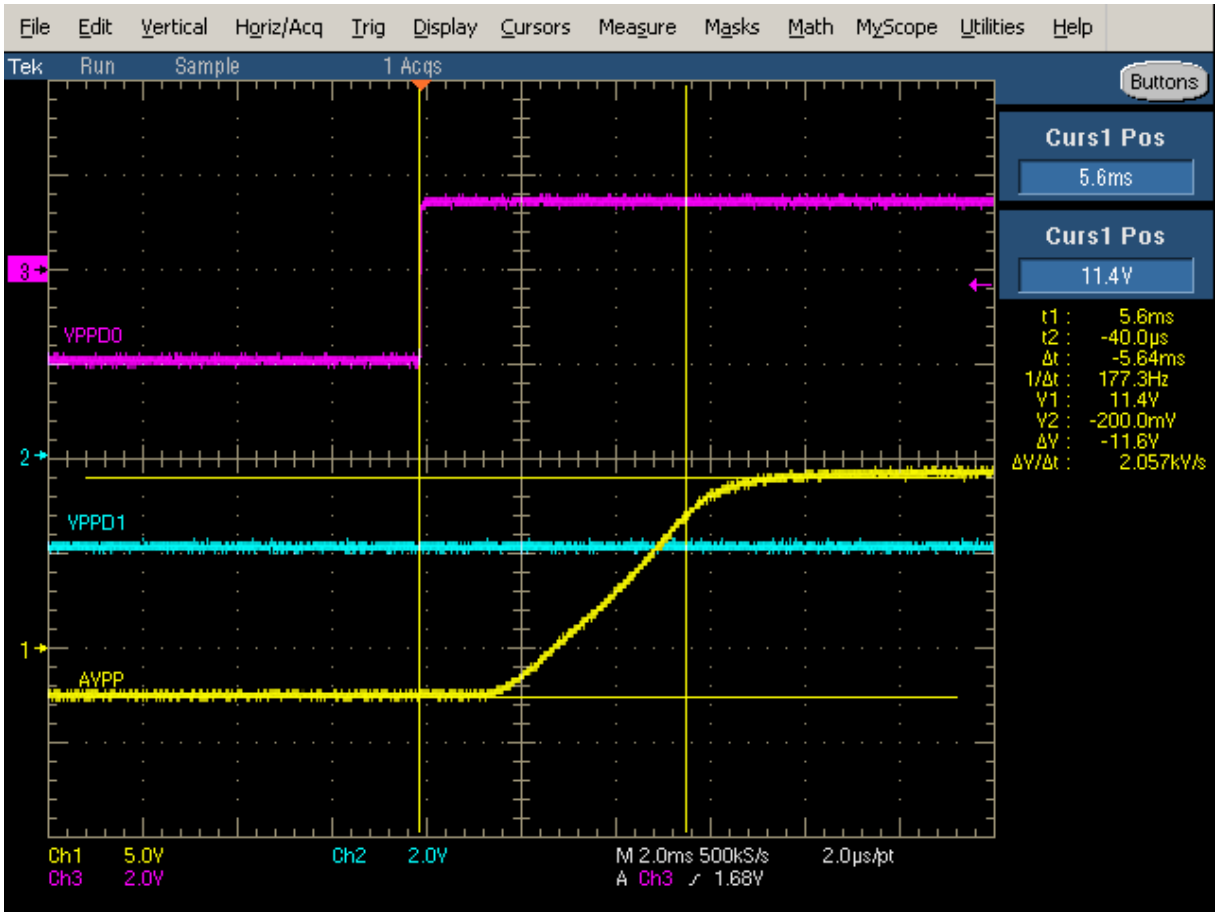
i. AVPP propagation delay and rise time with 1uF load , 12V switch



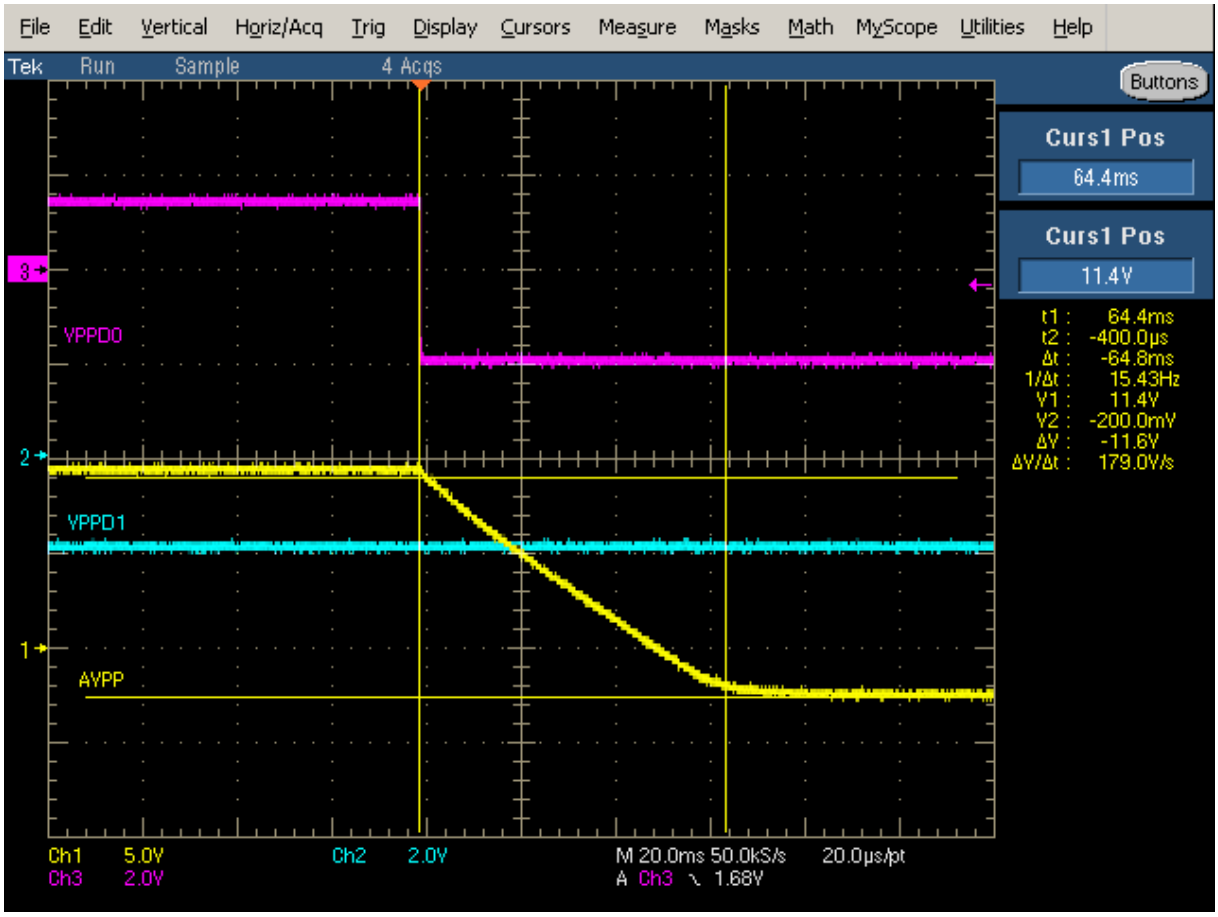
j. AVPP propagation delay and fall time with 1uF load , 12V switch



k. AVPP propagation delay and rise time with 150uF load , 12V switch

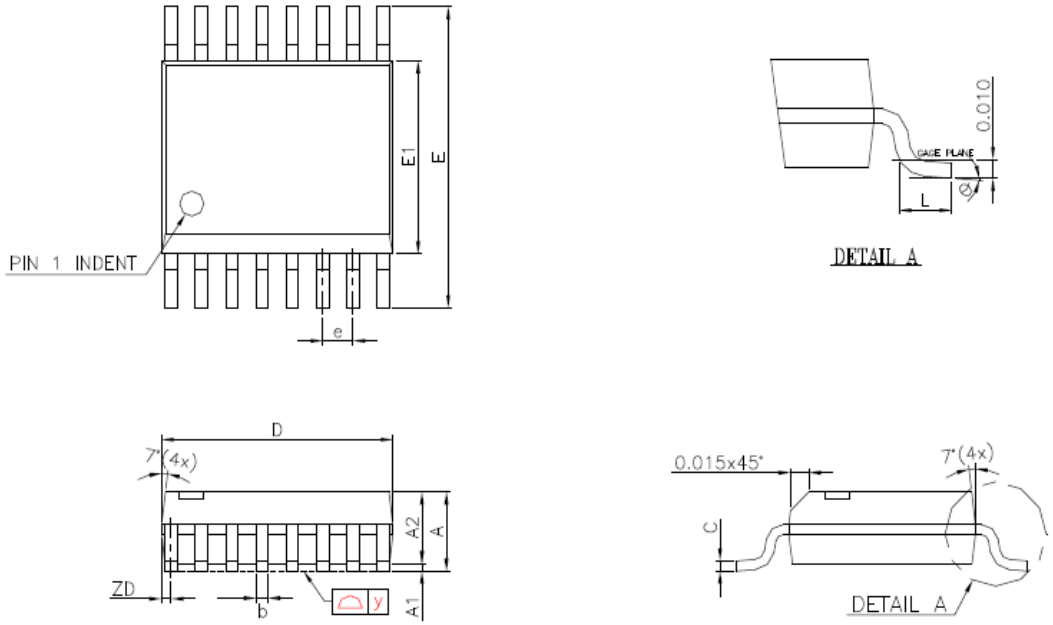


I. AVPP propagation delay and fall time with 150uF load , 12V switch



9. PACKAGE DIMENSION

SSOP16L -150mil

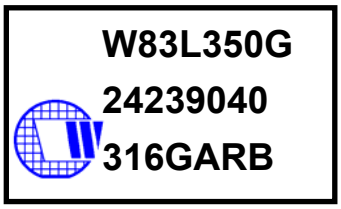


SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.35	1.60	1.75	0.053	0.063	0.069
A1	0.10	0.15	0.25	0.004	0.006	0.010
A2	—	—	1.50	—	—	0.059
b	0.20	—	0.30	0.008	—	0.012
C	0.18	—	0.25	0.007	—	0.010
D	4.80	4.85	5.00	0.189	0.191	0.197
ZD	—	0.20	—	—	0.008	—
E	5.79	5.99	6.20	0.228	0.236	0.244
E1	3.81	3.91	3.99	0.150	0.154	0.157
L	0.41	0.71	1.27	0.016	0.028	0.050
e	—	0.64	—	—	0.025	—
y	—	—	0.076	—	—	0.003
θ	0°	—	8°	0°	—	8°

10. ORDERING INFORMATION

PART NUMBER	PACKAGE TYPE	REMARKS
W83L350R	16 SSOP	
W83L350G	16 SSOP(Pb-free package)	

11. HOW TO READ THE TOP MARKING



Left line: Winbond logo

1st & 2nd lines: W83L350R,W83350G(Pb-free package) – the part number

3rd line: Tracking code Tracking code 316 G A

316: Packages assembled in Year 03', week 16

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

A: The IC version

RB: Wonbond internal use

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