AS3506K

48uA Quiescent, 1.2/2.25MHz, 2A Step-Down DCDC

From Santa Clara, United States of America

Leading Performance: 1.2/2.25MHz Low noise, 2.5-5.5V Input, 0.6-3.3V (0.1V step, Adj.)

Features

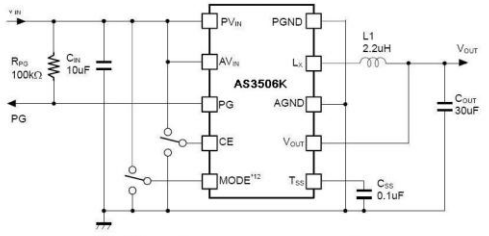
- High Efficiency Step Down Converter
- Output Current up to 2A
- Wide Vin Range from 2.5V to 5.5V
- 1.2/2.25MHz Fixed Frequency Low Noise Operation
- Power Save Mode at Light Load Currents
- Voltage Positioning in PFM mode +/-1.5%
- Low Quiescent Current: Typ. 48uA
- Low Dropout operation: 100% Duty Cycle
- Soft Start
- Under-voltage Lockout
- Thermal Protection
- Available packages: DFN(PLP)2527-10

Applications

- Cellular Telephones
- PDA, Pocket PCs
- Wireless and DSL Modems
- Low Power DSP Supply
- Portable Media Players

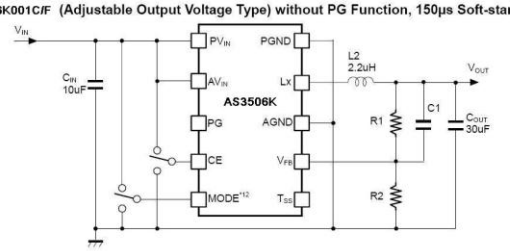
Typical Application

AS3506Kxx1A/B/D/E (Fixed Output Voltage Type) with PG Function, 30ms Soft-start Time



*12 MODE="H" Forced PWM Control
MODE="L" PWM/ VFM Auto Switching Control

AS3506K001C/F (Adjustable Output Voltage Type) without PG Function, 150µs Soft-start-time



*12 MODE="H" Forced PWM Control
MODE="L" PWM/ VFM Auto Switching Control

Overview

The AS3506K Series are low supply current PWM/VFM step-down DC/DC Converters with synchronous rectifier featuring 2A output current. Internally, a single IC consists of an oscillator, a reference voltage unit, an error amplifier, a switching control circuit, a mode control circuit, a soft-start circuit, a latch protection circuit, an under voltage lockout (UVLO) circuit, a thermal shutdown circuit, and switching transistors.

By simply using an inductor and capacitors as external components, without connecting any diode, a low ripple and high efficiency synchronous rectifier step-down DC/DC converter can be easily configured.

AS3506K is available in DFN(PLP)2527-10 package which achieves high-density mounting on boards. AS3506K is available in the fixed output voltage type (AS3506Kxx1A/B/D/E) which can be set by 0.1V step and the output voltage accuracy is as high as +/-1.5% or +/-18mV, or the adjustable output voltage type (AS3506K001C/F) which can be set by using the external resistors.

The oscillator frequency can be selected from 2.25MHz (AS3506Kxx1/A/B/C) or 1.2MHz (AS3506K001C/F). By inputting a signal to MODE pin, AS3506K can choose PWM/VFM auto switching control or force PWM control. In low output current, PWM/VFM auto switching control automatically switches from PWM mode to VFM mode in order to achieve high efficiency. Likewise, in low output current, fixed PWM control switches at fixed frequency in order to reduce noise.

AS3506K contains a latch type protection circuit which latches the built-in driver to the OFF state during high load or if the input short-circuited for a specified time (the protection delay time). The latch protective circuit can be released by once putting the IC into the standby mode

with the CE pin and then setting it back to the active mode, or, by turning the power off and back on. Setting the supply voltage lower than the UVLO detector threshold can also release the latch protective circuit. AS3506K also contains a thermal shutdown circuit which detects overheating of the regulator if the output pin (V_{OUT}) is shorted to the ground pin (GND) etc. and stops regulator operation to protect it from damage.

The soft-start is fixed within the IC (Typ. 150us), but it is also adjustable by using external capacitors. AS3506K includes a power good (PG) function which monitors the V_{OUT} pin voltage or the feedback pin voltage (V_{FB}) and switches the PG pin to low if any abnormal condition is detected.

Selection Guide

The set output voltage, the output voltage type, the auto-discharge function[*4], and the oscillator frequency for the ICs are user-selectable options.

Product Name	Package	Quantity per Reel	Pb Free	Halogen Free
AS3506Kxx1$(y)-TR	DFN(PLP)2527−10	5,000 pcs	Yes	Yes

xx: Designation of the set output voltage (V_{SET})
For Fixed Output Voltage Type: 0.6V (06)[*5] to 3.3V (33) in 0.1V steps[*6]
For Adjustable Output Voltage Type: 0.6V (001) only
(y): If V_{SET} includes the 3rd digit, indicate the digit of 0.01V.
(1.25V)
Ex. If V_{SET} is 1.25V, **AS3506K**121$5-TR-FE.

$: Designation of version

Version	Output Voltage Type	Auto-discharge Function	Oscillator Frequency
A	Fixed	No	2.25MHz
B	Fixed	Yes	2.25MHz
C	Adjustable	No	2.25MHz
D	Fixed	No	1.2MHz
E	Fixed	Yes	1.2MHz
F	Adjustable	No	1.2MHz

[*4] Auto-discharge function quickly lowers the output voltage to 0V, when the chip enable signal is switched from the active mode to the standby mode, by releasing the electrical charge accumulated in the external capacitor.
[*5] V_{SET} can be set only within the specified range of voltage. Please refer to *Electrical Characteristics* for details.
[*6] 0.05V step is also available as a custom code.

Pin Description

AS3506x: DFN(PLP)2527-10[*7]

Pin No.	Symbol	Description
1	PV_{IN}	PV_{IN} Input Voltage Pin[*8]
2	AV_{IN}	AV_{IN} Input Voltage Pin[*8]
3	PG	Power Good Pin
4	CE	Chip Enable Pin ("H" active)
5	MODE	Mode Control Pin ("H" Forced PWM Control, "L" PWM/ VFM Auto Switching Control)
6	T_{SS}	Soft-start Pin
7	V_{OUT}/ V_{FB}	Output/ Feedback Voltage Pin
8	AGND	Analog Ground Pin[*9]
9	L_X	Switching Pin
10	PGND	Power Ground Pin[*9]

[*7] The tab on the bottom of the package enhances thermal performance and is electrically connected to GND (substarate level). It is recommended that the tab be connected to the ground plane on the board. If not, the tab can be left open.
[*8] No.1 pin and No.2 pin must be wired to the V_{IN} plane when mounting on boards.
[*9] No.8 pin and No.10 pin must wired to the GND plane when mounting on boards.

Electrical Characteristics AS3506K (Ta=25 C)

Symbol	Item	Conditions	Min.	Typ.	Max.	Unit
Istandby	Standby Current	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=0V		0	5	μA
I_{CEH}	CE "H" Input Current	AV_{IN}/ PV_{IN}=V_{CE}=5.5V	-1	0	1	μA
I_{CEL}	CE "L" Input Current	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=0V	-1	0	1	μA
I_{MODEH}	MODE "H" Input Current	AV_{IN}/ PV_{IN}=V_{MODE}=5.5V, V_{CE}=0V	-1	0	1	μA
I_{MODEL}	MODE "L" Input Current	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=V_{MODE}=0V	-1	0	1	μA
$I_{LXLEAKH}$	L_X Leakage Current "H"	AV_{IN}/ PV_{IN}=V_{LX}=5.5V, V_{CE}=0V	-1	0	6	μA
$I_{LXLEAKL}$	L_X Leakage Current "L"	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=V_{LX}=0V	-6	0	1	μA
V_{CEH}	CE "H" Input Voltage	AV_{IN}/ PV_{IN}=5.5V	1.0			V
V_{CEL}	CE "L" Input Voltage	AV_{IN}/ PV_{IN}=2.5V			0.4	V
V_{MODEH}	MODE "H" Input Voltage	AV_{IN}/ PV_{IN}=5.5V	1.0			V
V_{MODEL}	MODE "L" Input Voltage	AV_{IN}/ PV_{IN}=2.5V			0.4	V
R_{ONP}	On Resistance of Pch Transistor	AV_{IN}/ PV_{IN}=3.6V, I_{LX}=-100mA		0.130		Ω
R_{ONN}	On Resistance of Nch Transistor	AV_{IN}/ PV_{IN}=3.6V, I_{LX}=-100mA		0.125		Ω
Maxduty	Oscillator Maximum Duty Cycle		100			%
tstart1	Soft-start Time 1	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V, T_{SS}=OPEN		150	300	μs
tstart2	Soft-start Time 2	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V, C_{SS}=0.1μF	15	30	45	ms
I_{LXLIM}	L_X Current Limit	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V	2300	2800		mA
tprot	Protection Delay Time	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V	0.5	1.5	5	ms
V_{UVLO1}	UVLO Detector Threshold	AV_{IN}/ PV_{IN}=V_{CE}	2.1	2.2	2.3	V
V_{UVLO2}	UVLO Released Voltage	AV_{IN}/ PV_{IN}=V_{CE}	2.2	2.3	2.4	V
T_{TSD}	Thermal Shutdown Temperature	Junction Temperature		150		°C
T_{TSR}	Thermal Shutdown Released Temperature	Junction Temperature		100		°C
R_{PG}	On Resistance of PG Pin When Low Output	AV_{IN}/ PV_{IN}=3.6V, V_{OUT}=0V or V_{FB}=0V		45		Ω
♦ **AS3506Kxx1A/B/C (Oscillator Frequency: 2.25MHz)**						
V_{IN}	When MODE=H Operating Input Voltage*11	1.1V≤V_{SET}<1.2V	2.5		4.5	V
		1.2V≤V_{SET}	2.5		5.5	
	When MODE=L Operating Input Voltage	0.8V≤V_{SET}<1.0V	2.5		4.5	
		1.0V≤V_{SET}	2.5		5.5	
fosc	Oscillator Frequency	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V	2.00	2.25	2.50	MHz
♦ **AS3506Kxx1D/E/F (Oscillator Frequency: 1.2MHz)**						
V_{IN}	When MODE=H Operating Input Voltage	0.6V≤V_{SET}<0.7V	2.5		4.5	V
		0.7V≤V_{SET}	2.5		5.5	
	When MODE=L Operating Input Voltage		2.5		5.5	
f_{OSC}	Oscillator Frequency	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V	1.00	1.20	1.40	MHz

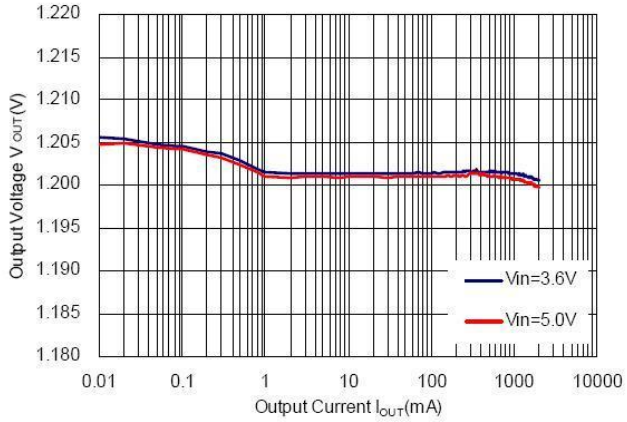
Electrical Characteristics AS3506K (Ta=25 C)

Symbol	Item	Conditions		Min.	Typ.	Max.	Unit
■ AS3506Kxx1A/B/D/E (Fixed Output Voltage Type)							
V_{OUT}	Output Voltage	AV_{IN}/ PV_{IN}=V_{CE}=3.6V or V_{SET}+1V	V_{SET}≥1.2V	x -1.015		x 1.015	V
			V_{SET}<1.2V	-0.018		+0.018	
$\Delta V_{OUT}/\Delta T$	Output Voltage Temperature Coefficient	−40°C≤Ta≤85°C			±100		ppm/°C
I_{DD1}	Supply Current 1	AV_{IN}/ PV_{IN}=V_{CE}=5.5V, V_{OUT}=V_{SET}×0.8			600		μA
I_{DD2}	Supply Current 2	AV_{IN}/ PV_{IN}=V_{CE} =V_{OUT}=5.5V	V_{MODE}=0V		48	72	μA
			V_{MODE}=5.5V		600		μA
I_{VOUTL}	V_{OUT} "L" Current	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=V_{OUT}=0V		-1	0	1	μA
V_{OVD}	OVD Voltage	AV_{IN}/ PV_{IN}=3.6V			V_{SET}×1.2		V
V_{UVD}	UVD Voltage	AV_{IN}/ PV_{IN}=3.6V			V_{SET}×0.8		V
☐ AS3506Kxx1A/D (Fixed Output Voltage Type without Auto-discharge Function)							
I_{VOUTH}	V_{OUT} "H" Current	AV_{IN}/ PV_{IN}=V_{OUT}=5.5V, V_{CE}=0V		-1	0	1	μA
☐ AS3506Kxx1B/E (Fixed Output Voltage Type with Auto-discharge Function)							
R_{LOW}	On Resistance of Low Output	AV_{IN}/ PV_{IN}=3.6V, V_{CE}=0V			45		Ω
■ AS3506K001C/F (Adjustable Output Voltage Type)							
V_{FB}	Feedback Voltage	AV_{IN}/ PV_{IN}=V_{CE}=3.6V		0.591	0.600	0.609	V
$\Delta V_{FB}/\Delta T$	Feedback Voltage Temperature Coefficient	−40°C≤Ta≤85°C			±100		ppm/°C
I_{DD1}	Supply Current 1	AV_{IN}/ PV_{IN}=V_{CE}=5.5V, V_{FB}=0.48V			600		μA
I_{DD2}	Supply Current 2	AV_{IN}/ PV_{IN}=V_{CE} =V_{FB}=5.5V	V_{MODE}=0V		48	72	μA
			V_{MODE}=5.5V		600		μA
I_{VFBH}	V_{FB} "H" Current	AV_{IN}/ PV_{IN}=V_{FB}=5.5V, V_{CE}=0V		-1	0	1	μA
I_{VFBL}	V_{FB} "L" Current	AV_{IN}/ PV_{IN}=5.5V, V_{CE}=V_{FB}=0V		-1	0	1	μA
V_{OVD}	OVD Voltage	AV_{IN}/ PV_{IN}=3.6V			0.72		V
V_{UVD}	UVD Voltage	AV_{IN}/ PV_{IN}=3.6V			0.48		V

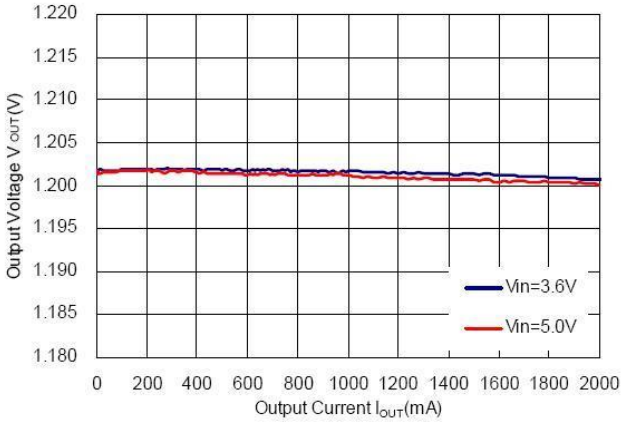
Typical Characteristics

1) Output Voltage vs. Output Current

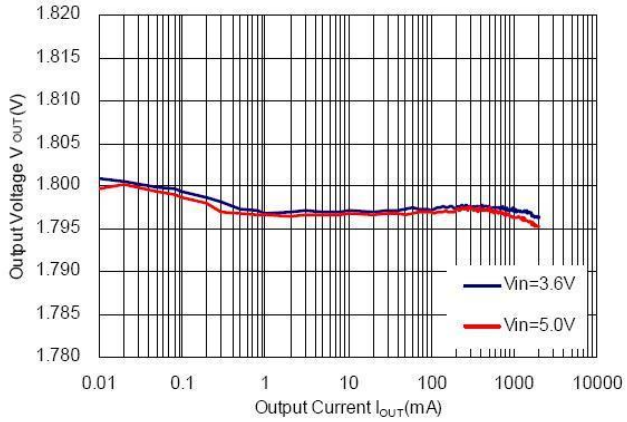
AS3506Kxx1A/B/C V_{OUT}=1.2V
MODE="L"PWM/VFM Auto Switching Control



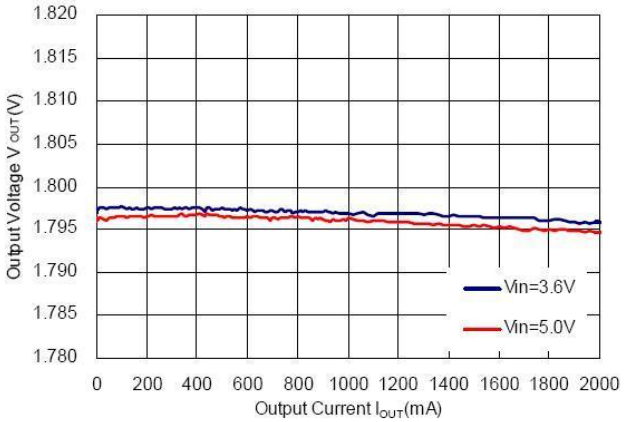
AS3506Kxx1A/B/C V_{OUT}=1.2V
MODE="H" Forced PWM Control



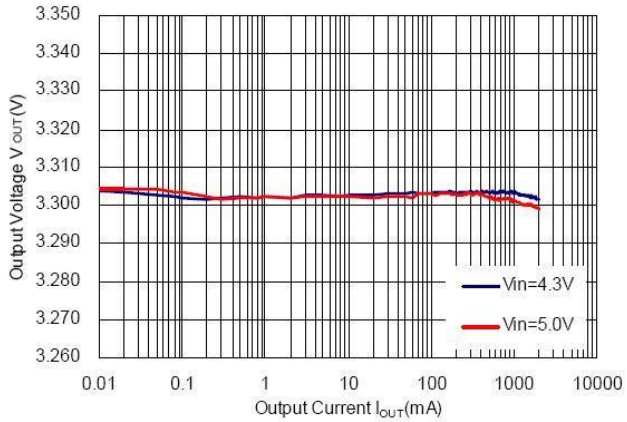
AS3506Kxx1A/B/C V_{OUT}=1.8V
MODE="L"PWM/VFM Auto Switching Control



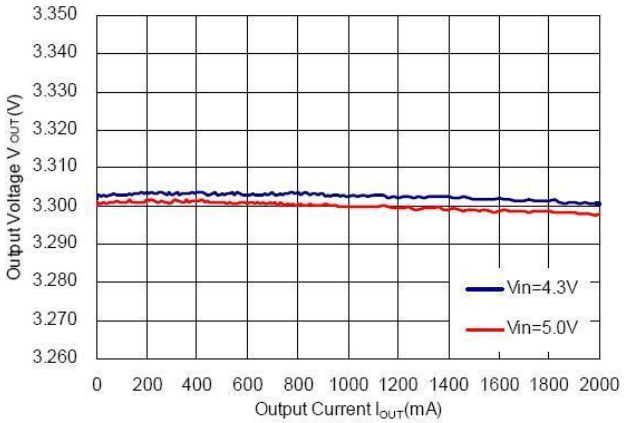
AS3506Kxx1A/B/C V_{OUT}=1.8V
MODE="H" Forced PWM Control



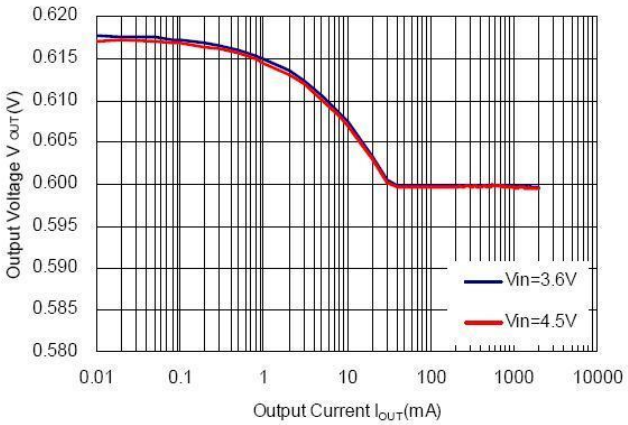
AS3506Kxx1A/B/C V_{OUT}=3.3V
MODE="L"PWM/VFM Auto Switching Control



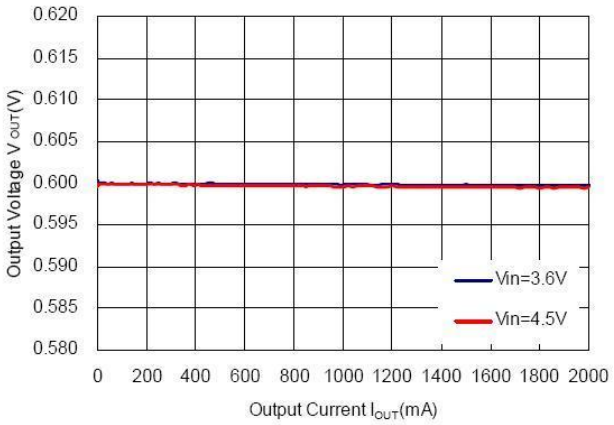
AS3506Kxx1A/B/C V_{OUT}=3.3V
MODE="H" Forced PWM Control



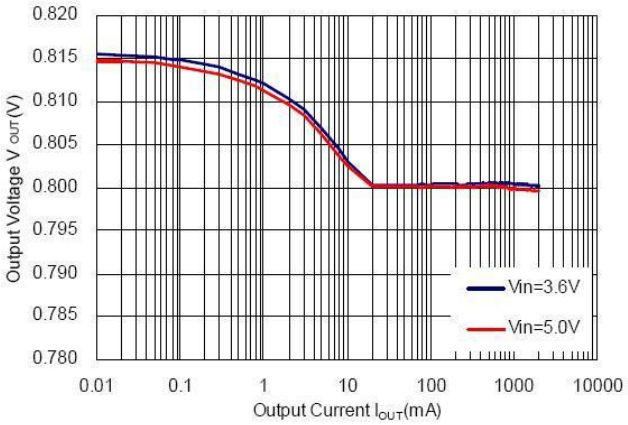
AS3506Kxx1D/E/F V_{OUT}=0.6V
MODE="L"PWM/VFM Auto Switching Control



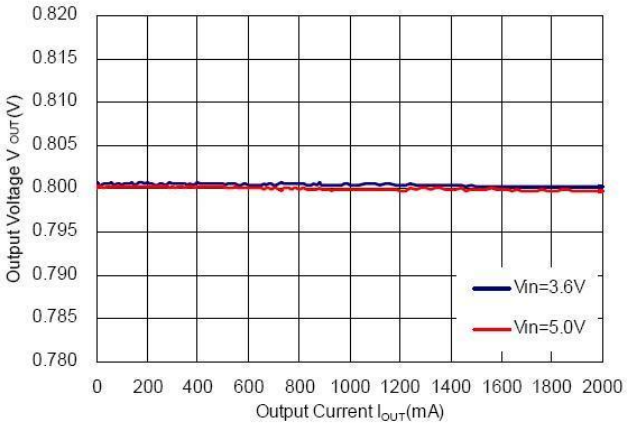
AS3506Kxx1D/E/F V_{OUT}=0.6V
MODE="H" Forced PWM Control



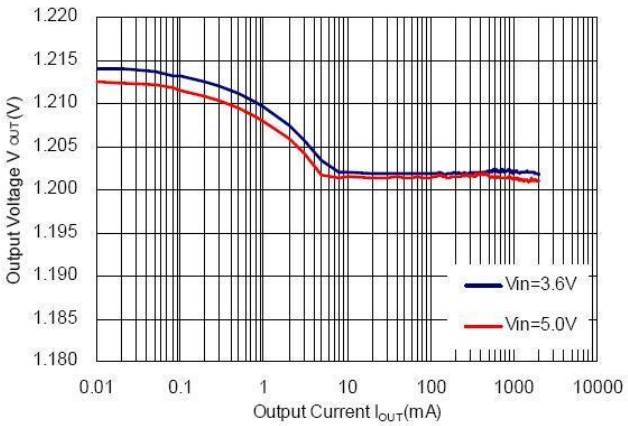
AS3506Kxx1D/E/F V_{OUT}=0.8V
MODE="L"PWM/VFM Auto Switching Control



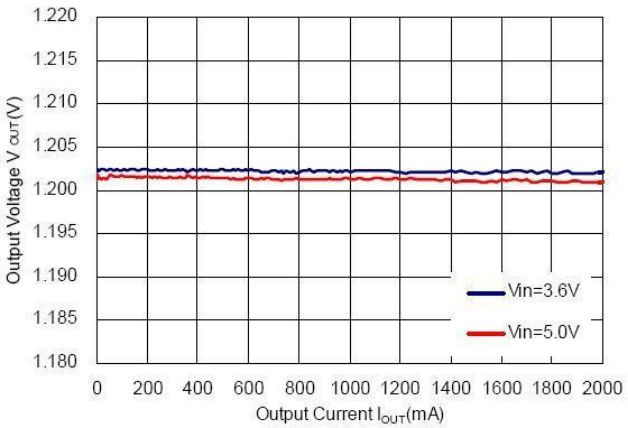
AS3506Kxx1D/E/F V_{OUT}=0.8V
MODE="H" Forced PWM Control



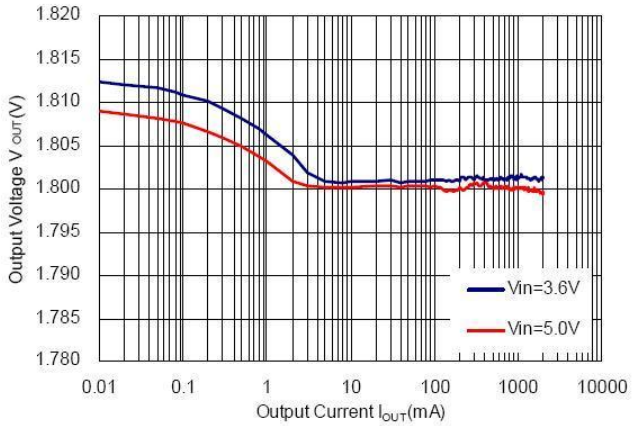
AS3506Kxx1D/E/F V_{OUT}=1.2V
MODE="L"PWM/VFM Auto Switching Control



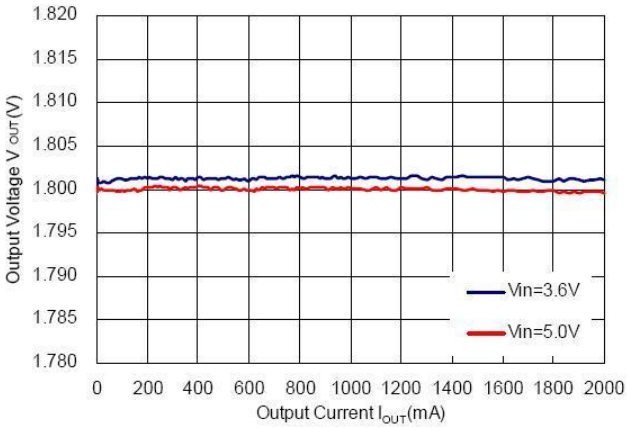
AS3506Kxx1D/E/F V_{OUT}=1.2V
MODE="H" Forced PWM Control



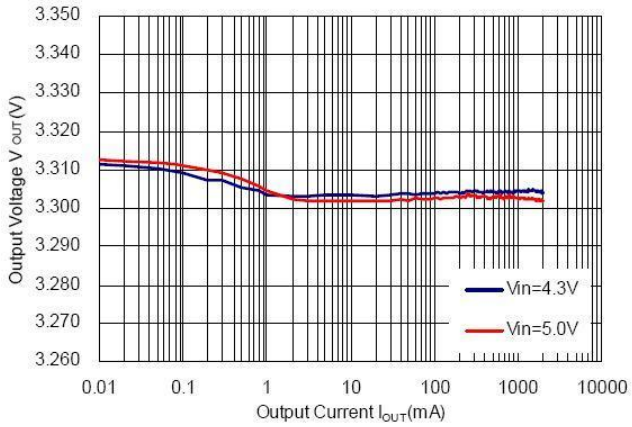
AS3506Kxx1D/E/F V_{OUT}=1.8V
MODE="L"PWM/VFM Auto Switching Control



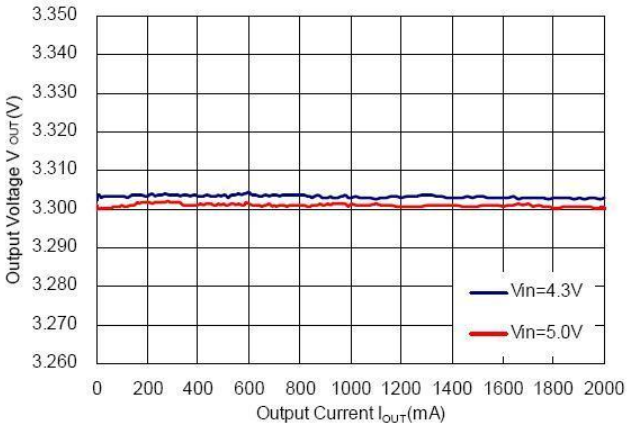
AS3506Kxx1D/E/F V_{OUT}=1.8V
MODE="H" Forced PWM Control



AS3506Kxx1D/E/F V_{OUT}=3.3V
MODE="L"PWM/VFM Auto Switching Control

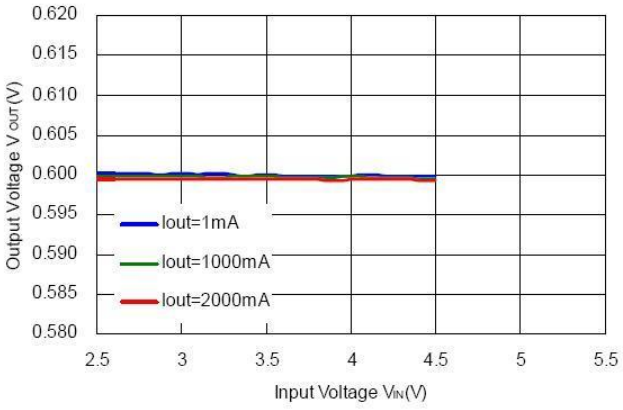


AS3506Kxx1D/E/F V_{OUT}=3.3V
MODE="H" Forced PWM Control

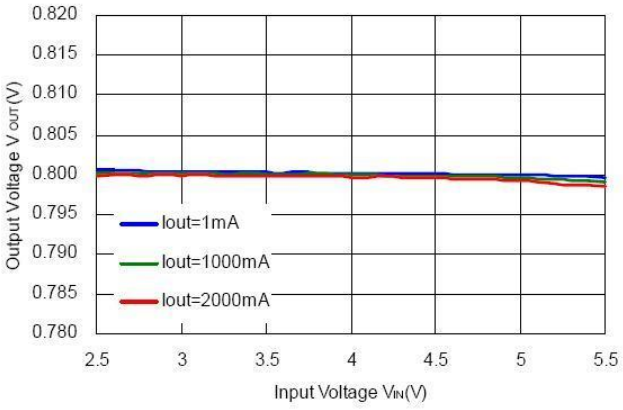


2) Output Voltage vs. Input Voltage

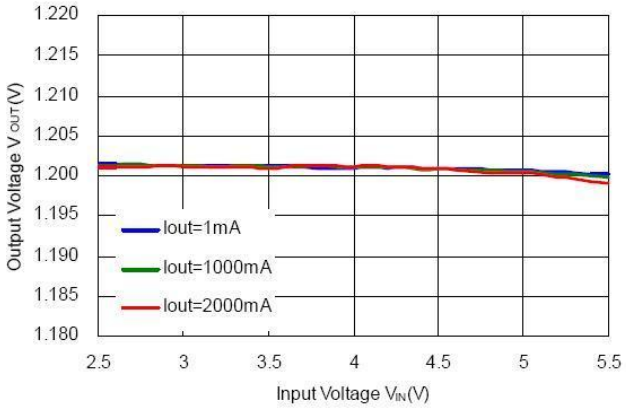
AS3506Kxx1D/E/F V_{OUT}=0.6V
MODE="H" Forced PWM Control



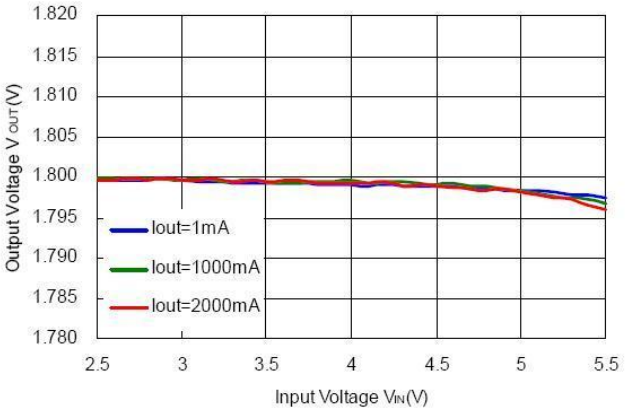
AS3506Kxx1D/E/F V_{OUT}=0.8V
MODE="H" Forced PWM Control



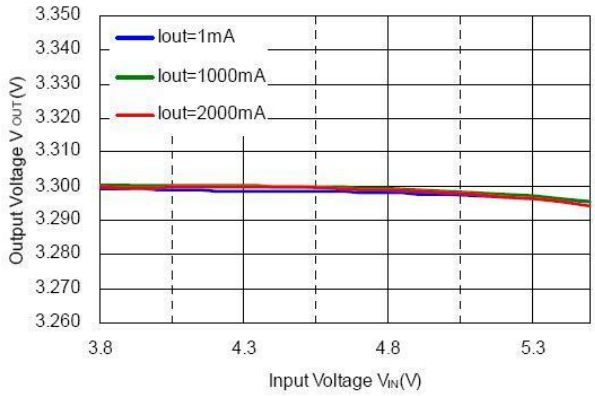
AS3506K V_{OUT}=1.2V
MODE="H" Forced PWM Control



AS3506K V_{OUT}=1.8V
MODE="H" Forced PWM Control

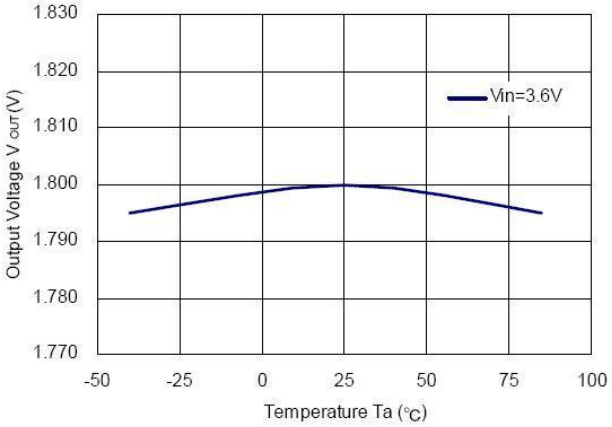


AS3506K V_{OUT}=3.3V
MODE="H" Forced PWM Control



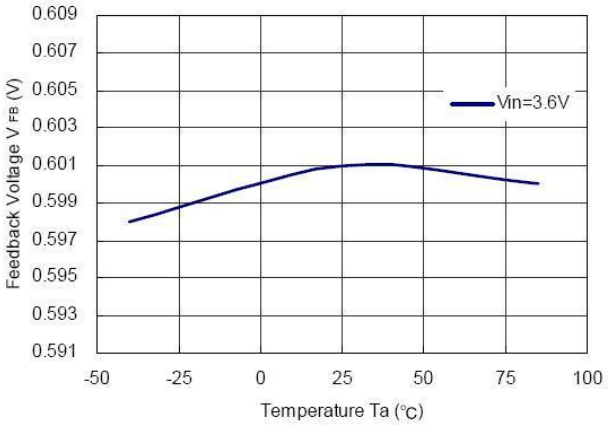
3) Output Voltage vs. Ambient Temperature

AS3506K181A/B/D/E V_{OUT}=1.8V



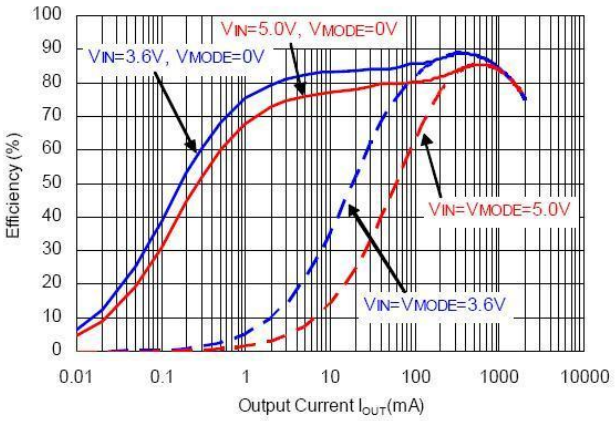
4) Feedback Voltage vs. Ambient Temperature

AS3506K001C/F

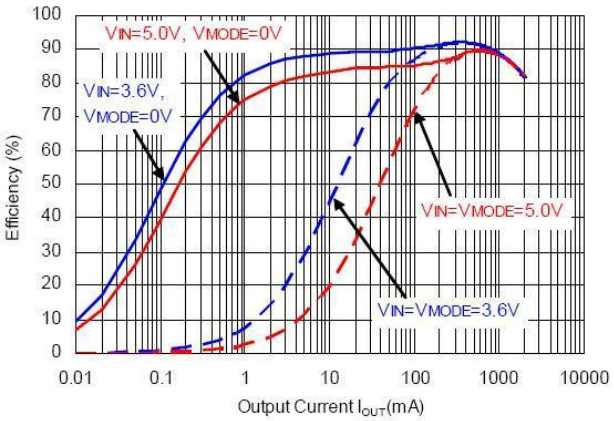


5) Efficiency vs. Output Current

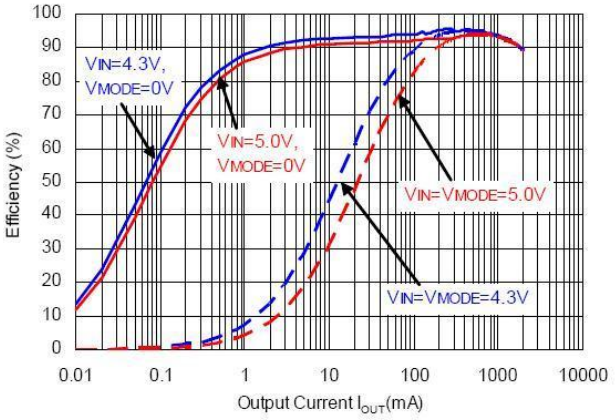
AS3506Kxx1A/B/C V_{OUT}=1.2V



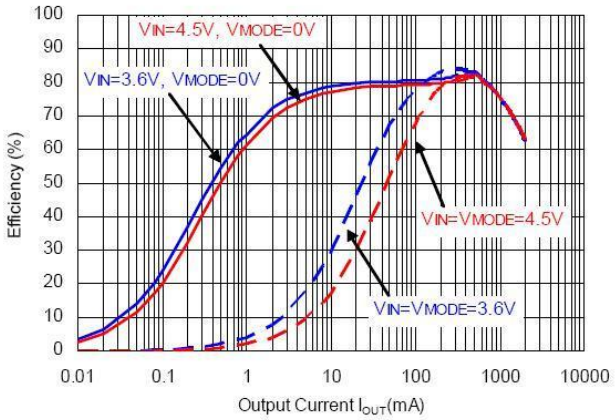
AS3506Kxx1A/B/C V_{OUT}=1.8V



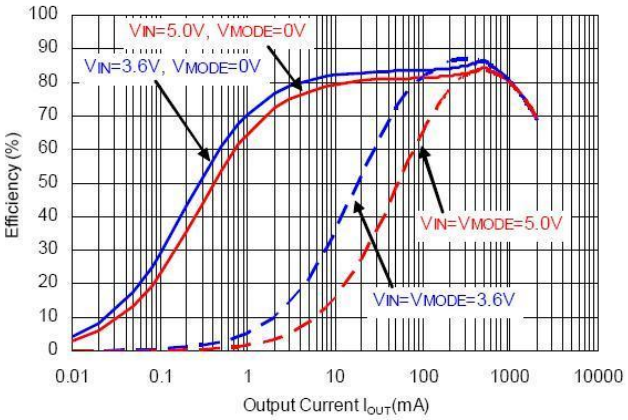
AS3506Kxx1A/B/C V_{OUT}=3.3V



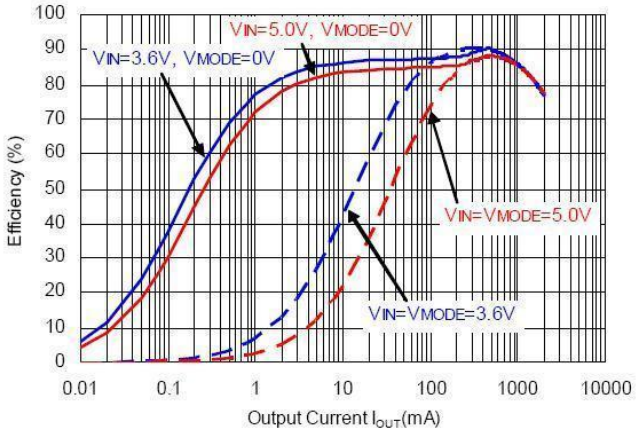
AS3506Kxx1D/E/F V_{OUT}=0.6V



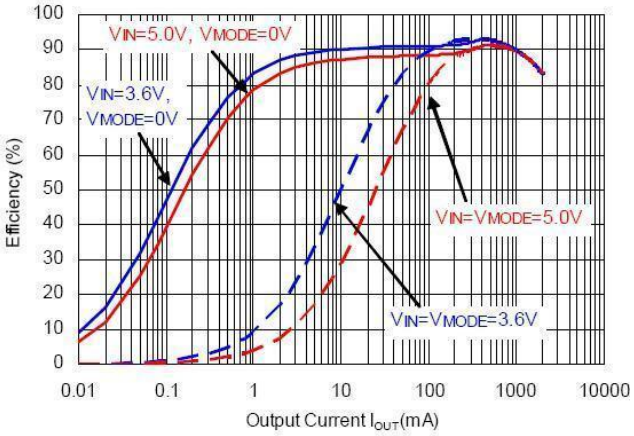
AS3506Kxx1D/E/F V_{OUT}=0.8V



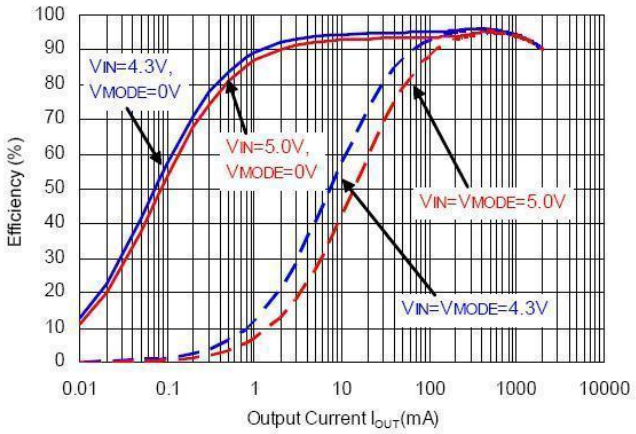
AS3506Kxx1D/E/F V_{OUT}=1.2V



AS3506Kxx1D/E/F V_{OUT}=1.8V



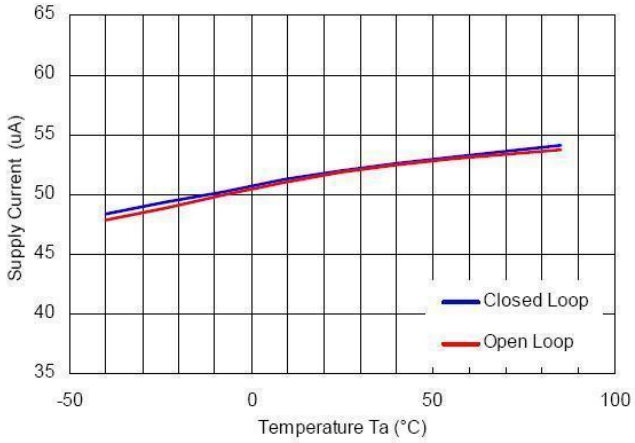
AS3506Kxx1D/E/F V_{OUT}=3.3V



6) Supply Current vs. Ambient Temperature

AS3506K V_{OUT}=1.8V(V_{IN}=5.5V)

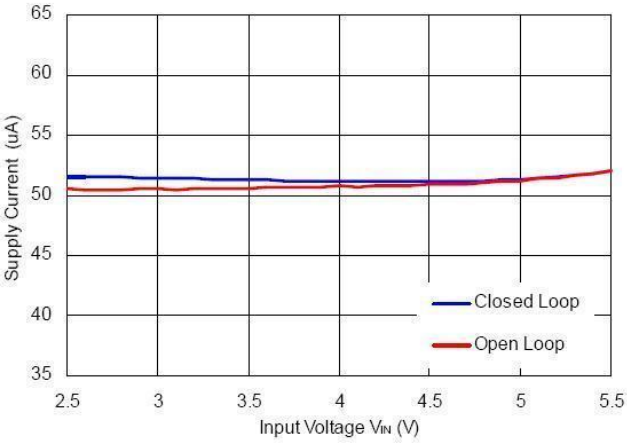
MODE="L"PWM/VFM Auto Switching Control



7) Supply Current vs. Input Voltage

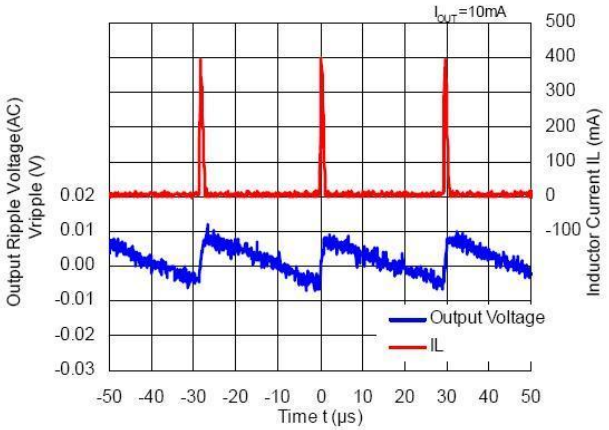
AS3506K V_{OUT}=1.8V

MODE="L"PWM/VFM Auto Switching Control

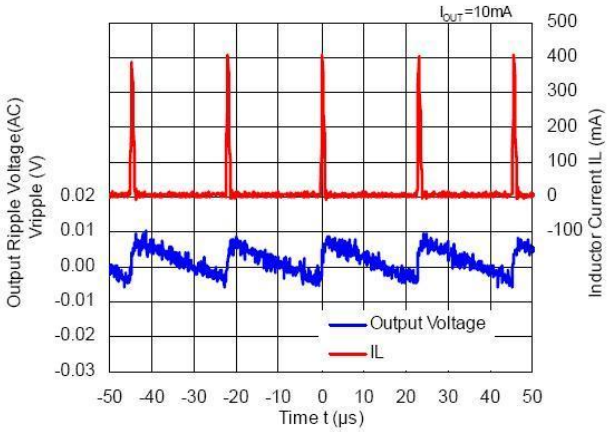


8) Output Voltage Waveform

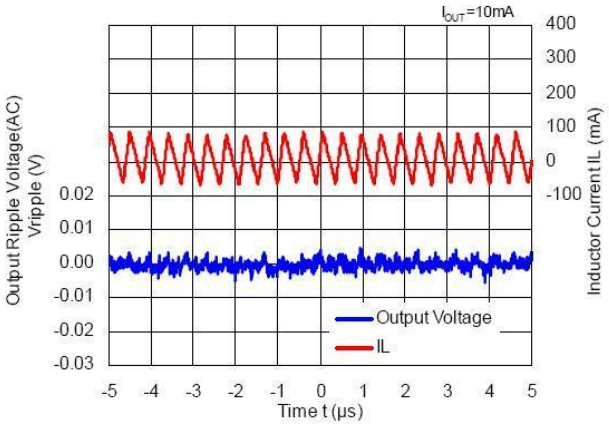
AS3506Kxx1A/B/C V_{OUT}=0.8V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



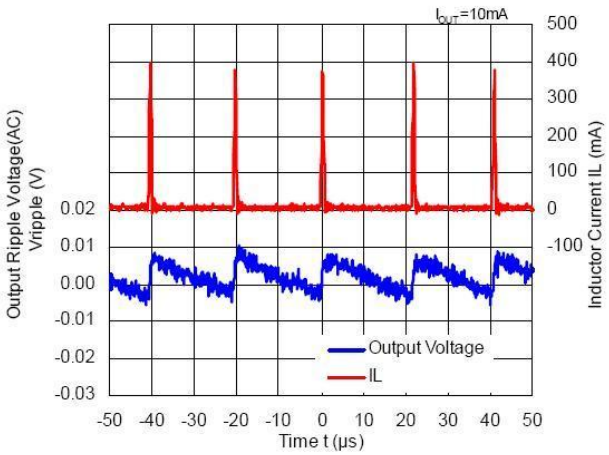
AS3506Kxx1A/B/C V_{OUT}=1.2V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



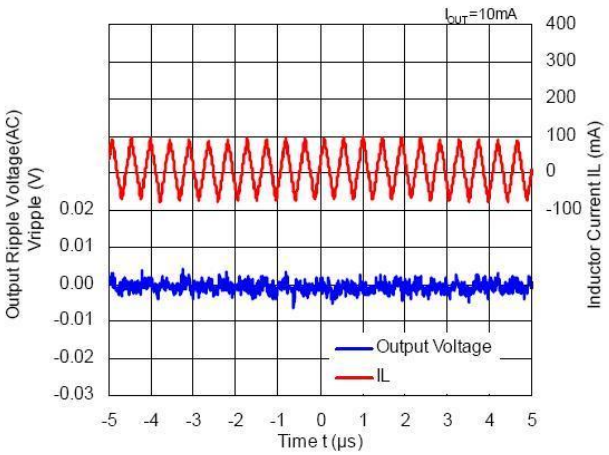
AS3506Kxx1A/B/C V_{OUT}=1.2V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



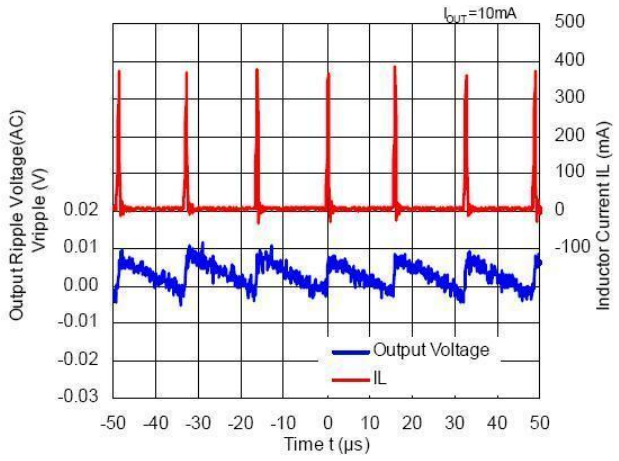
AS3506Kxx1A/B/C V_{OUT}=1.8V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



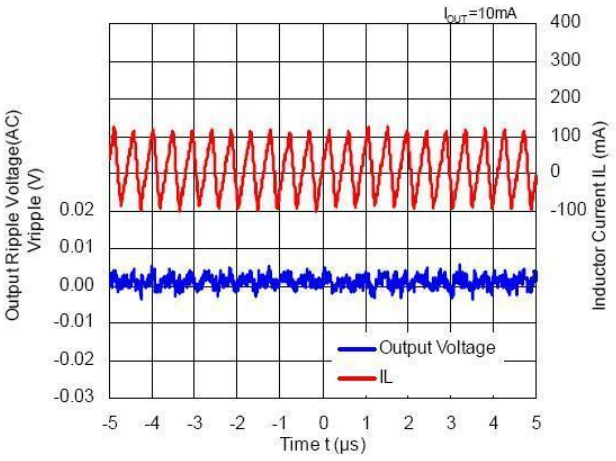
AS3506Kxx1A/B/C V_{OUT}=1.8V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



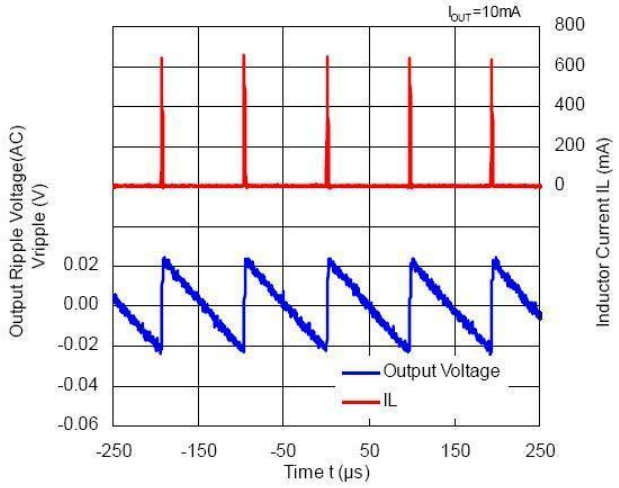
AS3506Kxx1A/B/C V_{OUT}=3.3V(V_{IN}=5.0V)
MODE="L"PWM/VFM Auto Switching Control



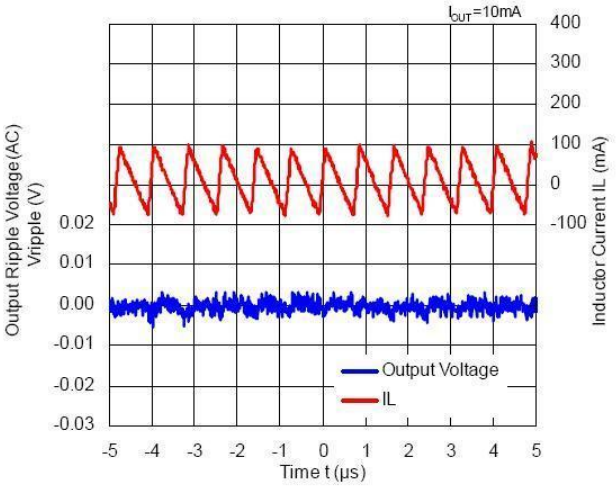
AS3506Kxx1A/B/C V_{OUT}=1.8V(V_{IN}=5.0V)
MODE="H" Forced PWM Control



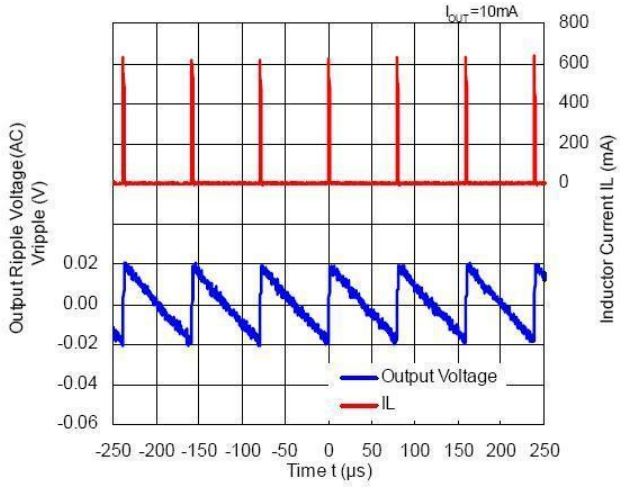
AS3506Kxx1D/E/F V_{OUT}=0.6V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



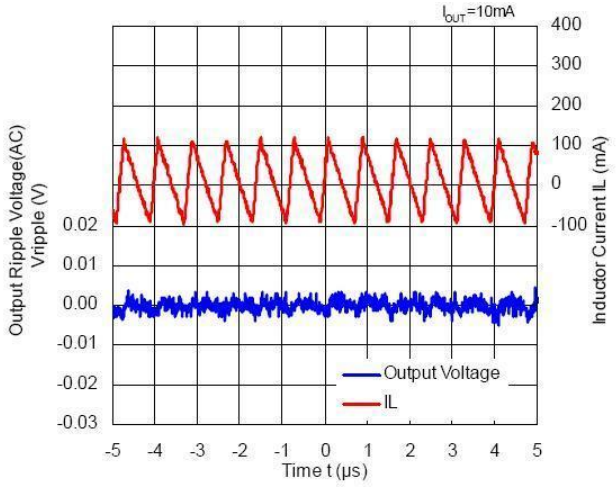
AS3506Kxx1D/E/F V_{OUT}=0.6V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



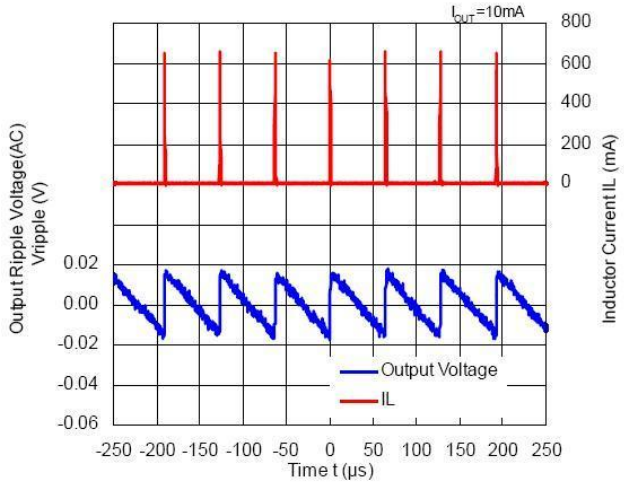
AS3506Kxx1D/E/F V_{OUT}=0.8V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



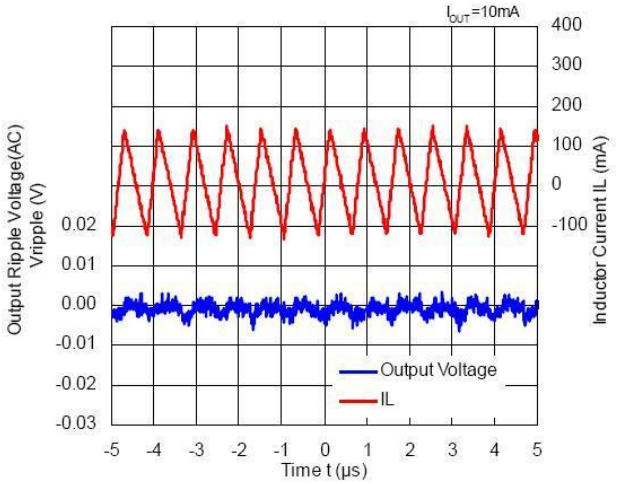
AS3506Kxx1D/E/F V_{OUT}=0.8V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



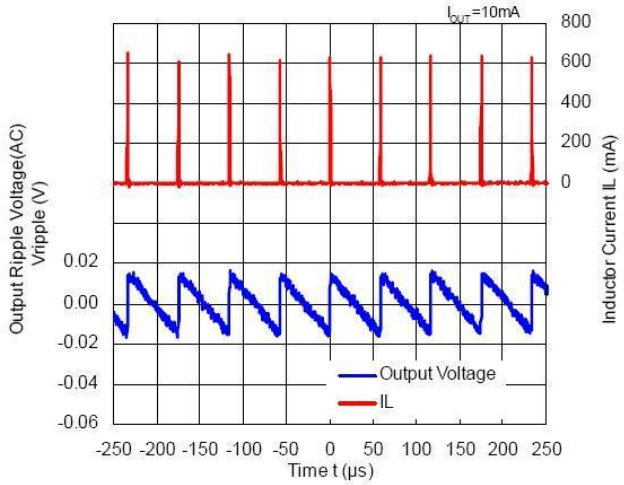
AS3506Kxx1D/E/F V_{OUT}=1.2V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



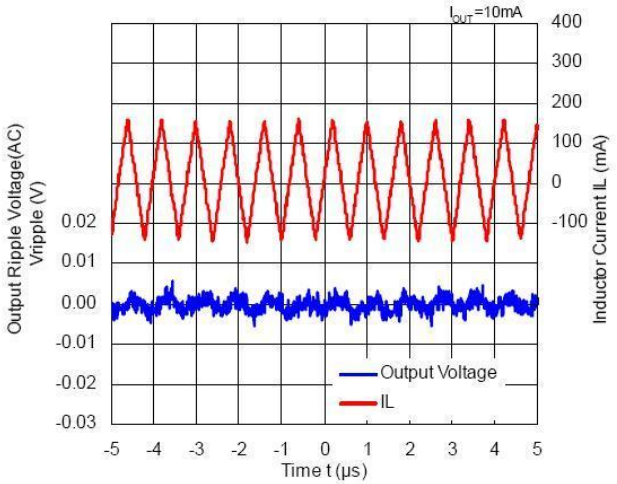
AS3506Kxx1D/E/F V_{OUT}=1.2V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



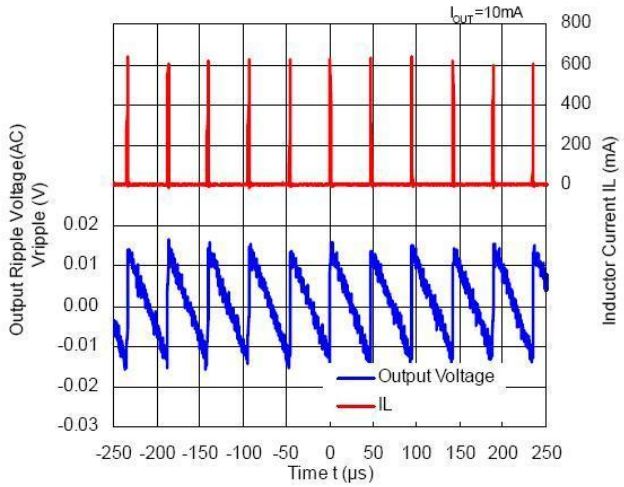
AS3506Kxx1D/E/F V_{OUT}=1.8V(V_{IN}=3.6V)
MODE="L"PWM/VFM Auto Switching Control



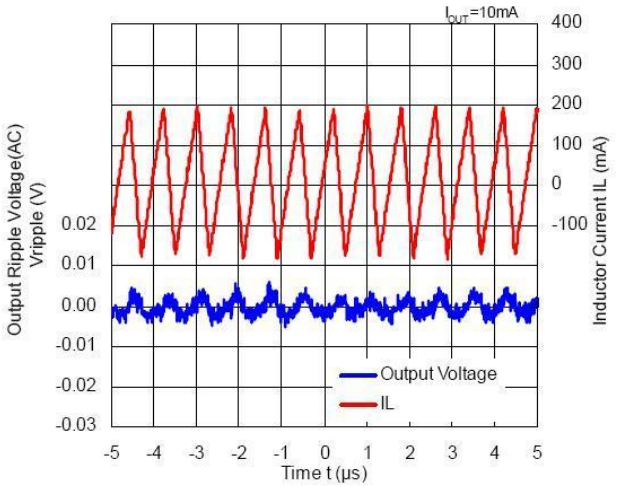
AS3506Kxx1D/E/F V_{OUT}=1.8V(V_{IN}=3.6V)
MODE="H" Forced PWM Control



AS3506Kxx1D/E/F V_{OUT}=3.3V(V_{IN}=5.0V)
MODE="L"PWM/VFM Auto Switching Control

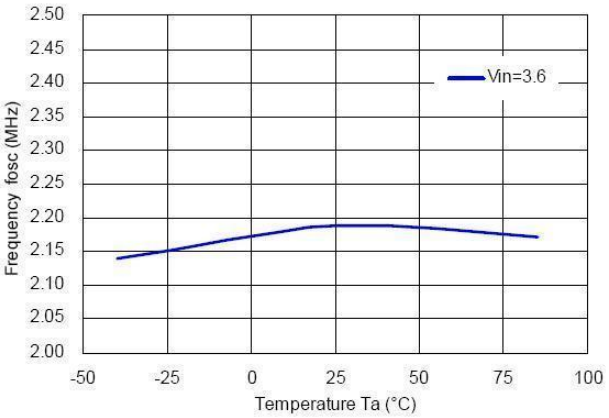


AS3506Kxx1D/E/F V_{OUT}=3.3V(V_{IN}=5.0V)
MODE="H" Forced PWM Control

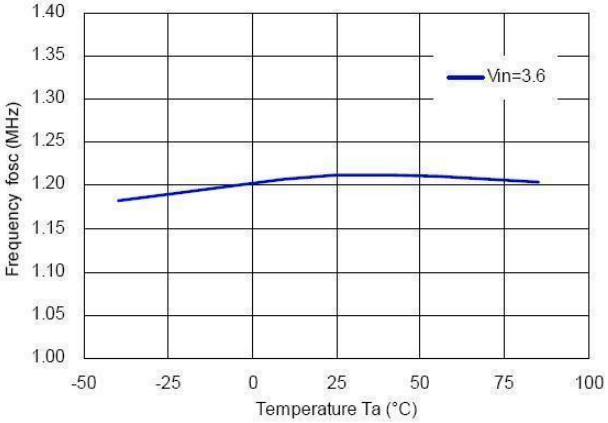


9) Oscillator Frequency vs. Ambient Temperature

AS3506Kxx1A/B/C

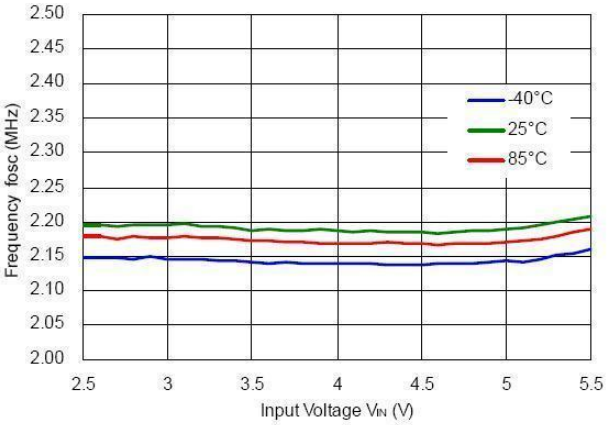


AS3506Kxx1D/E/F

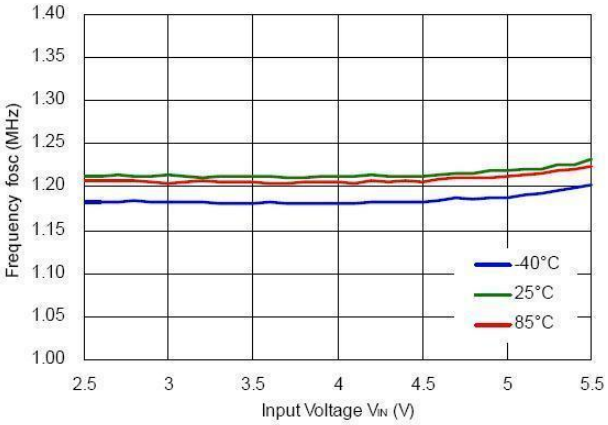


10) Oscillator Frequency vs. Input Voltage

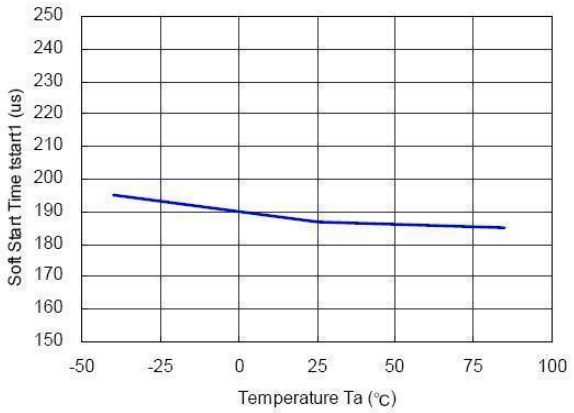
AS3506Kxx1A/B/C



AS3506Kxx1D/E/F

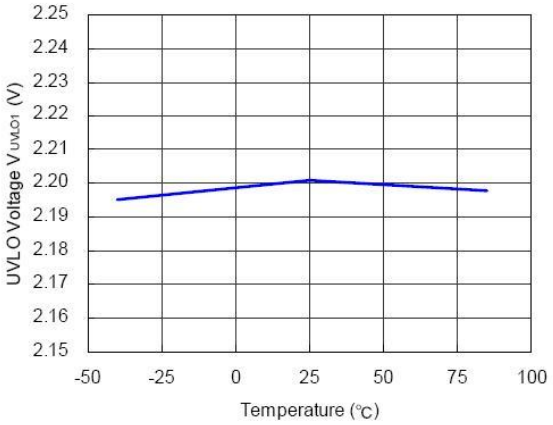


11) Soft-start Time vs. Ambient Temperature

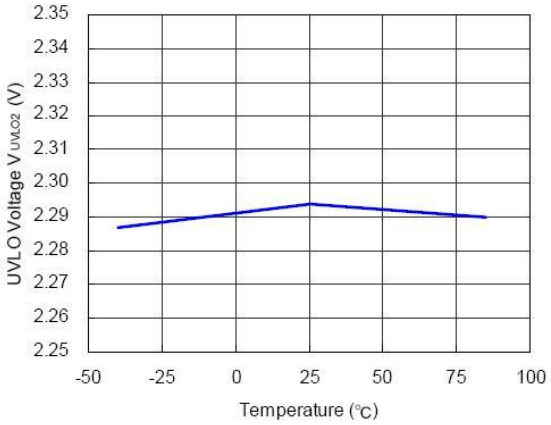


12) UVLO Detector Threshold/ Released Voltage vs. Ambient Temperature

UVLO Detector Threshold

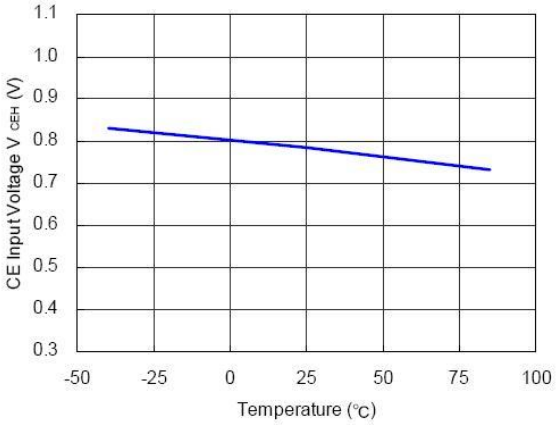


UVLO Released Voltage

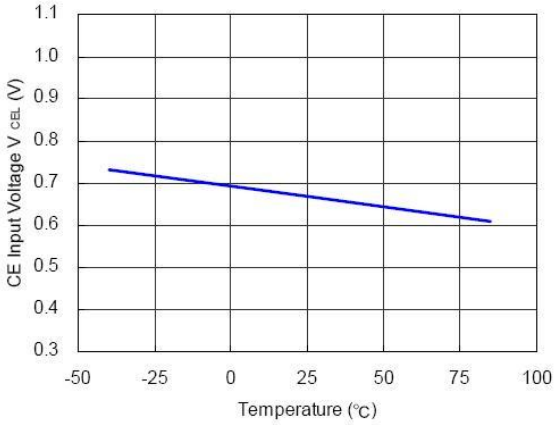


13) CE Input Voltage vs. Ambient Temperature

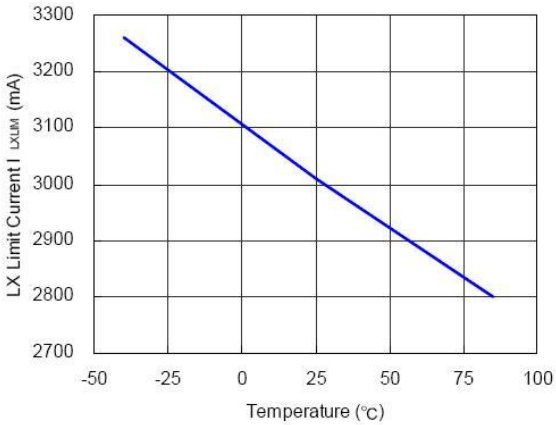
CE"H" Input Voltage (V_{IN}=5.5V)



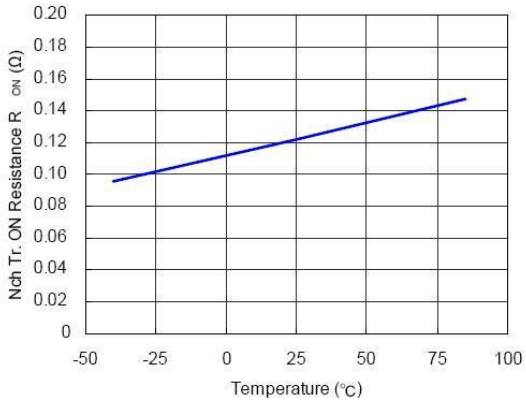
CE"L" Input Voltage (V_{IN}=2.5V)

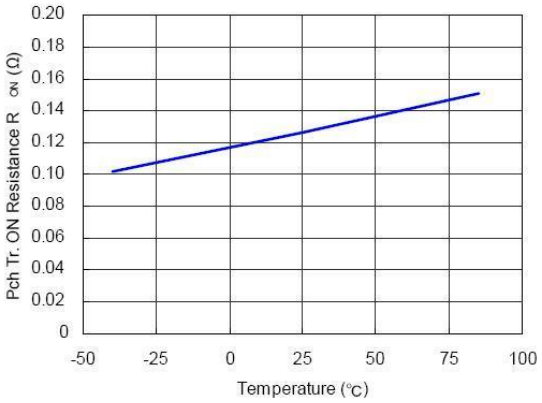


14) Lx Limit Current vs. Ambient Temperature



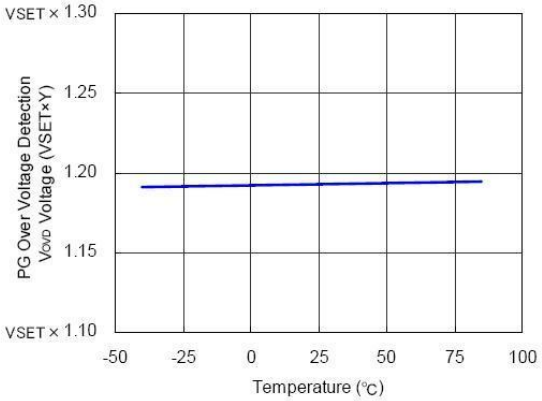
15) Nch Tr. On Resistance vs. Ambient Temperature 16) Pch Tr. On Resistance vs. Ambient Temperature



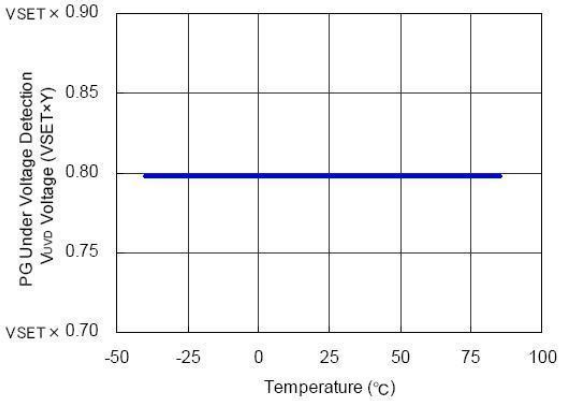


17) PG Detector Threshold vs. Ambient Temperature

Over Voltage Detection (V_{OVD})

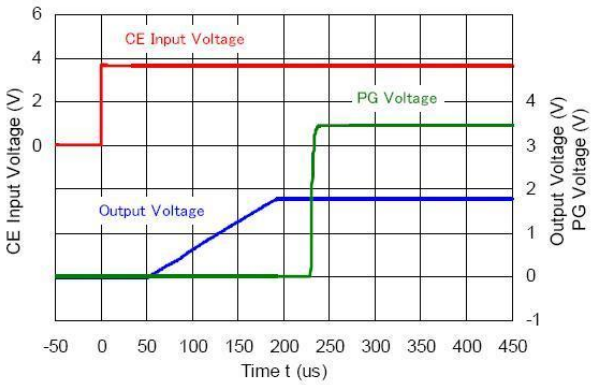


Under Voltage Detection (V_{UVD})

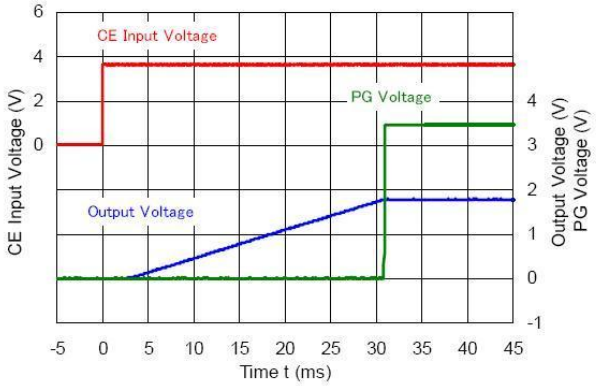


18) Soft-start Waveform

AS3506K V_{OUT}=1.8V T_{SS}=Open

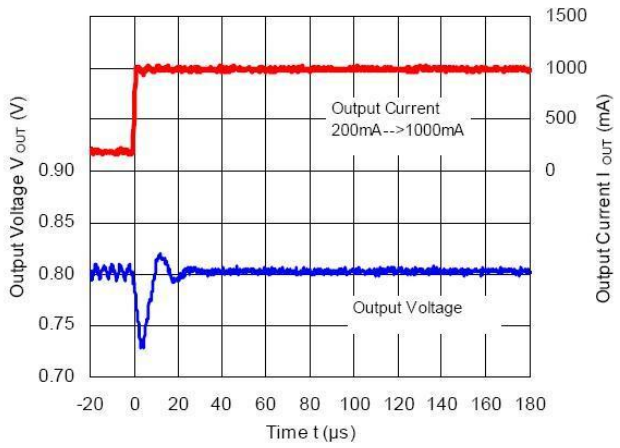


AS3506K V_{OUT}=1.8V T_{SS}=0.1µF

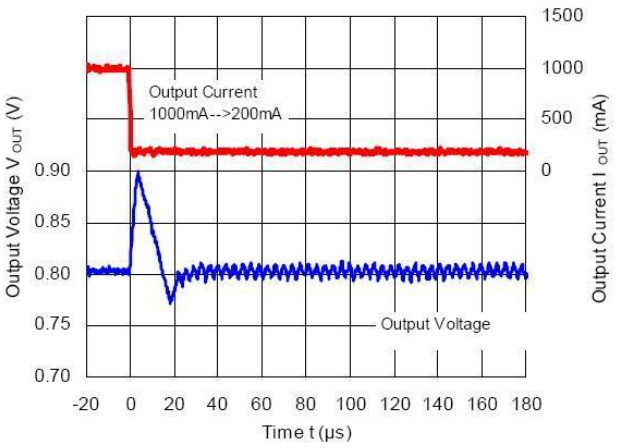


19) Load Transient Response

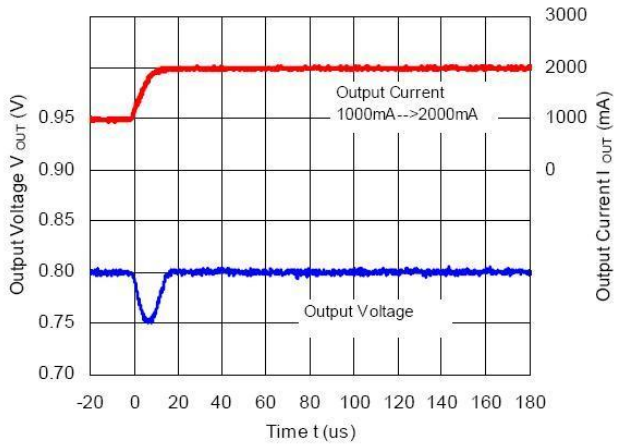
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=0.8V)
MODE="L"PWM/VFM Auto Switching Control



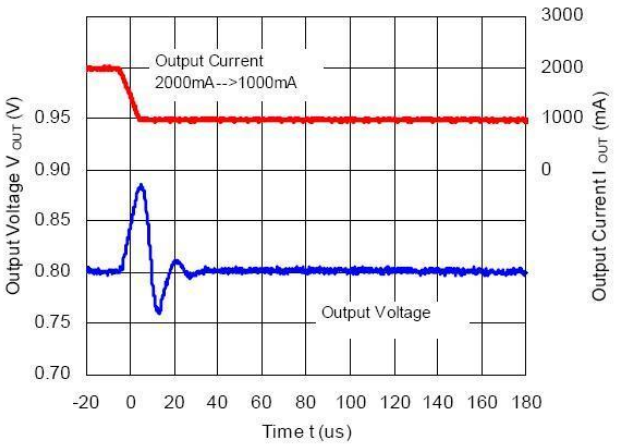
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=0.8V)
MODE="L"PWM/VFM Auto Switching Control



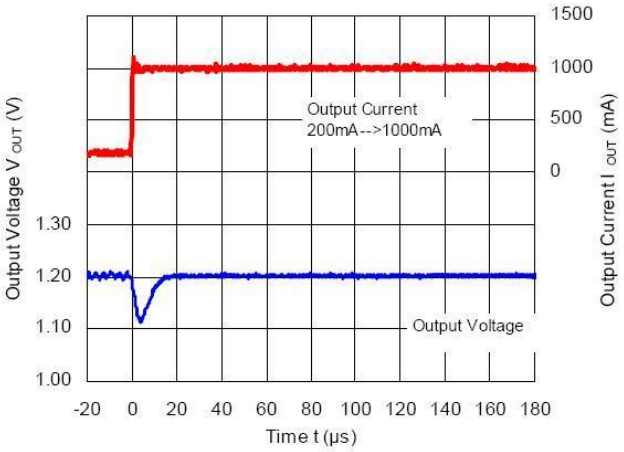
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=0.8V)
MODE="L"PWM/VFM Auto Switching Control



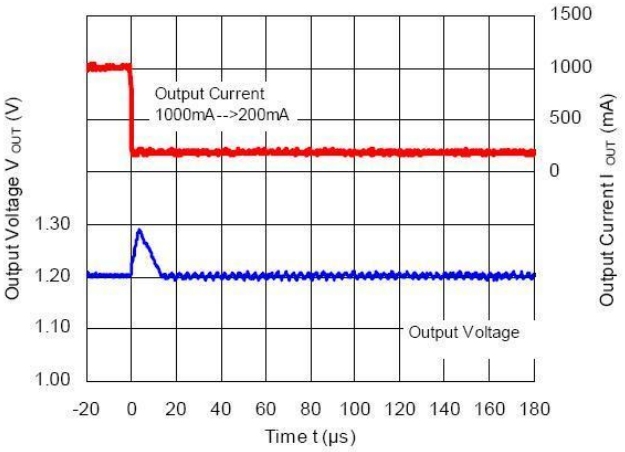
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=0.8V)
MODE="L"PWM/VFM Auto Switching Control



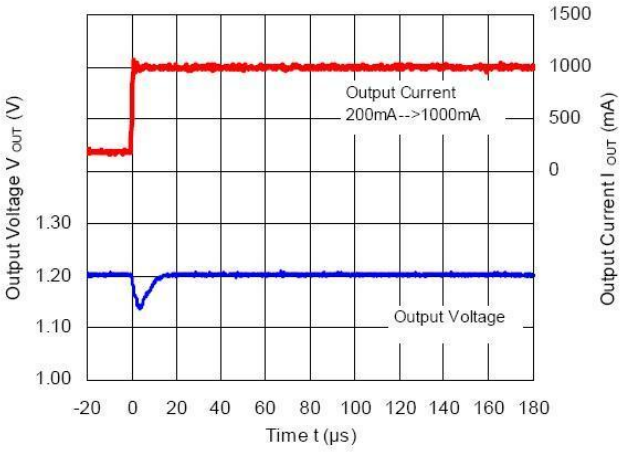
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="L"PWM/VFM Auto Switching Control



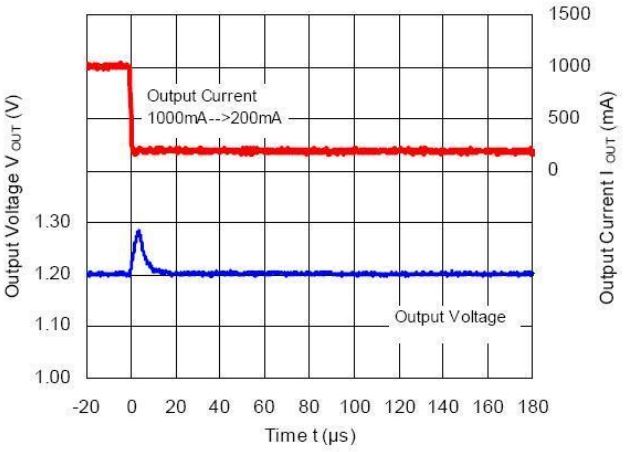
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="L"PWM/VFM Auto Switching Control



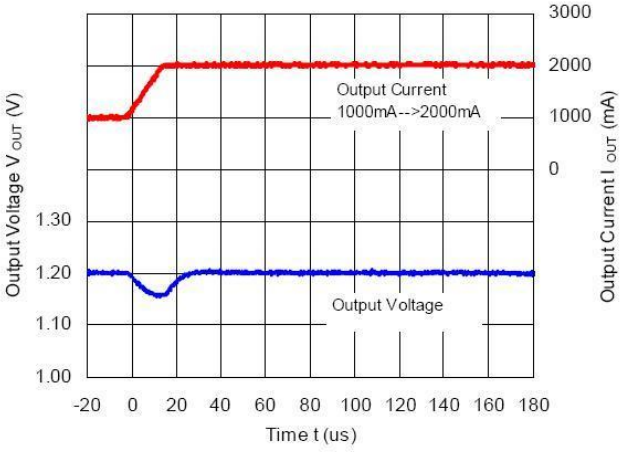
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="H" Forced PWM Control



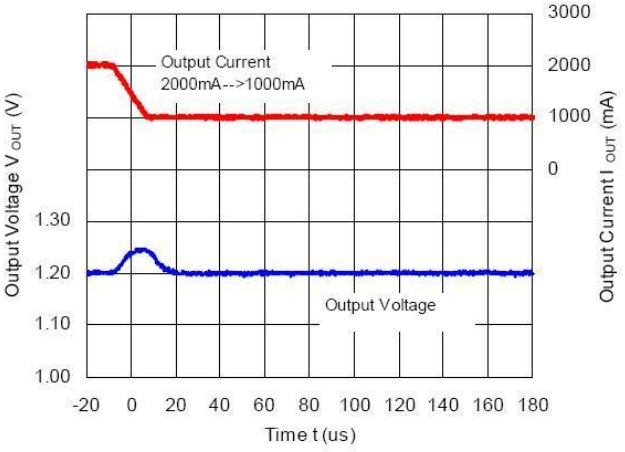
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="H" Forced PWM Control



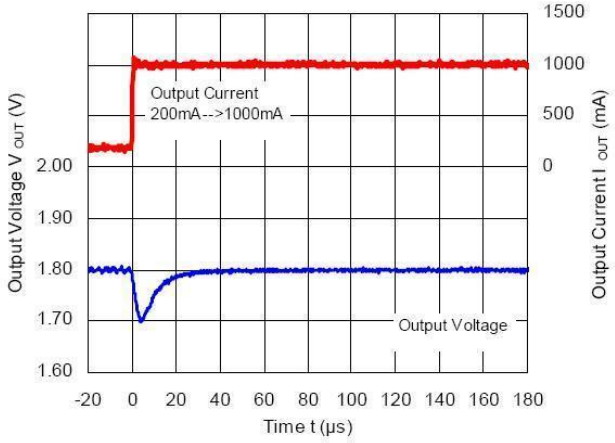
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)



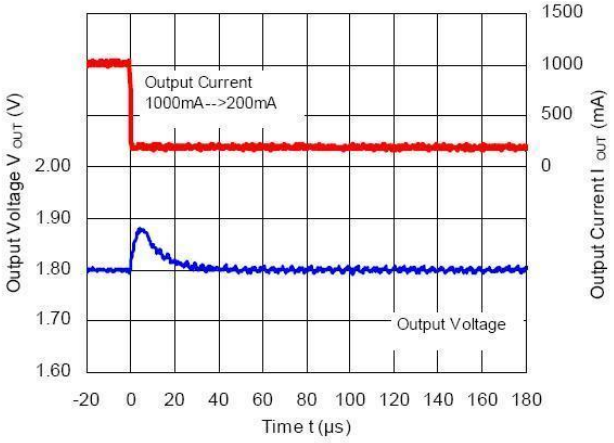
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.2V)



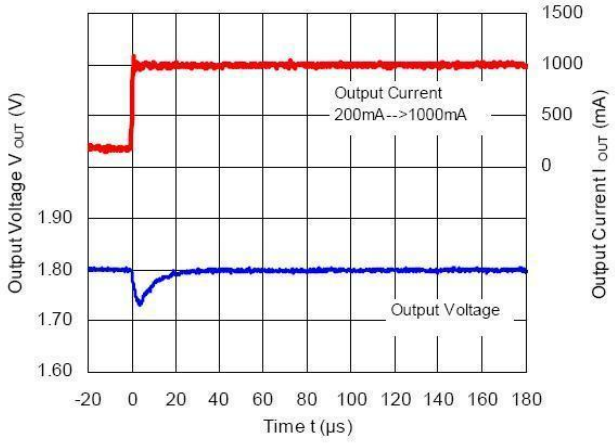
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="L"PWM/VFM Auto Switching Control



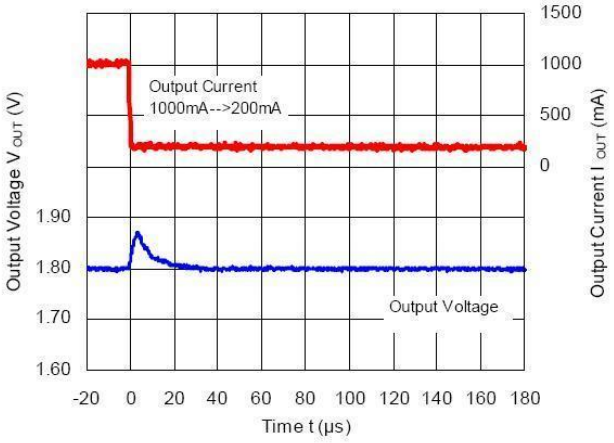
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="L"PWM/VFM Auto Switching Control



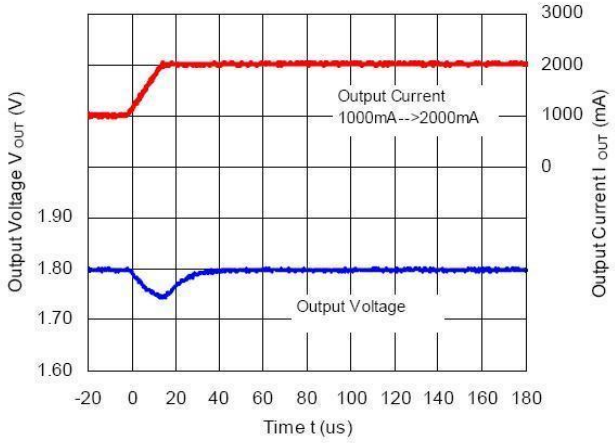
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="H" Forced PWM Control



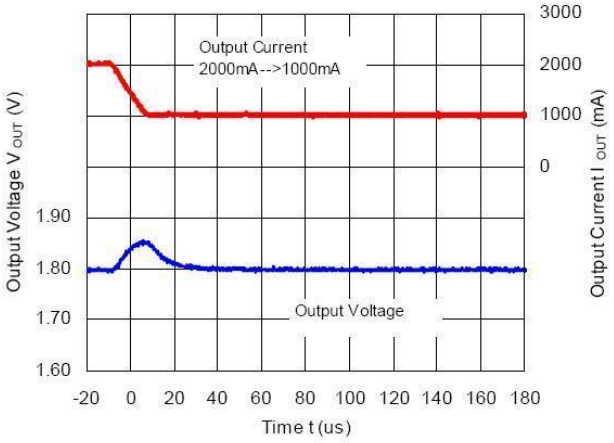
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="H" Forced PWM Control



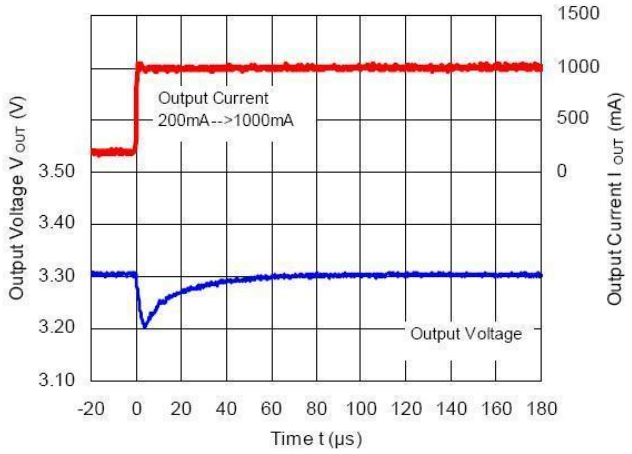
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)



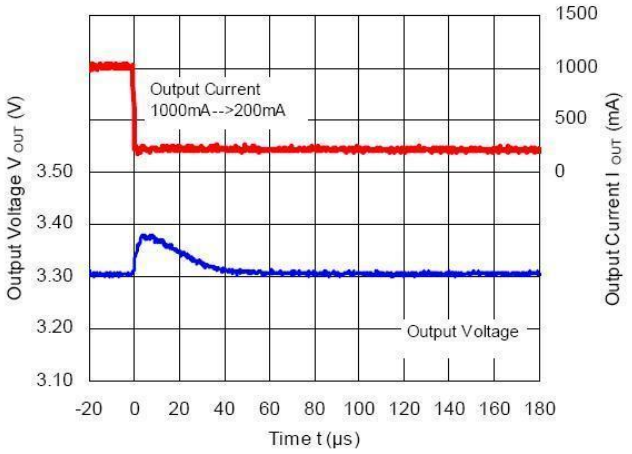
AS3506KxxA/B/C (V_{IN}=3.6V, V_{OUT}=1.8V)



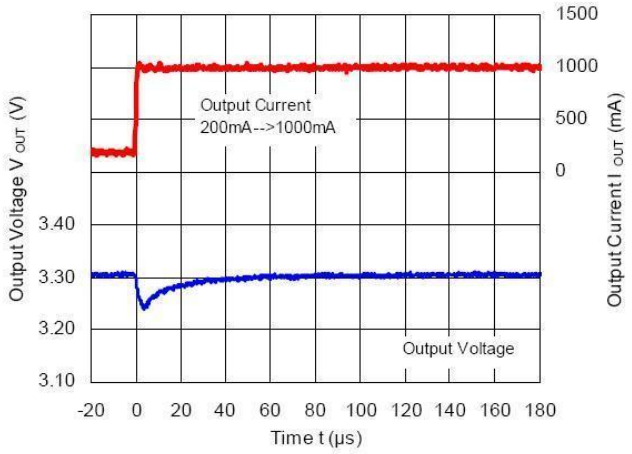
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="L"PWM/VFM Auto Switching Control



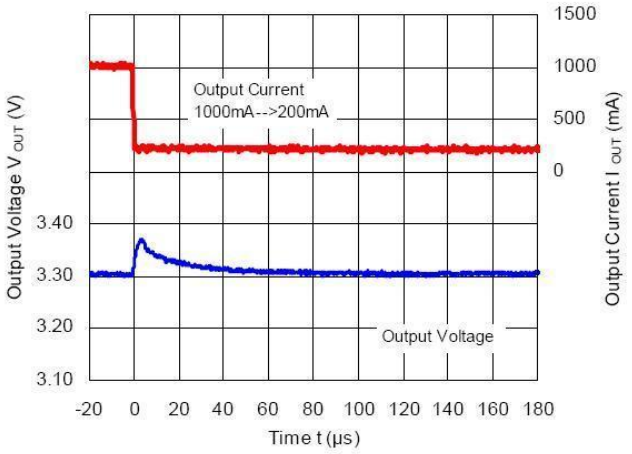
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="L"PWM/VFM Auto Switching Control



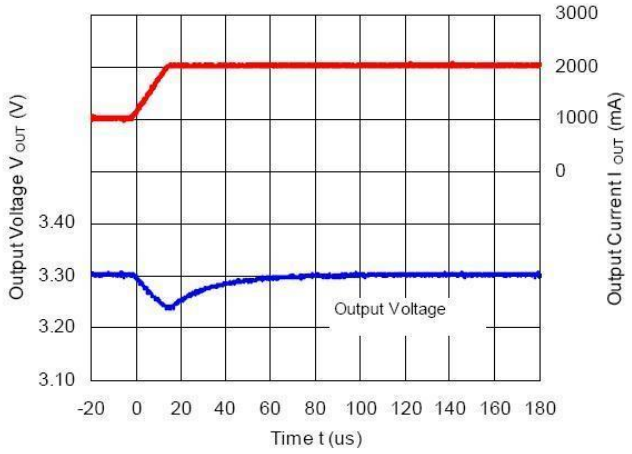
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="H" Forced PWM Control



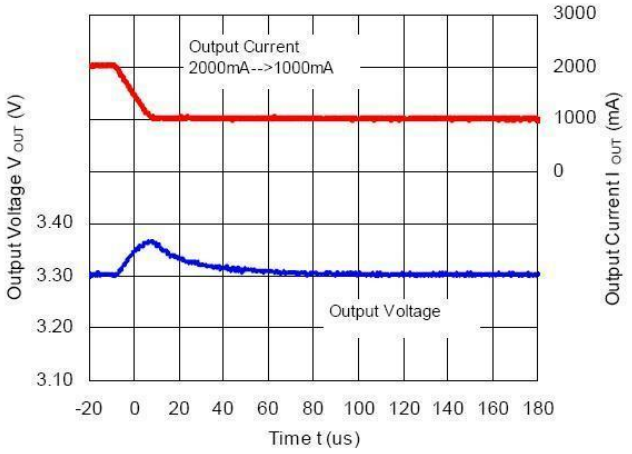
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="H" Forced PWM Control



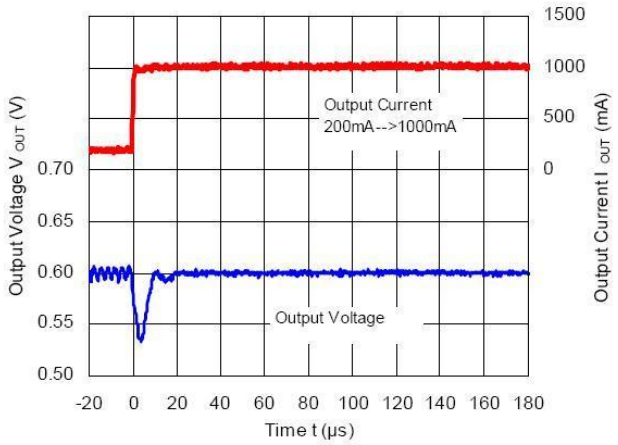
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)



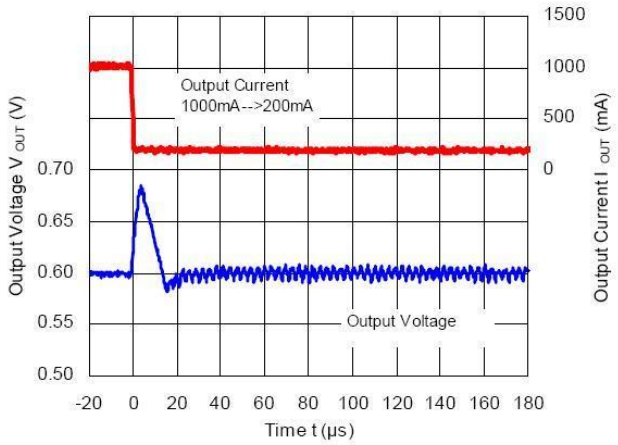
AS3506KxxA/B/C (V_{IN}=5.0V, V_{OUT}=3.3V)



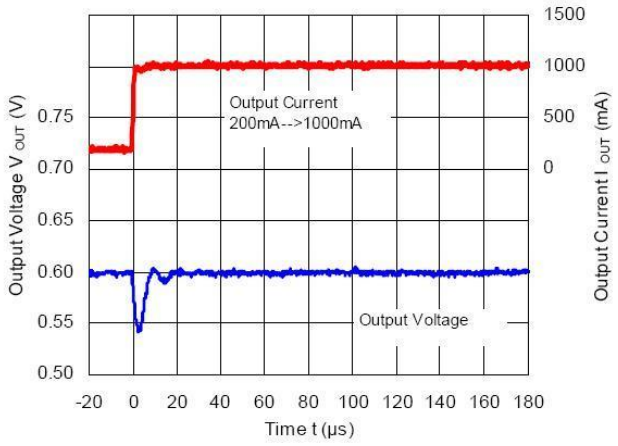
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)
MODE="L"PWM/VFM Auto Switching Control



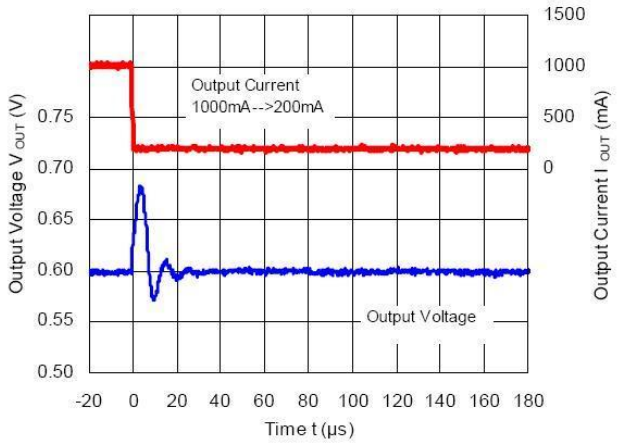
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)
MODE="L"PWM/VFM Auto Switching Control



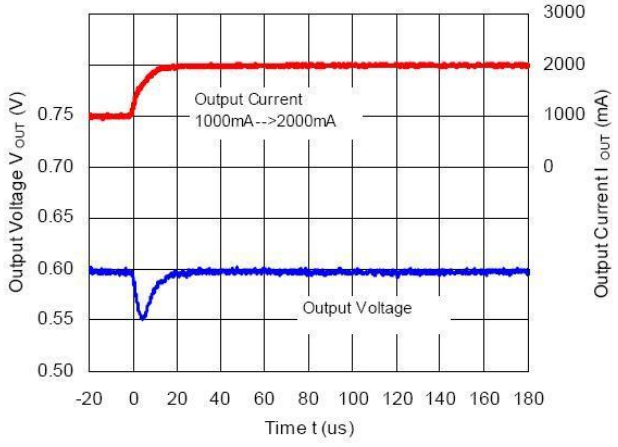
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)
MODE="H" Forced PWM Control



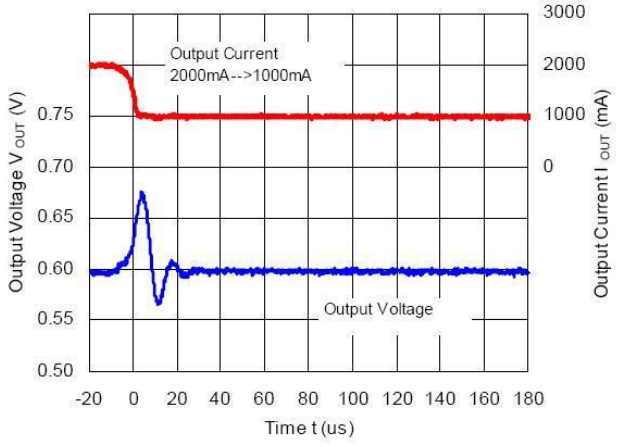
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)
MODE="H" Forced PWM Control



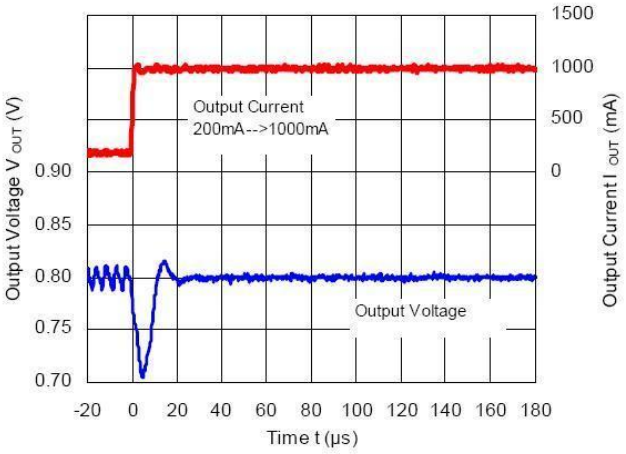
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)



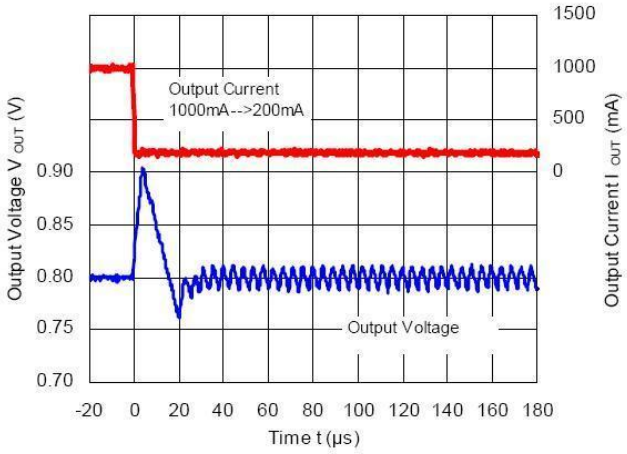
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=0.6V)



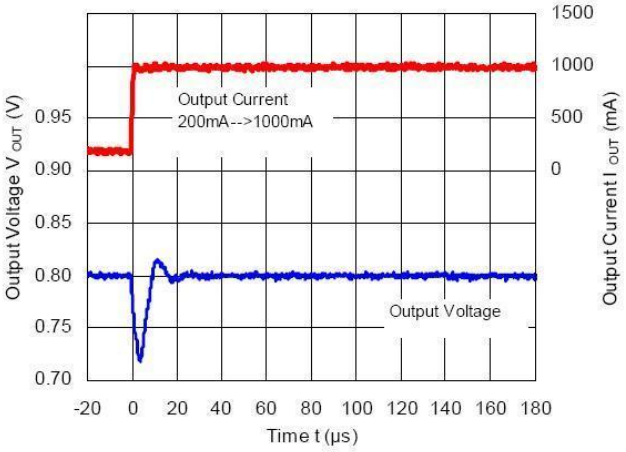
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)
MODE="L"PWM/VFM Auto Switching Control



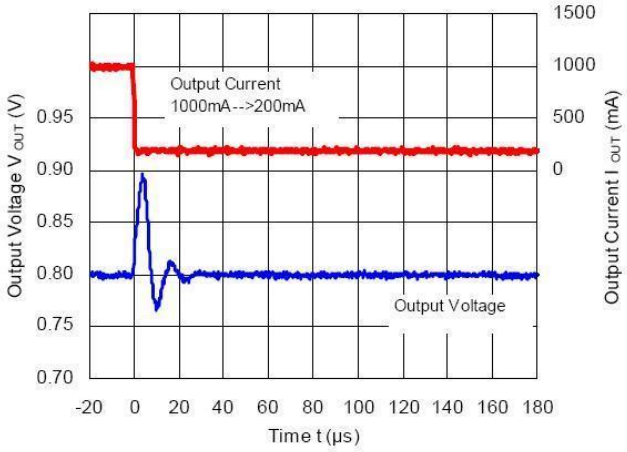
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)
MODE="L"PWM/VFM Auto Switching Control



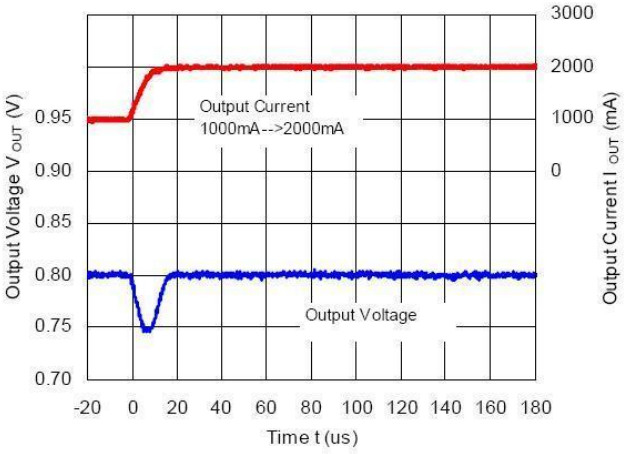
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)
MODE="H" Forced PWM Control



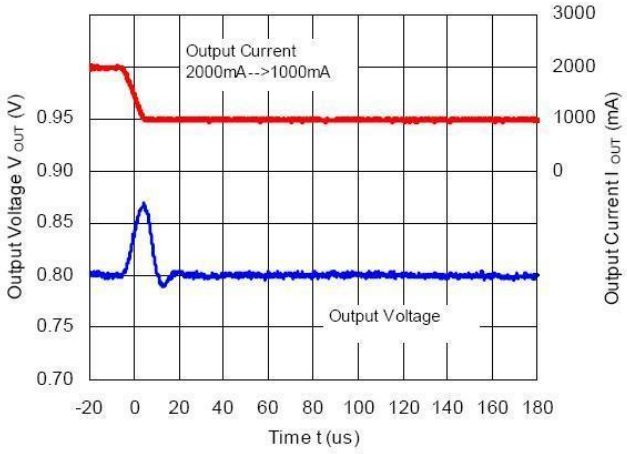
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)
MODE="H" Forced PWM Control



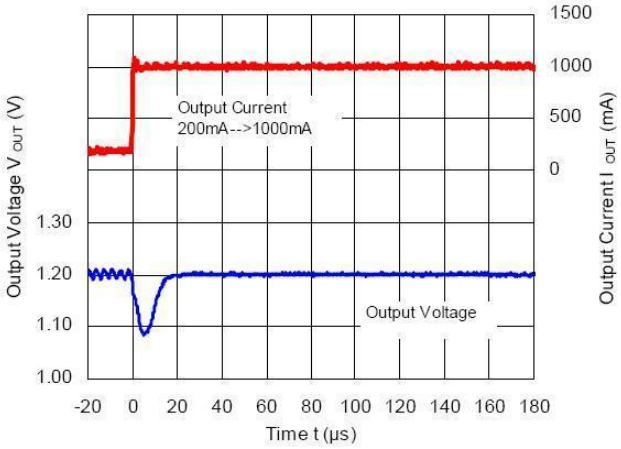
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)



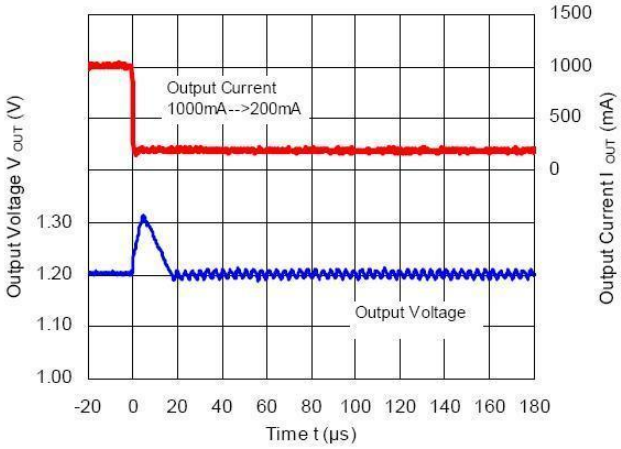
AS3506Kxx1D/E/F (VIN=3.6V, VOUT=0.8V)



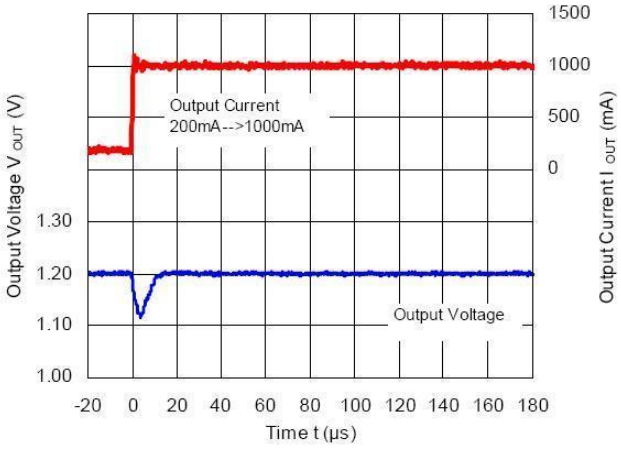
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="L"PWM/VFM Auto Switching Control



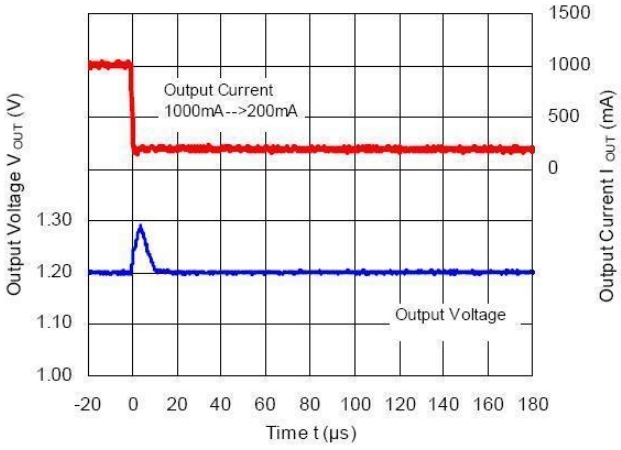
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="L"PWM/VFM Auto Switching Control



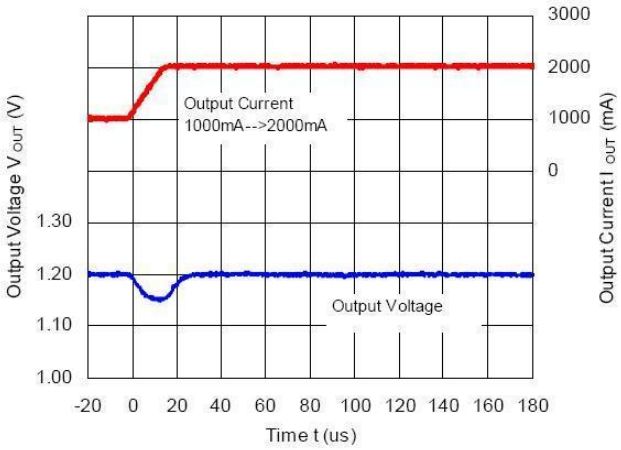
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="H" Forced PWM Control



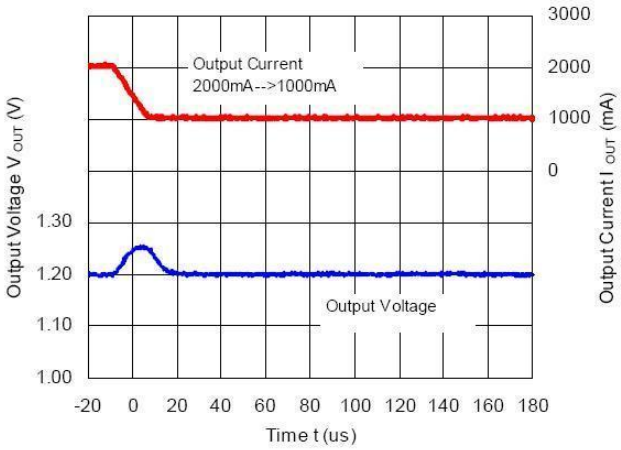
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)
MODE="H" Forced PWM Control



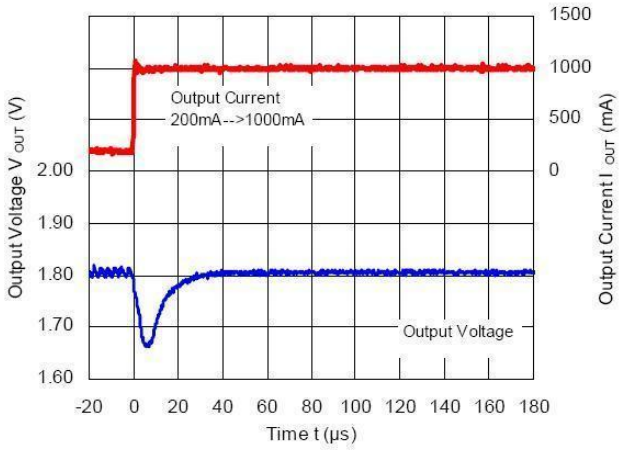
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)



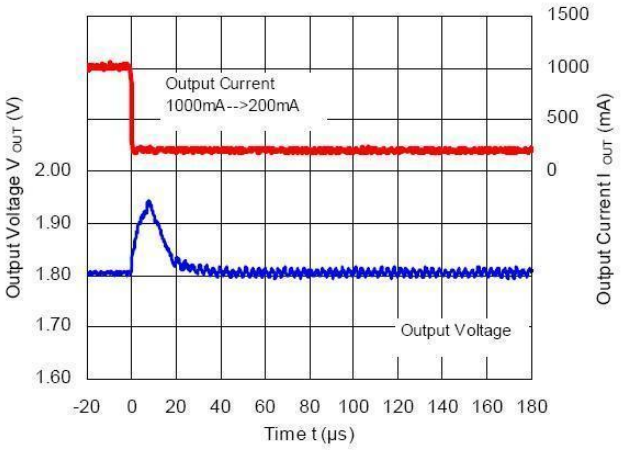
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V)



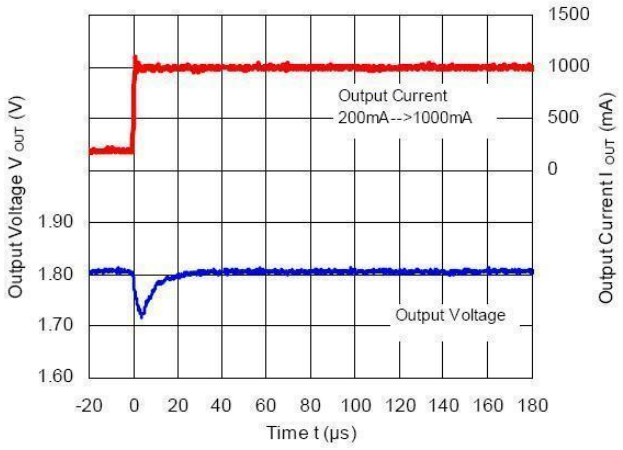
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="L"PWM/VFM Auto Switching Control



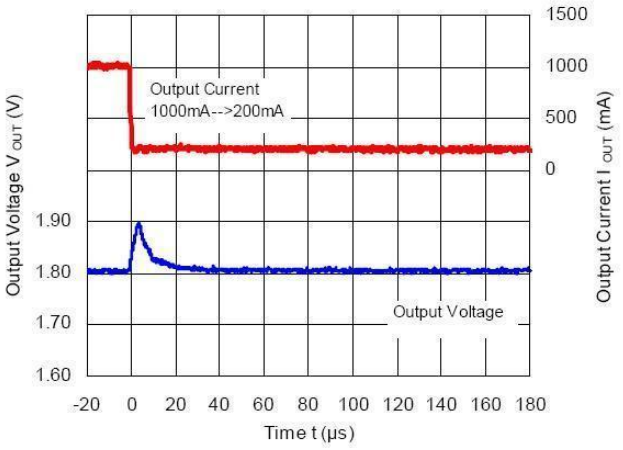
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="L"PWM/VFM Auto Switching Control



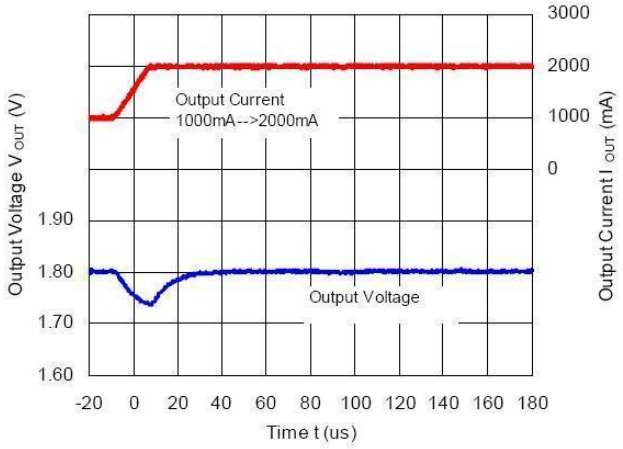
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="H" Forced PWM Control



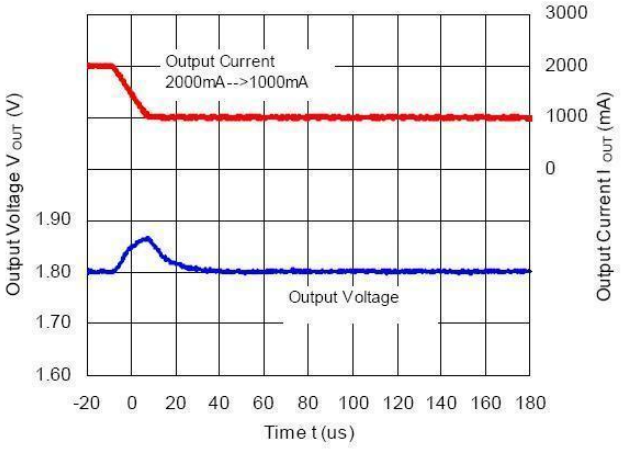
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)
MODE="H" Forced PWM Control



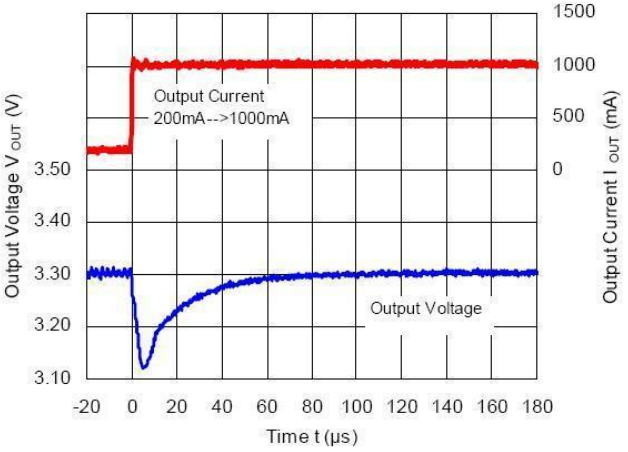
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)



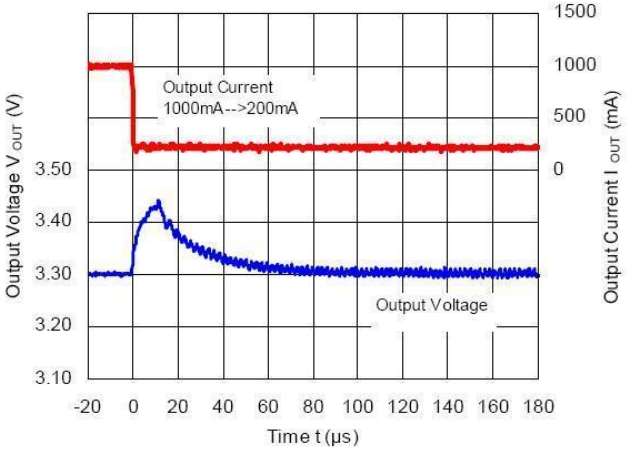
AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V)



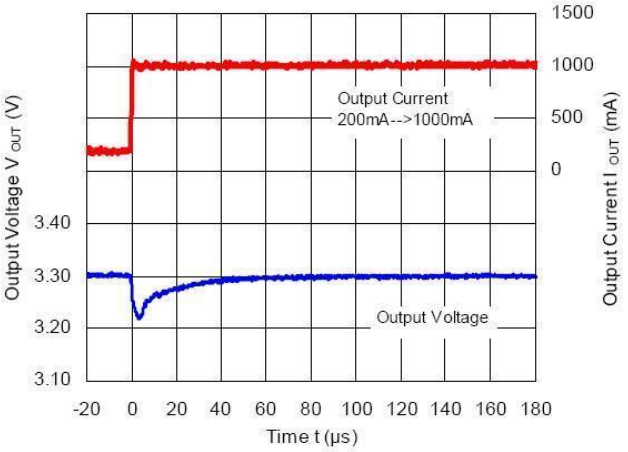
AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="L"PWM/VFM Auto Switching Control



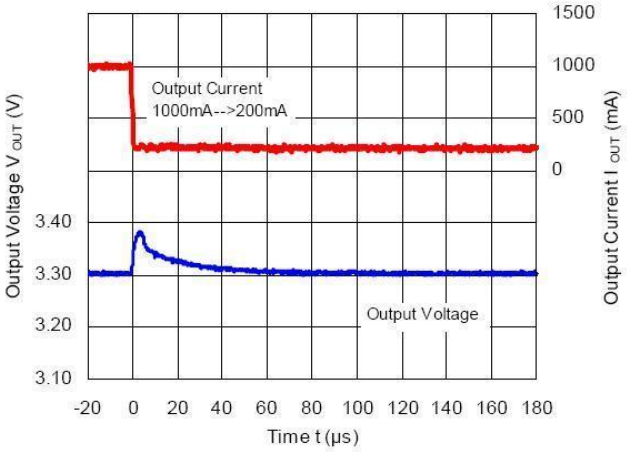
AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="L"PWM/VFM Auto Switching Control



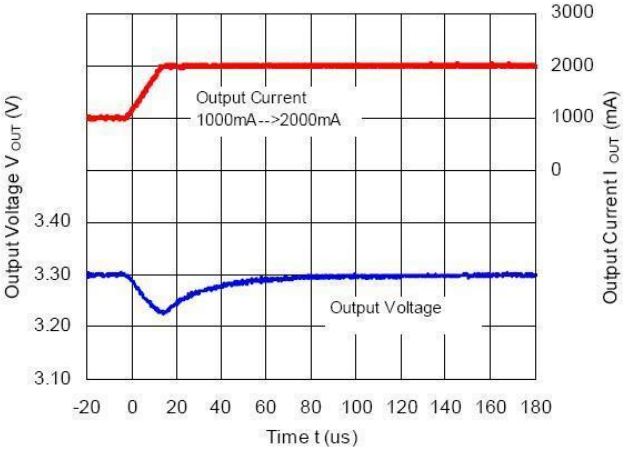
AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="H" Forced PWM Control



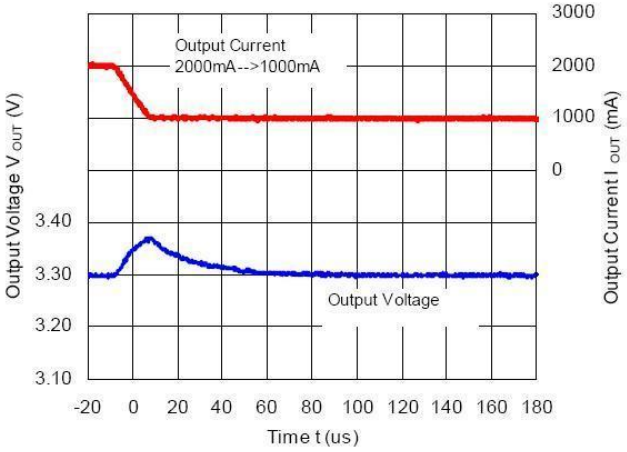
AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)
MODE="H" Forced PWM Control



AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)

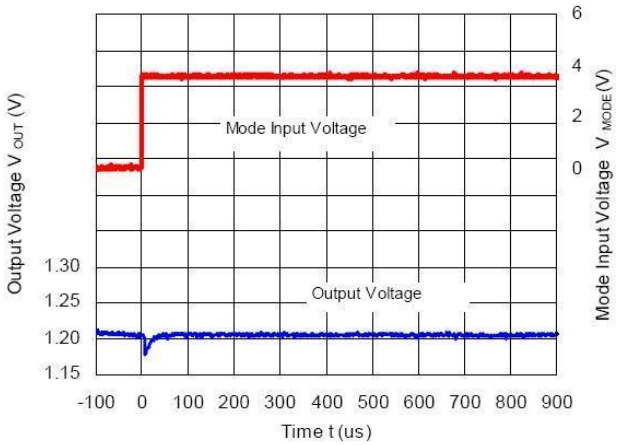


AS3506Kxx1D/E/F (V_{IN}=5.0V, V_{OUT}=3.3V)

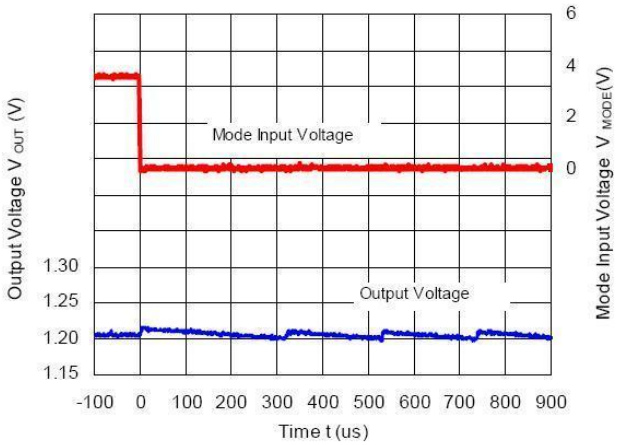


20) Auto Switching Control Waveform

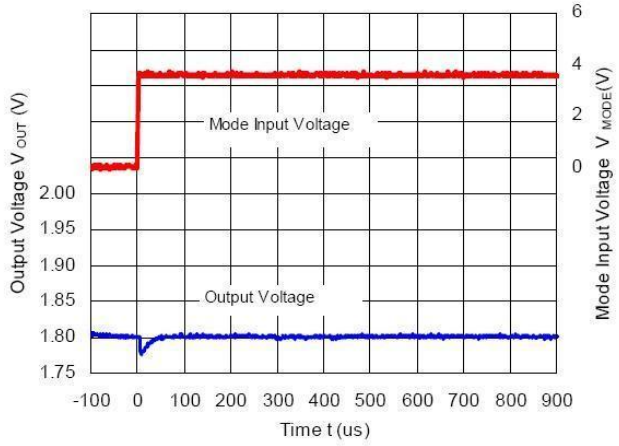
AS3506Kxx1A/B/C (V_{IN}=3.6V, V_{OUT}=1.2V, I_{OUT}=1mA)
MODE="L" --> MODE="H"



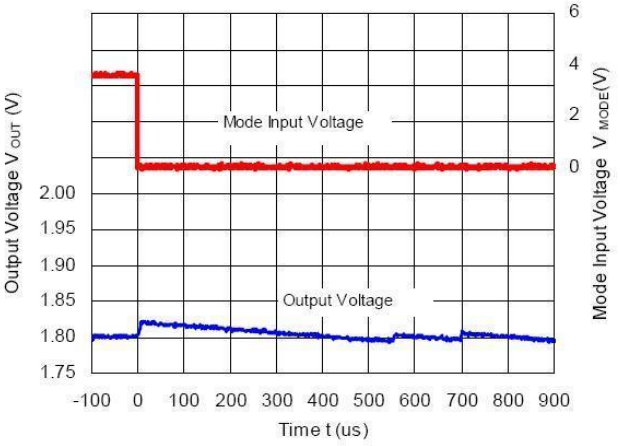
AS3506Kxx1A/B/C (V_{IN}=3.6V, V_{OUT}=1.2V, I_{OUT}=1mA)
MODE="H" --> MODE="L"



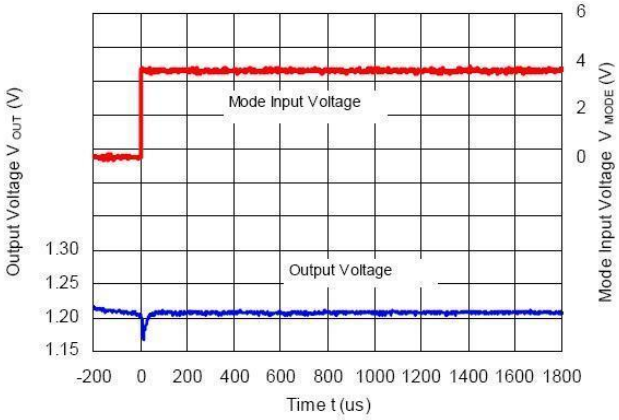
AS3506Kxx1A/B/C (V_{IN}=3.6V, V_{OUT}=1.8V, I_{OUT}=1mA)
MODE="L" --> MODE="H"



AS3506Kxx1A/B/C (V_{IN}=3.6V, V_{OUT}=1.8V, I_{OUT}=1mA)
MODE="H" --> MODE="L"



AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V, I_{OUT}=1mA)
MODE="L" --> MODE="H"



AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.2V, I_{OUT}=1mA)
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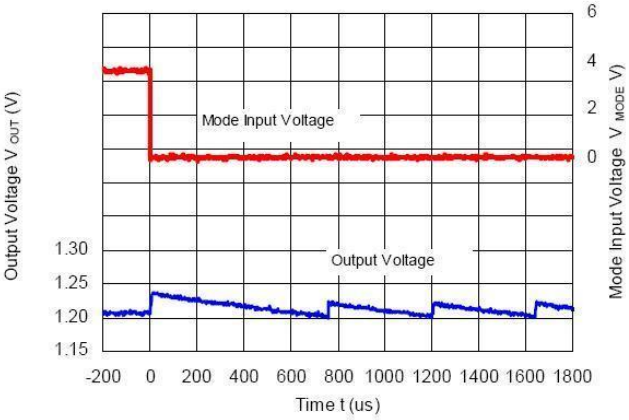
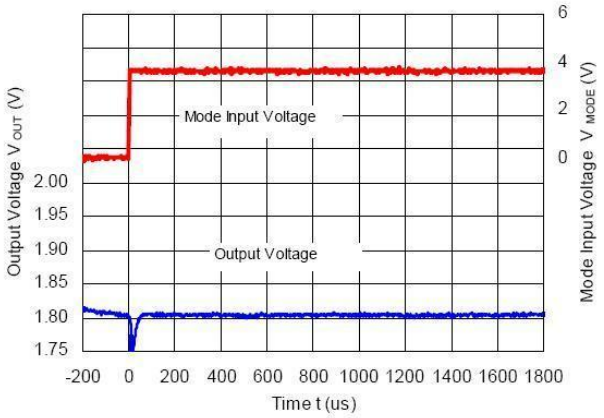


AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V, I_{OUT}=1mA)
MODE="L" --> MODE="H"



AS3506Kxx1D/E/F (V_{IN}=3.6V, V_{OUT}=1.8V, I_{OUT}=1mA)
MODE="H" --> MODE="L"