

# SMT06C Series

## Single Output



Wide output voltage trim (0.9 Vdc to 5.0 Vdc, 6 A max.)

Power good output signal (open collector)

Input undervoltage lockout

Current sink capabilities for termination applications

Operating ambient temperature up to 80 °C with suitable derating and forced air cooling

Remote ON/OFF

No minimum load requirement

Non-latching overcurrent protection

5 V and 12 V input options

Available RoHS compliant

The SMT06C is a new high density open frame non-isolated converter series for space sensitive applications. Each model has a wide input range (4.5 Vdc to 5.5 Vdc or 10.2 Vdc to 13.8 Vdc) and offer a wide 0.9 Vdc to 5 Vdc output voltage range with a 6 A load. An external resistor adjusts the output voltage from its pre-set value of 0.9 V to any value up to the 5 V maximum. Typical efficiencies for the models are 89% for the 5 V input version and 91% for the 12 V input version.

The SMT06C Series offers remote ON/OFF and overcurrent protection as standard. With full international safety approval including EN60950 and UL/cUL60950, the SMT06C reduces compliance costs and time to market.

[ 2 YEAR WARRANTY ]



Stresses in excess of the maximum ratings can cause permanent damage to the device. Operation of the device is not implied at these or any other conditions in excess of those given in the specification. Exposure to absolute maximum ratings can adversely affect device reliability.

**Absolute Maximum Ratings**

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input voltage - continuous	$V_{in} (cont)$	-0.3		13.8	V DC	$V_{in(+)} - V_{in(-)}$
Operating temperature	$T_{op}$	0		50	°C	Measured at thermal reference points, see Note 1. Higher ambient operation possible with forced air cooling. See de-rating curves
Storage temperature	$T_{storage}$	-40		125	°C	
Output current	$I_{out} (max)$			6	A	

All specifications are typical at nominal input  $V_{in} = 12V$  and  $5V$ , full load under any resistive load combination at  $25^{\circ}C$  unless otherwise stated.

**Input Characteristics**

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input voltage - operating (5V)	$V_{in} (oper)$	4.5		5.5	V DC	
(12V)	$V_{in} (oper)$	10.2		13.8	V DC	
Input current - no load (5V)	$I_{in}$		50	120	mADC	$V_{in} (min) - V_{in} (max)$ , enabled
(12V)			50			
Input current - Quiescent	$I_{in} (off)$		5	6.5	mADC	Converter disabled
Input voltage variation	$dv/dt$		1.0		V/ms	Product was tested at 1.2V/ms. Much higher $dv/dt$ is possible (>10V/ms). Consult factory for details

**Turn On/Off**

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input voltage - turn on (5V)	$V_{in} (on)$	4.4	4.5	4.6	V DC	
(12V)	$V_{in} (on)$	9.0	9.3	9.6	V DC	
Input voltage - turn off (5V)	$V_{in} (off)$	4.2	4.3	4.4	V DC	
(12V)	$V_{in} (off)$	7.5	7.8	8.1	V DC	
Turn on delay - enabled, then power applied	$T_{delay} (power)$			20	msec	With the Remote ON/OFF signal asserted, this is the time from when the input voltage reaches the minimum specified operating voltage until the Power Good is asserted high
Turn on delay - power applied, then Remote ON/OFF asserted	$T_{delay} (Remote ON/OFF)$			25	msec	$V_{in} = V_{in} (nom)$ , then Remote ON/OFF asserted. This is the time taken until the power good is asserted high
Output to power good delay	$T_{delay} (power good)$			8	ms	Output voltage in full regulation to power good asserted high
Rise time (5V)	$T_{rise}$			10	msec	From 10% to 90%; full resistive load, 680 $\mu$ F capacitance
(12V)				5		

## Signal Electrical Interface

Characteristic - Signal Name	Symbol	Min	Typ	Max	Units	Notes and Conditions
At remote/control ON/OFF pin						<b>See Notes 2 and 3</b> See Application Note 169 for Remote On/Off details
Control pin open circuit voltage	$V_{ih}$		2.27	2.5	V	$I_{ih} = 0 \mu A$ ; open circuit voltage
High level input current	$I_{ih}$			1.0	$\mu A$	Current flowing into control pin when pin is pulled high (max. at $V_{ih} = 13.8V$ )
High level input voltage	$V_{ih}$	2.4			V	Converter guaranteed on when control pin is greater than $V_{ih} (min)$
Low level input voltage	$V_{il}$			0.8	V	Converter guaranteed off when control pin is less than $V_{il} (max)$
Low level input current (5V)	$I_{il} (max)$			133	$\mu A$	$V_{il} = 0.0 V$
(12V)				500	$\mu A$	

## Reliability and Service Life

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Mean time between failure	MTBF	1,307,257			Hours	MIL-HDBK-217F, $V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$ ; ambient 40°C; ground benign environment
Mean time between failure	MTBF	7,562,142			Hours	Telcordia SR-332 Issue 3, ground benign, temp. = 40°C, $V_{in} = V_{in} (nom)$ , $I_{out} = I_{out} (max)$

## Other Specifications

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Switching frequency	$F_{sw}$		200		kHz	Fixed frequency
Weight			9.3		g	

## Safety Agency Approvals

Characteristic	
UL/cUL 60950 File No.	E139421
TÜV Product Service IEC 60950	Certificate No. B 04 08 19870 228

## Material Ratings

Characteristic - Signal Name	Notes and Conditions
Flammability rating	UL94V-0
Material type	FR4 PCB

## Model Numbers

Model Number	Input Voltage	Output Voltage	Output Current (Max.)	Typical Efficiency	Max. Load Regulation
SMT06C-05SADJJ	4.4V - 5.5V	0.9V - 3.3V	6A	89%	±0.5%
SMT06C-12SADJJ	10.2V - 13.8V	0.9V - 5.0V	6A	91%	±0.5%

## RoHS Compliance Ordering Information



The 'J' at the end of the part number indicates that the part is Pb-free (RoHS 6/6 compliant). TSE RoHS 5/6 (non Pb-free) compliant versions may be available on special request, please contact your local sales representative for details.

## 5V and 12V Model 0.9V Setpoint

## Input Characteristics

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input current - operating						
(Source) (5V)	$I_{in}$		1.500		A DC	$V_{in} = V_{in} (nom); I_{out} = I_{out}$
(Sink) (5V)	$I_{in}$		-0.645		A DC	(max)
(Source) (12V)	$I_{in}$		0.650		A DC	$V_{in} = V_{in} (nom); I_{out} = I_{out}$
(Sink) (12V)	$I_{in}$		-0.285		A DC	(max)
Reflected ripple current						
(5V)	$I_{in} (ripple)$		10.0		mA RMS	$I_{out} = I_{out} (max)$ ; measured
(5V)			51.0		mA pk-pk	with external filter. See
(12V)			7.0		mA RMS	Application Note 169 for details
(12V)			48.0		mA pk-pk	
Input capacitance - internal filter	$C_{input}$		1.0		$\mu F$	
Input capacitance - external input	$C_{bypass}$		270		$\mu F$	Recommended customer added capacitance. Maximum ESR = 20m $\Omega$ See Application Note 169 for ripple current requirements

## 5V and 12V Model 0.9V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Nominal set-point voltage	$V_o (nom)$	0.8775	0.9	0.9225	V DC	$V_{in} = V_{in} (nom); I_{out} = I_{out} (max)$
Line regulation				$\pm 0.2$	%	$I_{out} = I_{out} (nom); V_{in} (min)$ to $V_{in} (max)$
Load regulation				$\pm 0.5$	%	$V_{in} = V_{in} (max); I_{out} (min)$ to $I_{out} (max)$
Output current continuous	$I_{out}$	0		$\pm 6.0$	A DC	Minus indicates sink mode
Output current - short circuit						
(5V)	$I_{sc}$		1			Continuous, unit auto recovers
(12V)			1.1			
Output voltage - noise						
(5V) 0.9V	$V_{p-p}$			30	mV pk-pk	Measurement bandwidth 20MHz
	$V_{rms}$			15	mV rms	See Application Note 169 for details
(12V) 0.9V	$V_{p-p}$			40	mV pk-pk	
	$V_{rms}$			20	mV rms	

## 5V and 12V Model 0.9V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Load transient response - peak deviation	$V_{dynamic}$		75		mV	Peak deviation for 50% to 75% step load, $di/dt = 10A/\mu sec$
Load transient response - recovery	$T_{recovery}$		150		$\mu sec$	Settling time to within 1% of output set point voltage for 50% to 75% step load
External load capacitance (5V) (12V)	$C_{ext}$		680	11,500 6,080	$\mu F$	Max ESR = 12m $\Omega$ See Application Note 169 for output capacitance values vs. stability

## 5V and 12V Model 0.9V Setpoint

## Protection and Control Features

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Overcurrent limit inception (5V) (12V)	$I_{OC}$ $I_{OC}$		8.95 9.95		A DC A DC	$V_O = 90\%$ of $V_O (nom)$

## 5V and 12V Model 0.9V Setpoint

## Efficiency

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Efficiency 5V (source mode) 5V (sink mode)	$\eta$	70 58	72 60		%	$I_{out} = 100\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$
Efficiency 12V (source mode) 12V (sink mode)	$\eta$	68 60	70 62		%	
Efficiency 5V (source mode) 5V (sink mode)	$\eta$	78 72	80 74		%	$I_{out} = 50\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$
Efficiency 12V (source mode) 12V (sink mode)	$\eta$	72 68	74 70		%	

## 5V Model 1.8V Setpoint

## Input Characteristics

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input current - operating (Source) (Sink)	$I_{in}$		2.62 -1.73		A DC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Reflected ripple current	$I_{in} (ripple)$		11.8 55		mA RMS mA pk-pk	$I_{out} = I_{out} (max)$ ; measured with external filter. See Application Note 169 for details
Input capacitance - internal filter	$C_{input}$		1		$\mu F$	Internal to converter
Input capacitance - external bypass	$C_{bypass}$		270		$\mu F$	Recommended customer added capacitance. Maximum ESR = 20m $\Omega$ See Application Note 169 for ripple current requirements

## 5V Model 1.8V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Nominal set-point voltage	$V_o (nom.)$	1.755	1.800	1.845	VDC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Line regulation				$\pm 0.2$	%	$I_{out} = I_{out} (max)$ ; $V_{in} (min)$ to $V_{in} (max)$
Load regulation				$\pm 0.5$	%	$V_{in} = V_{in} (nom)$ ; $I_{out} (min)$ to $I_{out} (max)$
Output current continuous	$I_{out}$	0		$\pm 6$	ADC	Minus indicates sink mode
Output current - short circuit	$I_{sc}$		1		A RMS	Continuous, unit auto recovers
Output voltage - noise	$V_{p-p}$ $V_{rms}$			30 15	mV pk-pk mV rms	Measurement bandwidth 20MHz See Application Note 169 for set-up details

## 5V Model 1.8V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Load transient response - peak deviation	$V_{dynamic}$		75		mV	Peak deviation for 50% to 75% step load, $di/dt = 10A/\mu sec$
Load transient response - recovery	$T_{recovery}$		150		$\mu sec$	Settling time to within 1% of output set point voltage for 50% to 75% step load
External load capacitance (5V)	$C_{ext}$		680	11,500	$\mu F$	Max ESR = 12m $\Omega$ See Application Note 169 for output capacitance values vs. stability

## 5V Model 1.8V Setpoint

## Protection and Control Features

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Overcurrent limit inception	$I_{OC}$		8.75		A DC	$V_O = 90\%$ of $V_O (nom)$

## 5V Model 1.8V Setpoint

## Efficiency

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Efficiency (source) (sink)	$\eta$	81.4 77.6	83.4 79.6		%	$I_{out} = 100\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$
Efficiency (source) (sink)	$\eta$	85.9 83.6	87.9 85.6		%	$I_{out} = 50\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$



## 5V Model 3.3V Setpoint

## Input Characteristics

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input current - operating	$I_{in}$		4.42		A DC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Reflected ripple current	$I_{in} (ripple)$		11.3 52		mA RMS mA pk-pk	$I_{out} = I_{out} (max)$ ; measured with external filter. See Application Note 169 for details
Input capacitance - internal filter	$C_{input}$		1		$\mu F$	Internal to converter
Input capacitance - external bypass	$C_{bypass}$		270		$\mu F$	Recommended customer added capacitance. Maximum ESR = 20m $\Omega$ See Application Note 169 for ripple current requirements

## 5V Model 3.3V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Nominal set-point voltage	$V_o (nom.)$	3.218	3.300	3.383	VDC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Line regulation				$\pm 0.2$	%	$I_{out} = I_{out} (nom)$ ; $V_{in} (min)$ to $V_{in} (max)$
Load regulation				$\pm 0.5$	%	$V_{in} = V_{in} (nom)$ ; $I_{out} (min)$ to $I_{out} (max)$
Output current continuous	$I_{out}$	0		$\pm 6$	ADC	Minus indicates sink mode
Output current - short circuit	$I_{sc}$		1		A RMS	Continuous, unit auto recovers
Output voltage - noise	$V_{p-p}$ $V_{rms}$			40 15	mV pk-pk mV rms	Measurement bandwidth 20MHz See Application Note 169 for set-up details

## 5V Model 3.3V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Load transient response - peak deviation	$V_{dynamic}$		75		mV	Peak deviation for 50% to 75% step load, $di/dt = 10A/\mu sec$
Load transient response - recovery	$T_{recovery}$		150		$\mu sec$	Settling time to within 1% of output set point voltage for 50% to 75% step load
External load capacitance (5V)	$C_{ext}$		680	10,500	$\mu F$	Max ESR = 12m $\Omega$ See Application Note 169 for output capacitance values vs. stability

## 5V Model 3.3V Setpoint

## Protection and Control Features

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Overcurrent limit inception	$I_{OC}$		8.3		A DC	$V_O = 90\%$ of $V_O (nom)$

## 5V Model 3.3V Setpoint

## Efficiency

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Efficiency (source)	$\eta$	87.9	89.9		%	$I_{out} = 100\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$
Efficiency (source)	$\eta$	90.8	92.8		%	$I_{out} = 50\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$

## 12V Model 2.5V Setpoint

## Input Characteristics

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input current - operating (source) (sink)	$I_{in}$		1.48 -1.04		A DC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Reflected ripple current	$I_{in} (ripple)$		9.6 44.8		mA RMS mA pk-pk	$I_{out} = I_{out} (max)$ ; measured with external filter. See Application Note 169 for details
Input capacitance - internal filter	$C_{input}$		1		$\mu F$	Internal to converter
Input capacitance - external bypass	$C_{bypass}$		270		$\mu F$	Recommended customer added capacitance. Maximum ESR = 20m $\Omega$ . See Application Note 169 for ripple current requirements

## 12V Model 2.5V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Nominal set-point voltage	$V_o (nom.)$	2.438	2.500	2.563	VDC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Line regulation				$\pm 0.2$	%	$I_{out} = I_{out} (nom)$ ; $V_{in} (min)$ to $V_{in} (max)$
Load regulation				$\pm 0.5$	%	$V_{in} = V_{in} (nom)$ ; $I_{out} (min)$ to $I_{out} (max)$
Output current continuous	$I_{out}$	0		$\pm 6$	ADC	Minus indicates sink mode
Output current - short circuit	$I_{sc}$		1.1		A RMS	Continuous, unit auto recovers
Output voltage - noise	$V_{p-p}$ $V_{rms}$			40 20	mV pk-pk mV rms	Measurement bandwidth 20MHz See Application Note 169 for set-up details

## 12V Model 2.5V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Load transient response - peak deviation	$V_{dynamic}$		75		mV	Peak deviation for 50% to 75% step load, $di/dt = 10A/\mu sec$
Load transient response - recovery	$T_{recovery}$		150		$\mu sec$	Settling time to within 1% of output set point voltage for 50% to 75% step load
External load capacitance (5V)	$C_{ext}$		680	5,080	$\mu F$	Max ESR = 12m $\Omega$ See Application Note 169 for output capacitance values vs. stability

## 12V Model 2.5V Setpoint

## Protection and Control Features

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Overcurrent limit inception	$I_{OC}$		9.52		A DC	$V_O = 90\%$ of $V_O (nom)$

## 12V Model 2.5V Setpoint

## Efficiency

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Efficiency (source) (sink)	$\eta$	82.7 80.2	84.7 82.2		%	$I_{out} = 100\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$
Efficiency (source) (sink)	$\eta$	83.8 81.8	85.8 83.8		%	$I_{out} = 50\% I_{out (max)}$ , $V_{in} = V_{in (nom)}$

## 12V Model 5V Setpoint

## Input Characteristics

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Input current - operating	$I_{in}$		2.77		A DC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Reflected ripple current	$I_{in} (ripple)$		11.8 56.4		mA RMS mA pk-pk	$I_{out} = I_{out} (max)$ ; measured with external filter. See Application Note 169 for details
Input capacitance - internal filter	$C_{input}$		1		$\mu F$	Internal to converter
Input capacitance - external bypass	$C_{bypass}$		270		$\mu F$	Recommended customer added capacitance. Maximum ESR = 20m $\Omega$ See Application Note 169 for ripple current requirements

## 12V Model 5V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Nominal set-point voltage	$V_o (nom.)$	4.875	5	5.125	VDC	$V_{in} = V_{in} (nom)$ ; $I_{out} = I_{out} (max)$
Line regulation				$\pm 0.2$	%	$I_{out} = I_{out} (nom)$ ; $V_{in} (min)$ to $V_{in} (max)$
Load regulation				$\pm 0.5$	%	$V_{in} = V_{in} (nom)$ ; $I_{out} (min)$ to $I_{out} (max)$
Output current continuous	$I_{out}$	0		$\pm 6$	ADC	Minus indicates sink mode
Output current - short circuit	$I_{sc}$		1.1		A RMS	Continuous, unit auto recovers
Output voltage - noise	$V_{p-p}$ $V_{rms}$			50 25	mV pk-pk mV rms	Measurement bandwidth 20MHz See Application Note 169 for set-up details

## 12V Model 5V Setpoint

## Electrical Characteristics - O/P

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Load transient response - peak deviation	$V_{dynamic}$		75		mV	Peak deviation for 50% to 75% step load, $di/dt = 10A/\mu sec$
Load transient response - recovery	$T_{recovery}$		150		$\mu sec$	Settling time to within 1% of output set point voltage for 50% to 75% step load
External load capacitance (5V)	$C_{ext}$		680	3,880	$\mu F$	Max ESR = 12m $\Omega$ See Application Note 169 for output capacitance values vs. stability

## 12V Model 5V Setpoint

## Protection and Control Features

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Overcurrent limit inception	$I_{OC}$		9.27		A DC	$V_O = 90\%$ of $V_O$ (nom)

## 12V Model 5V Setpoint

## Efficiency

Characteristic	Symbol	Min	Typ	Max	Units	Notes and Conditions
Efficiency (source)	$\eta$	88.9	90.9		%	$I_{out} = 100\% I_{out} (max)$ , $V_{in} = V_{in} (nom)$
Efficiency (source)	$\eta$	88.9	90.9		%	$I_{out} = 50\% I_{out} (max)$ , $V_{in} = V_{in} (nom)$

5V Model 0.9V Setpoint

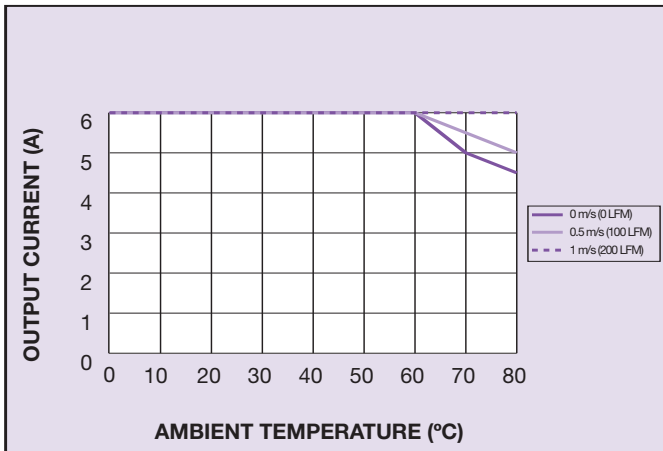


Figure 1: Thermal De-rating Curve

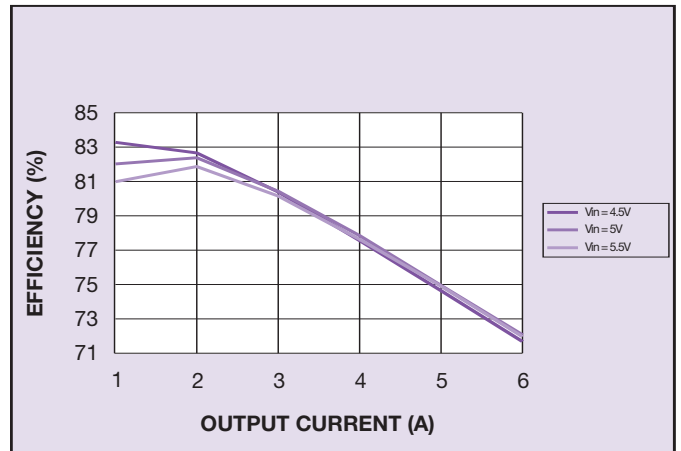


Figure 2: Efficiency when Sourcing

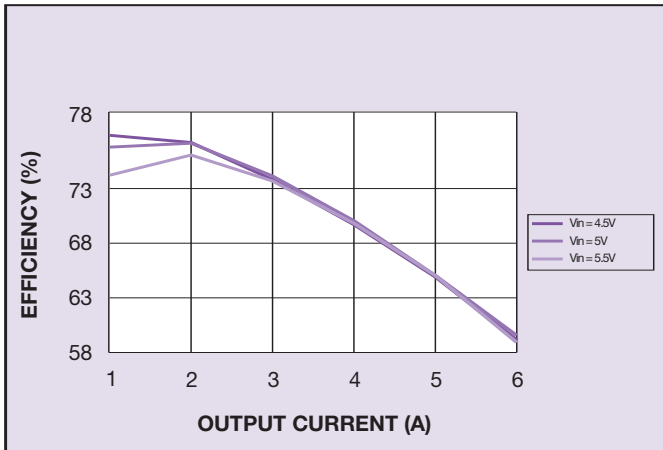


Figure 3: Efficiency when Sinking

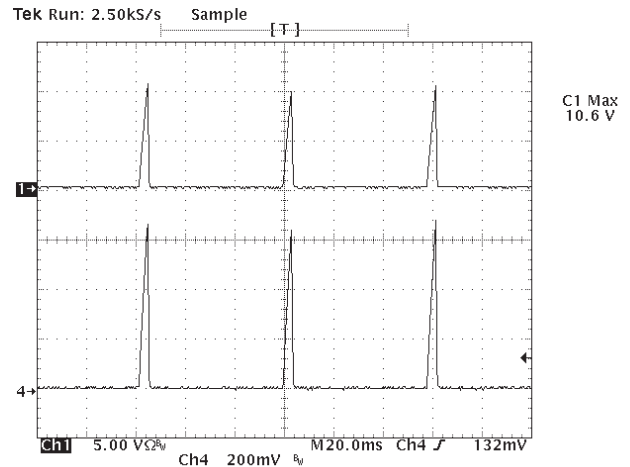


Figure 4: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

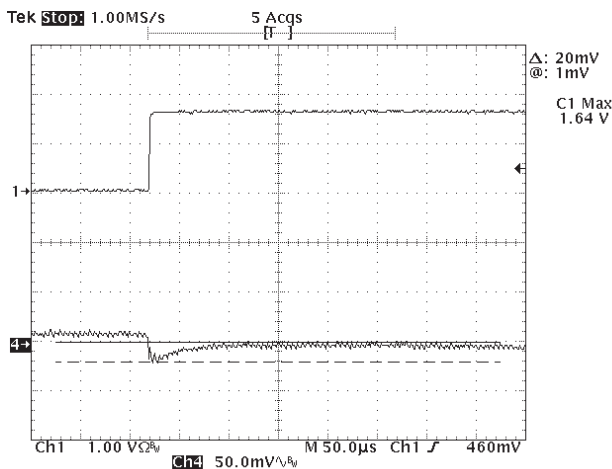


Figure 5: Transient Response 50-75% (Sinking) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

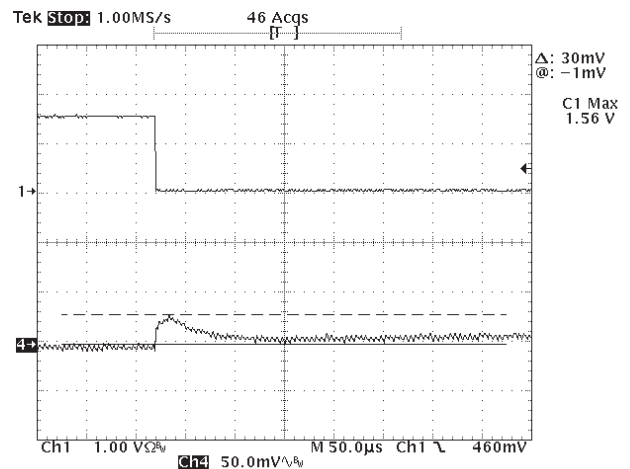


Figure 6: Transient Response 75-50% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

5V Model 0.9V Setpoint

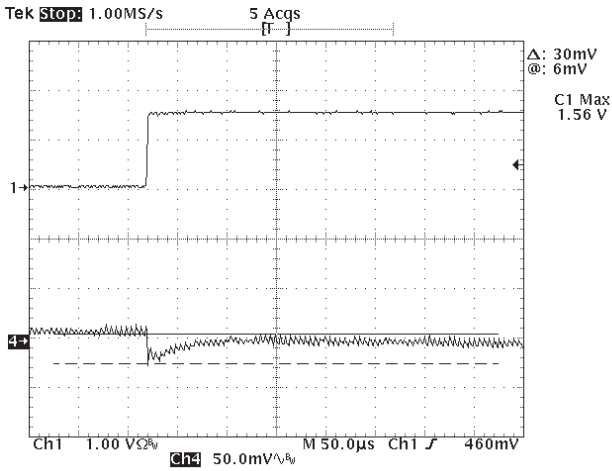


Figure 7: Transient Response 50 - 75% (Sinking)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

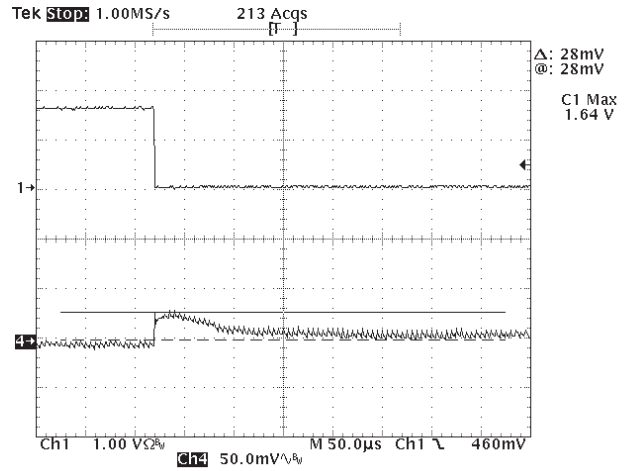


Figure 8: Transient Response 75 - 50% (Sourcing)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

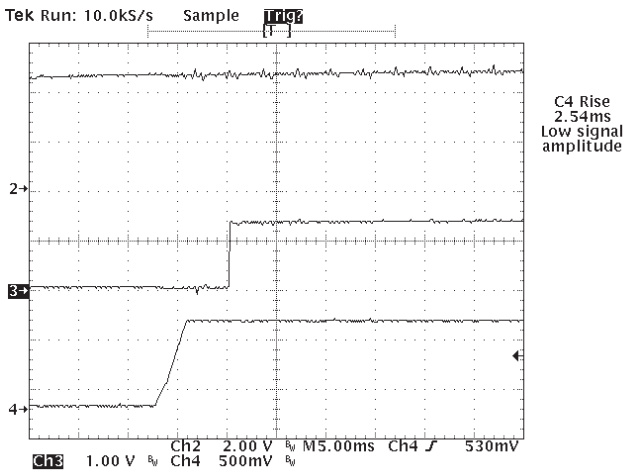


Figure 9: Typical Power Up  
(Channel 2: DC Input, Channel 3: Power Good  
Channel 4: Output Voltage)

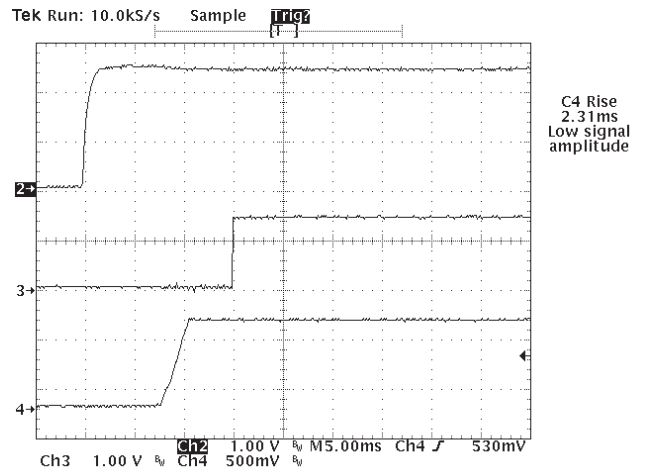


Figure 10: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good  
Channel 4: Output Voltage)

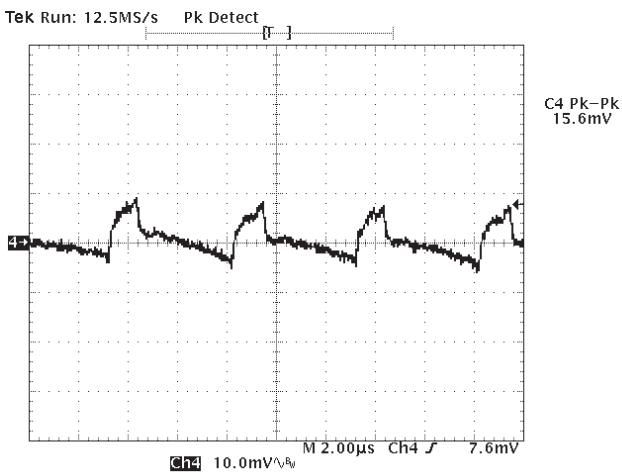


Figure 11: Typical Ripple and Noise



5V Model 1.8V Setpoint

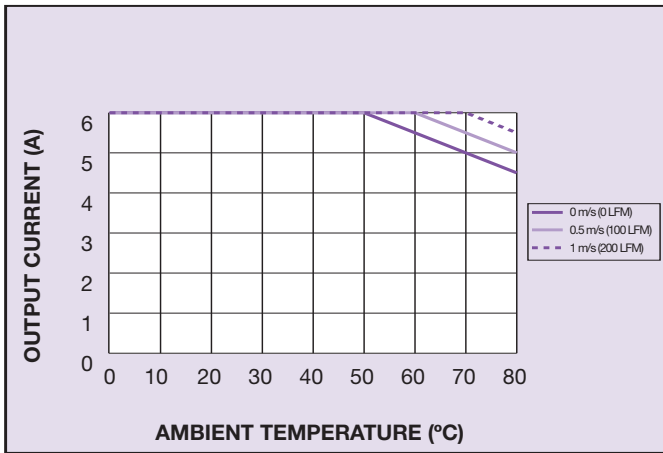


Figure 12: Thermal De-rating Curve

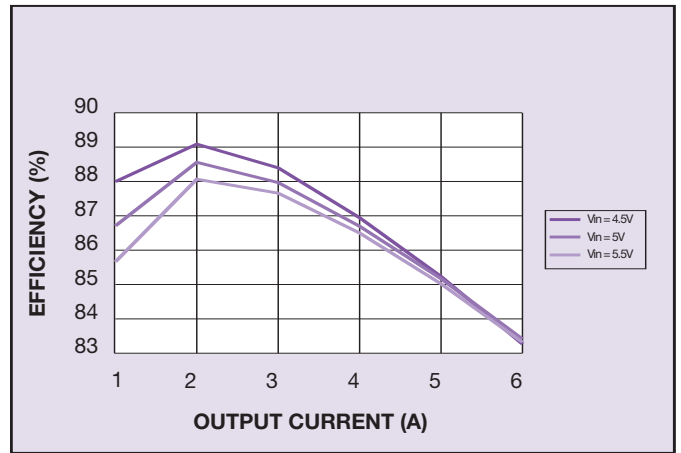


Figure 13: Efficiency when Sourcing

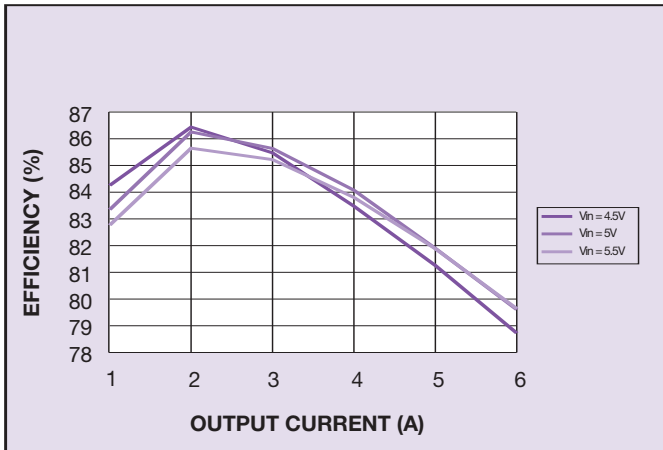


Figure 14: Efficiency when Sinking

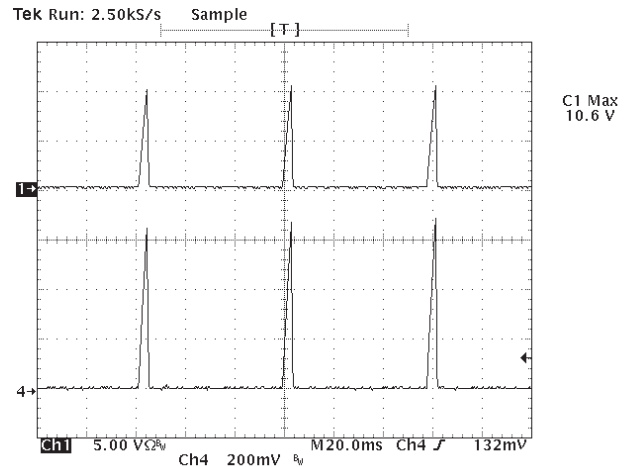


Figure 15: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

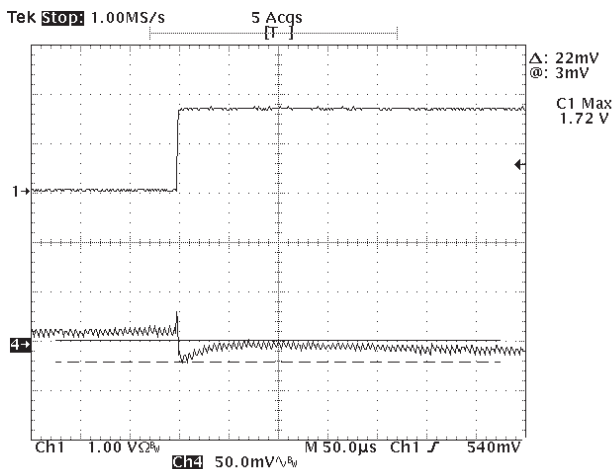


Figure 16: Transient Response 50-75% (Sinking) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

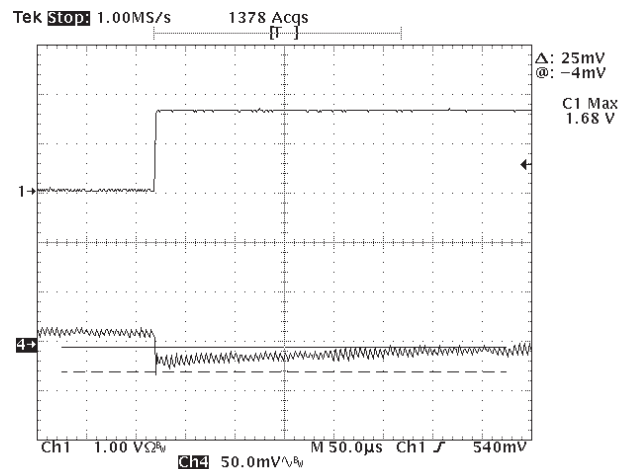


Figure 17: Transient Response 50-75% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

5V Model 1.8V Setpoint

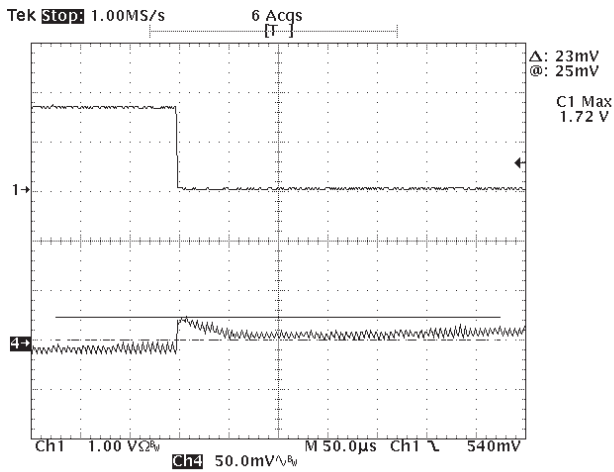


Figure 18: Transient Response 75 - 50% (Sinking)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

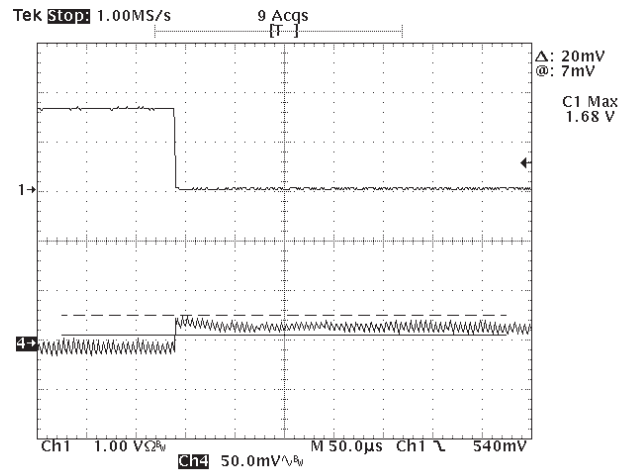


Figure 19: Transient Response 75 - 50% (Sourcing)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

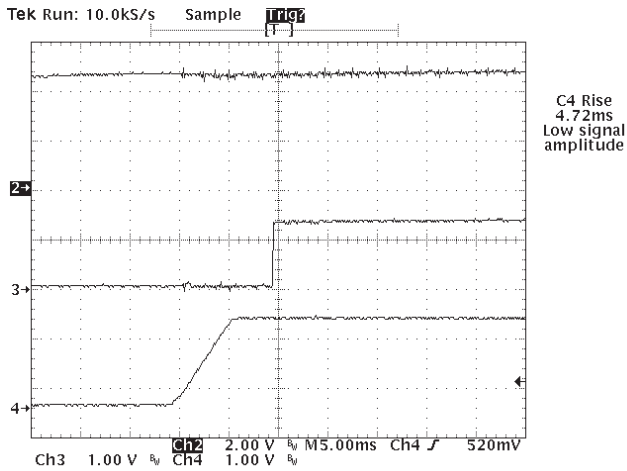


Figure 20: Typical Power Up  
(Channel 2: DC Input, Channel 3: Power Good  
Channel 4: Output Voltage)

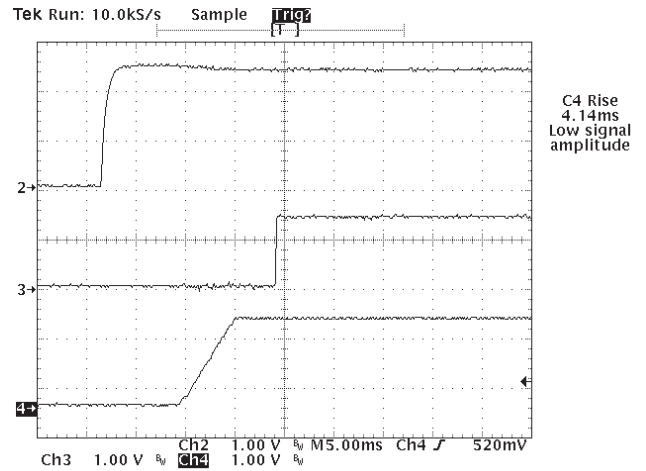


Figure 21: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good  
Channel 4: Output Voltage)

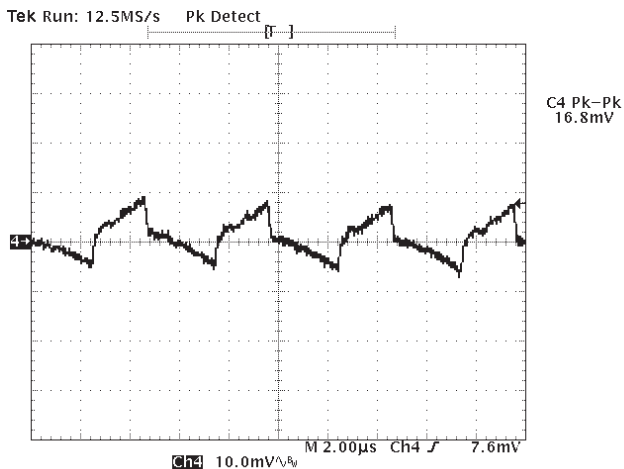


Figure 22: Typical Ripple and Noise

5V Model 3.3V Setpoint

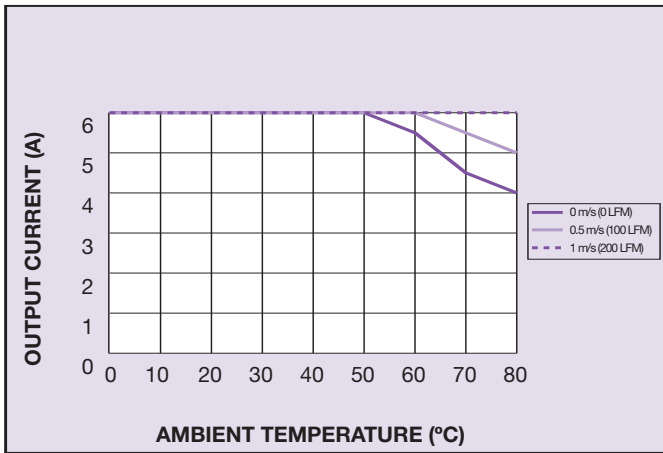


Figure 23: Thermal De-rating Curve

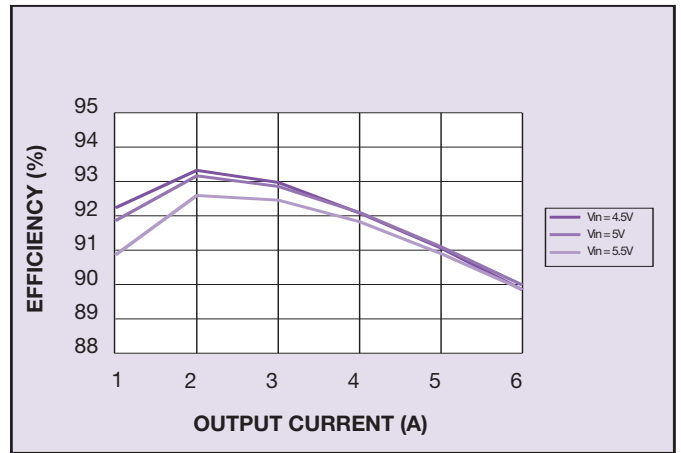


Figure 24: Efficiency when Sourcing

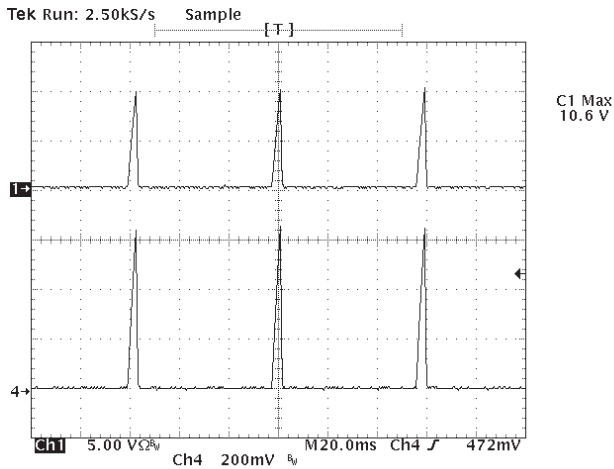


Figure 25: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

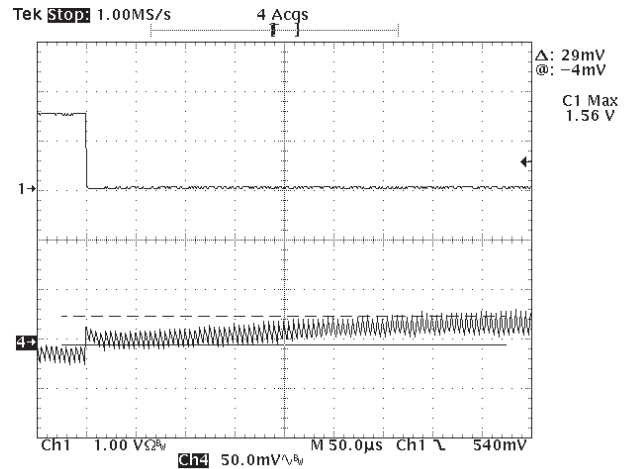


Figure 26: Transient Response 50-75% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

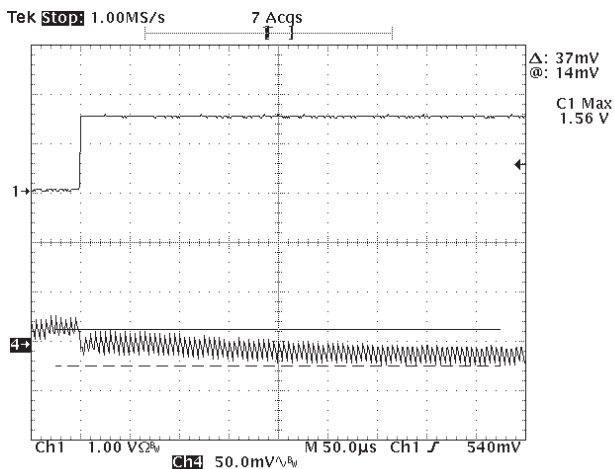


Figure 27: Transient Response 75 - 50% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

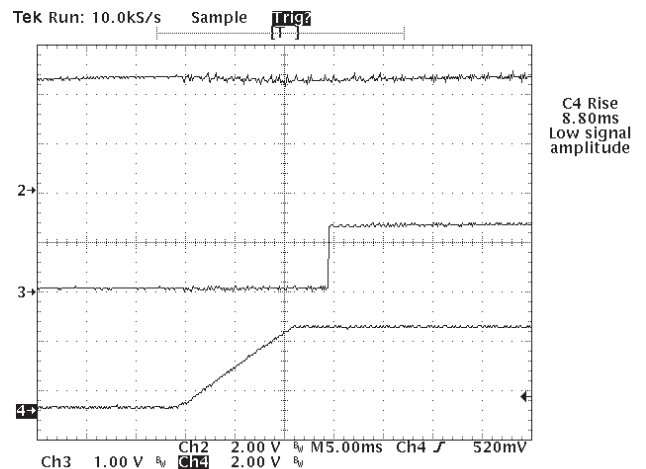


Figure 28: Typical Power Up (Channel 2: DC Input, Channel 3: Power Good Channel 4: Output Voltage)

5V Model 3.3V Setpoint

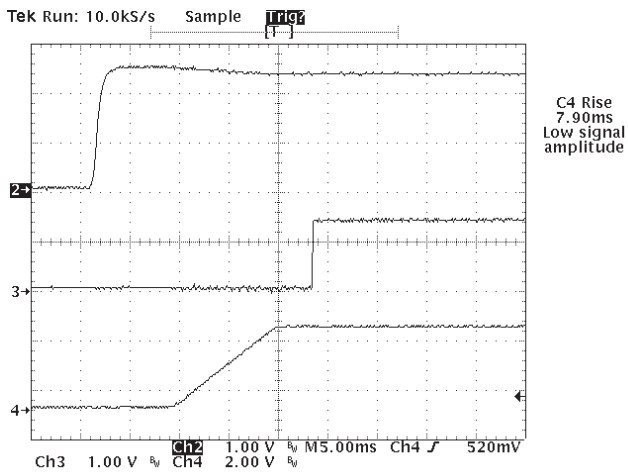


Figure 29: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good  
Channel 4: Output Voltage)

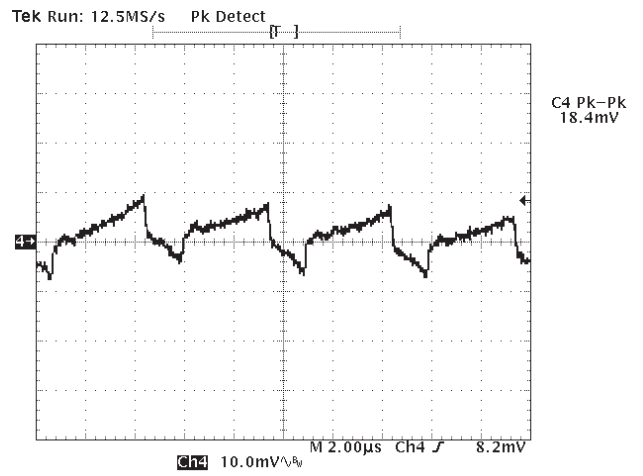


Figure 30: Typical Ripple and Noise

12V Model 0.9V Setpoint

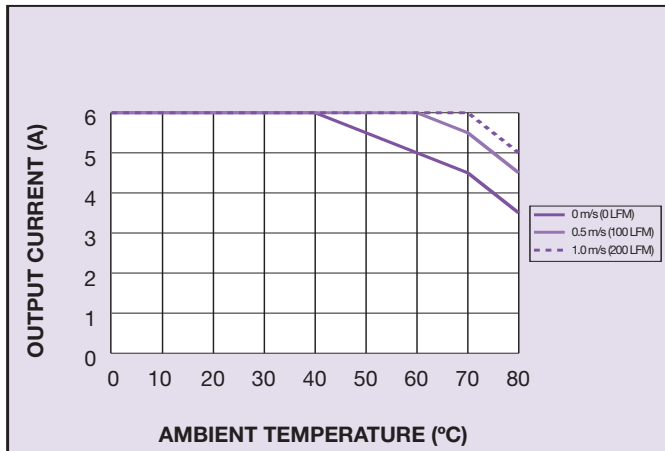


Figure 31: Thermal De-rating Curve

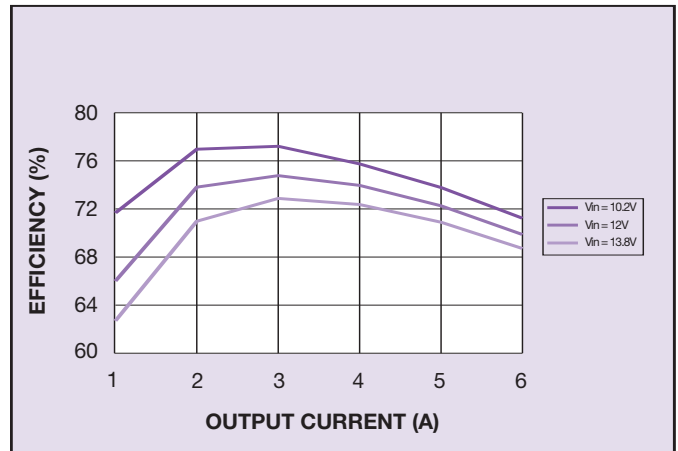


Figure 32: Efficiency when Sourcing

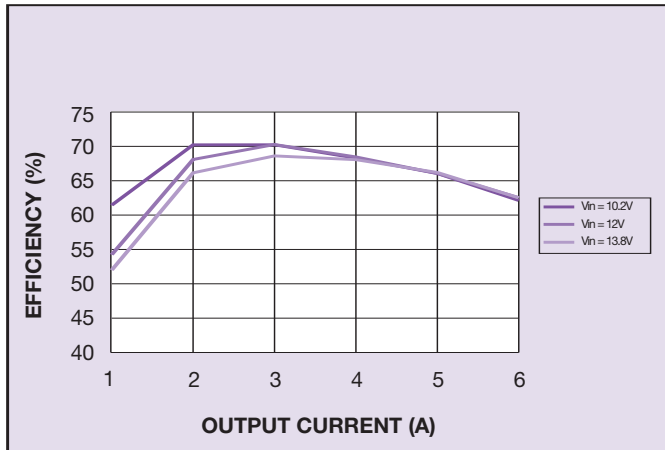


Figure 33: Efficiency when Sinking

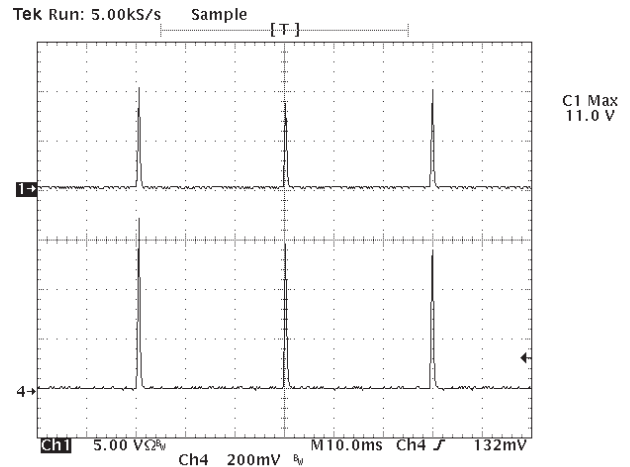


Figure 34: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

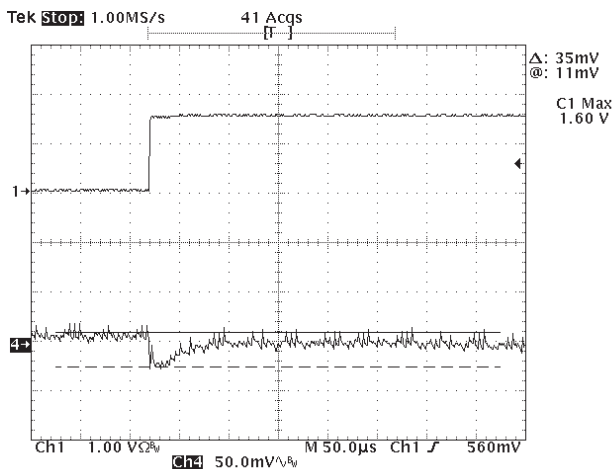


Figure 35: Transient Response 50-75% (Sinking) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

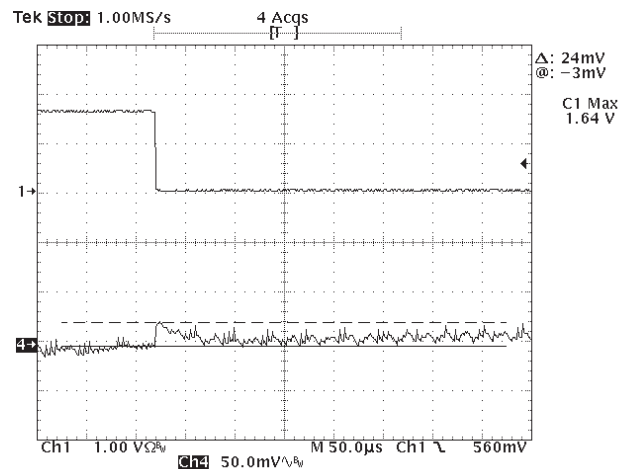


Figure 36: Transient Response 75-50% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

12V Model 0.9V Setpoint

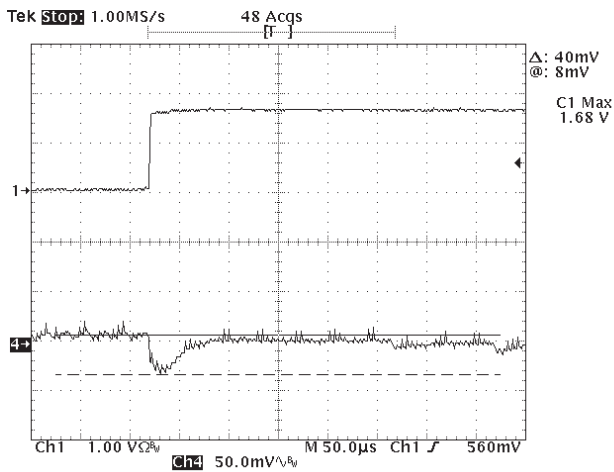


Figure 37: Transient Response 50 - 75% (Sinking)  
(Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

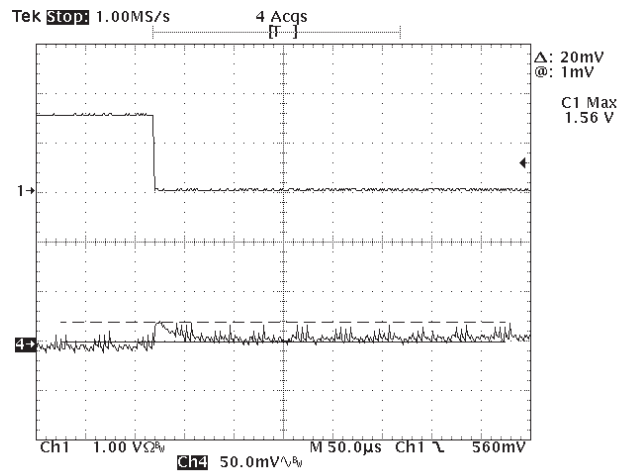


Figure 38: Transient Response 75 - 50% (Sourcing)  
(Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

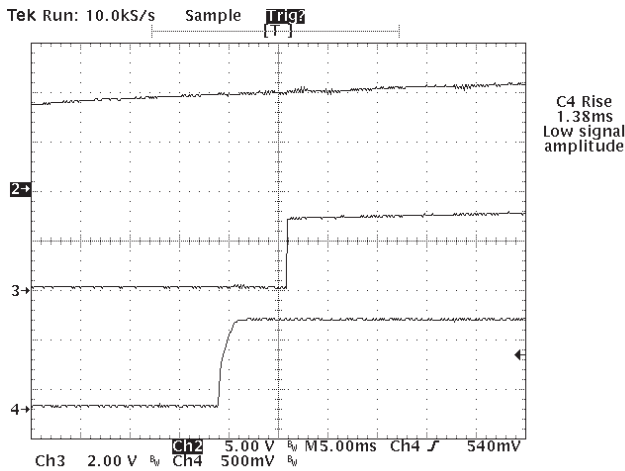


Figure 39: Typical Power Up  
(Channel 2: DC Input, Channel 3: Power Good Channel 4: Output Voltage)

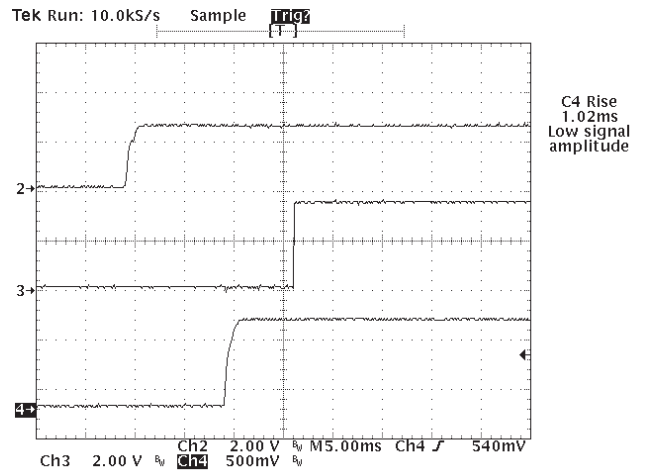


Figure 40: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good Channel 4: Output Voltage)

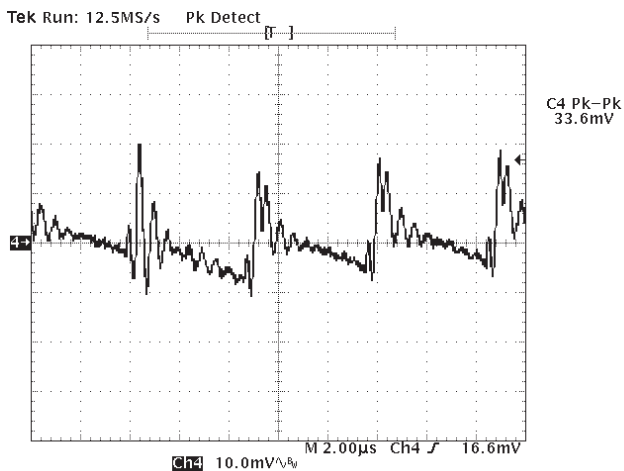


Figure 41: Typical Ripple and Noise

12V Model 2.5V Setpoint

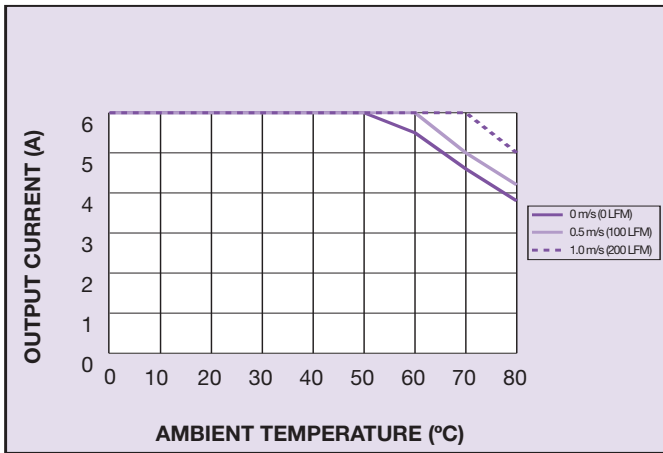


Figure 42: Thermal De-rating Curve

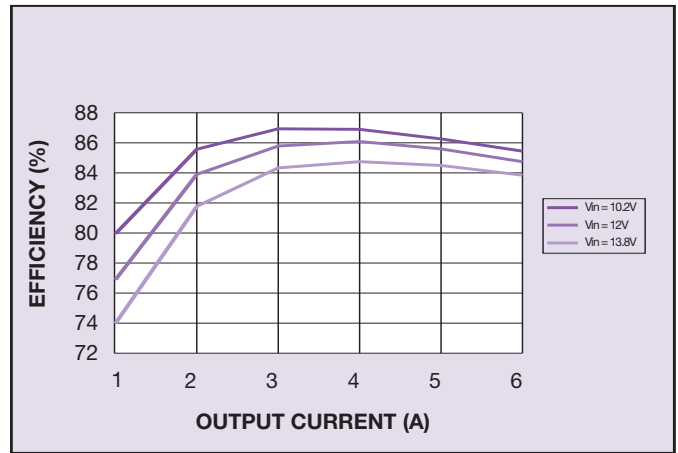


Figure 43: Efficiency when Sourcing

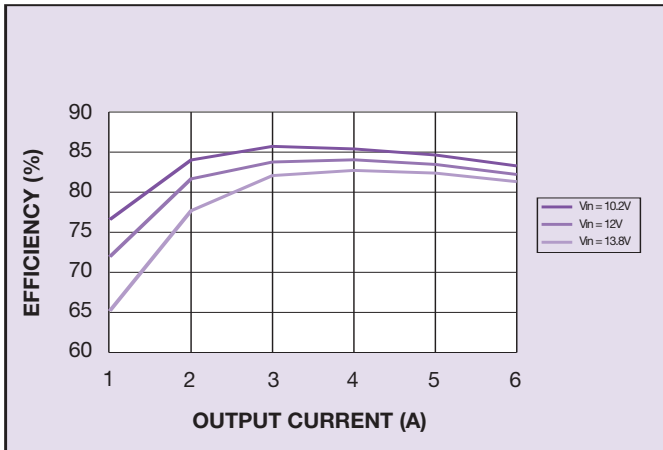


Figure 44: Efficiency when Sinking

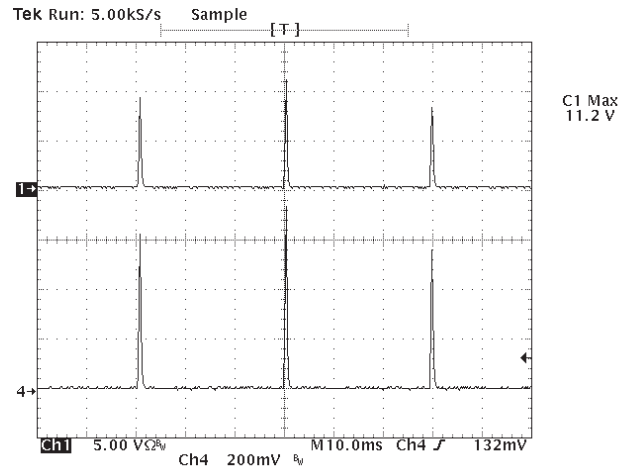


Figure 45: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

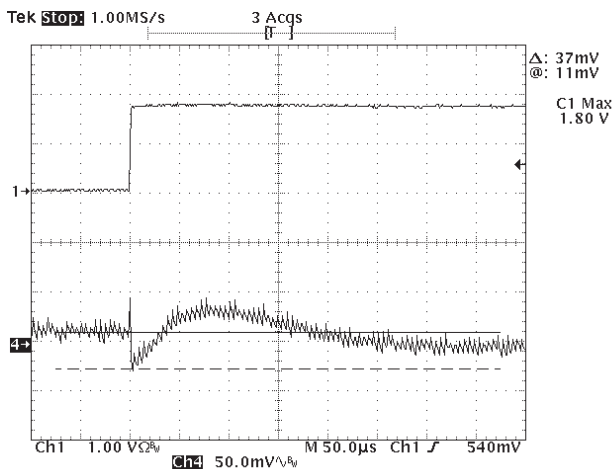


Figure 46: Transient Response 50-75% (Sinking) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

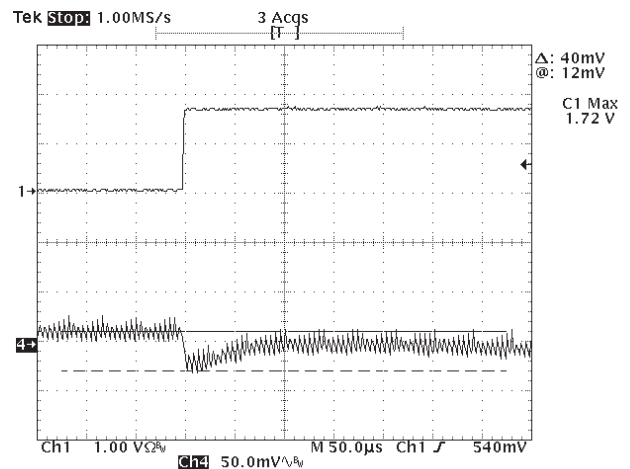


Figure 47: Transient Response 50-75% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

12V Model 2.5V Setpoint

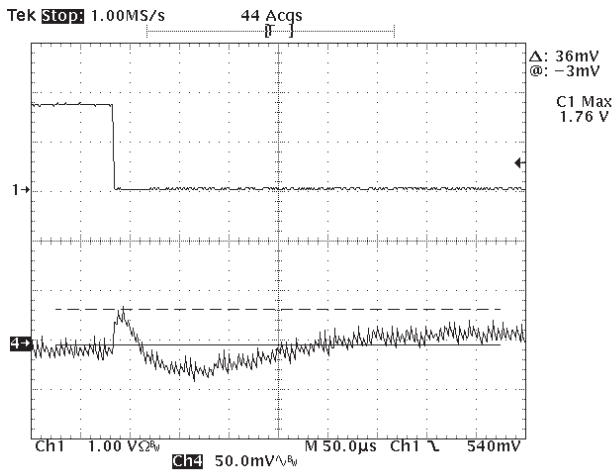


Figure 48: Transient Response 75 - 50% (Sinking)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

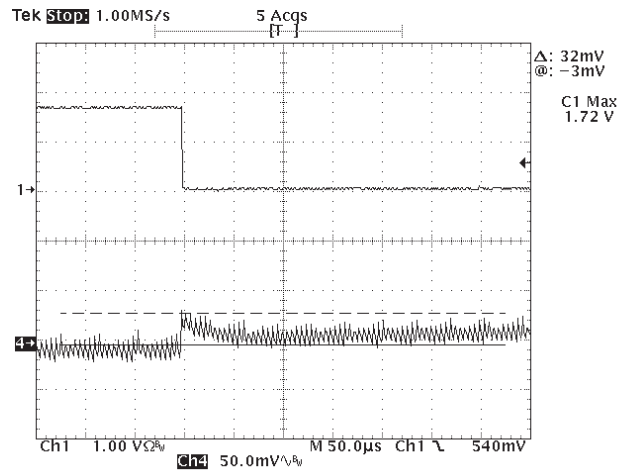


Figure 49: Transient Response 75 - 50% (Sourcing)  
(Channel 1: Current load step at 1A/div,  
Channel 4: Output Voltage deviation)

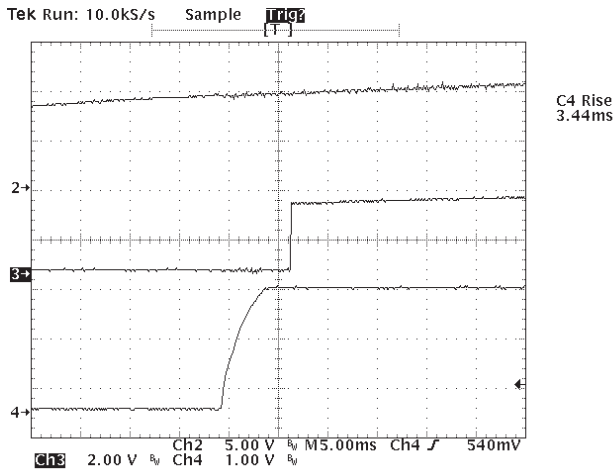


Figure 50: Typical Power Up  
(Channel 2: DC Input, Channel 3: Power Good  
Channel 4: Output Voltage)

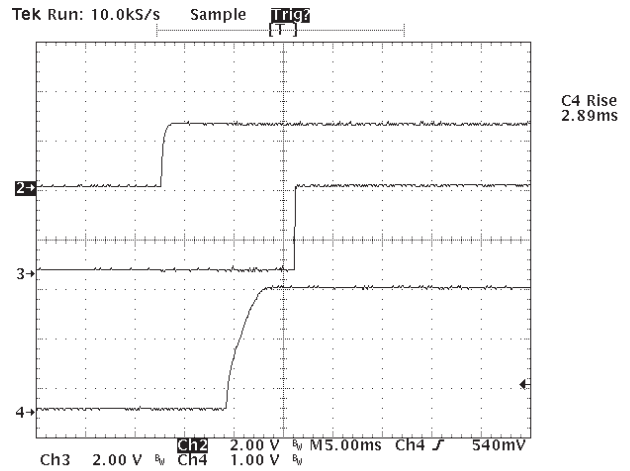


Figure 51: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good  
Channel 4: Output Voltage)

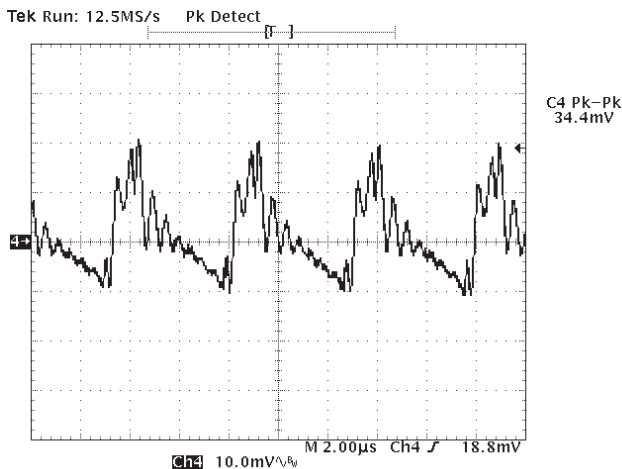


Figure 52: Typical Ripple and Noise



12V Model 5V Setpoint

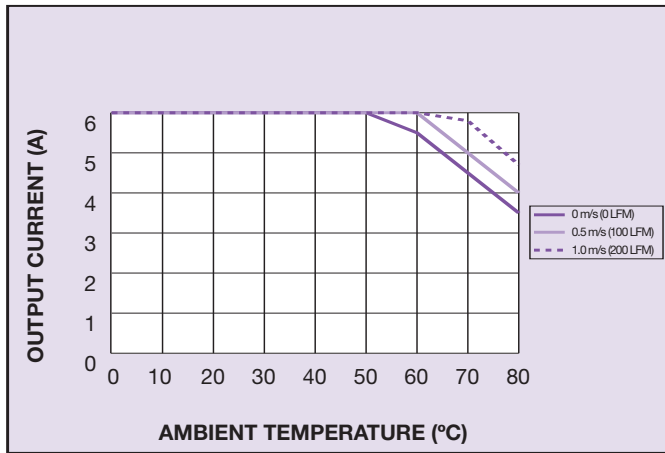


Figure 53: Thermal De-rating Curve

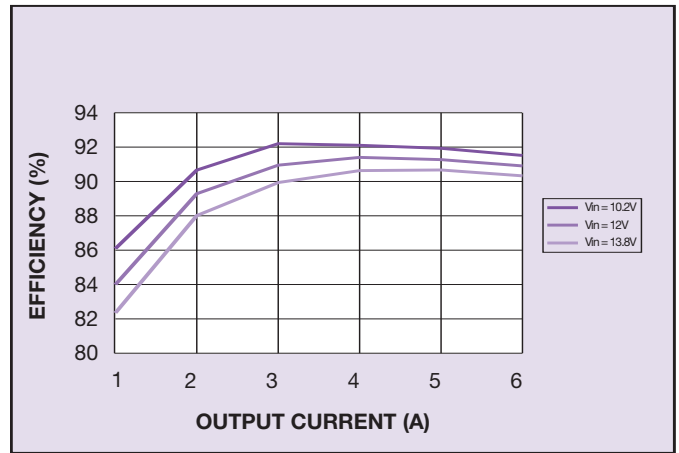


Figure 54: Efficiency when Sourcing

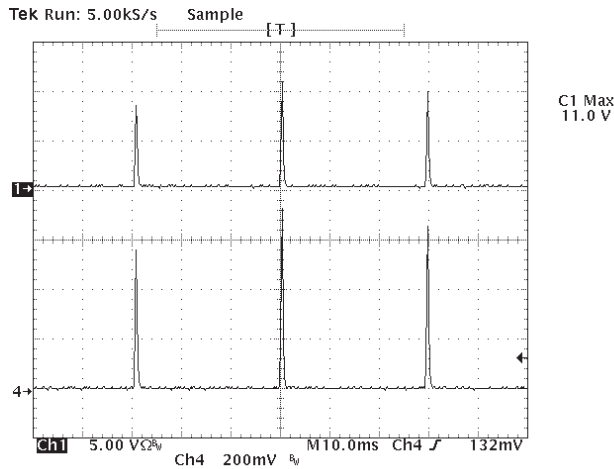


Figure 55: Short Circuit Characteristic (Channel 1: Output Current at 5A/div, Channel 4: Output Voltage)

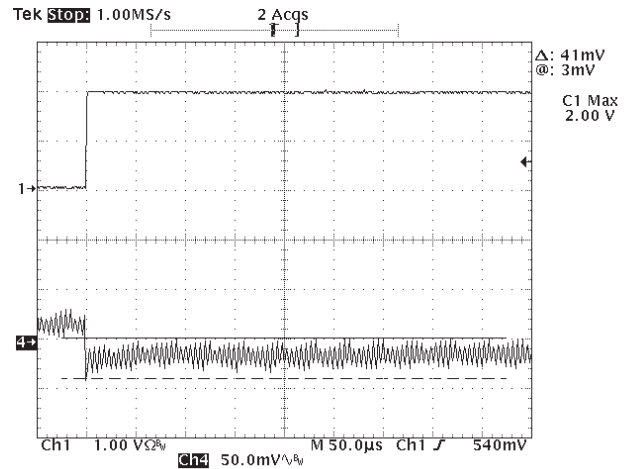


Figure 56: Transient Response 50-75% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

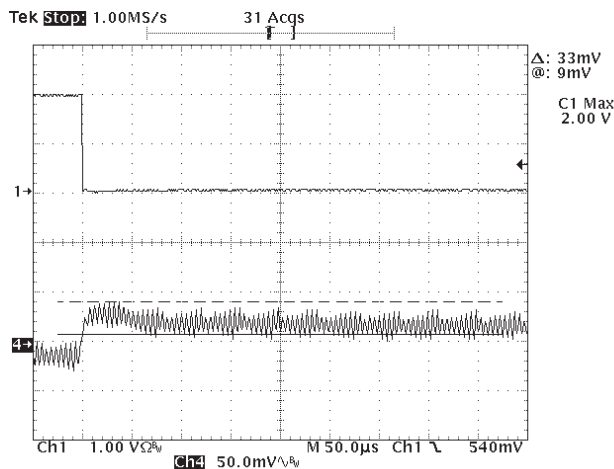


Figure 57: Transient Response 75 - 50% (Sourcing) (Channel 1: Current load step at 1A/div, Channel 4: Output Voltage deviation)

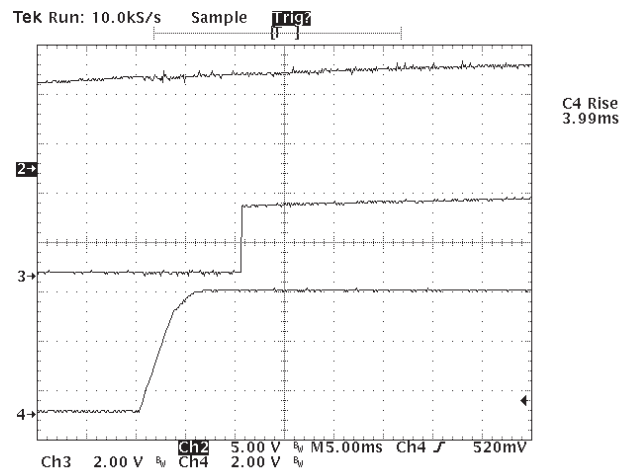


Figure 58: Typical Power Up (Channel 2: DC Input, Channel 3: Power Good Channel 4: Output Voltage)

12V Model 5V Setpoint

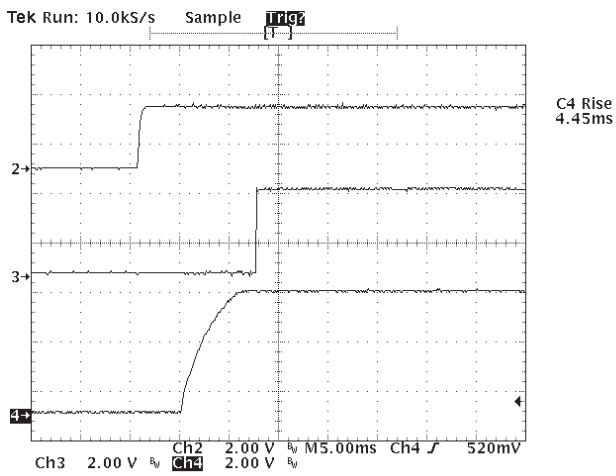


Figure 59: Control On/Off  
(Channel 2: Remote ON/OFF, Channel 3: Power Good  
Channel 4: Output Voltage)

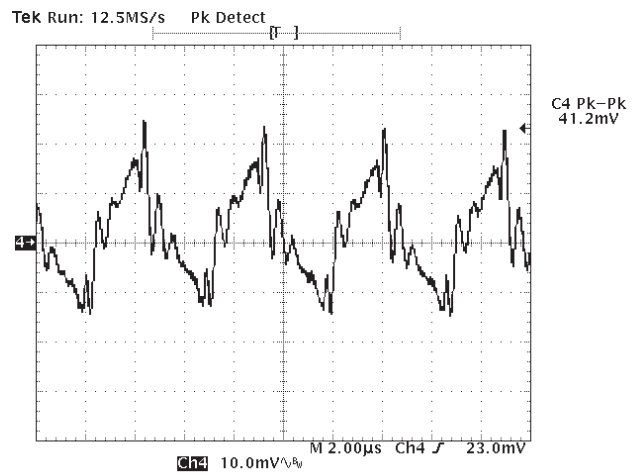
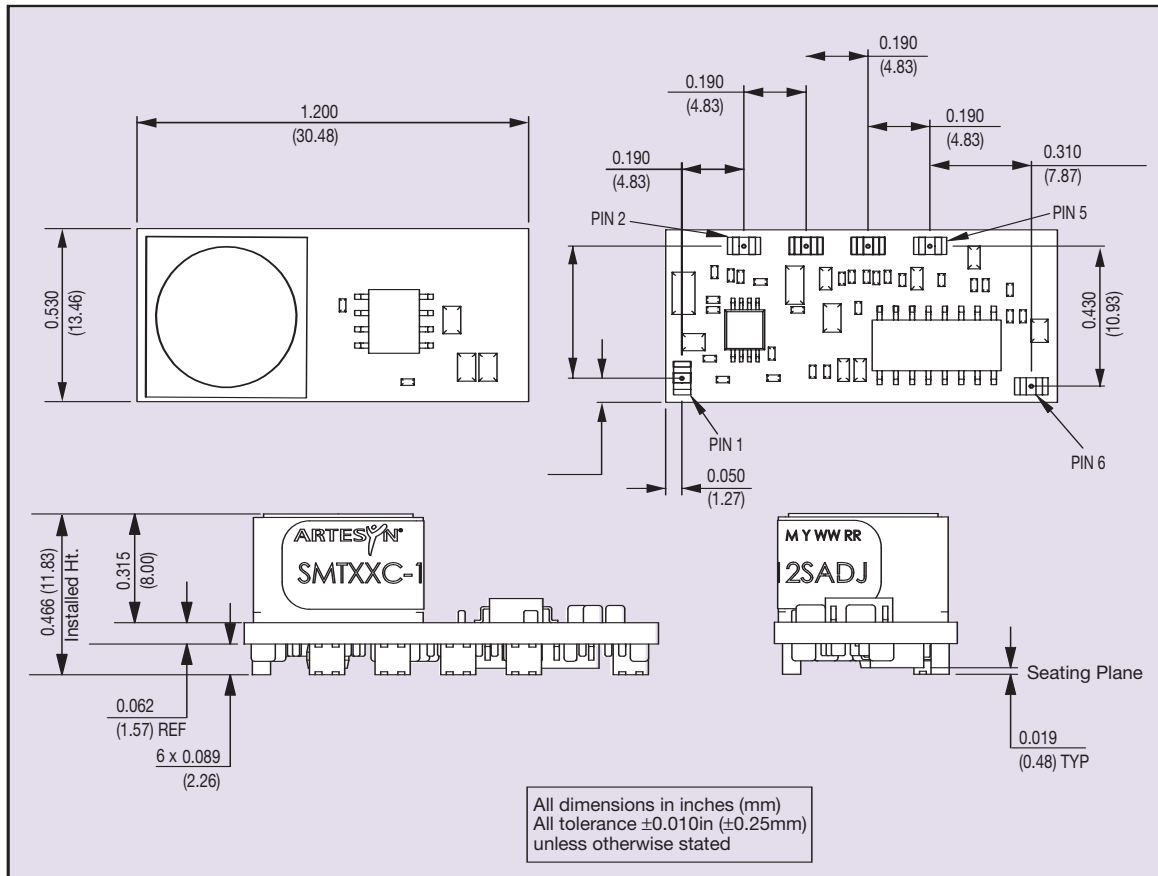


Figure 60: Typical Ripple and Noise



Pin Connections	
Pin No.	Function
1	Remote ON/OFF
2	Power Good
3	Trim
4	Vout
5	Gnd
6	Vin

Figure 61: Mechanical Drawing and Pin Connections

**Note 1**

Thermal reference point is defined as the highest temperature measured at any one of the specified thermal reference points. Refer to Section 7.2 of Application Note 169 for more details.

**Note 2**

The control pin is referenced to Ground

**Note 3**

The SMT06C is supplied as standard with Positive Logic.  
Control input pulled low: Unit Disabled  
Control input left open: Unit Enabled

**Note 4**

Thermal reference set-up: Unit mounted on an edge card test board 215mm x 115mm. Test board mounted vertically. For test details and recommended set-up see Application Note 169.

**Note 5**

3-200Hz, sweep at 1/2 octave/min from low to high frequency, and then from high to low. Thirty minute dwell at all resonant points.

**CAUTION:** Hazardous internal voltages and high temperatures. Ensure that unit is accessible only to trained personnel. The user must provide the recommended fusing in order to comply with safety approvals.

**NORTH AMERICA**e-mail: [sales.us@artesyn.com](mailto:sales.us@artesyn.com)☎ 800 769 7274  
☎ +508 628 5600**EUROPEAN LOCATIONS**e-mail: [sales.europe@artesyn.com](mailto:sales.europe@artesyn.com)**IRELAND**

☎ +353 24 93130

**AUSTRIA**

☎ +43 1 80150

**FAR EAST LOCATIONS**e-mail: [sales.asia@artesyn.com](mailto:sales.asia@artesyn.com)**HONG KONG**

☎ +852 2699 2868

Longform Datasheet © Artesyn Technologies® 2005

The information and specifications contained in this datasheet are believed to be correct at time of publication. However, Artesyn Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.