FUNCTIONAL DESCRIPTION

The ASPL8801 series is a CMOS-based positive low-dropout linear regulator (LDO) featuring 500 mA/ 1.0A that provides high PSRR, high output voltage accuracy, low-noise and low supply current

It consists of a voltage reference, an error amplifier, a resistor-ladder for output voltage setting. It also has under-voltage lockout (UVLO), over current/short circuit protection circuit and over temperature shutdown circuit.

The ASPL8801 typically has 90mV dropout voltage (TDFN2020-6,Iout=500mA,Vout=1.8V) and 180mA dropout voltage (TDFN2020-6, Iout=1A, Vout=1.8V) and chip enable function (EN) for long battery life.

Excellent ripple rejection, load transient and line transient response make it ideal for the power sources of mobile communication devices or camera modules in low light condition. It can also turn on under full load condition, making it suitable for harsh system environment.

The ASPL8801 series LDOs have option for output current limit between 1.0A or 500mA by alternating the LCON pin between "H" or "L" for TDFN2020-6 package version.

MAIN FEATURES

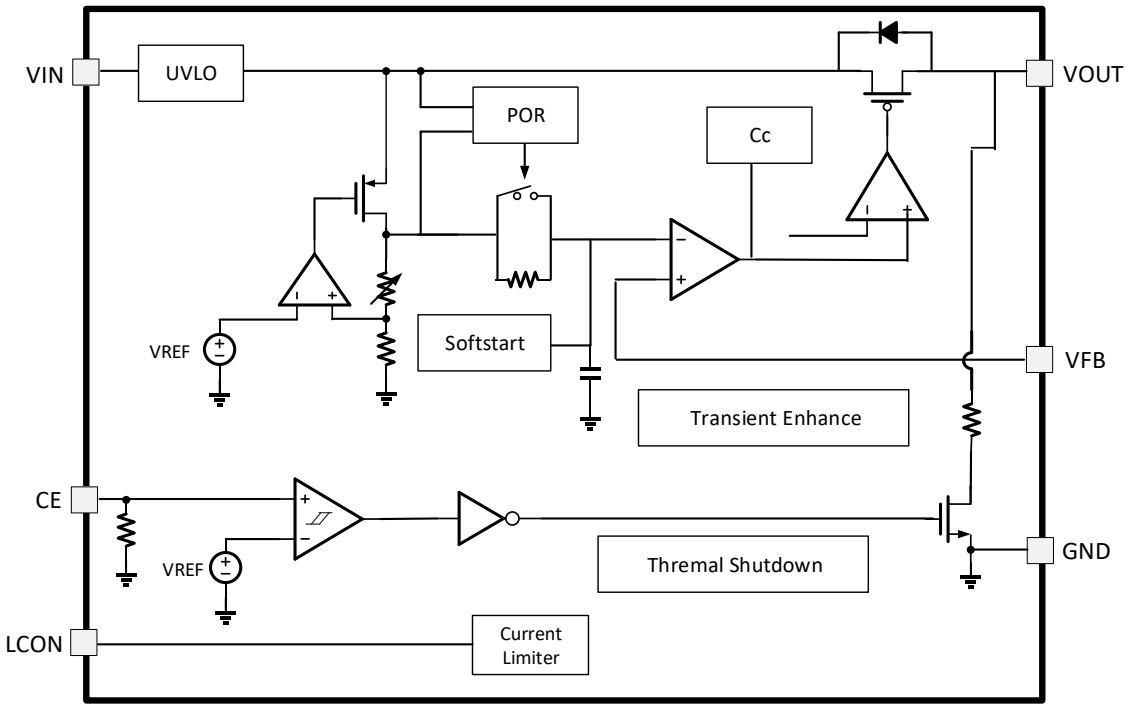
- Supply Current (no load) : 85μA (typ.)
- Supply Current (Standby) : 0.1μA (typ.)
- Dropout Voltage: 156mV(TDFN2020-6, Iout=1A, Vout=1.8V, typ.)
- High-PSRR
  95dB (f=5kHz, Iout=10mA, lower Vout)
  85dB (f=5kHz, Iout=150mA, lower Vout)
- Output Noise: 10μVrms (10-100KHz, 0.85V output voltage settings, typ.)
- Line Regulation: 0.01%/V
- Fixed Mode Voltage Range: 0.85V to 4.3V with 0.05V step.
- Adjustable Mode Voltage Range: 0.85V to 4.3V.
- Built-in Short Current Protection Limit: 120mA (LCON='H', 1.0A, typ.)
- Bulit-in Peak Current Protection Limit: 1.7A (LCON='H', 1.0A, typ.)
- Over Temperature Protection and Auto Recover
- Built-in Soft-Start and Inrush Current Limit
- Fast Auto Discharge Function for Power Down

APPLICATIONS

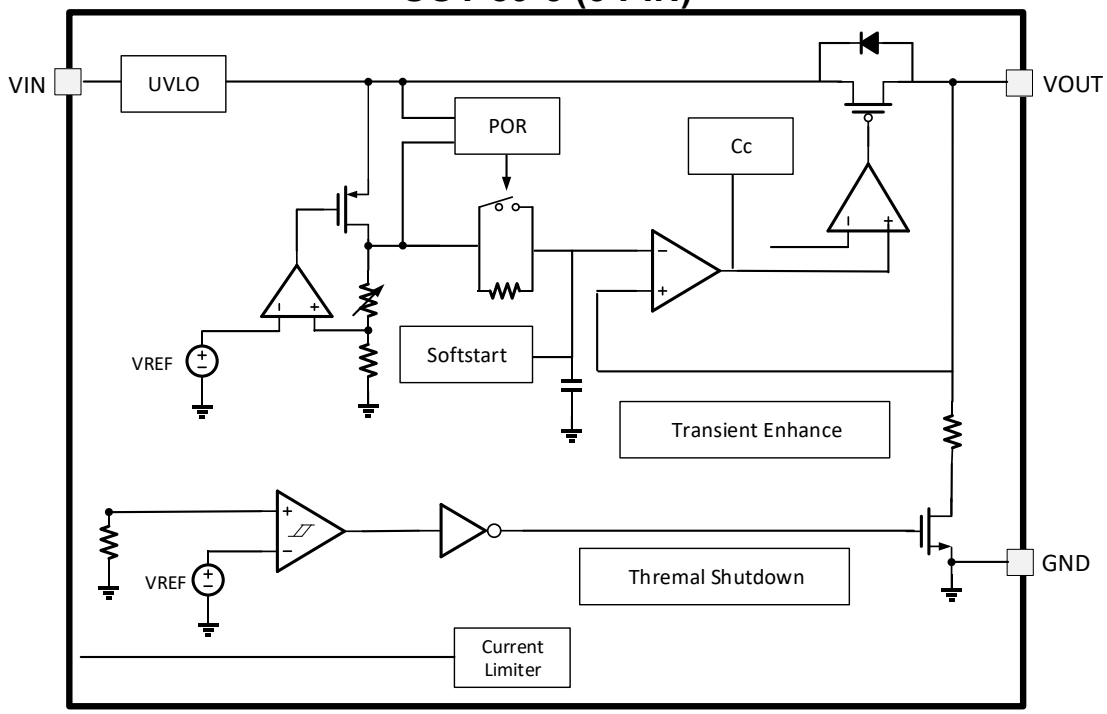
- Portable Device , Tablets and Smartphone
- Cameras, VCRs and Car Dash Cameras
- Low Light & Low Noise Cam Application
- Communications and Infrastructure
- AR or VR Application

BLOCK DIAGRAMS

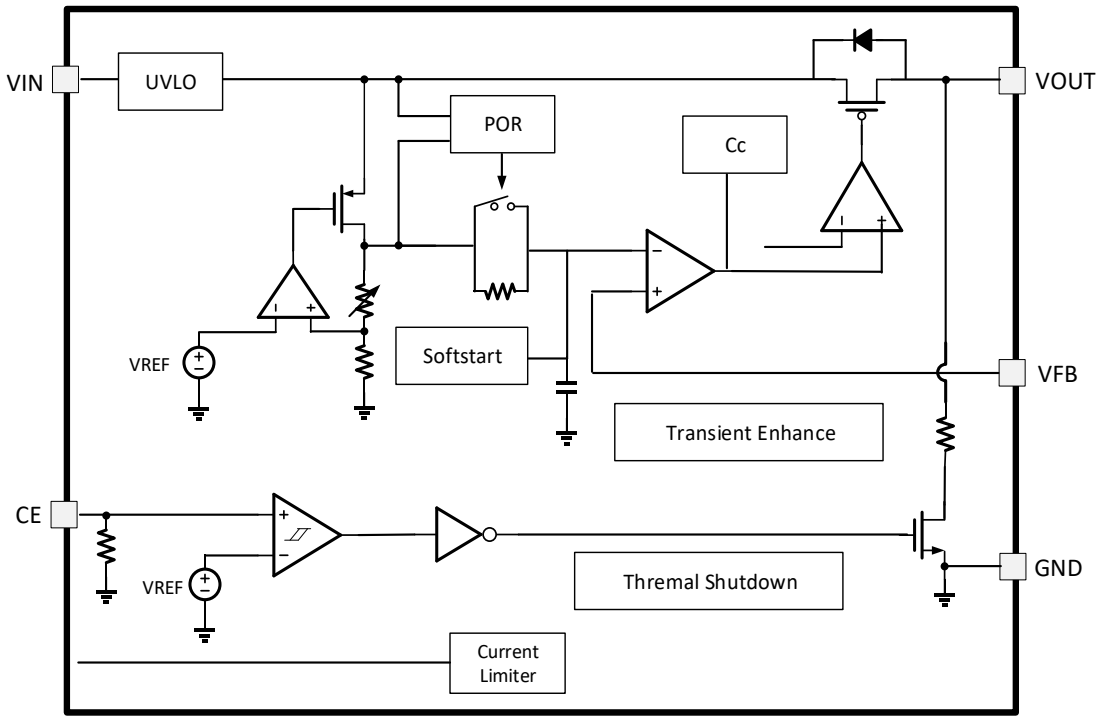
TDFN2020-6 (6 PIN)



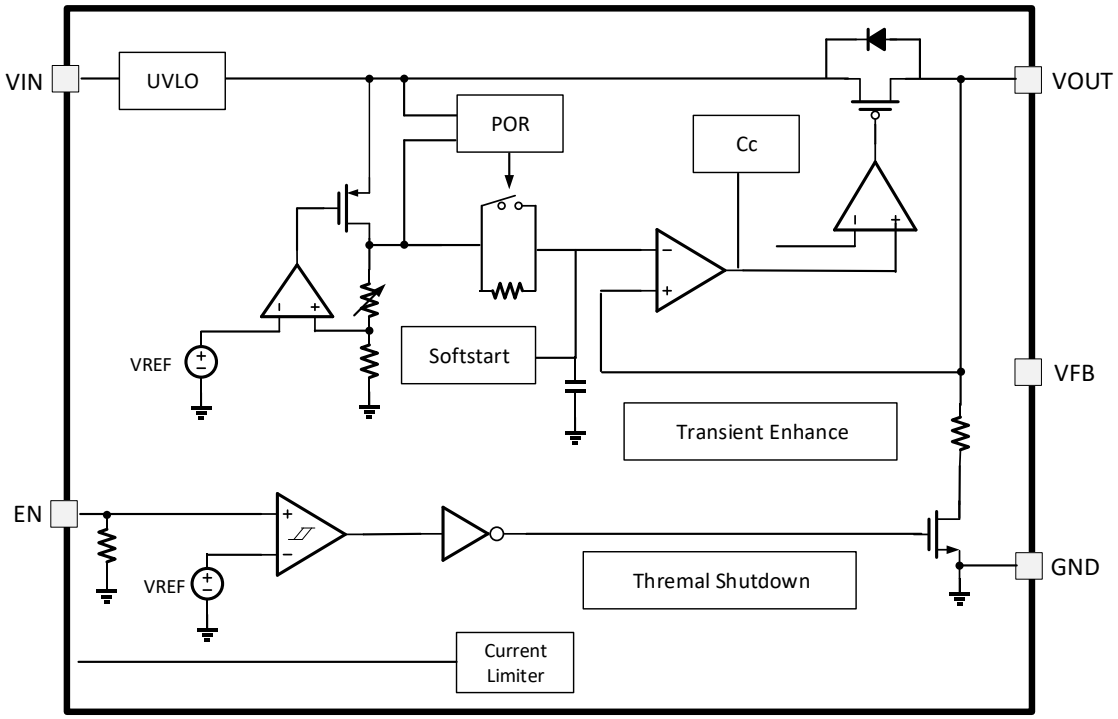
SOT-89-3 (3 PIN)



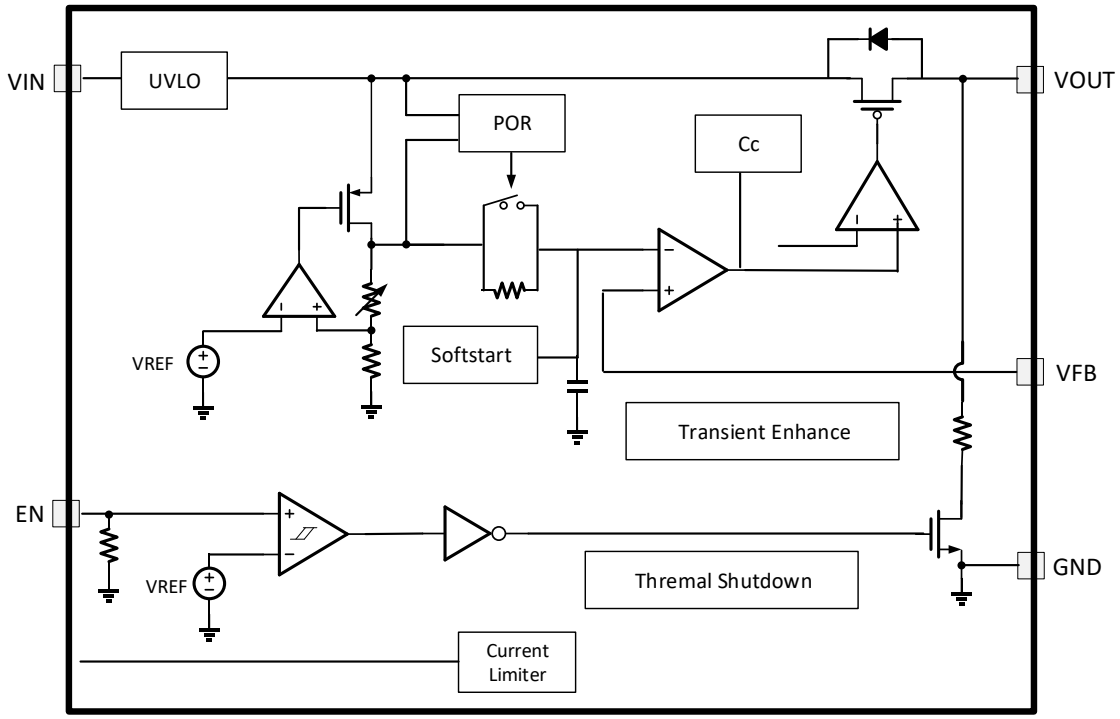
SOT-89-5 (5 PIN)



SOT-23-5 Fixed Mode (5 PIN)



SOT-23-5 ADJ Mode (5 PIN)



It is not recommended to use the 1A version of the SOT-23-5 package

SELECTION GUIDE

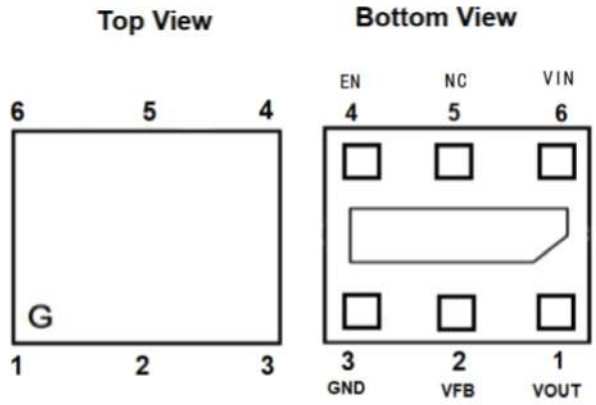
Product Name :ASPL8801-*xxx-P*

- xxx = Output Voltage ➔120=1.2V , 330=3.3V , 085=0.85V
- P: Package ➔ TH=TDFN2020-6 ; DI=SOT89-3 ; ZD=SOT23-5 fixed mode, ZD= SOT23-5 adj mode

(ASPL8801 series LDOs offer VOUT voltage available in 0.85V~4.30V with 0.05V step)

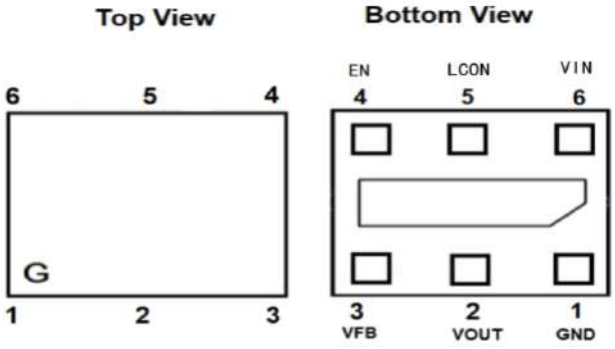
e.g. ASPL8801-120-TH ➔ Original Version. Output voltage=1.2V, TDFN2020-6 package.

PACKAGE INFORMATION & PIN DESCRIPTION



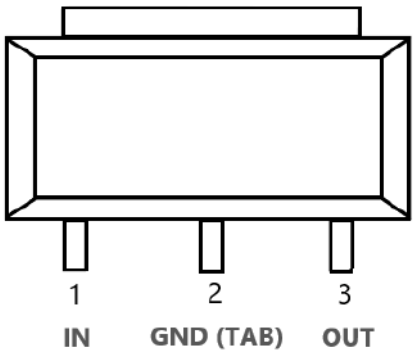
TDFN2020-6 Pin Configuration

PIN No	Symbol	Pin Description
1	VOUT	Output Pin
2	VFB	Feedback Pin. In Adj mode, this is used to set VOUT
3	GND	Ground Pin
4	EN	Chip Enable Pin
5	NC	Normally Close
6	VIN	Input Pin
Exposed Pad	left open or connected to common ground	Connect to PCB metal area for heatsink purposes



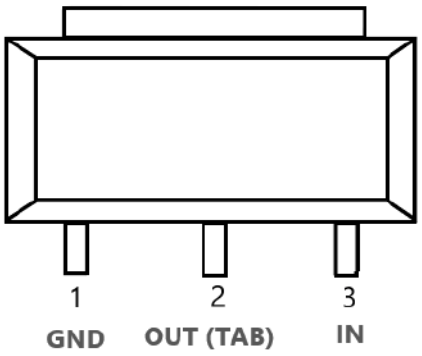
TDFN2020-6 Pin Configuration

PIN No	Symbol	Pin Description
1	GND	Ground Pin
2	VOUT	Output Pin
3	VFB	Feedback Pin. In Adj mode, this is used to set VOUT
4	EN	Chip Enable Pin
5	LCON	Output Current Limit Alternate Pin
6	VIN	Input Pin
Exposed Pad	left open or connected to common ground	Connect to PCB metal area for heatsink purposes



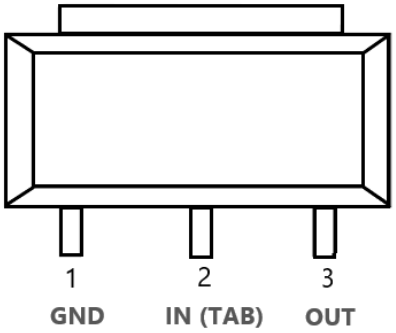
SOT-89-3-AFT

PIN No	Symbol	Pin Description
1	VIN	Input Pin
2	GND (TAB)	Ground Pin
3	OUT	Output Pin



SOT-89-3-BFT

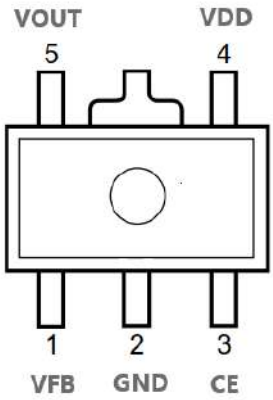
PIN No	Symbol	Pin Description
1	GND	Ground Pin
2	OUT (TAB)	Output Pin
3	VIN	Input Pin



SOT-89-3-CFT

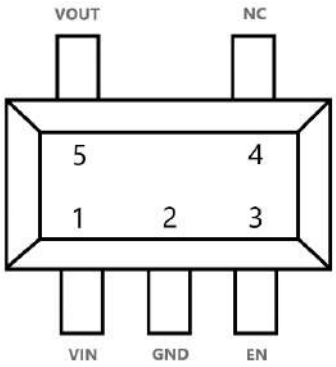
Pin Configuration

PIN No	Symbol	Pin Description
1	GND	Ground Pin
2	VIN (TAB)	Input Pin
3	OUT	Output Pin



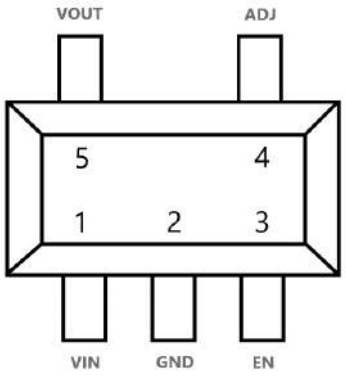
SOT-89-5 Pin Configuration

PIN No	Symbol	Pin Description
1	VFB	Feedback Pin. In Adj mode, this is used to set VOUT
2	GND	Ground Pin
3	CE	Chip Enable Pin
4	VDD	Input Pin
5	VOUT	Output Pin



SOT-23-5 Pin Configuration (Fixed Mode)

PIN No	Symbol	Pin Description
1	VIN	Input Pin
2	GND	Ground Pin
3	EN	Chip Enable Pin
4	NC	No Connection
5	VOUT	Output Pin

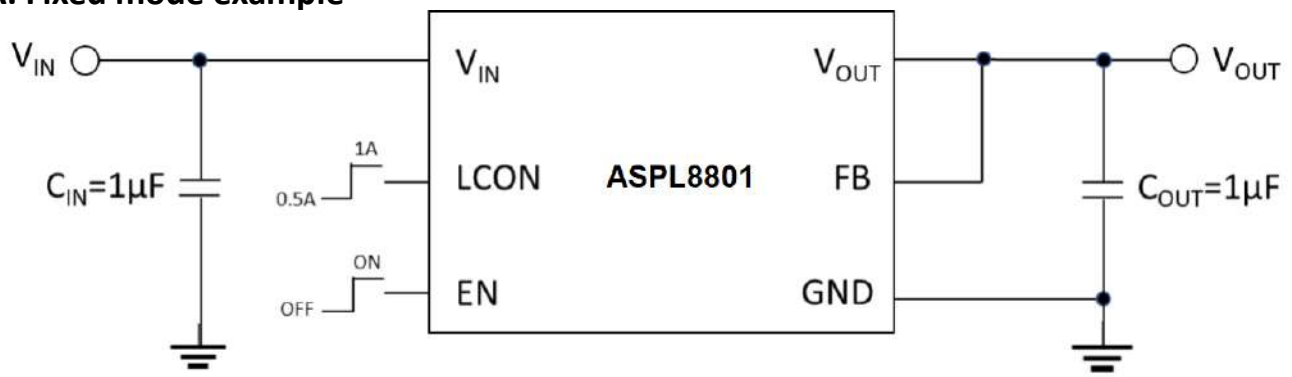


SOT-23-5 Pin Configuration (ADJ Mode)

PIN No	Symbol	Pin Description
1	VIN	Input Pin
2	GND	Ground Pin
3	EN	Chip Enable Pin
4	ADJ	ADJ Pin. In Adjustable mode, this is used to set VOUT
5	VOUT	Output Pin

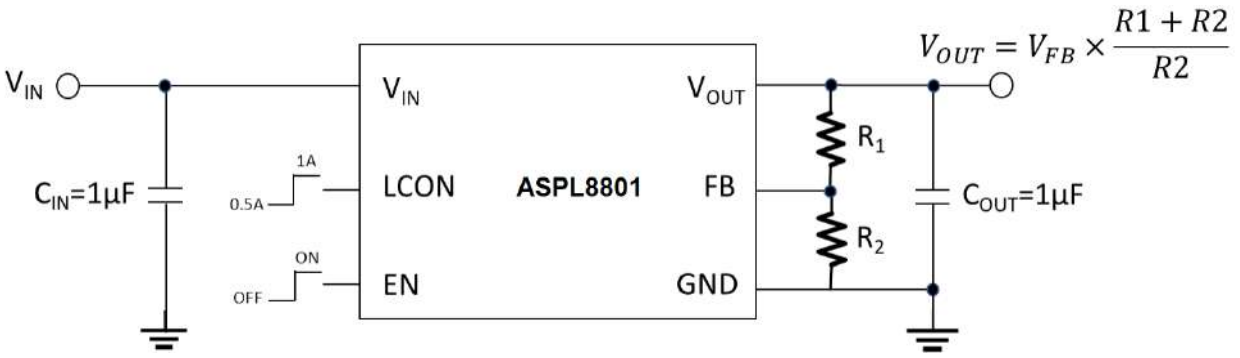
TYPICAL APPLICATION CIRCUIT

A. Fixed mode example



* Recommended Ceramic Capacitors for Vin and Vout: 1uF

B. Adjustable (ADJ) mode example



ABSOLUTE MAXIMUM RATINGS

Symbol	Item	Rating		Unit
V_{IN}	Input Voltage	6.0		V
V_{CE}	Input Voltage (CE Pin)	-0.3 to 6.0		V
V_{LCON}	Input Voltage (LCON Pin)	-0.3 to 6.0		V
V_{OUT}	Output Voltage	-0.3 to 6.0		V
P_D	Power Dissipation (Standard Land Pattern)	TDFN2020-6L	1400	mW
T_{OP}	Junction Temperature Range	−40 to 125		℃
T_{STG}	Storage Temperature Range	−55 to 125		℃

RECOMMENDED OPERATING CONDITIONS

Symbol	Item	Rating	Unit
V_{IN}	Input Voltage	1.32 to 5.5	V
V_{OUT}	Output Voltage	0.85 to 4.3	V
Ta	Operating Temperature Range	-40 to 85	℃
C_{IN}/C_{OUT}	Input/Output Capacitance	1/1	uF

ELECTROSTATIC DISCHARGE

Symbol	Parameter	Value	Unit
ESD	Human Body Mode	±4	kV
	Machine Mode	±250	V
	Charge Device Mode	±1000	V

THERMAL DATA

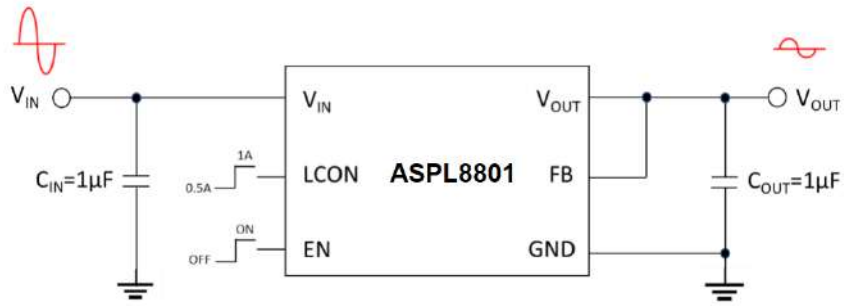
Symbol	Parameter	Value	Unit
θ_{JA}	Thermal resistance junction-ambient	80	℃/W

ELECTRICAL CHARACTERISTICS

V_{IN} = V_{SET}(1) + 1.0 V, I_{OUT} = 1 mA, C_{IN} = C_{OUT} = 1.0 µF, typical values are at T_J = 25 °C; min./max. values are at -40 °C ≤ TJ ≤ 125 °C, unless otherwise noted.

Symbol	Parameter	Conditions		Min.	Typ.	Max.	Unit
V_{IN}	Operating input voltage			1.32		5.50	V
V_{OUT}	V_{OUT} accuracy	V_{OUT} + 0.5 V ≤ V_{IN} ≤ 5.5 V; I_{OUT} = 0 to 1 A; -40 °C ≤ T_J ≤ 125 °C		-1.0		+1.0	%
ΔV_{OUT}	Static line regulation				0.01		%/V
ΔV_{OUT}	Static load regulation	I_{OUT} = 10 mA to 1000 mA			1	2	mV
V_{DROP}	Dropout voltage	I_{OUT} = 1 A	V_{OUT}=0.85V		<420		mV
			V_{OUT}=1.2V		260		
			V_{OUT}=1.8V		156		
			V_{OUT}=2.5V		110		
			V_{OUT}=3.3V		95		
			V_{OUT}=4.3V		60		
I_Q	Quiescent current	IOUT = 0 mA			85		µA
$I_{Standby}$	Standby current	VIN input current in OFF MODE: VEN = GND			0.1		µA
I_{LIM}	Output current limit				1.55	2.3	A
I_{SC}	Short-circuit current	V_{OUT} = 0 V		134		186	mA
e_N	Output noise voltage				10		µVrms
T_{TSD}	Thermal shutdown				165		°C
CE	Enable input logic low	V_{IN} = 1.32 V to 5.5 V				0.4	V
	Enable input logic high	V_{IN} = 1.32 V to 5.5 V		1			
LCON	LCON input logic low	V_{IN} = 1.32 V to 5.5 V				0.4	V
	LCON input logic low	V_{IN} = 1.32 V to 5.5 V		1			

ELECTRICAL CHARACTERISTICS (continued)

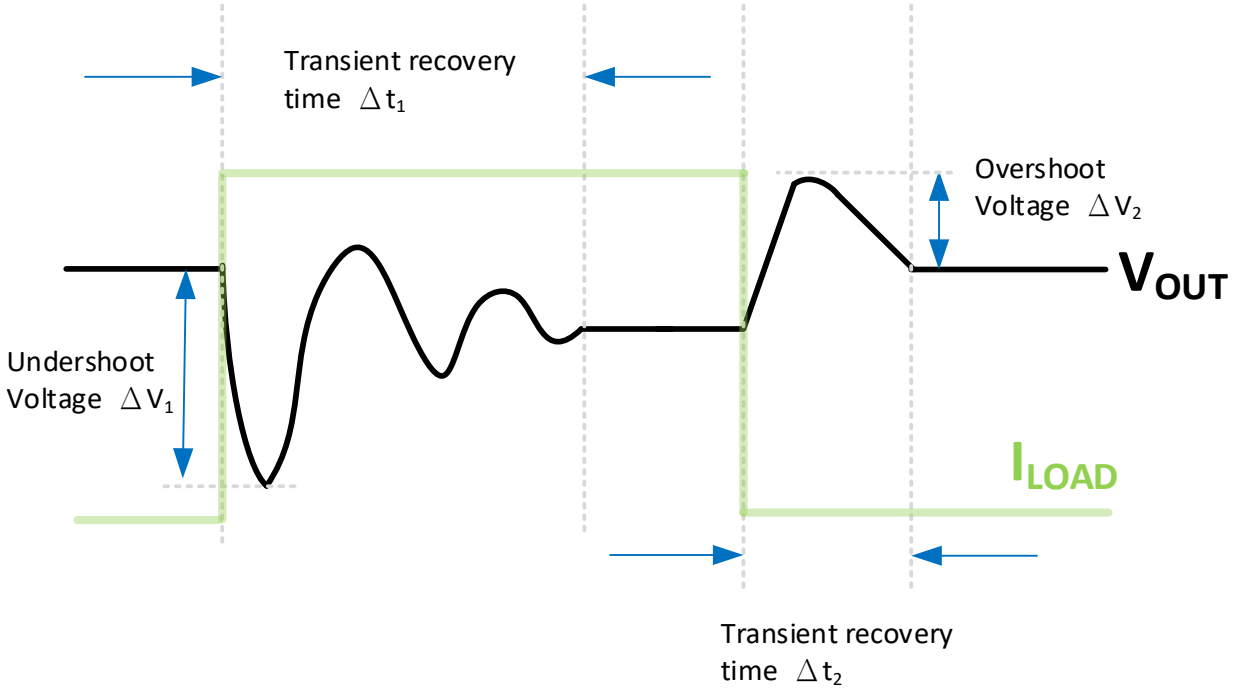


$$PSRR = 20 * \log\left(\frac{V_{IN_{RIPPLE}}}{V_{OUT_{RIPPLE}}}\right)(dB)$$

Symbol	Parameter	Conditions		Min.	Typ.	Max.	Unit
PSRR	Power Supply Rejection Ratio	V_{IN} = V_{OUT}+ 1 V +/- V_{RIPPLE} V_{RIPPLE} = 0.2 V @ I_{OUT} = 1 mA	V_{RIPPLE} Freq =1KHz	84.1		96.4	dB
			V_{RIPPLE} Freq =5KHz	80.3		85.8	
			V_{RIPPLE} Freq =10KHz	78.4		84.2	
			V_{RIPPLE} Freq =100KHz	38.6		40.3	
			V_{RIPPLE} Freq =1MHz	35.1		35.4	
			V_{RIPPLE} Freq =10MHz	24.5		25.9	
		V_{IN} = V_{OUT}+ 1 V +/- V_{RIPPLE} V_{RIPPLE} = 0.2 V @ I_{OUT} = 10 mA	V_{RIPPLE} Freq =1KHz	84.1		98.5	dB
			V_{RIPPLE} Freq =5KHz	83.5		94.5	
			V_{RIPPLE} Freq =10KHz	90.1		91.9	
			V_{RIPPLE} Freq =100KHz	44.0		45.8	
			V_{RIPPLE} Freq =1MHz	32.6		32.7	
			V_{RIPPLE} Freq =10MHz	28.7		30.3	
		V_{IN} = V_{OUT}+ 1 V +/- V_{RIPPLE} V_{RIPPLE} = 0.2 V @ I_{OUT} = 30 mA	V_{RIPPLE} Freq =1KHz	83.7		96.6	dB
			V_{RIPPLE} Freq =5KHz	83.8		91.8	
			V_{RIPPLE} Freq =10KHz	91.3		104	
			V_{RIPPLE} Freq =100KHz	44.5		46.5	
			V_{RIPPLE} Freq =1MHz	26.3		26.8	
			V_{RIPPLE} Freq =10MHz	26.0		28.5	
		V_{IN} = V_{OUT}+ 1 V +/- V_{RIPPLE} V_{RIPPLE} = 0.2 V @ I_{OUT} = 150 mA	V_{RIPPLE} Freq =1KHz	84.5		94.4	dB
			V_{RIPPLE} Freq =5KHz	80.6		84.4	
			V_{RIPPLE} Freq =10KHz	78.7		81.4	
			V_{RIPPLE} Freq =100KHz	43.7		45.2	
			V_{RIPPLE} Freq =1MHz	21.2		22.8	
			V_{RIPPLE} Freq =10MHz	27.8		28.9	

*This is ASPL8801-330-TH measurement data. Other PSRR information please contact Gutschsemi.

Load Regulation (Dynamic)



Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
ΔV_1	Undershoot Voltage	I_{LOAD}=1mA~250mA		30		mV
		I_{LOAD}=1mA~500mA		40		
		I_{LOAD}=1mA~1A		62		
		I_{LOAD}=0mA~300mA		50		
		I_{LOAD}=0mA~1A		90		
ΔV_2	Overshoot Voltage	I_{LOAD}=1mA~250mA		28		mV
		I_{LOAD}=1mA~500mA		40		
		I_{LOAD}=1mA~1A		60		
		I_{LOAD}=0mA~300mA		35		
		I_{LOAD}=0mA~1A		65		

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Δt_1	Transient recovery time	I_{LOAD}=1mA~250mA		10		μS
		I_{LOAD}=1mA~500mA		16		
		I_{LOAD}=1mA~1A		18		
		I_{LOAD}=0mA~300mA		60		
		I_{LOAD}=0mA~1A		80		
Δt_2	Transient recovery time	I_{LOAD}=1mA~250mA		12		μS
		I_{LOAD}=1mA~500mA		12		
		I_{LOAD}=1mA~1A		16		
		I_{LOAD}=0mA~300mA		90		
		I_{LOAD}=0mA~1A		300		

*This table is ASPL8801-330-TH measurement data. For detail load regulation information about other ASPL8801 series LDOs, please contact Gutschsemi R&D team.

FUNCTION DESCRIPTION

A. Short-Circuit Protect and Current Limitation

ASPL8801 series LDOs can protect internal circuit under short-circuit condition on the output. When the load current increases above 1.55 A, the current limit and current foldback mechanism starts to restrict the I_{LIM} value. If the load resistance decreases even more then the foldback, circuit starts limiting the current to 0.2 A when V_{OUT} = 0.

B. Over Temperature Protection and Auto Recover

In order to prevent over thermal condition from damaging the device, ASPL8801 series LDOs have internal thermal limiting functions designed to protect the device. It will rapidly shut off PMOS pass element during over temperature condition.

C. Current Foldback

The current limiting/ current foldback circuit plays an important role by controlling any excessive output current. Our ASPL8801 series LDOs provide a current foldback circuit that can detect accurately when an over-current condition occurs.

D. Very Fast Transient Response

In addition to the main feedback loop, ASPL8801 series LDOs contain a fast-transient loop that allows the LDO to respond faster to large-output transients. ASPL8801 series LDOs that contain this loop are better able to minimize the effects of a load transient even the output capacitance is small. The
recommended output capacitance value is 1µF. It's small size greatly reduce the cost and save PCB area.

E. Ultra High PSRR and Extreme Low Noise

Gutschsemi's ASPL8801 series high-performance LDO regulators feature remarkable power supply rejection ratio characteristics (up to 104 dB at 10 kHz) and extreme-low noise operation (as low as 6.3 µVRMS with A-wt) resulting in cleaner and stable output voltages. Our LDO is very suitable for ultra-sensitive loads like camera module and security monitor, especially in low light condition.

F. Start-Up at Full Load

ASPL8801 series LDOs can start-up at full load, make it very suitable for heavy load start up condition and severe system timing constraint.

G. Auto Discharge Function

ASPL8801 series LDOs have an auto discharge function to quickly force the output voltage to zero. When the LDO is disabled, the auto discharge function quickly discharge the output capacitor, thereby reducing the output voltage to nearly zero. This function is very useful for quickly ON/OFF application.

H. Low Quiescent Current

ASPL8801 series LDOs consume only 85µA (typical) while operating with no load condition. By reducing the quiescent current, your application can stay in standby/sleep mode much longer than leading low quiescent current LDOs in the market.

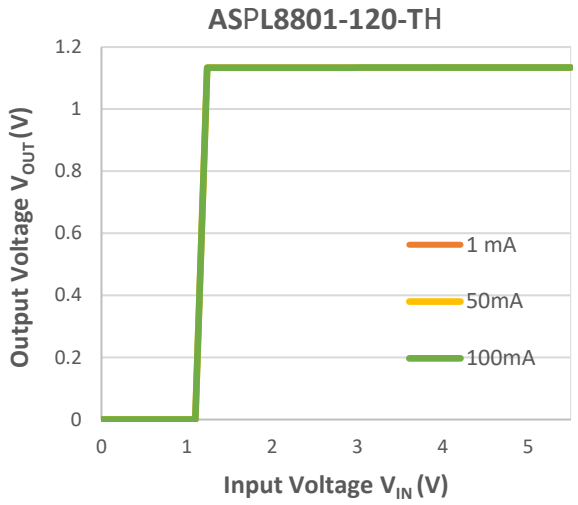
I. Uuder Voltage Lock OUT (UVLO)

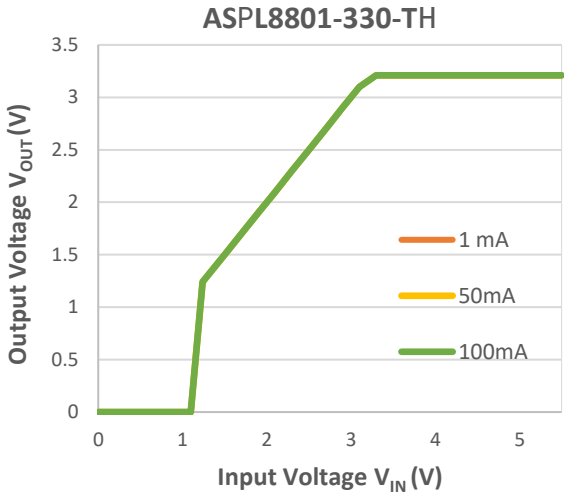
ASPL8801 has an undervoltage lockout (UVLO) function to make sure that whole circuit does nothing until the power supply voltage is high enough. When power supply voltage is high enough, reference circuit can generate right voltage ; logic function can generate correct control signals. This UVLO function can guarantee robust system performance.

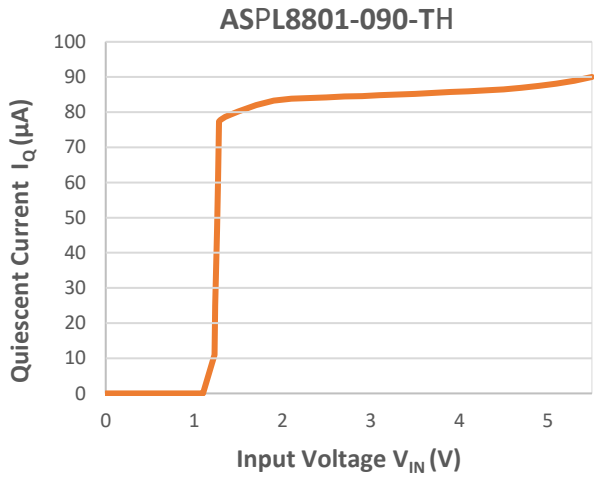
TYPICAL CHARACTERISTICS

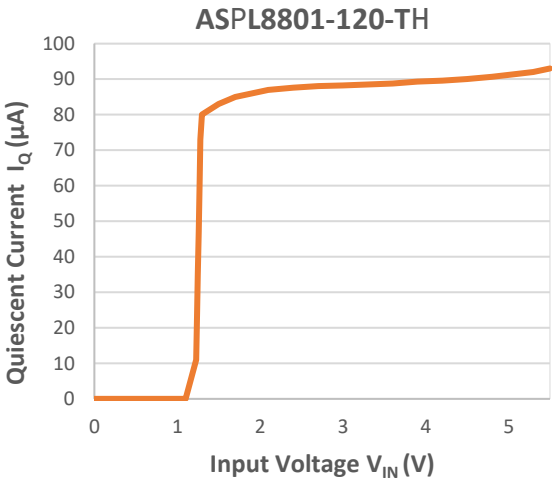
V_{IN} = V_{SET}(1) + 1.0 V, I_{OUT} = 1 mA, C_{IN} = C_{OUT} = 1.0 µF, LCON='H', typical values are at T_J = 25 °C; min./max. values are at -40 °C ≤ TJ ≤ 125 °C, unless otherwise noted.

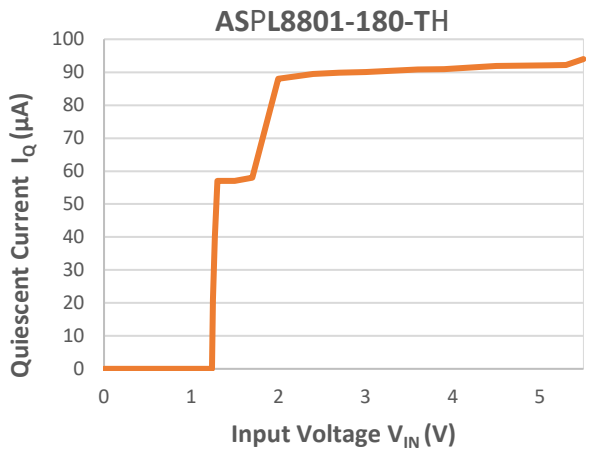
Output Voltage vs. Input Voltage (C_{IN} = C_{OUT}=1.0µF, T_a= 25 °C)

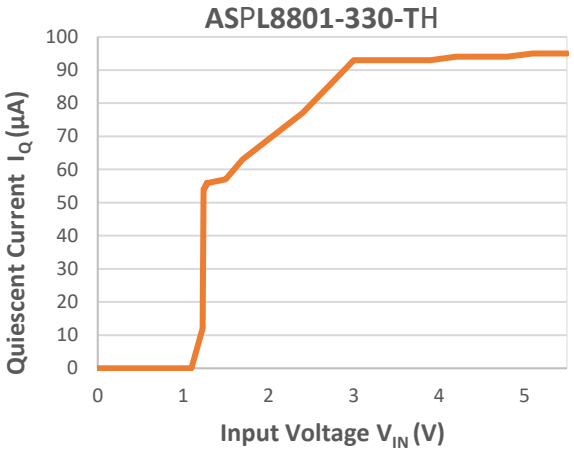




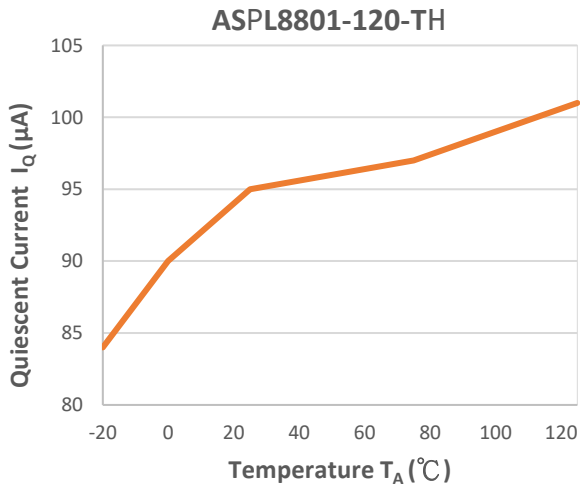






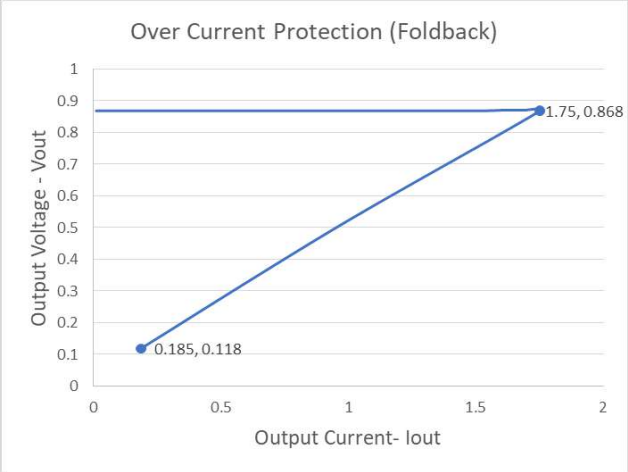


Supply Current vs. Temperature (CIN = COUT = 1.0μF, IOUT= 0 mA)

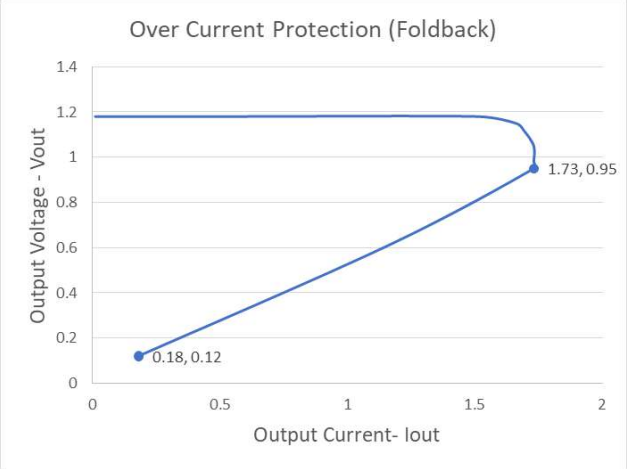


Over Current Protect Foldback Characteristic (LCON = V_{IN}, C_{IN} = C_{OUT} = 1.0 µF, Ta = 25°C)

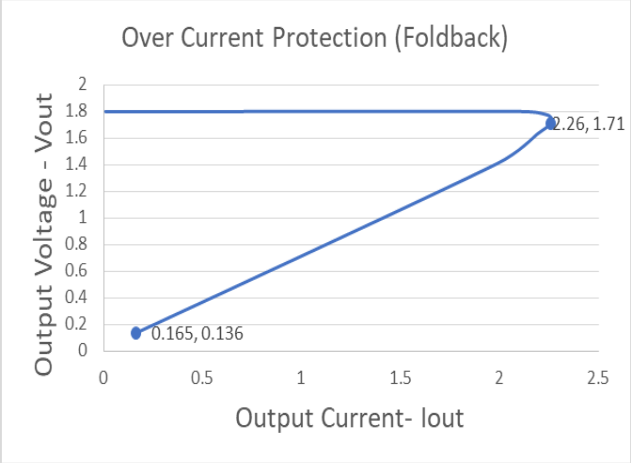
ASPL8801-090-TH



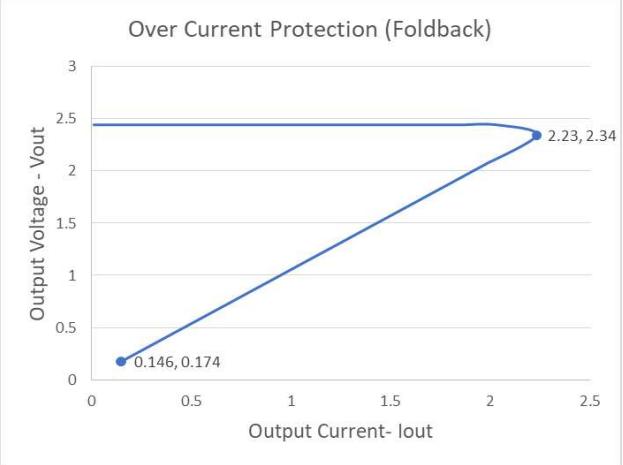
ASPL8801-120-TH



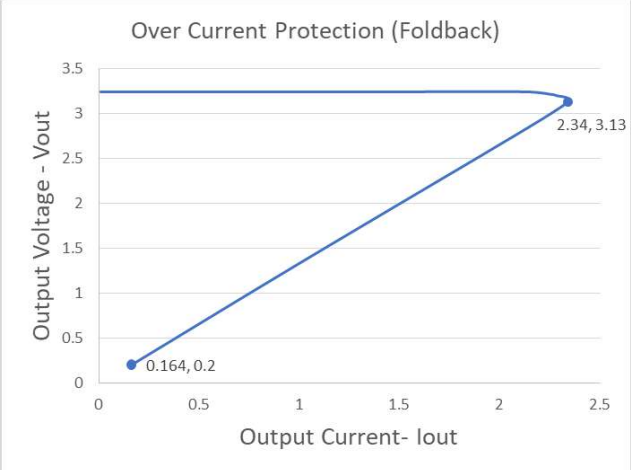
ASPL8801-180-TH



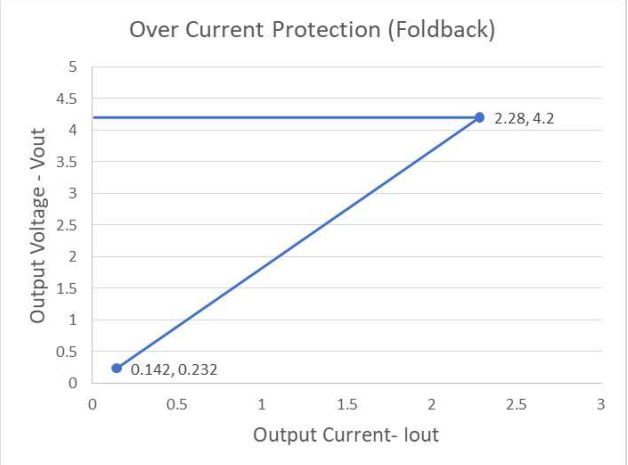
ASPL8801-250-TH



ASPL8801-330-TH



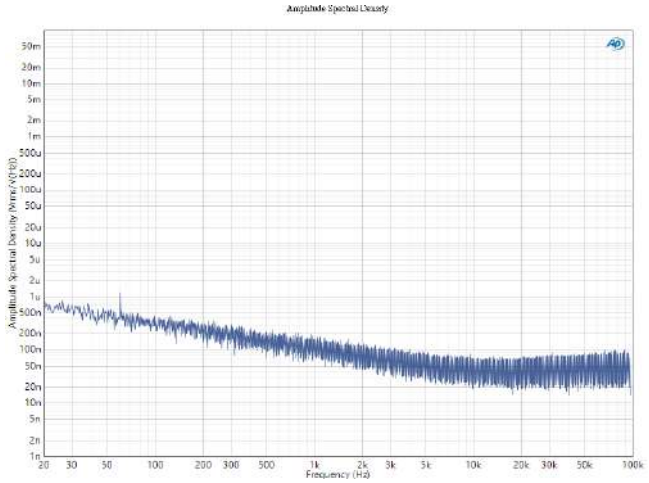
ASPL8801-430-TH



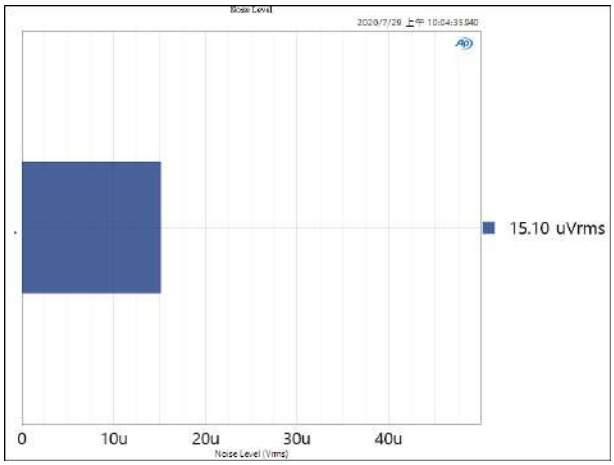
Output Noise Voltage (10 Hz to 100 kHz, C_{IN} = C_{OUT} = 1.0 µF, Ta = 25°C)

ASPL8801-090-TH, I_{OUT} = 100 mA

Amplitude Spectral Density

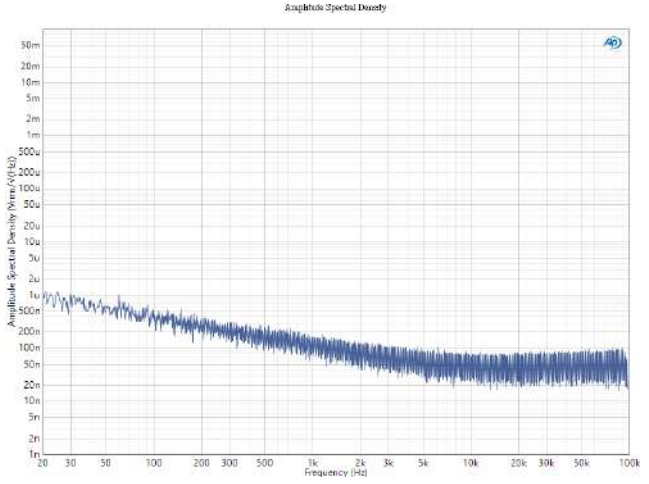


V_{RMS} from 10 Hz to 100 kHz

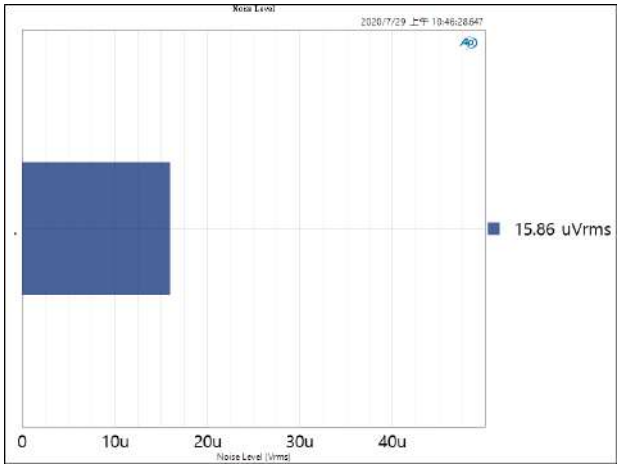


ASPL8801-120-TH, I_{OUT} = 100 mA

Amplitude Spectral Density

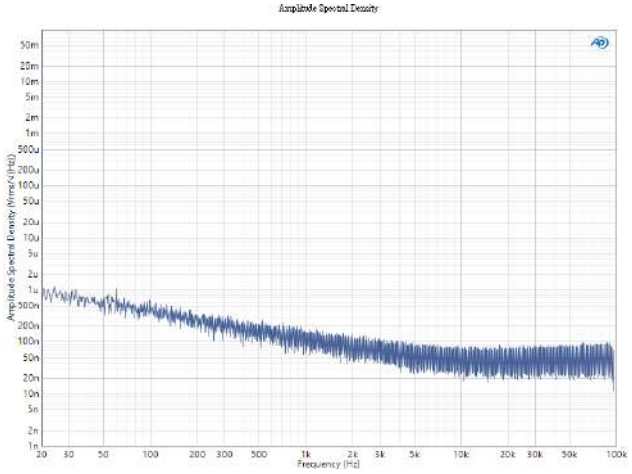


V_{RMS} from 10 Hz to 100 kHz

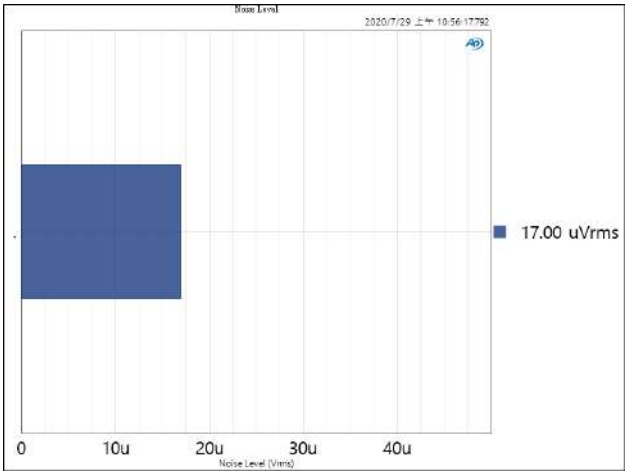


ASPL8801-330-TH, I_{OUT} = 100 mA

Amplitude Spectral Density



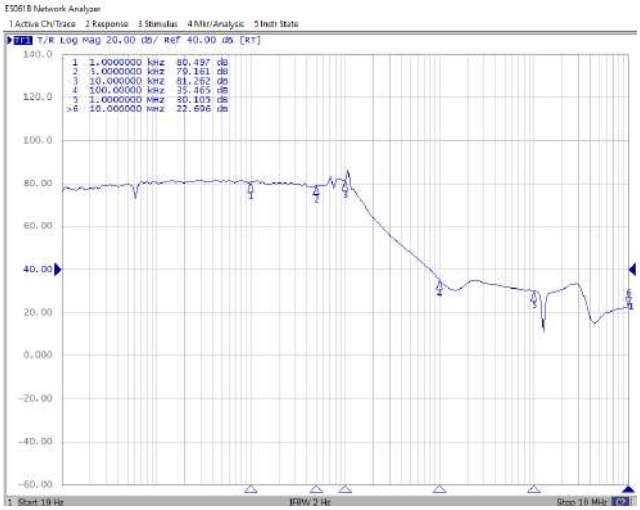
V_{RMS} from 10 Hz to 100 kHz



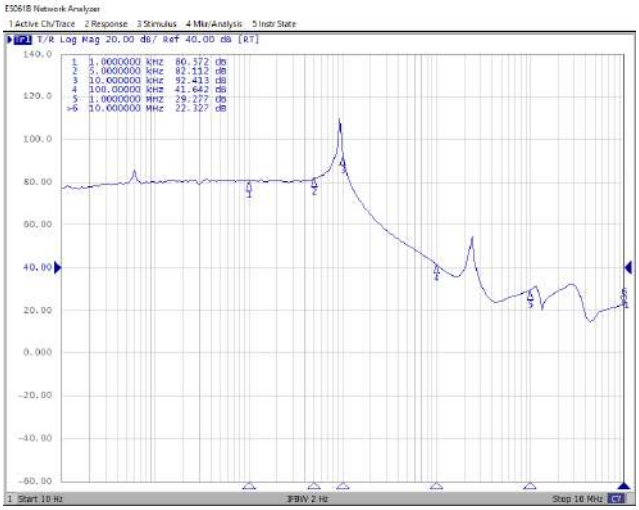
Power Supply Ripple Rejection vs. Frequency (V_{IN}=V_{OUT}+1V , C_{IN} = C_{OUT} = 1.0 µF, Ripple = 0.2 Vp-p, Ta = 25°C)

ASPL8801-090-TH

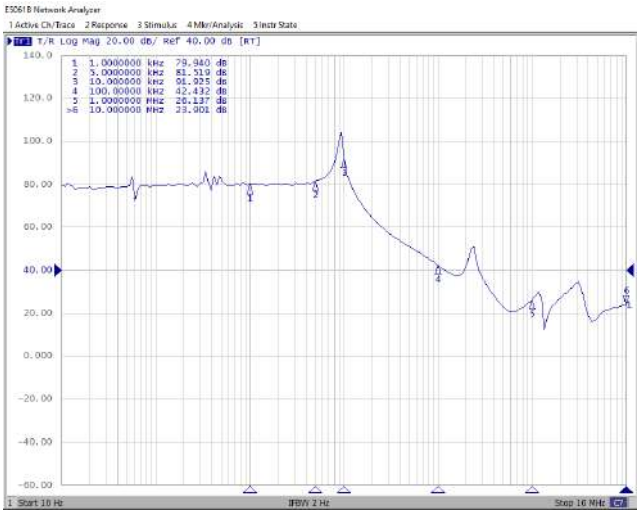
I_{Load}=1mA



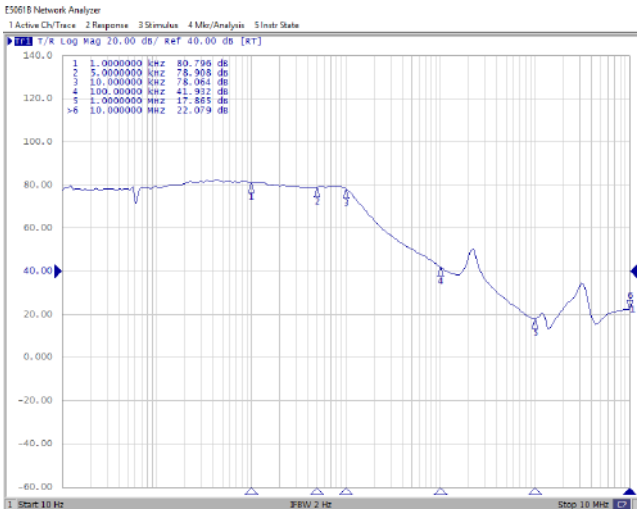
I_{Load}=10mA



I_{Load}=30mA

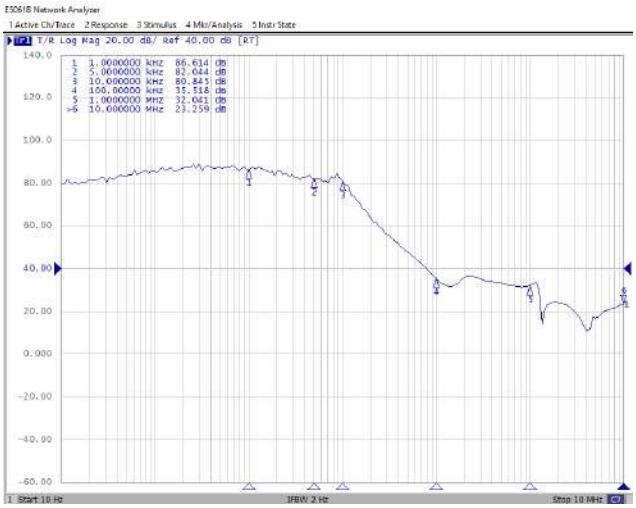


I_{Load}=150mA



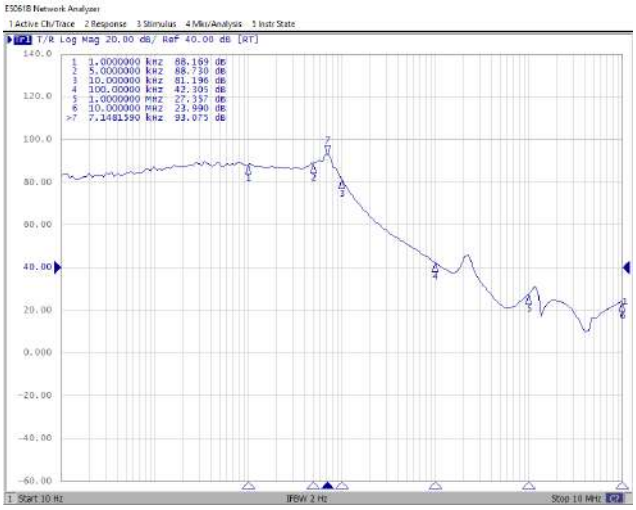
ASPL8801-120-TH

I_{Load}=1mA

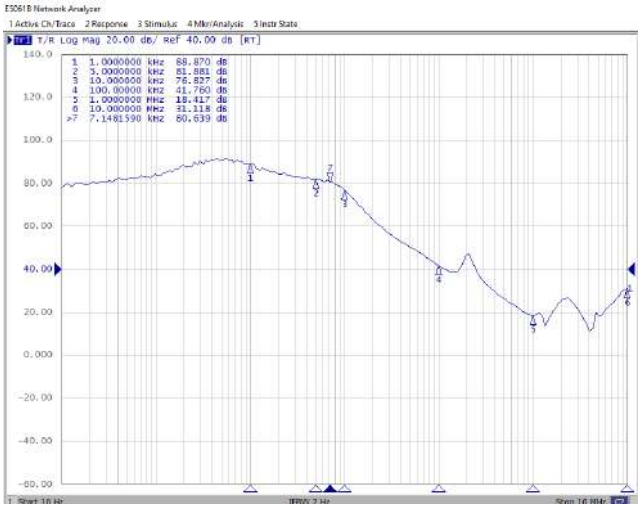


I_{Load}=10mA

I_{Load}=30mA

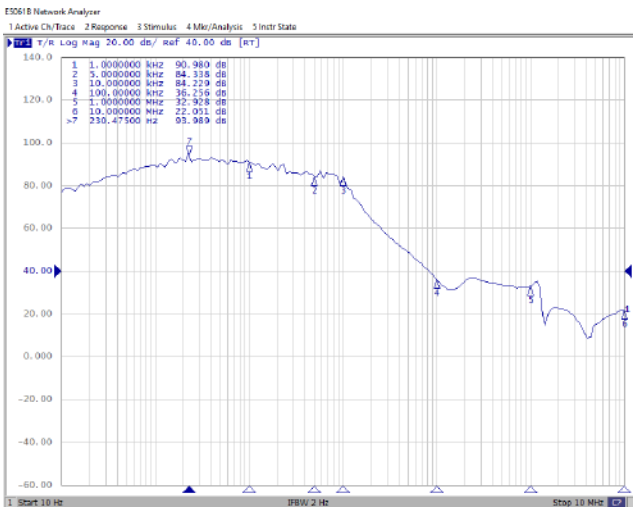


I_{Load}=150mA



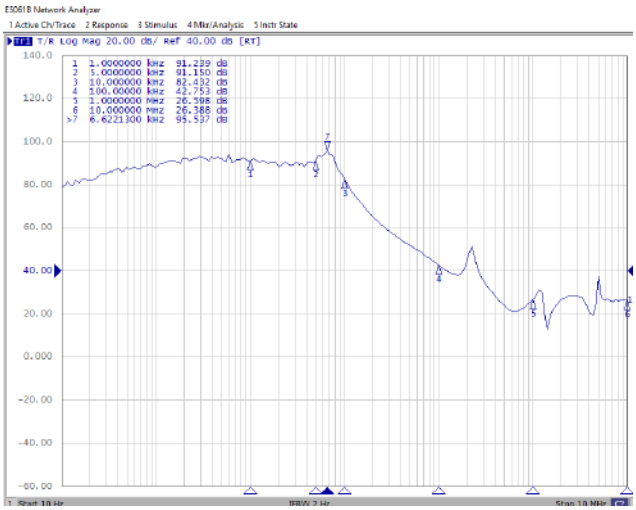
ASPL8801-180-TH

I_{Load}=1mA



I_{Load}=10mA

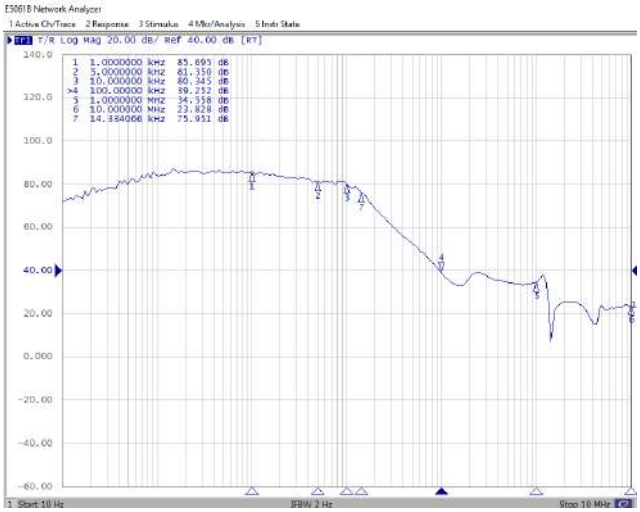
I_{Load}=30mA



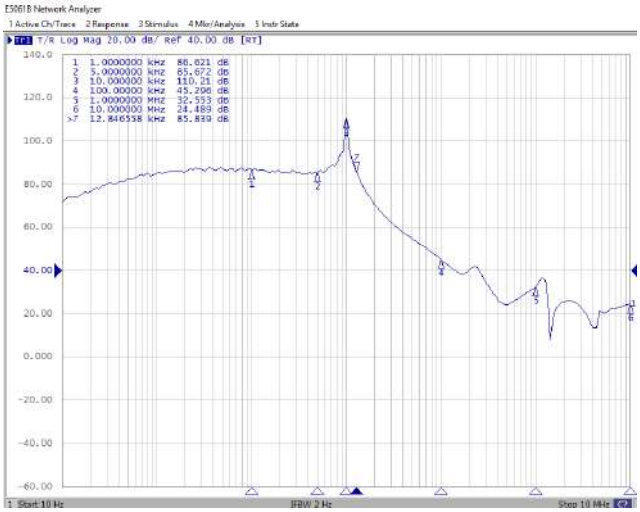
I_{Load}=150mA

ASPL8801-250-TH

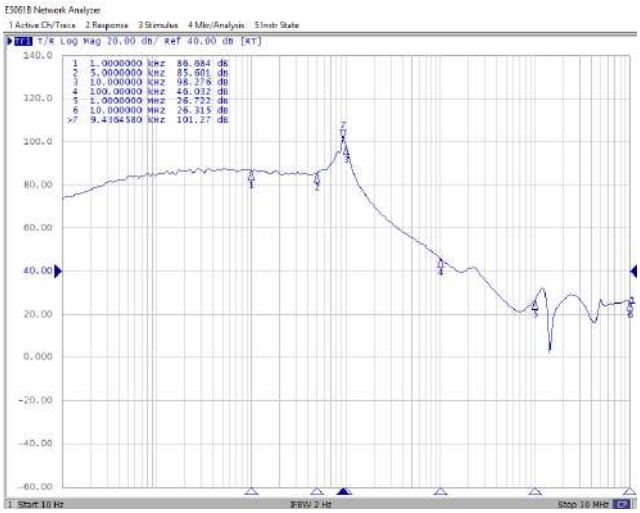
I_{Load}=1mA



I_{Load}=10mA



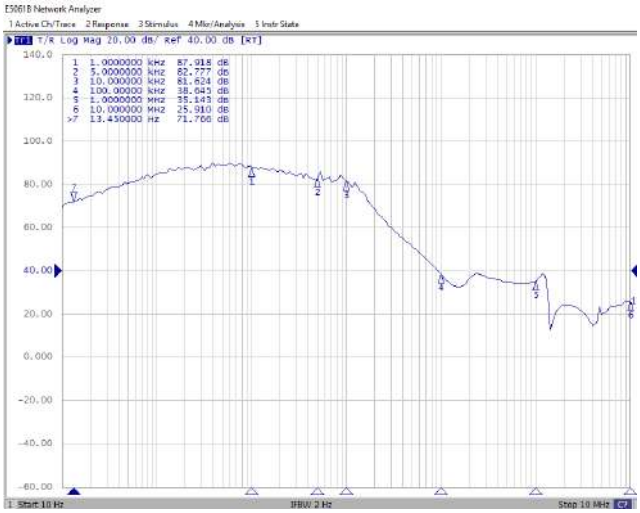
I_{Load}=30mA



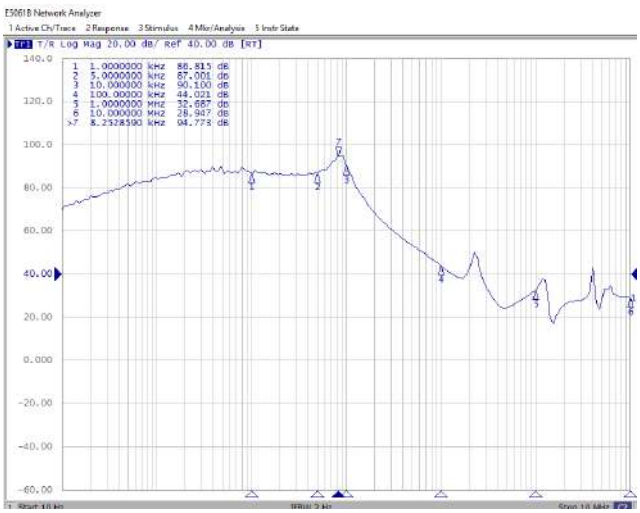
I_{Load}=150mA

ASPL8801-330-TH

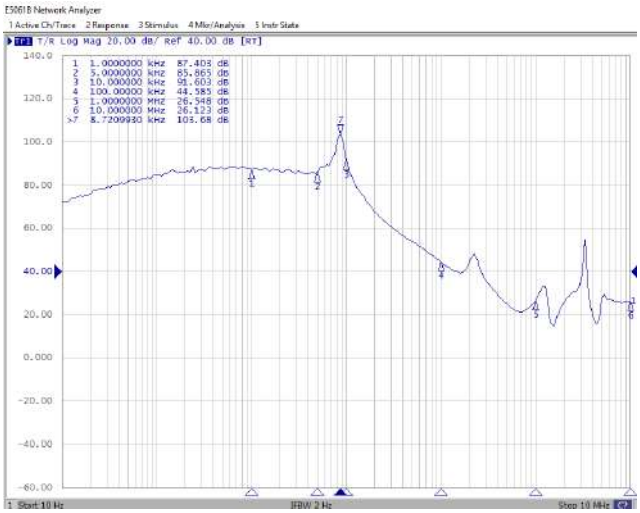
I_{Load}=1mA



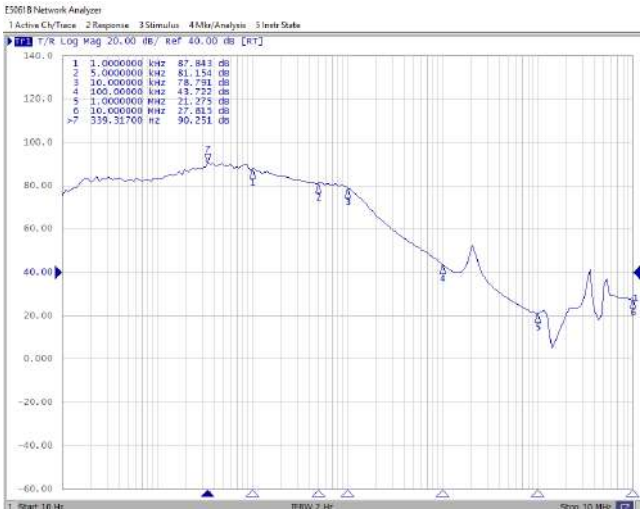
I_{Load}=10mA



I_{Load}=30mA



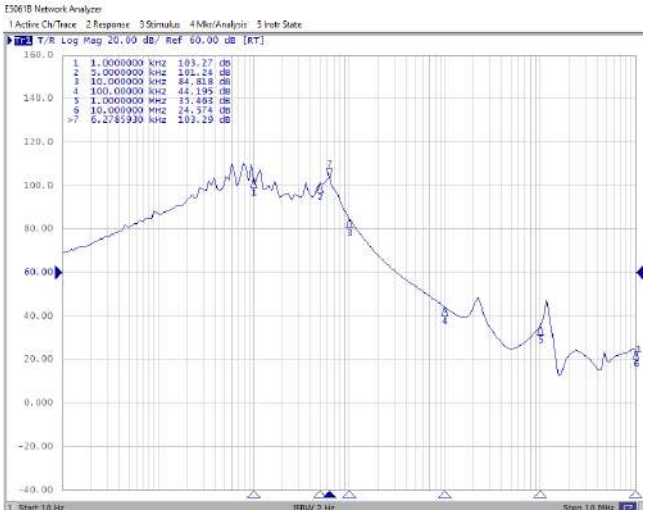
I_{Load}=150mA



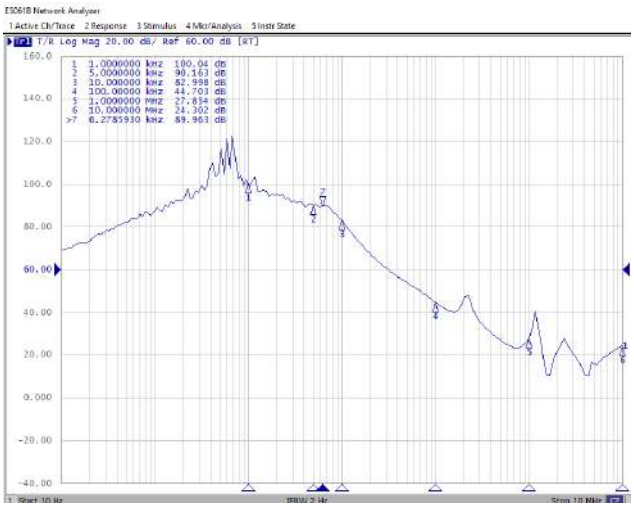
ASPL8801-430-TH

I_{Load}=1mA

I_{Load}=10mA



I_{Load}=30mA

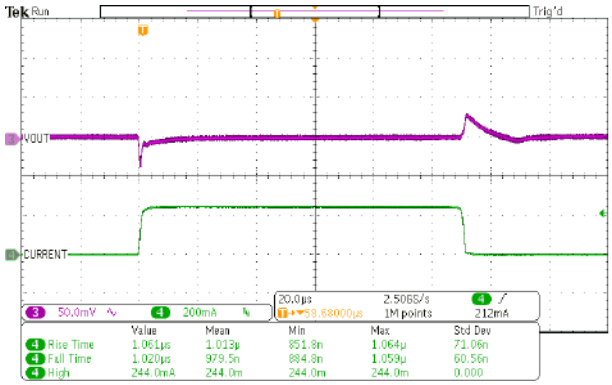


I_{Load}=150mA

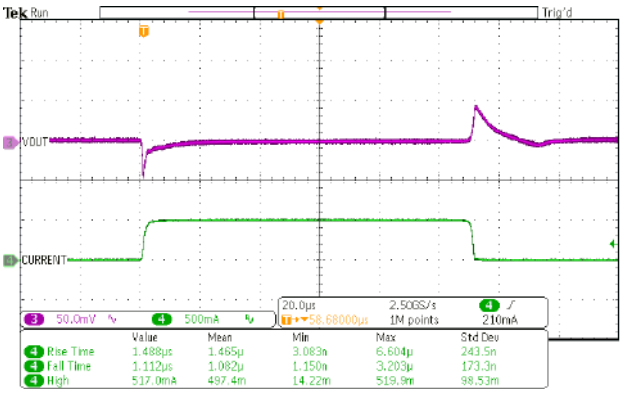
Load Transient Response (V_{IN}=V_{OUT}+1V, C_{IN} = C_{OUT} = 1.0 μF, tr = tf = 1 μs, Ta = 25°C)

ASPL8801-090-TH

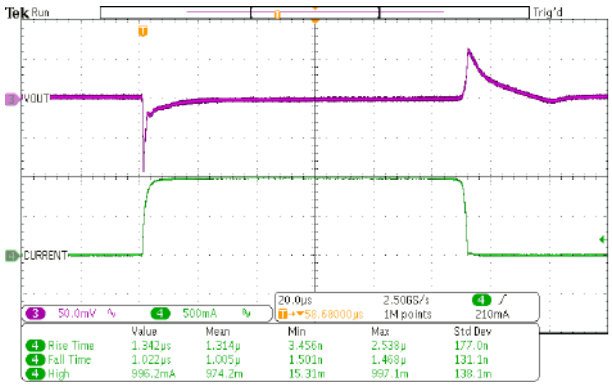
1mA -> 250mA



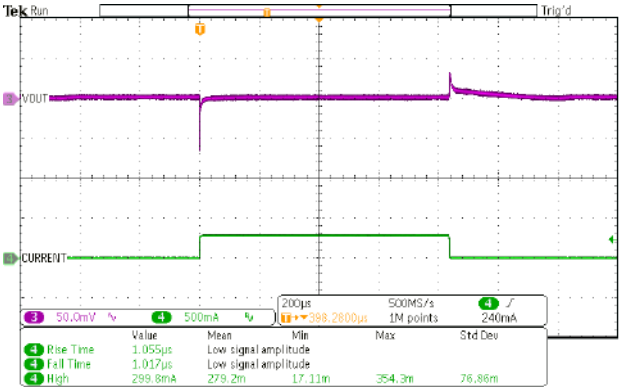
1mA -> 500mA



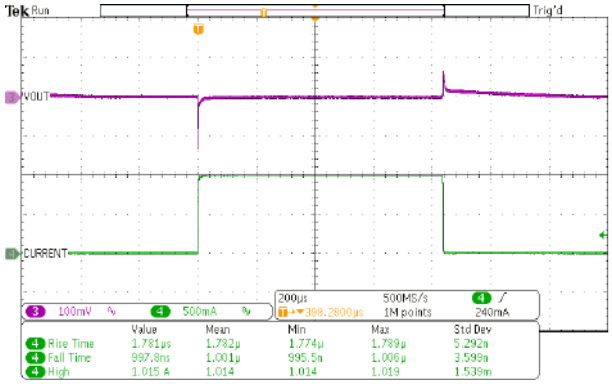
1mA -> 1000mA



0mA -> 300mA

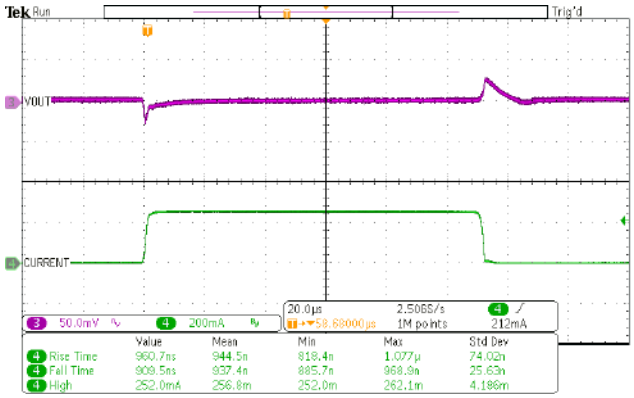


0mA -> 1000mA

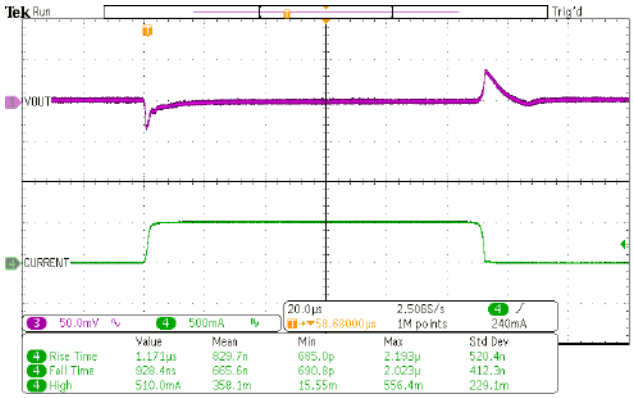


ASPL8801-120-TH

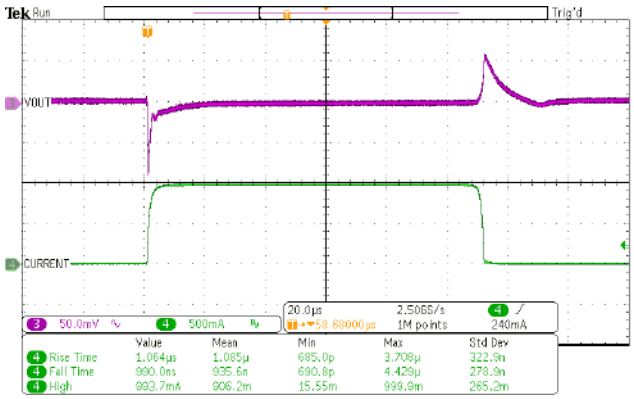
1mA -> 250mA



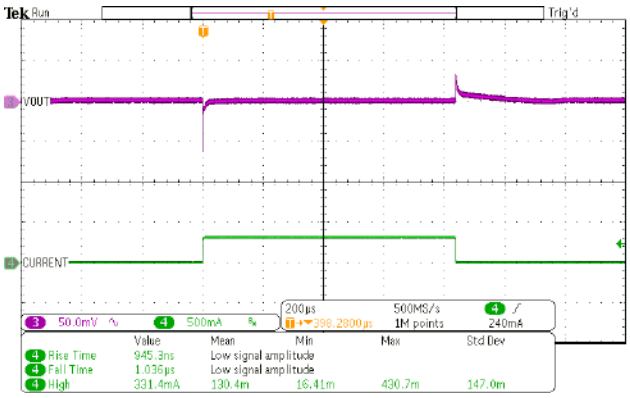
1mA -> 500mA



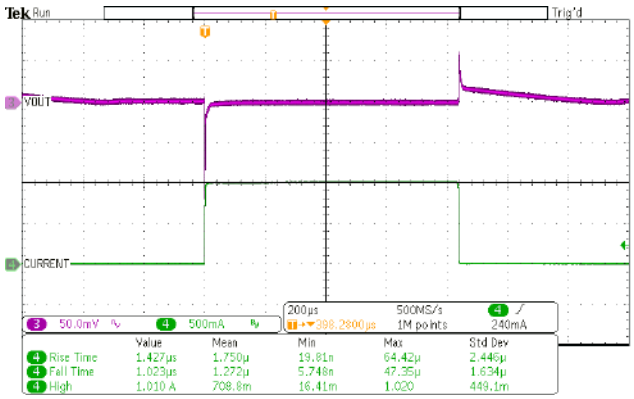
1mA -> 1000mA



0mA -> 300mA

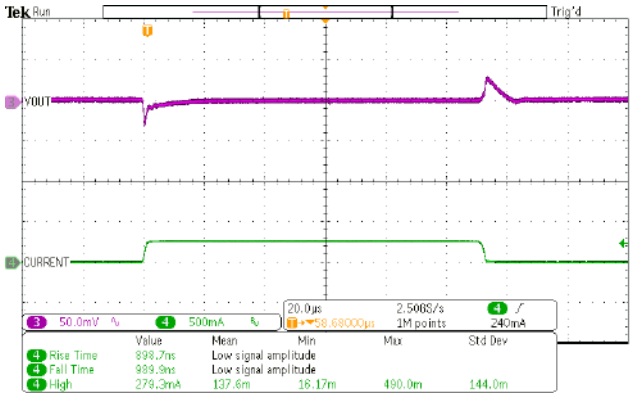


0mA -> 1000mA

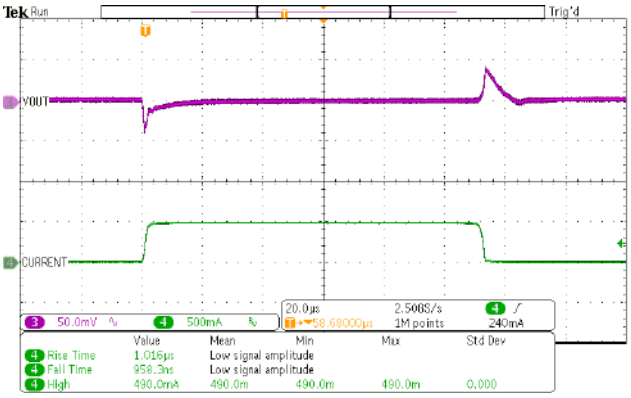


ASPL8801-180-TH

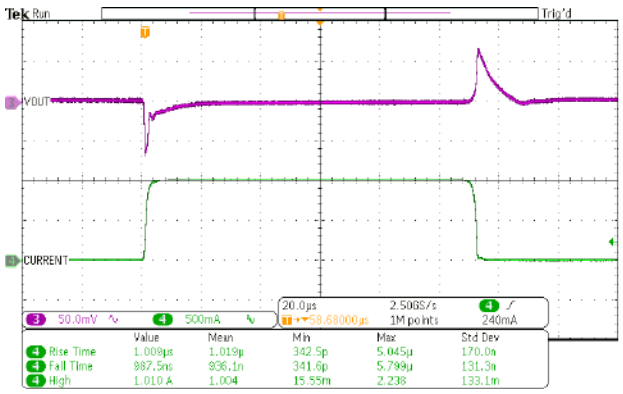
1mA -> 250mA



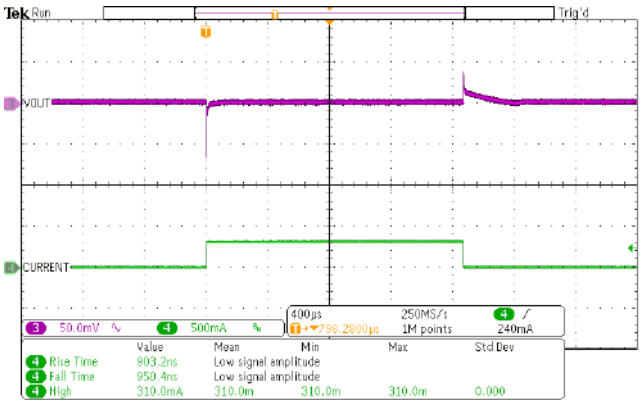
1mA -> 500mA



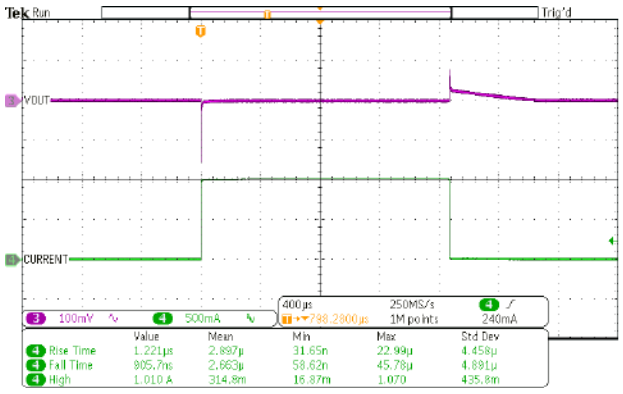
1mA -> 1000mA



0mA -> 300mA

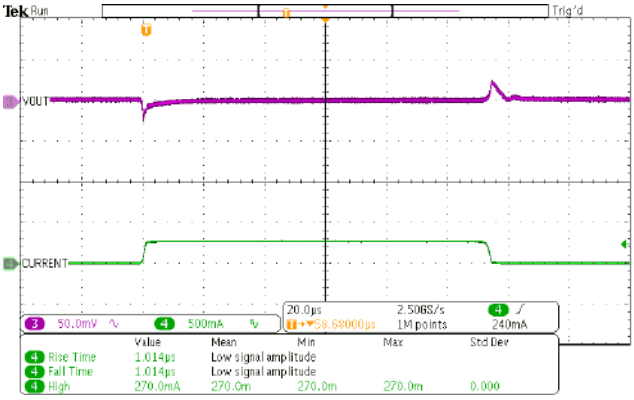


0mA -> 1000mA

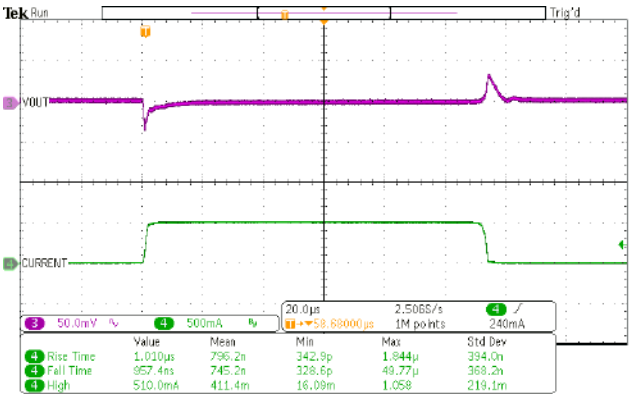


ASPL8801-250-TH

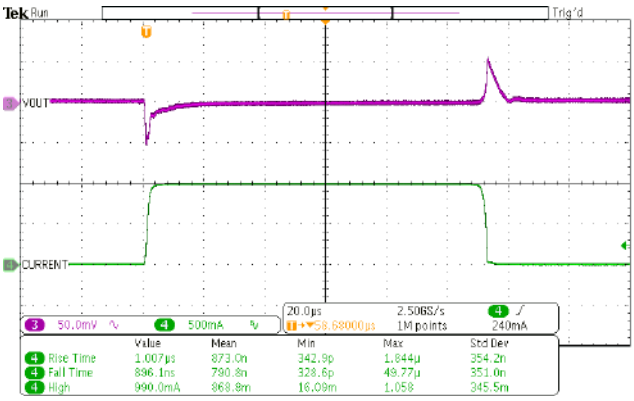
1mA -> 250mA



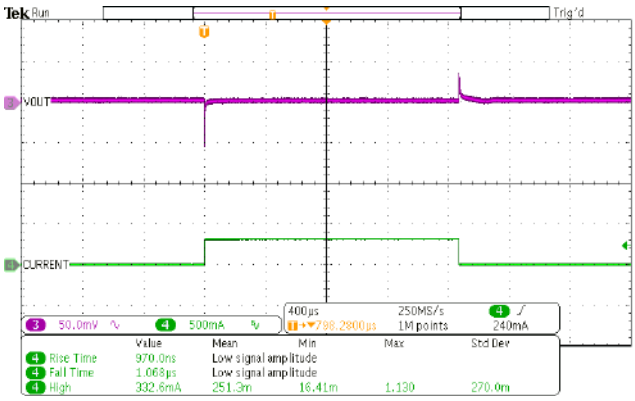
1mA -> 500mA



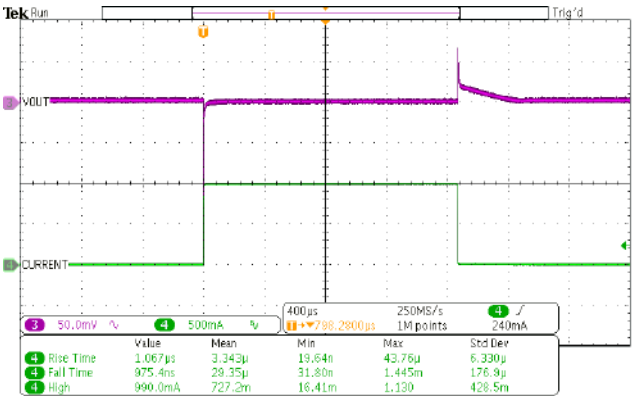
1mA -> 1000mA



0mA -> 300mA

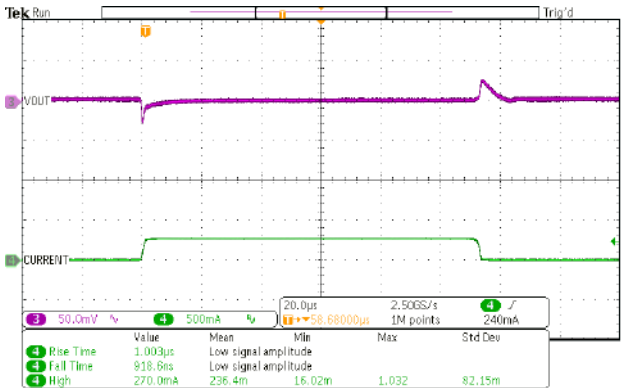


0mA -> 1000mA

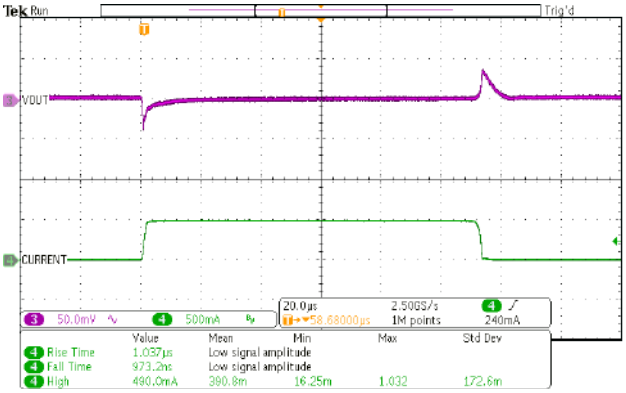


ASPL8801-330-TH

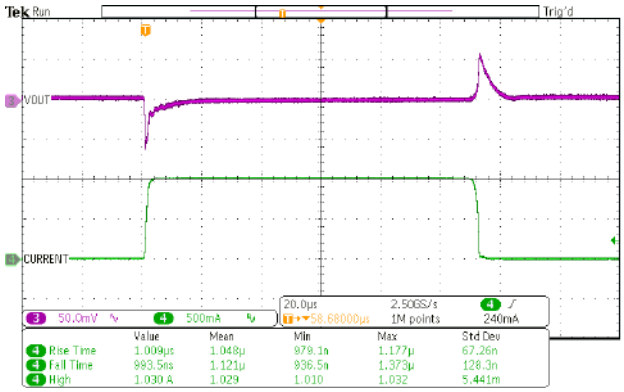
1mA -> 250mA



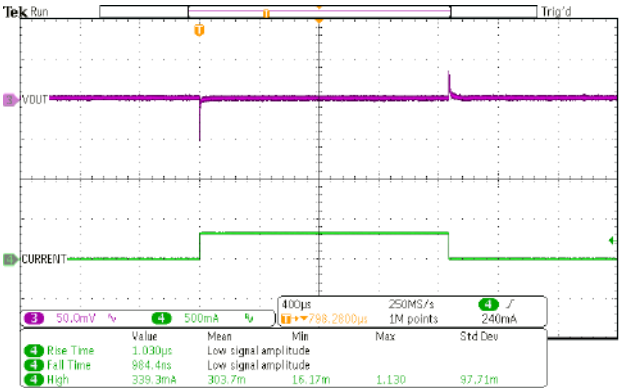
1mA -> 500mA



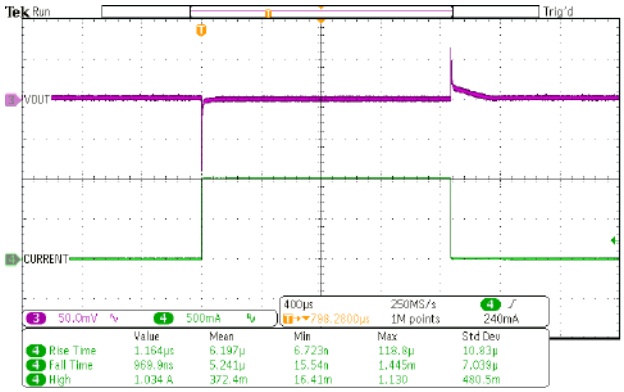
1mA -> 1000mA



0mA -> 300mA

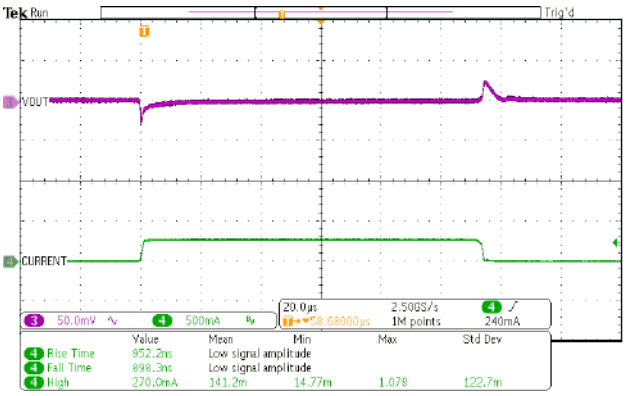


0mA -> 1000mA

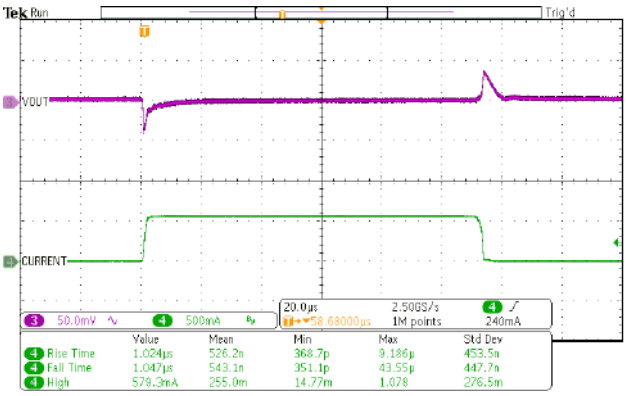


ASPL8801-430-TH

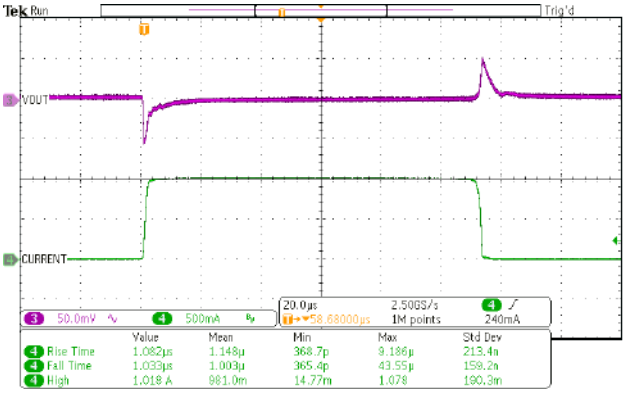
1mA -> 250mA



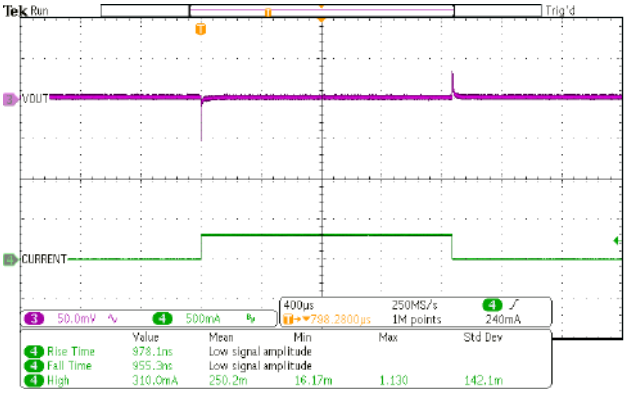
1mA -> 500mA



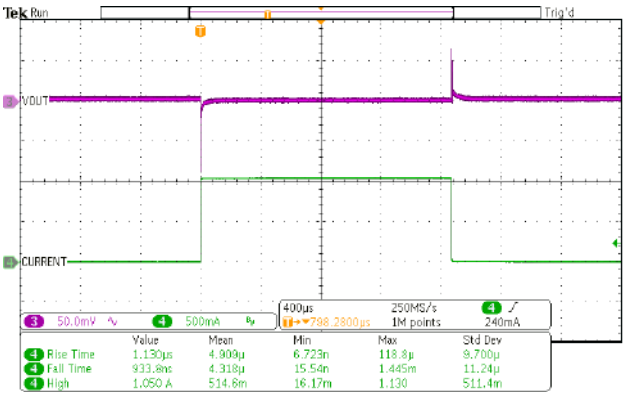
1mA -> 1000mA



0mA -> 300mA

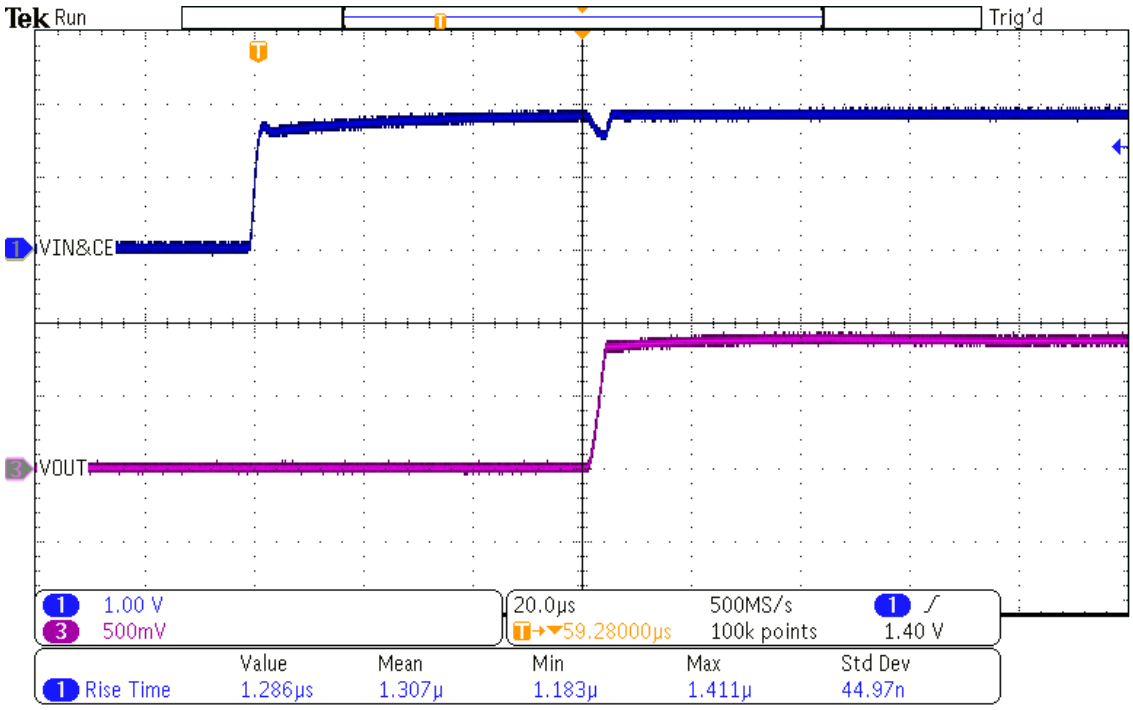


0mA -> 1000mA

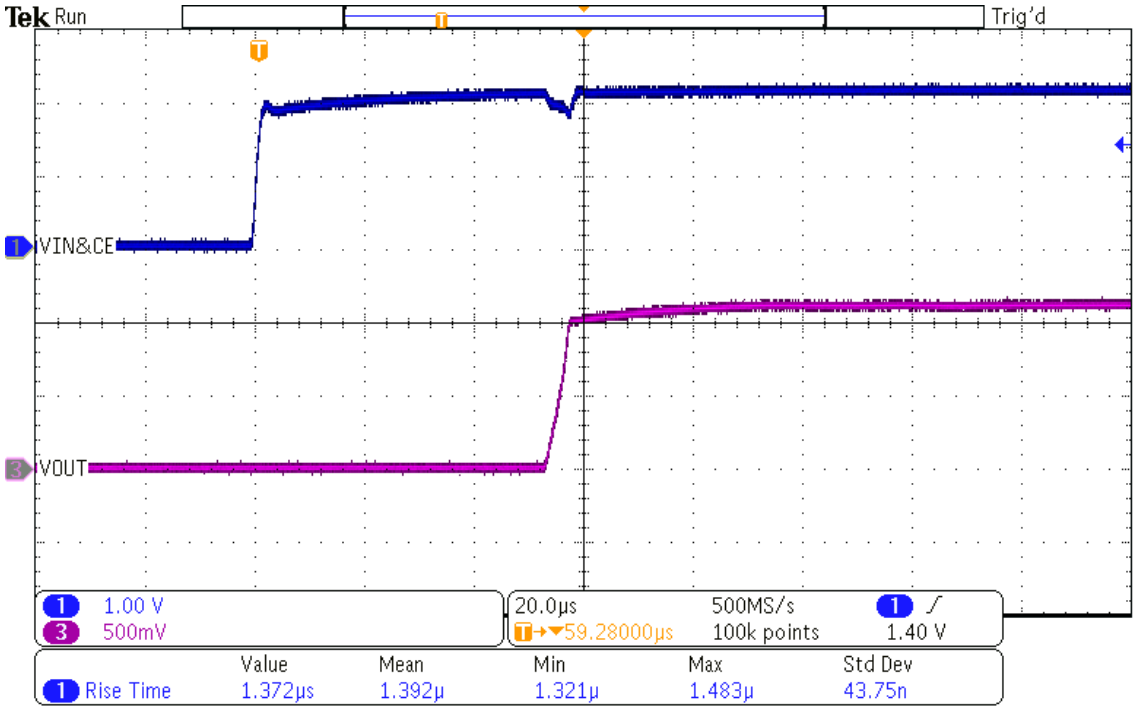


Turn-on waveform by V_{IN} & CE @ light load (V_{IN} = CE = 0 V to V_{OUT}+1V, C_{IN} = C_{OUT} = 1.0 µF, Ta = 25°C, I_{OUT} = 1 mA)

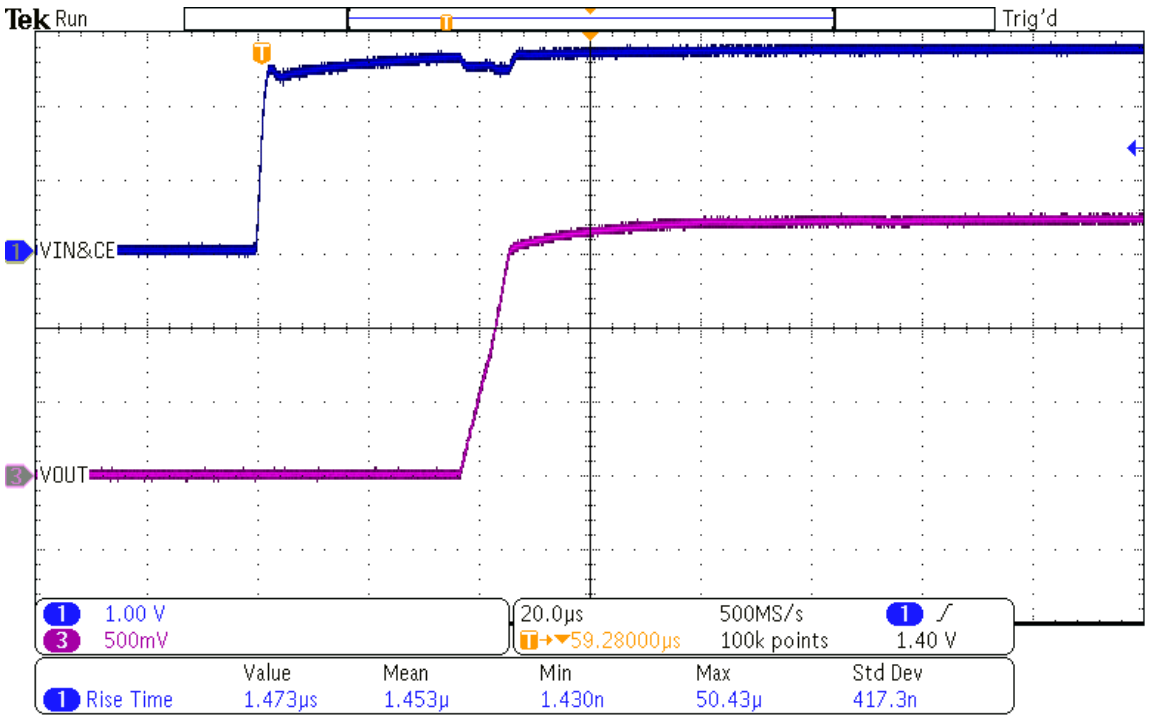
ASPL8801-090-TH



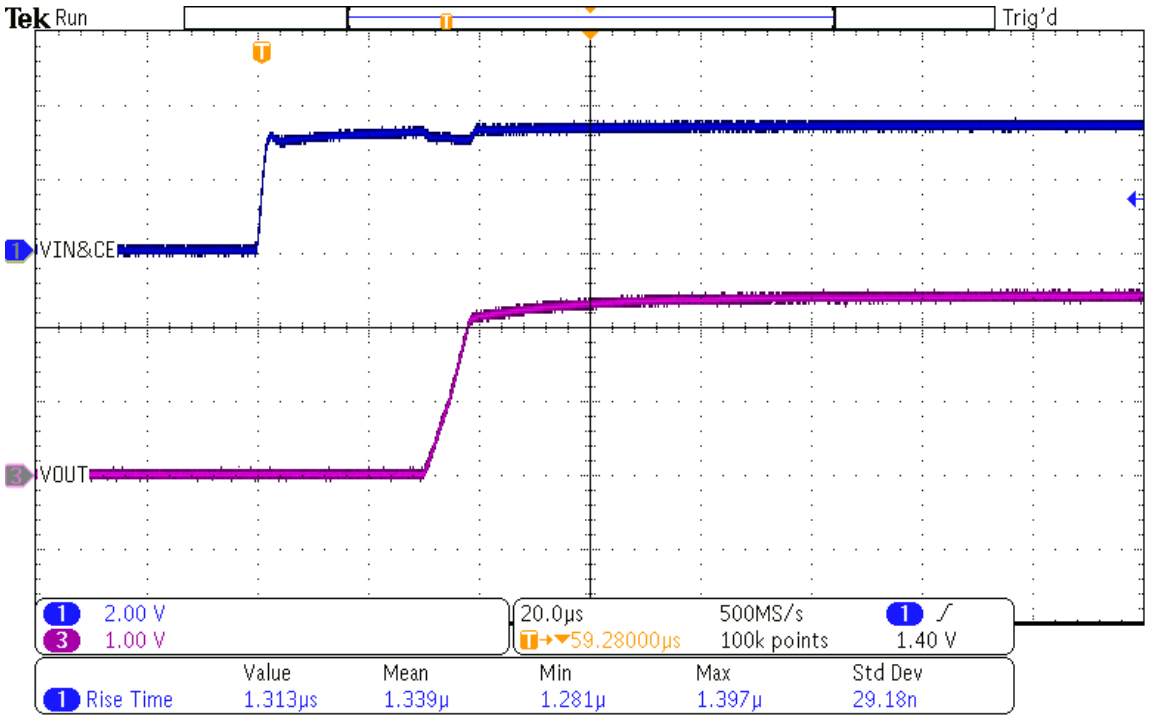
ASPL8801-120-TH



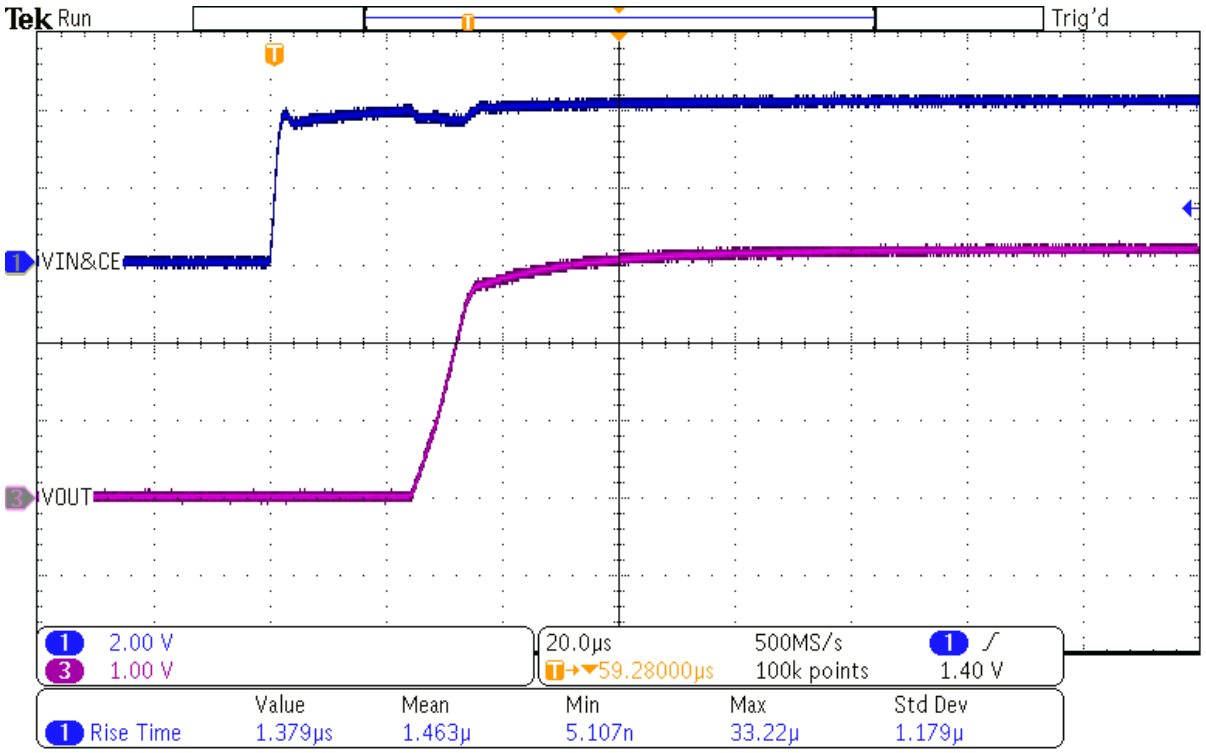
ASPL8801-180-TH



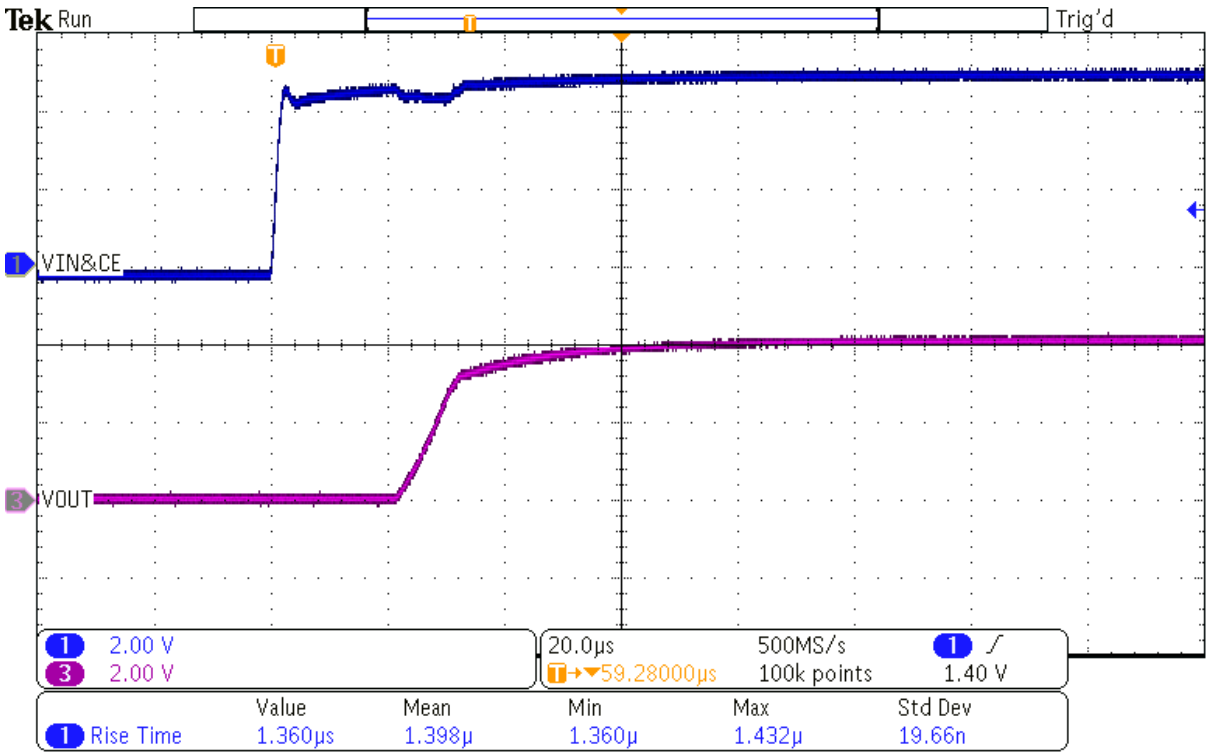
ASPL8801-250-TH



ASPL8801-330-TH

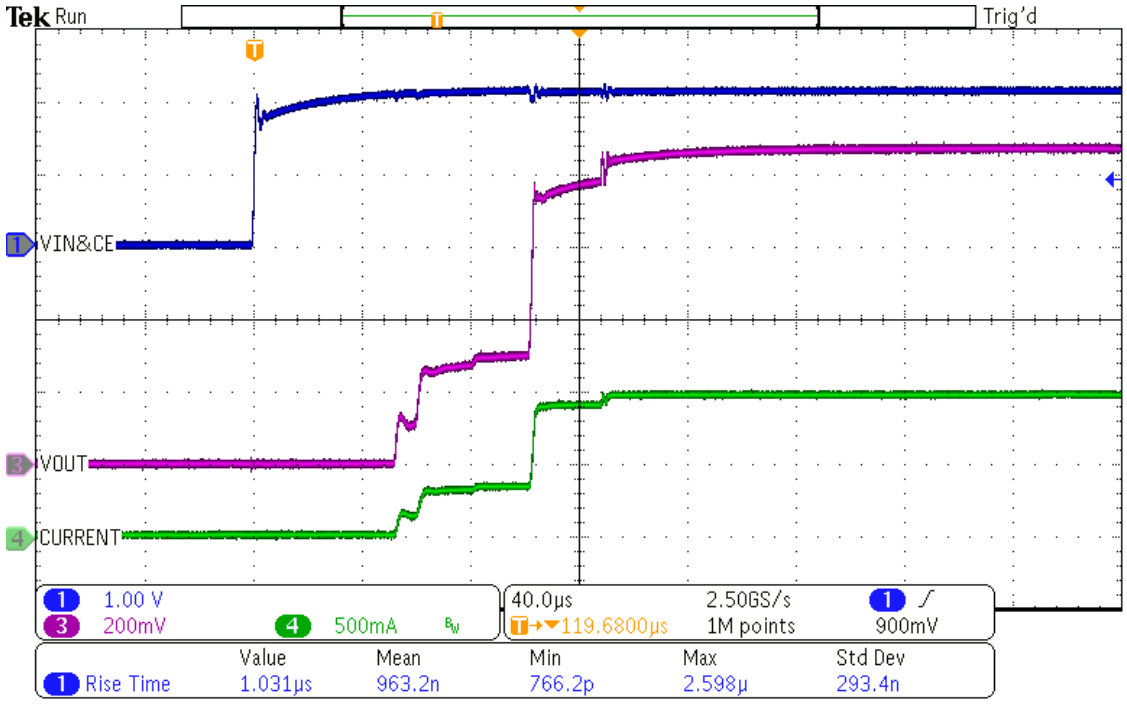


ASPL8801-430-TH

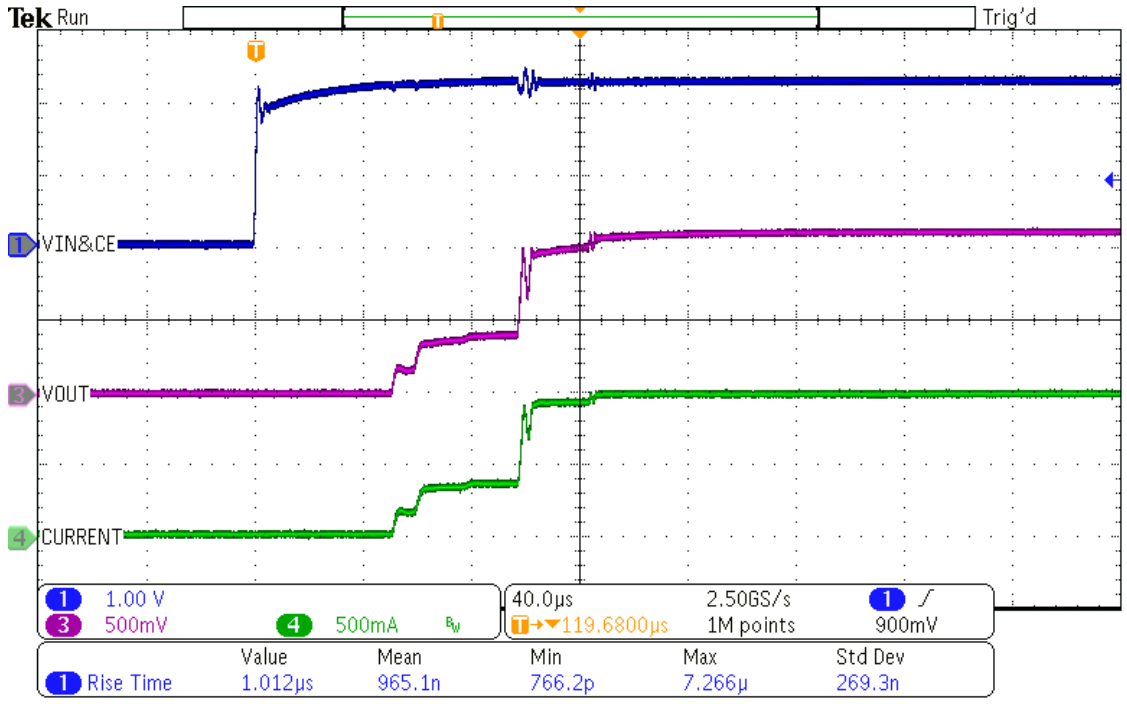


Turn-on waveform by V_{IN} & CE @ full load (V_{IN} = CE = 0 V to V_{OUT}+1V, C_{IN} = C_{OUT} = 1.0 μF, Ta = 25°C, I_{OUT}=1A)

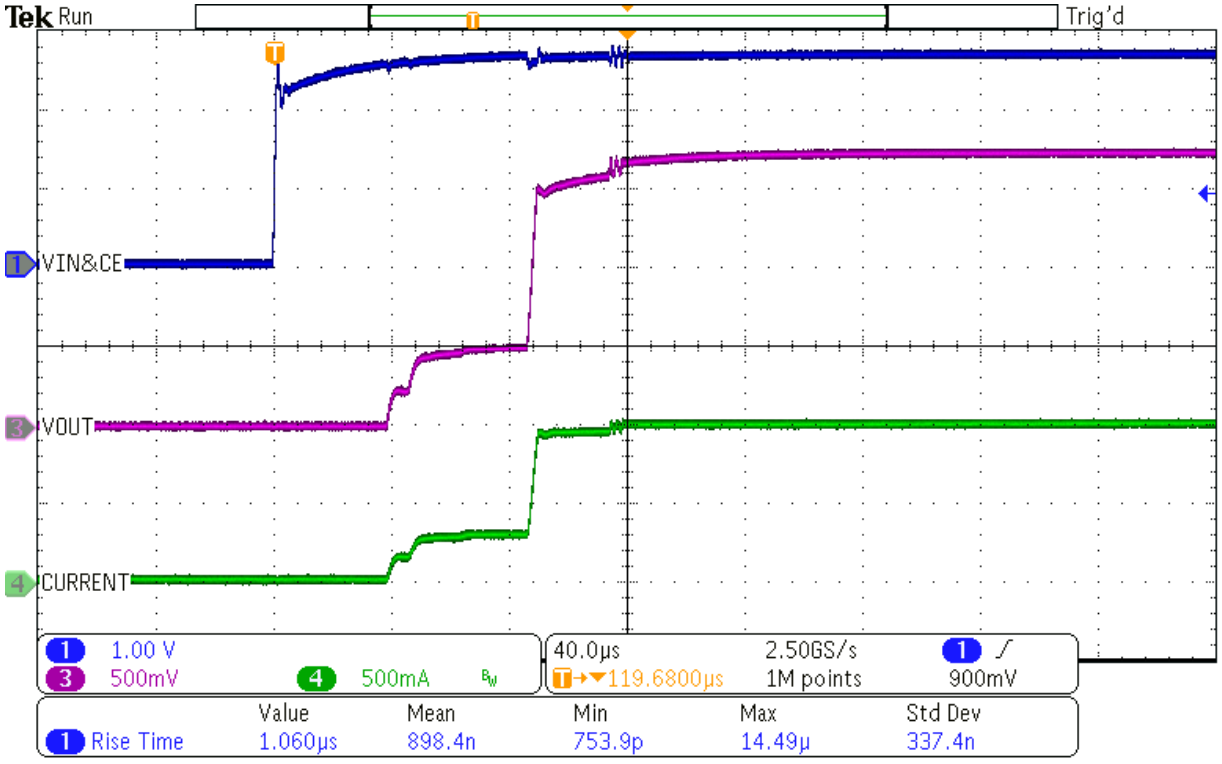
ASPL8801-090-TH



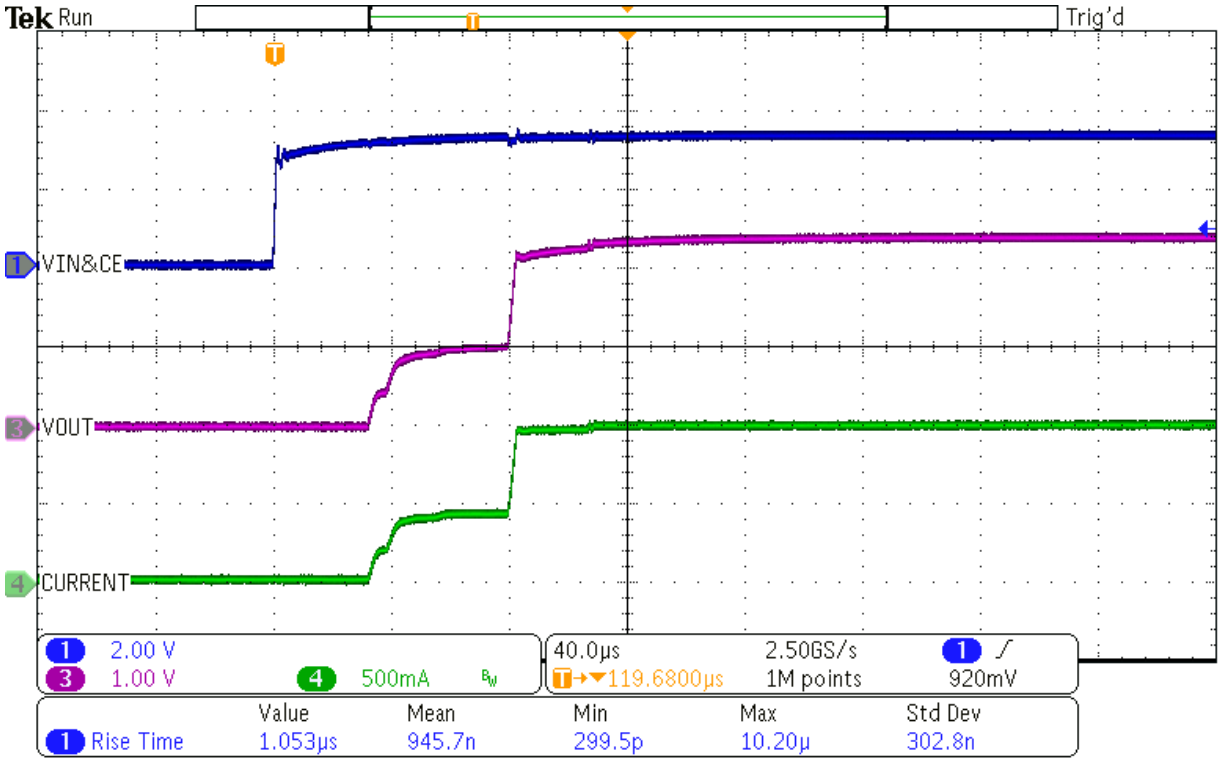
ASPL8801-120-TH



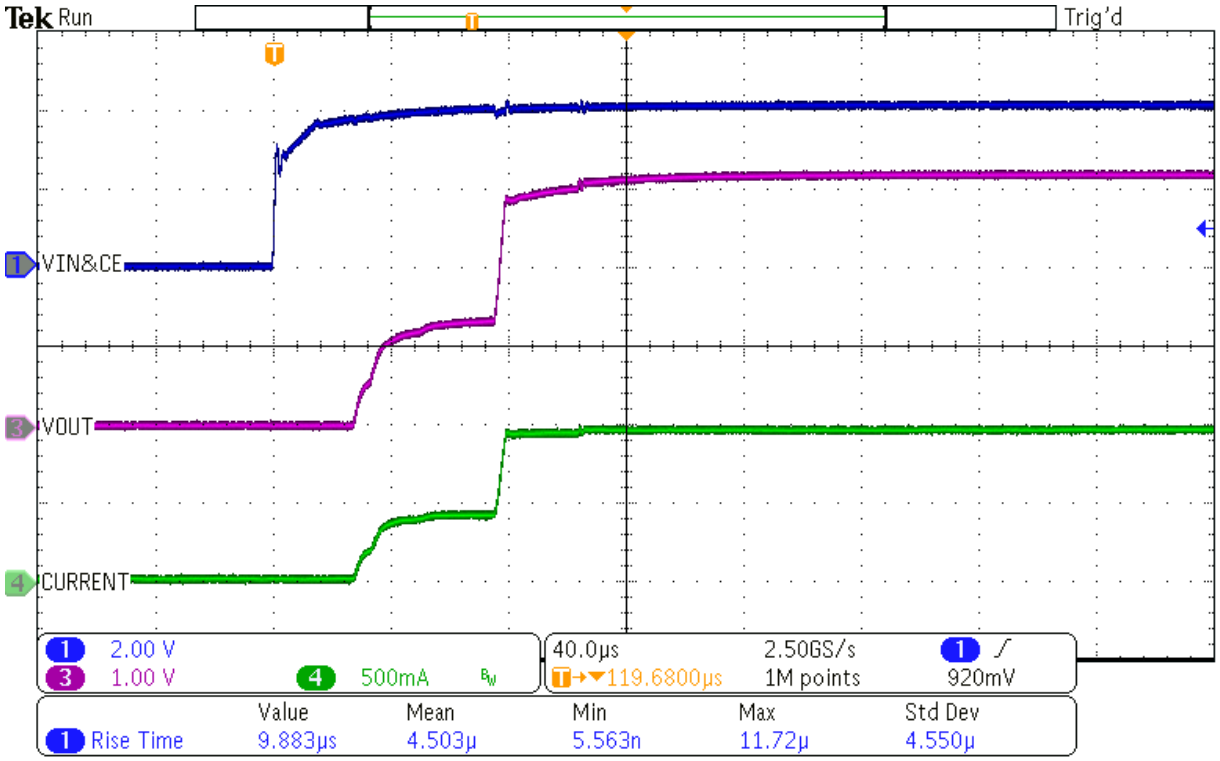
ASPL8801-180-TH



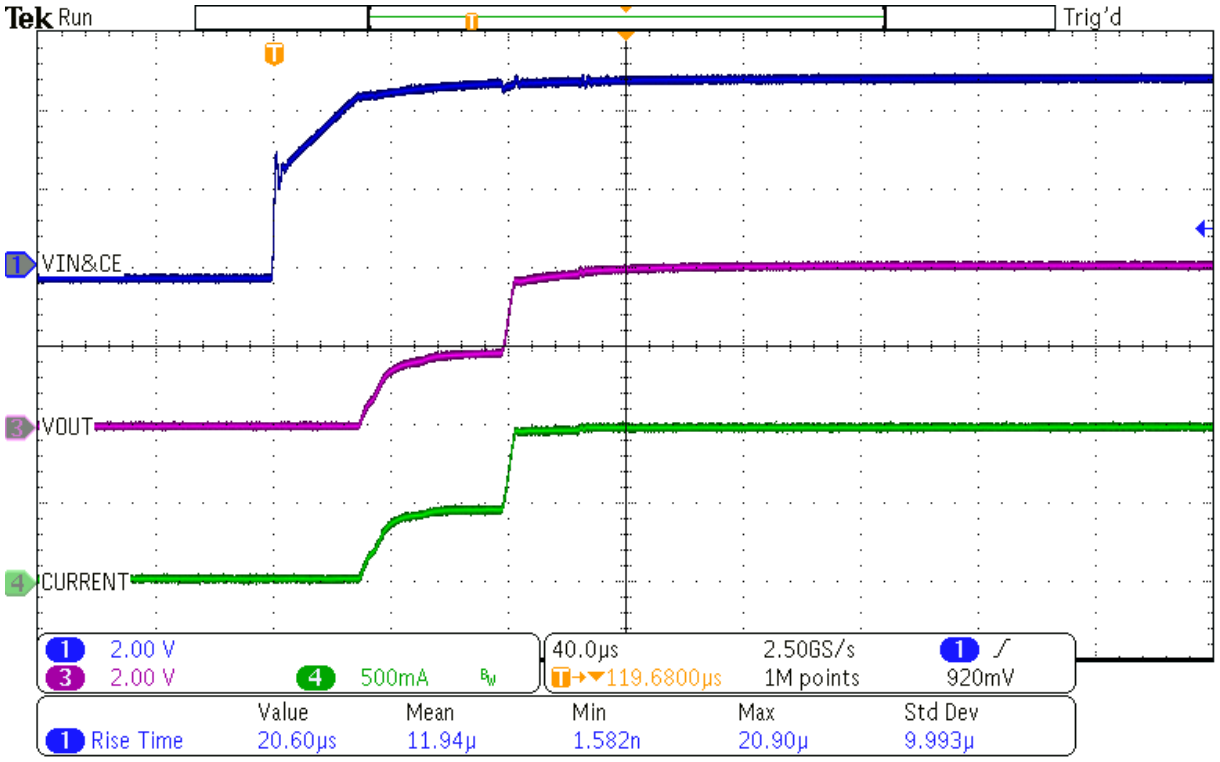
ASPL8801-250-TH



ASPL8801-330-TH

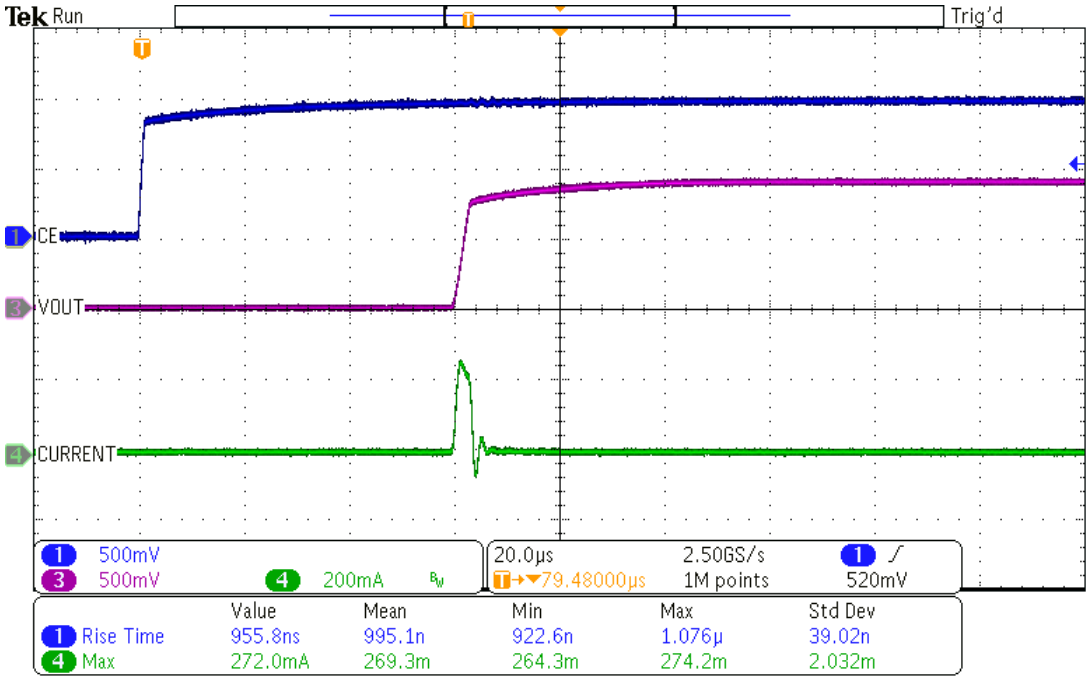


ASPL8801-430-TH

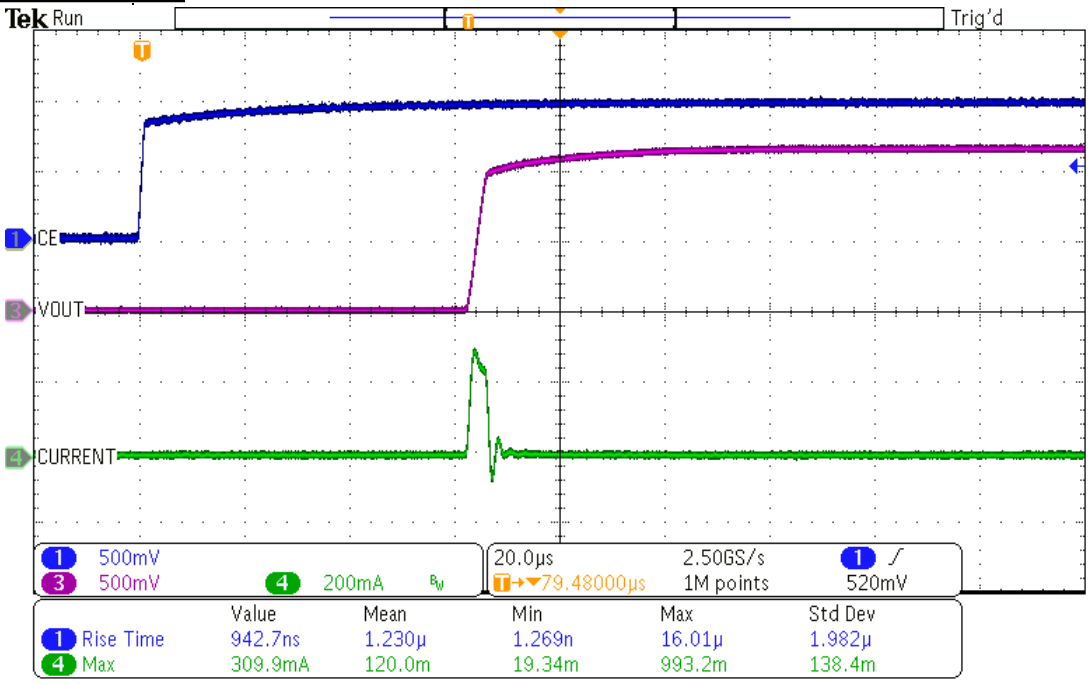


Turn-on by CE pin & Inrush current @ no load (V_{IN} = V_{OUT}+1V, CE = 0V to 1V, C_{IN} = C_{OUT} = 1.0 μF, Ta = 25°C, I_{OUT}=0 mA)

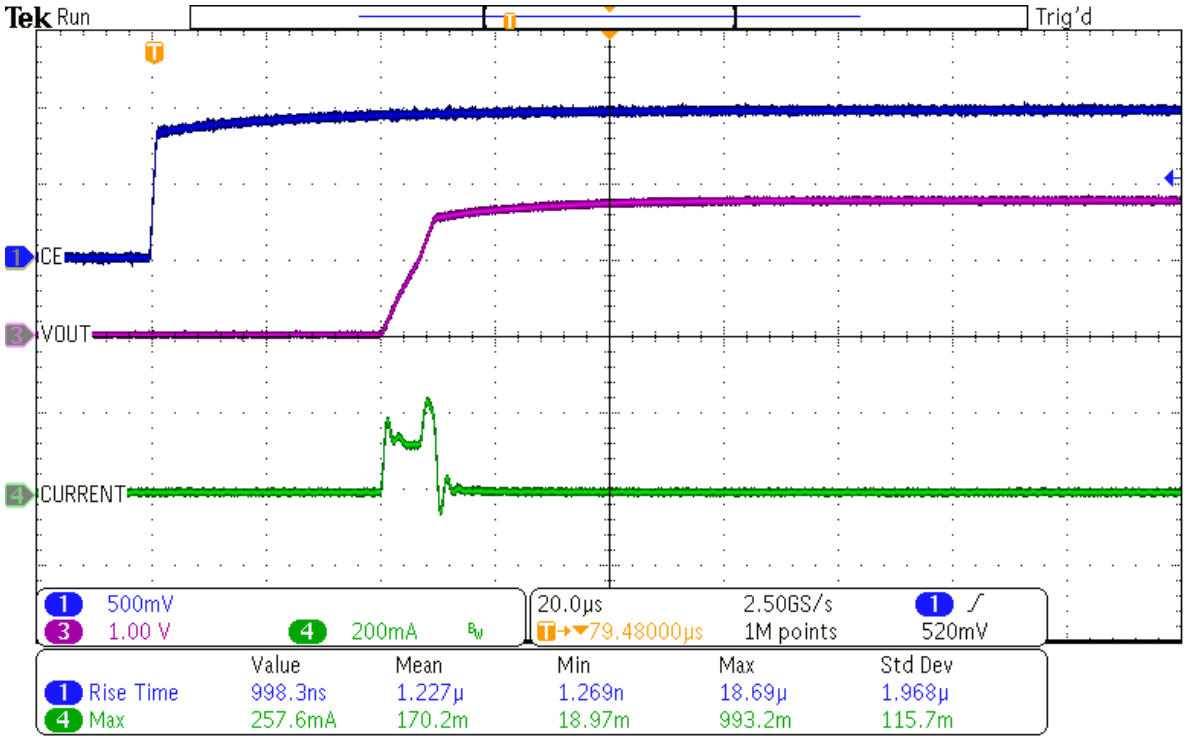
ASPL8801-090-TH



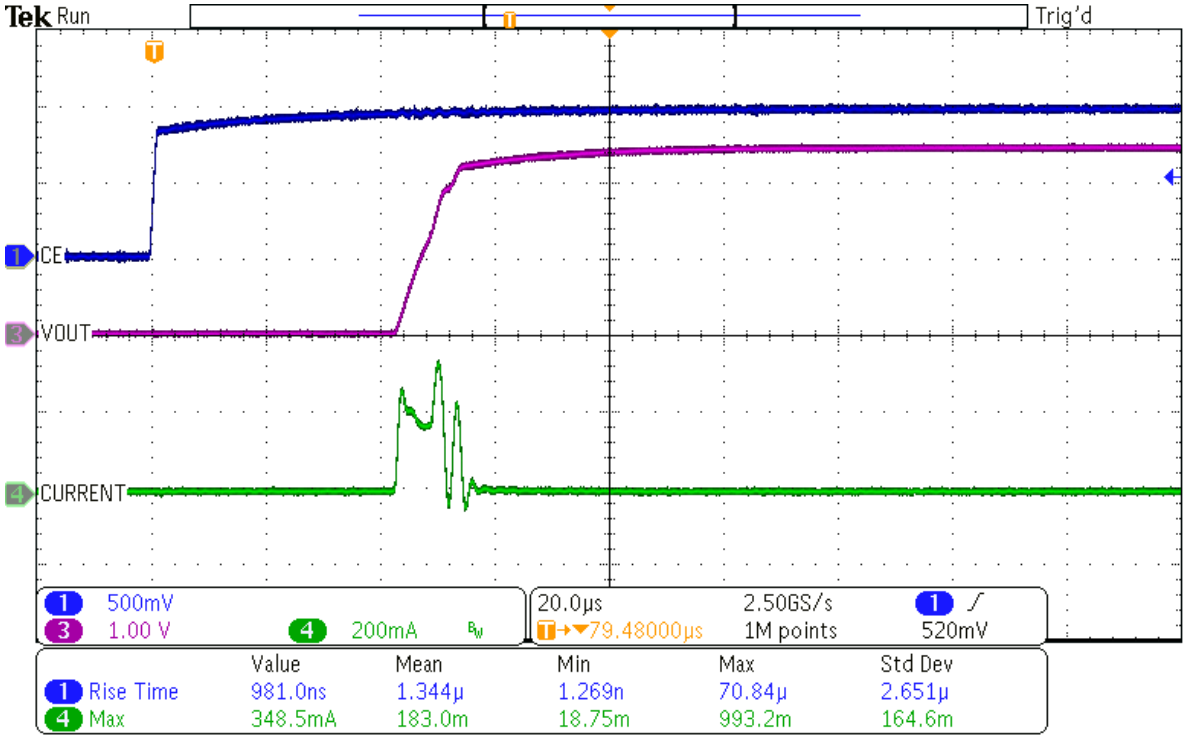
ASPL8801-120-TH



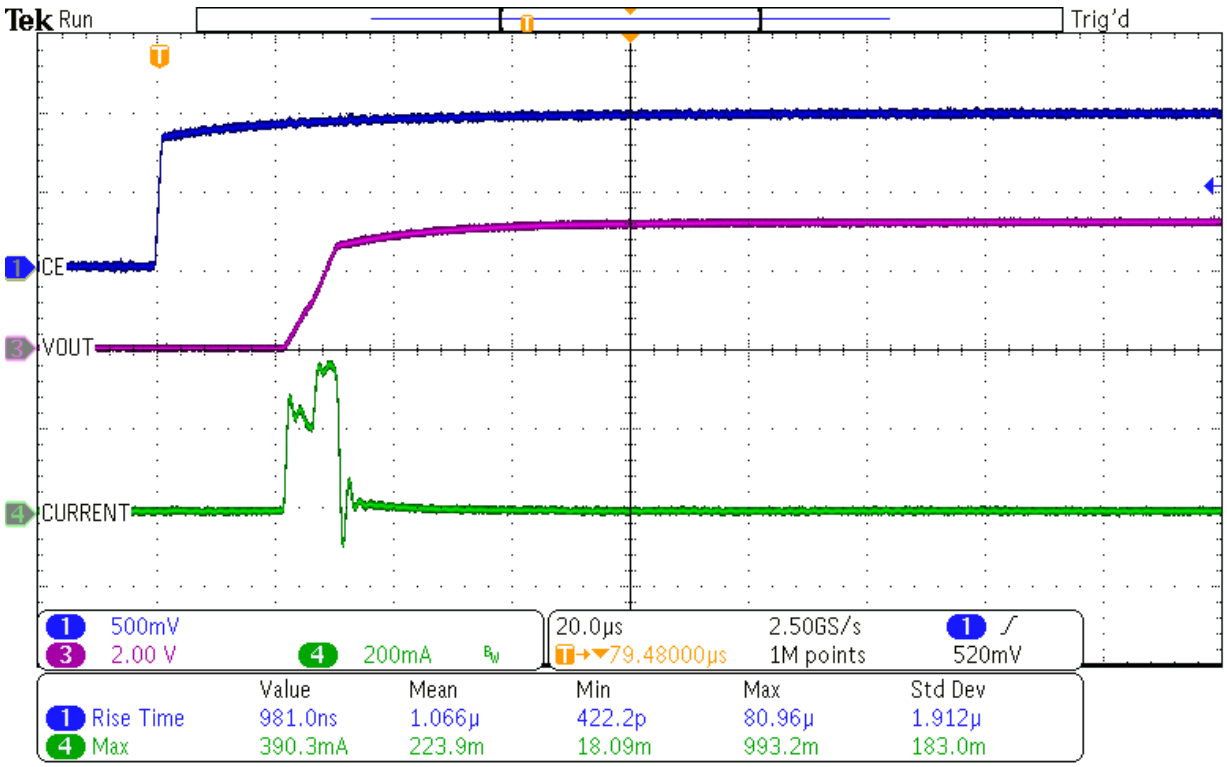
ASPL8801-180-TH



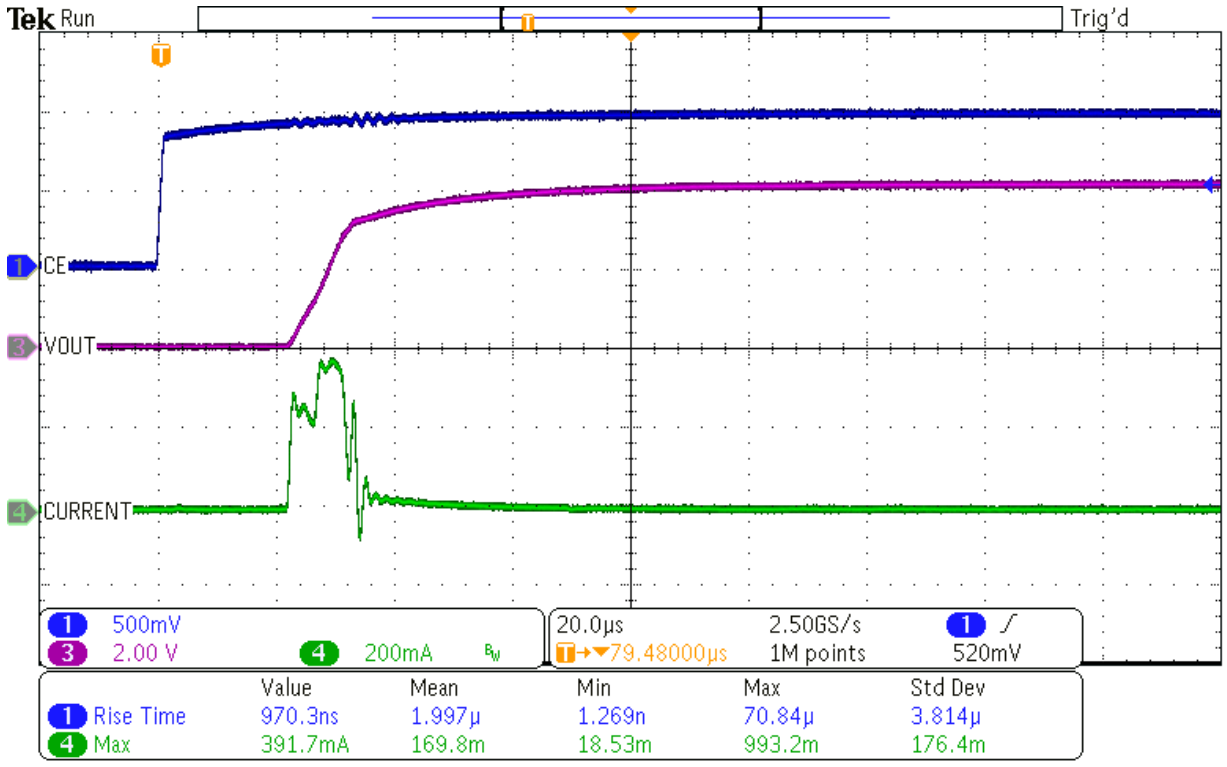
ASPL8801-250-TH



ASPL8801-330-TH

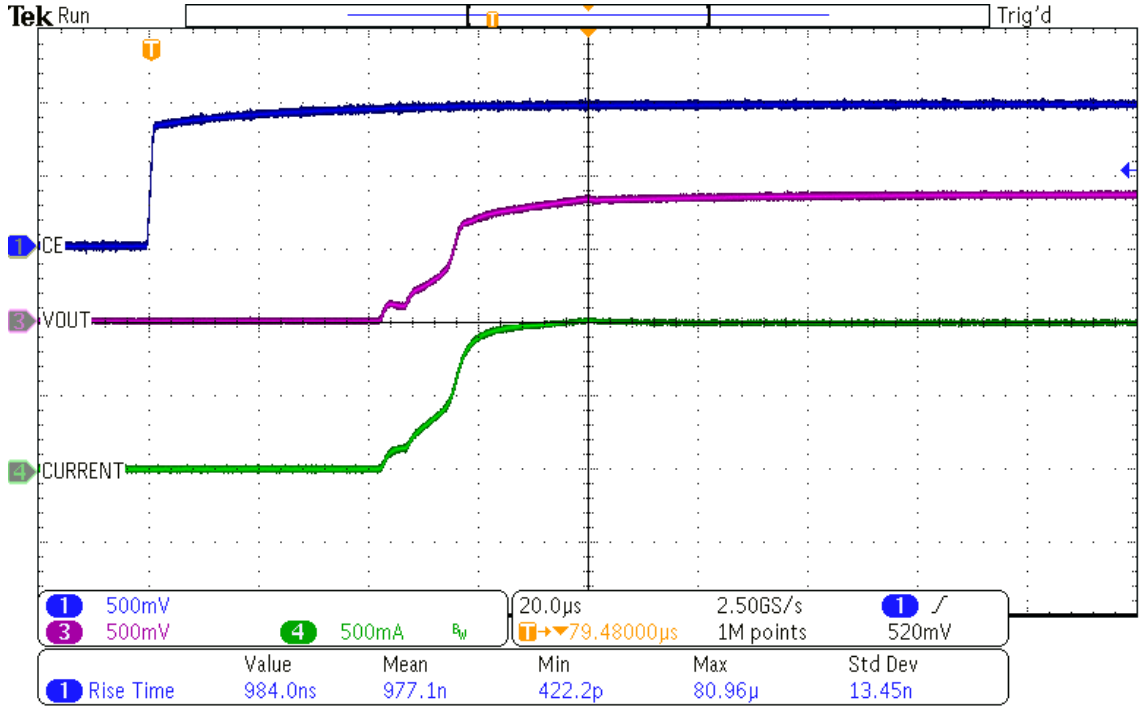


ASPL8801-430-TH

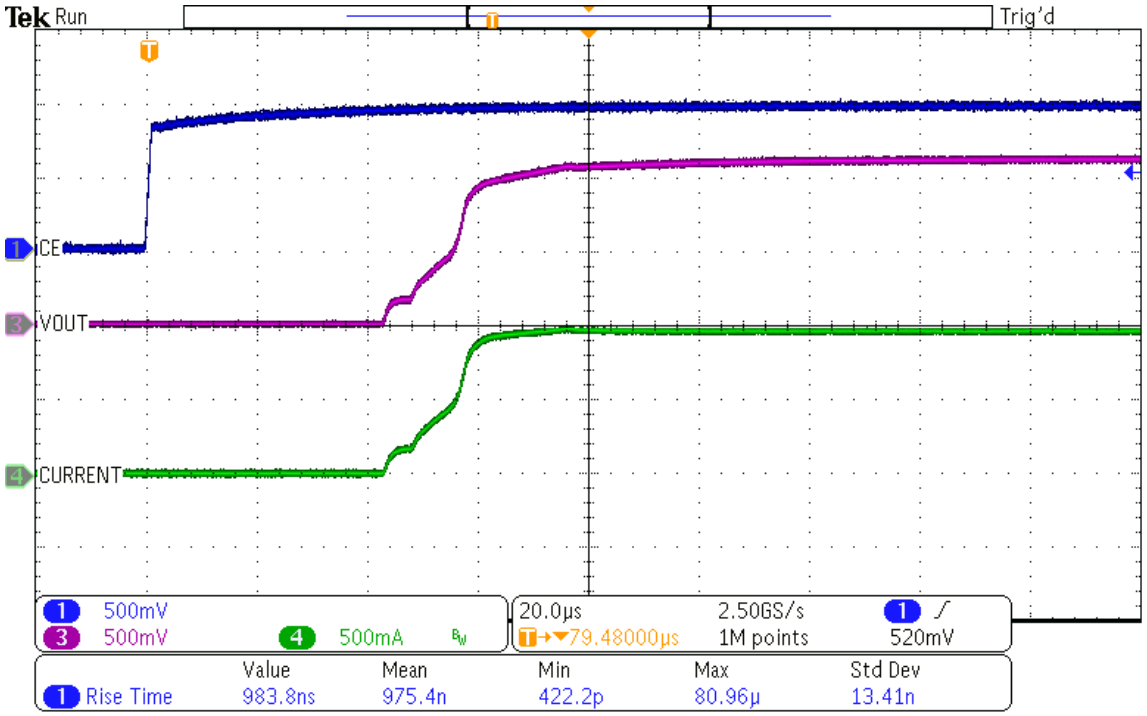


Turn-on by CE pin @ full load (V_{IN} = V_{OUT}+1V , CE = 0V to 1V, C_{IN} = C_{OUT} = 1.0 µF, Ta = 25°C, I_{OUT}=1A)

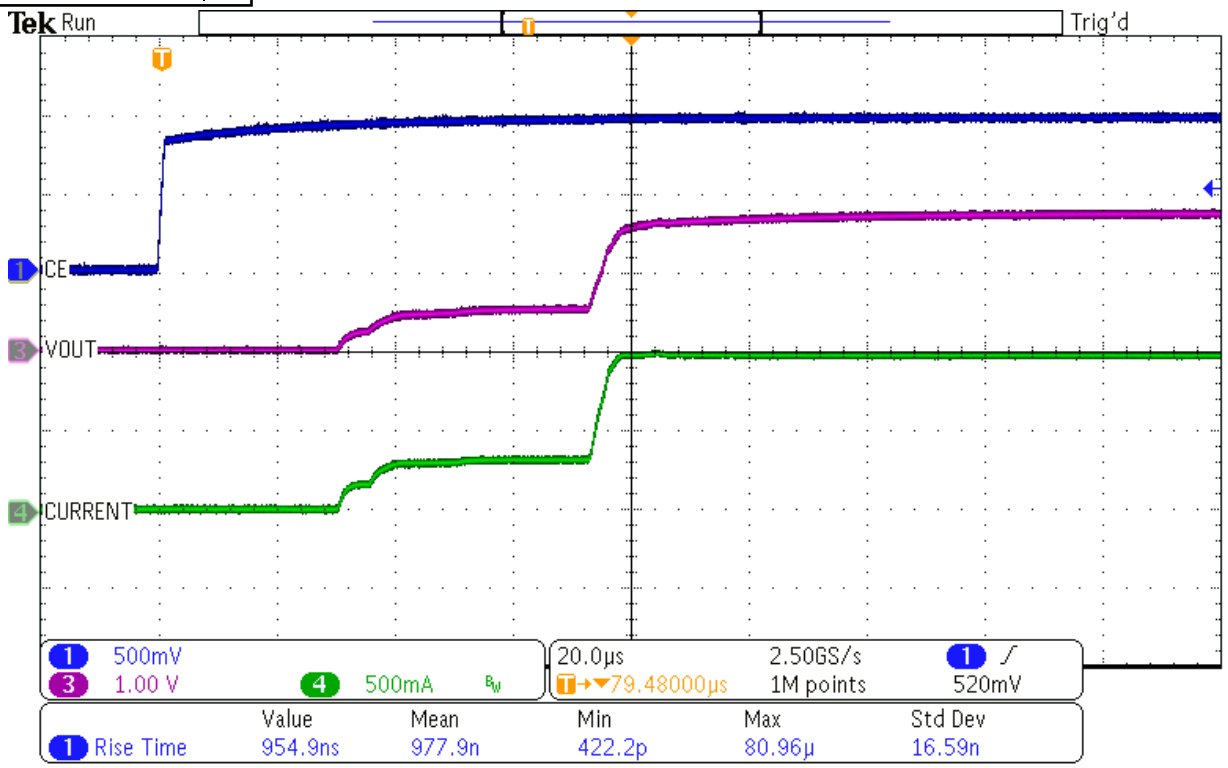
ASPL8801-090-TH



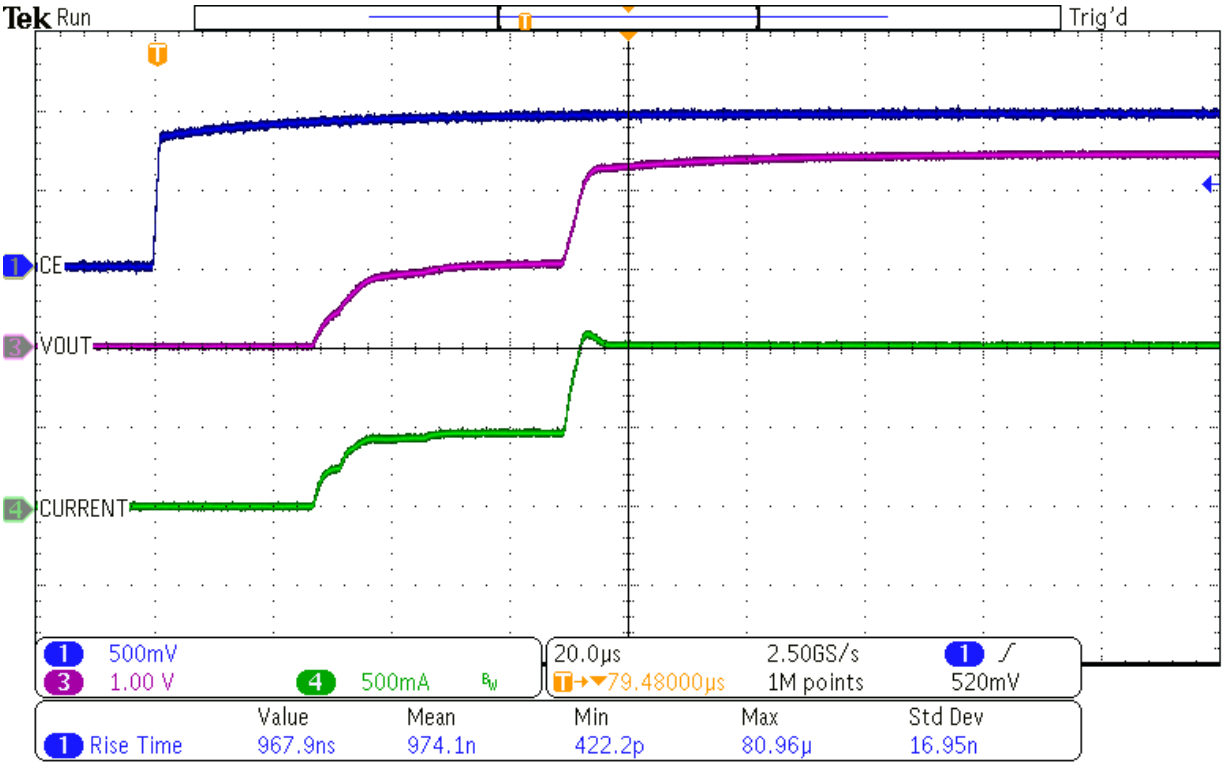
ASPL8801-120-TH



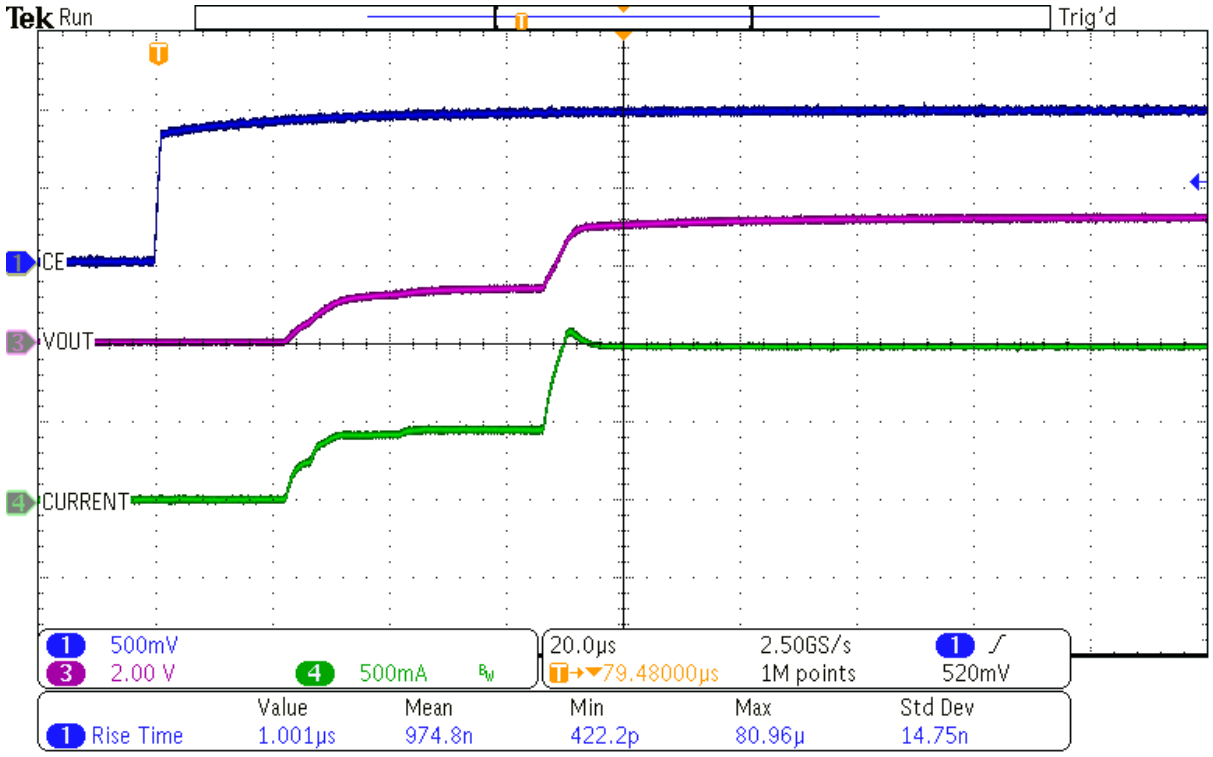
ASPL8801-180-TH



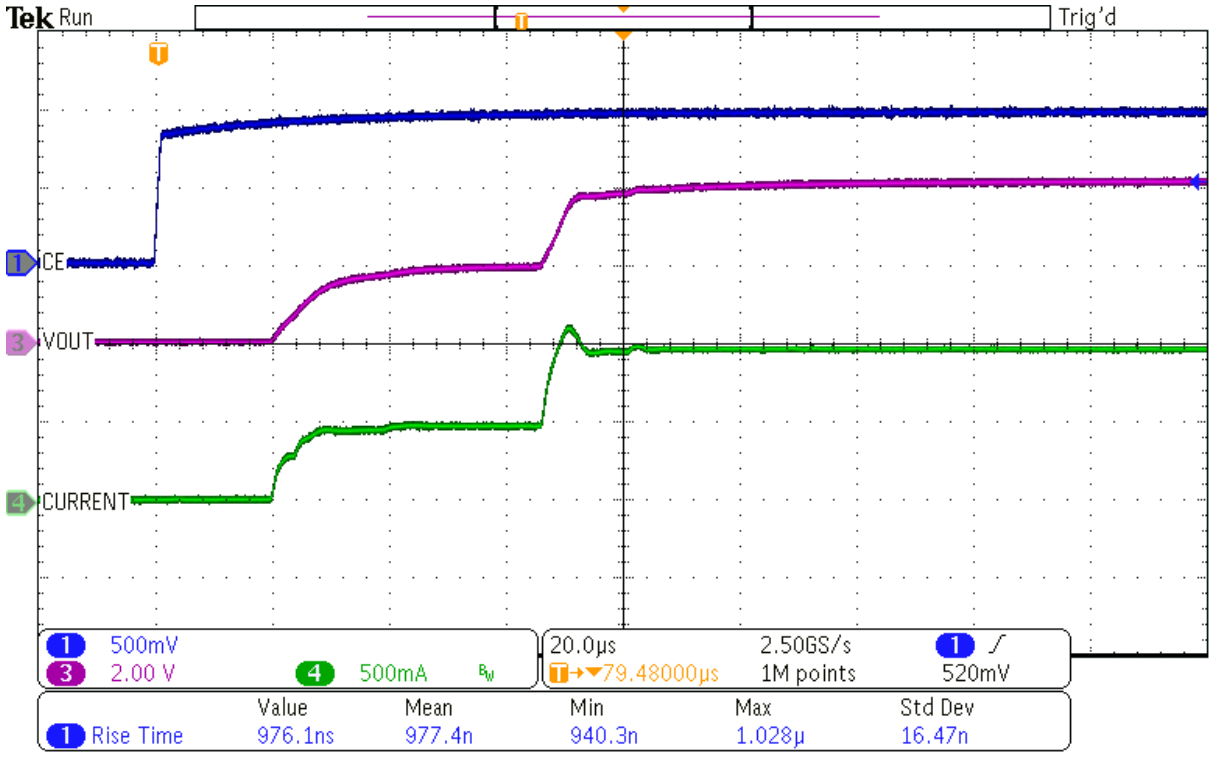
ASPL8801-250-TH



ASPL8801-330-TH



ASPL8801-430-TH

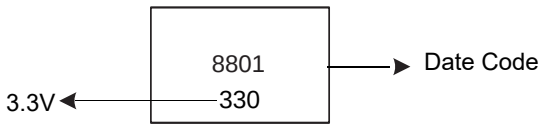


The current version is beta testing. It is recommended that for all test items, the voltage value of vin is fixed at vout+1v to avoid unexpected situations! The future mass production version will not have this restriction.

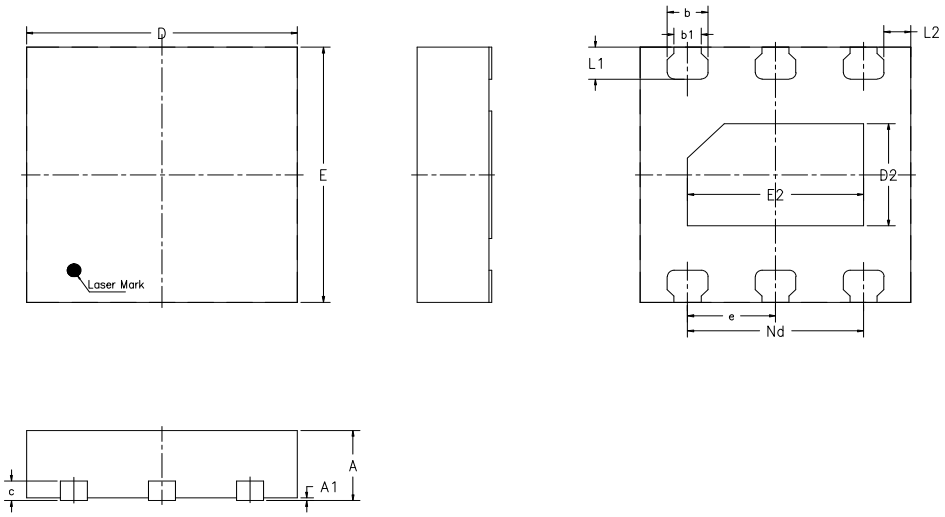
Ordering Information

Ordering Number	Package	Packing	Quantity
ASPL8801-xxx-TH-R	TDFN2020-6	Tape& Reel	3000
ASPL8801-xxx-DI-R	SOT89-3	Tape& Reel	1000
ASPL8801-xxx-ZD-R	SOT23-5	Tape& Reel	3000

Notes: 1. xxx: Output Voltage, Refer to Marking Information.

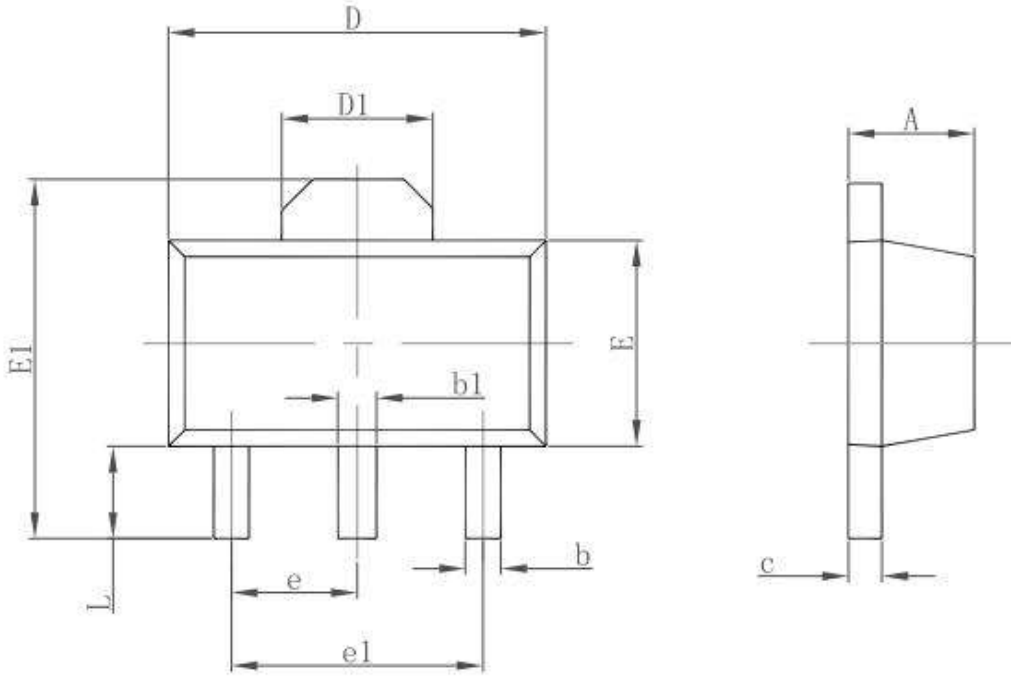
PACKAGE	MARKING
TDFN2020-6 SOT89-3 SOT23-5	

TDFN2020-6LPackage Information



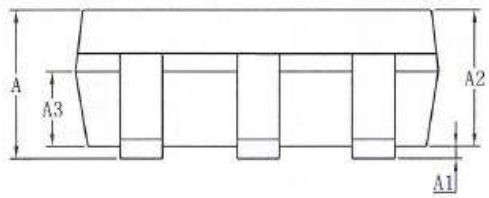
SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.530	0.550	0.570
A1	--	0.020	0.050
b	0.250	0.300	0.350
b1	0.200REF		
c	0.152REF		
D	1.950	2.000	2.050
D2	0.770	0.800	0.830
e	0.65BSC		
Nd	1.30BSC		
E	1.950	2.000	2.050
E2	1.270	1.300	1.330
L1	0.200	0.250	0.300
L2	0.200REF		

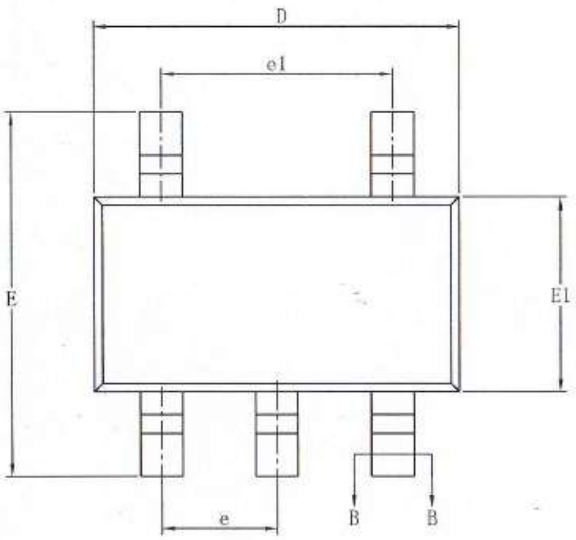
SOT89-3 Package Information

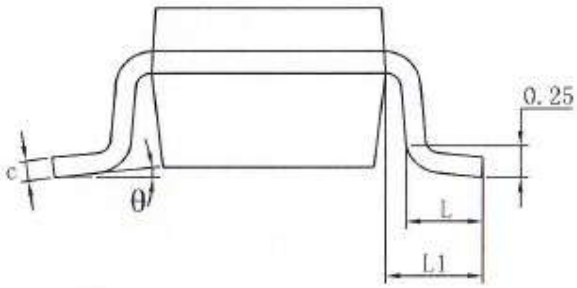


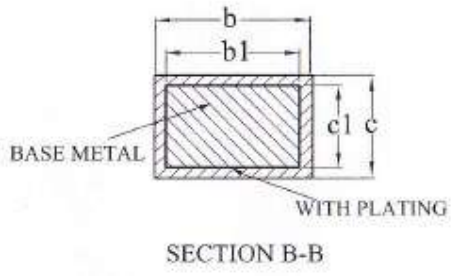
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

SOT23-5 Package Information









SECTION B-B

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.04	—	0.10
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.33	—	0.41
b1	0.32	0.35	0.38
c	0.15	—	0.19
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.50	1.60	1.70
e	0.95BSC		
e1	1.90BSC		
L	0.30	—	0.60
L1	0.60REF		
θ	0	—	8°

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