ISL73007x

Neutron Test Results of the ISL73007M and ISL73007SEH 18V, 3A Point-of-Load Regulators

Introduction

This report summarizes results of 1MeV equivalent neutron testing of the ISL73007x low dropout linear regulator. This test was conducted on samples of the ISL73007M to determine the sensitivity of the part to displacement damage (DD) caused by neutron or proton environments but is applicable to all versions of this part on various flows (Rad Tolerant Plastic, Rad Hard Plastic, and Rad Hard Hermetic). Neutron fluences ranged from 5×10^{11}n/cm^2 to 1×10^{13}n/cm^2.

Product Description

The ISL73007x is a Point-of-Load (POL) buck regulator that provides up to 3A of output current capability with an input voltage ranging from 3V to 18V. The device uses constant frequency peak current mode control architecture for fast loop transient response. The device uses internal compensation or an external Type-II compensation to optimize performance and stabilize the loop. The ISL73007x has an internally configured switching frequency of 500kHz. The ISL73007x switching frequency can be adjusted from 300kHz to 1MHz using an external resistor.

The ISL73007x integrates high-side (P-channel) and low-side (N-channel) power FETs. There are options for external or internal compensation, switching frequency, and slope control that can be implemented with a minimum of external components reducing the BOM count and design complexity.

The ISL73007x includes a comprehensive suite of operational features and protections, including preset undervoltage, overvoltage, overcurrent protections, power-good, soft-start, and over-temperature. A block diagram is shown in Figure 1.

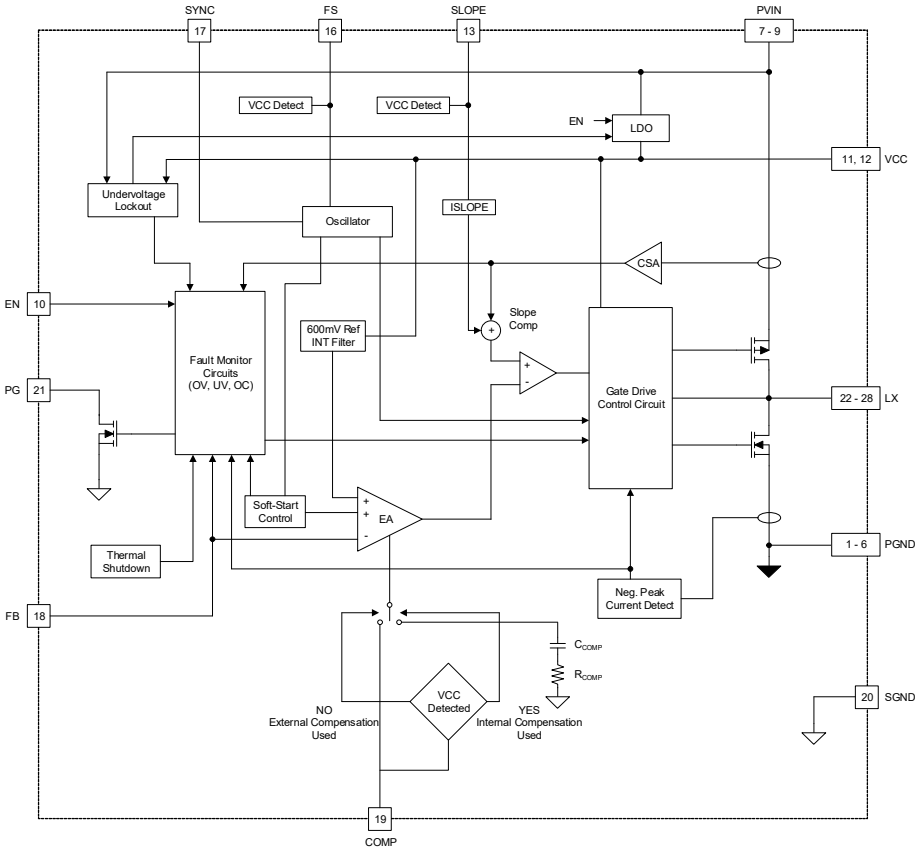

Figure 1. Block Diagram

The ISL73007M operates across the temperature range of -55°C to +125°C and is available in a 28-lead plastic exposed pad heatsink thin shrink small outline package (HTSSOP) as shown in Figure 2.

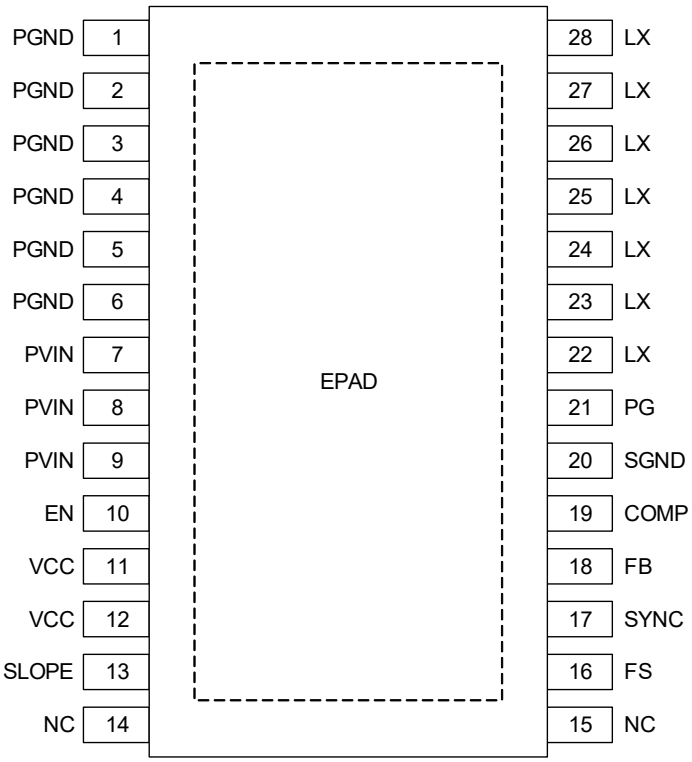

Figure 2. Pin Assignments - Top View

Related Literature

For a full list of related documents, visit our website:

- ISL73007M and ISL73007SEH device pages
- MIL-STD-883 Test Method 1017

Contents

1. Test Description

1.1 Irradiation Facilities

Neutron fluence irradiations were performed on the test samples on May 27, 2025, at the University of Massachusetts, Lowell (UMASS Lowell) fast neutron irradiator per Mil-STD-883G, Method 1017.2, with each part unpowered during irradiation. The target irradiation levels were 5×10^{11}n/cm^2, 2×10^{12}n/cm^2, and 1×10^{13}n/cm^2. The parts were shipped back to Renesas (Palm Bay, FL) for post-irradiation electrical testing.

1.2 Test Fixturing

No formal irradiation test fixturing is involved, as these DD tests are bag tests in the sense that the parts are irradiated with all leads unbiased.

1.3 Radiation Dosimetry

Table 1 shows dosimetry from UMASS Lowell indicating the total accumulated gamma dose and actual neutron fluence exposure levels for each set of samples.

Table 1. Neutron Fluence Dosimetry Data

Irradiation	Requested Fluence (n/cm^2)	Reactor Power (kW)	Time (s)	Flux (n/cm^2-s)[1][2]	Gamma Dose (rad(Si))[3]	Measured Fluence (n/cm^2)[4]
CRF#98191-C	5.00E+11	40	262	3.06E+09	119	6.12E+11
CRF#98191-D	2.00E+12	80	531	6.12E+09	484	2.38E+12
CRF#98191-E	1.00E+13	800	266	6.12E+10	2424	1.19E+13

1. Dosimetry method: ASTM E-265
2. The neutron fluence rate is determined from *Initial Testing of the New Ex-Core Fast Neutron Irradiator at UMass Lowell (6/18/02)*. Validated on 6/07/2011 under the Trident II D5LE neutron facility study by Navy Crane. Re-affirmed 8/1/17 using SACRR transistor transfer calibration based on ASTM E1855 – 15.
3. Based on reactor power at 1000kW, the gamma dose is 41 ±5.3% krad(Si)/hr as mapped by TLD-based dosimetry.
4. Validated by S-32 flux monitors.

1.4 Characterization Equipment and Procedures

Electrical testing was performed before and after irradiation using the Renesas production automated test equipment (ATE). All electrical testing was performed at room temperature.

1.5 Experimental Matrix

Testing proceeded in general accordance with the guidelines of MIL-STD-883 TM 1017. The experimental matrix consisted of five samples to be irradiated at 5×10^{11}n/cm^2, five to be irradiated at 2×10^{12}n/cm^2, and five to be irradiated at 1×10^{13}n/cm^2. The actual levels achieved, which are shown in Table 1, were 6.12×10^{11}n/cm^2, 2.38×10^{12}n/cm^2, and 1.19×10^{13}n/cm^2. Three control units were used.

The eighteen ISL73007M samples were drawn from Lot HW10428. Samples were packaged in the 28Ld HTSSOP.

2. Test Results

Neutron testing of the ISL73007M is complete and the results are reported in the balance of this report. It should be understood when interpreting the data that each neutron irradiation was performed on a different set of samples; this is not total dose testing, where the damage is cumulative. Each marker represents a different set of five samples. The line connecting them is for trend visualization only.

2.1 Attributes Data

Table 2. Neutron Attributes Data

1 MeV Fluence, (n/cm^2)		Sample size	Pass[1]	Fail	Notes
Planned	Actual				
5×10^{11}	6.12E+11	5	5	0	All passed
2×10^{12}	2.38E+12	5	5	0	All passed
1×10^{13}	1.19E+13	5	5	0	All passed

1. A Pass indicates a sample that passes all post-irradiation datasheet limits.

2.2 Key Parameter Variables Data

The plots in Figure 3 through Figure 47 show data plots for selected key parameters before and after irradiation to each neutron fluence level. The plots show the mean of each parameter as a function of neutron irradiation. Each marker represents a different set of five samples. The line connecting them is for trend visualization only. The plots also include error bars at each down-point, representing the minimum and maximum measured values of the samples, although in some plots the error bars might not be visible due to their values compared to the scale of the graph. While the applicable electrical limits taken from the datasheet are also shown.

The irradiated parts passed all tested parameters up to the highest actual fluence of 1.19×10^{13}n/cm^2.

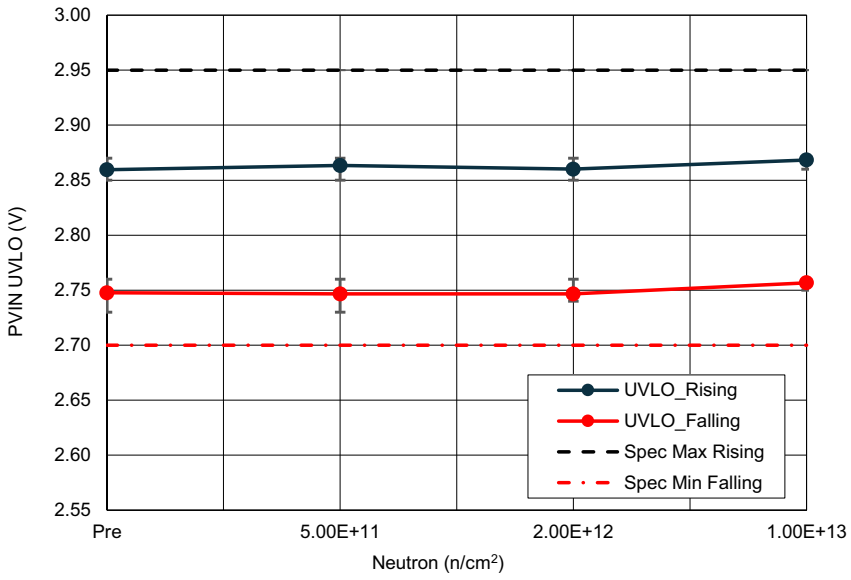

Figure 3. Average PVIN UVLO rising and falling thresholds with EN = 2.25V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 2.95V maximum rising and 2.7V minimum falling.

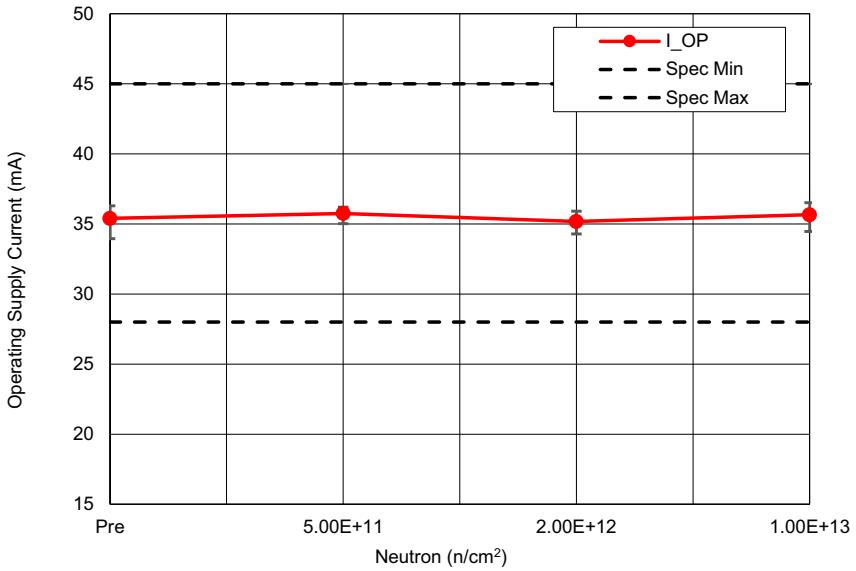

Figure 4. Average PVIN operating supply current at PVIN = 18V, EN = 5V at 500kHz, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 28mA minimum and 45mA maximum.

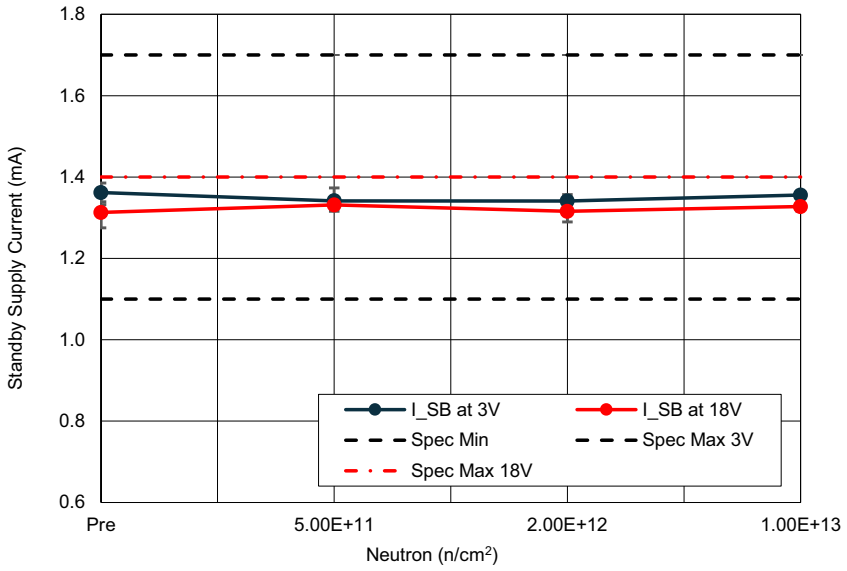

Figure 5. Average PVIN standby supply current at PVIN = 3V and 18V, with EN = 1V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.1mA minimum and 1.7mA maximum for PVIN = 3V and 1.1mA minimum and 1.4mA maximum for PVIN = 18V.

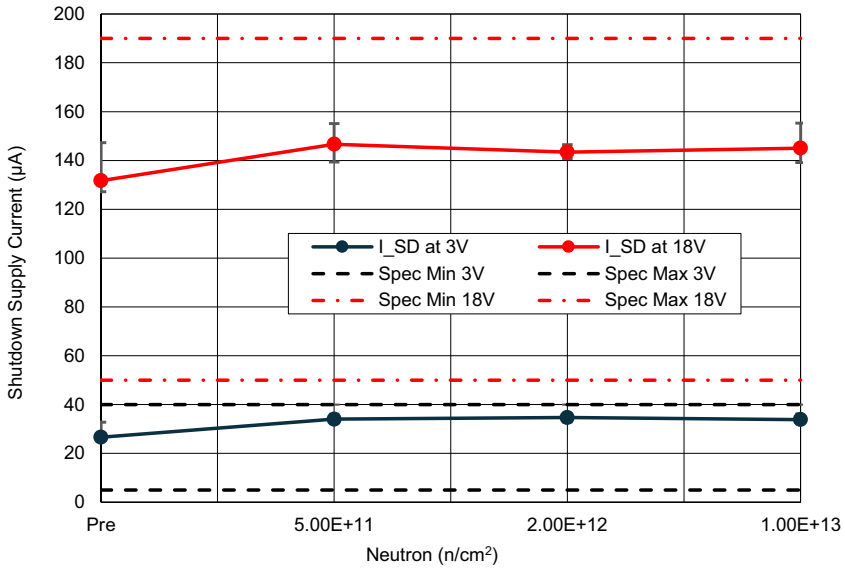

Figure 6. Average shutdown supply current at PVIN = 3V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 5µA minimum and 40µA maximum for PVIN = 3V and 50µA minimum and 190µA maximum for PVIN = 18V.

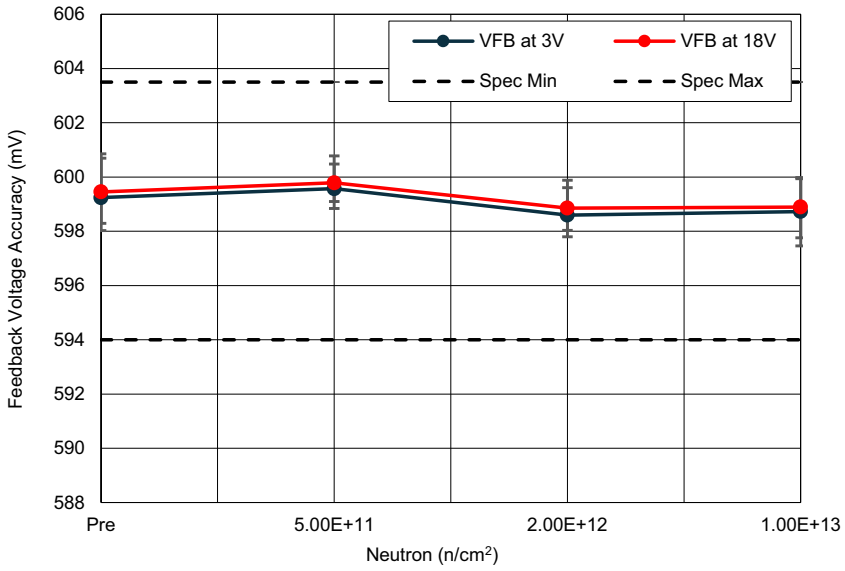

Figure 7. Average Feedback Voltage Accuracy with PVIN = 3V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 594mV minimum and 603.5mV maximum.

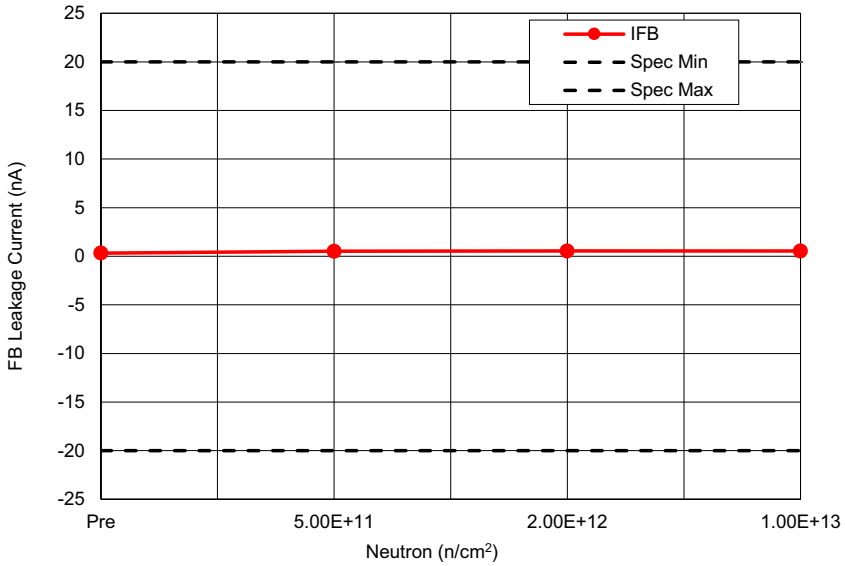

Figure 8. Average FB Leakage Current as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are -20nA minimum and 20nA maximum.

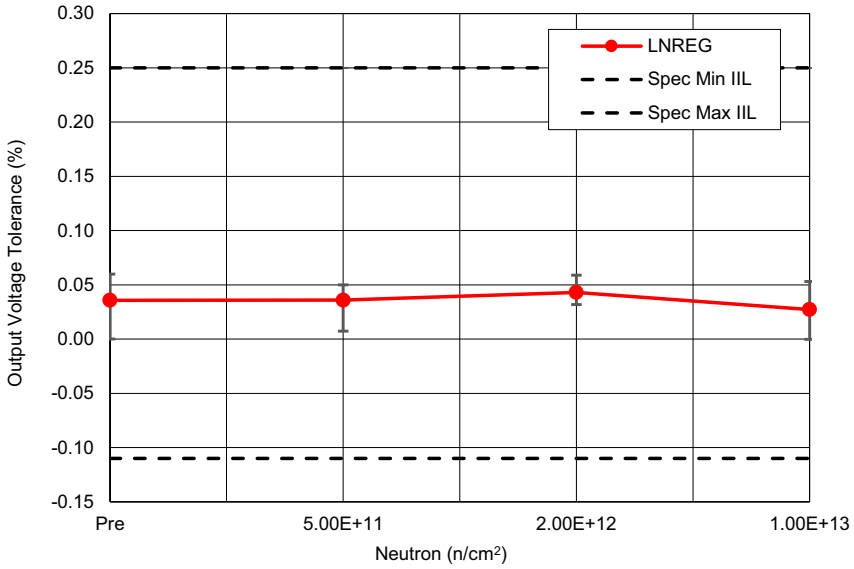

Figure 9. Average Output Voltage Tolerance as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are –0.11% minimum and 0.25% maximum.

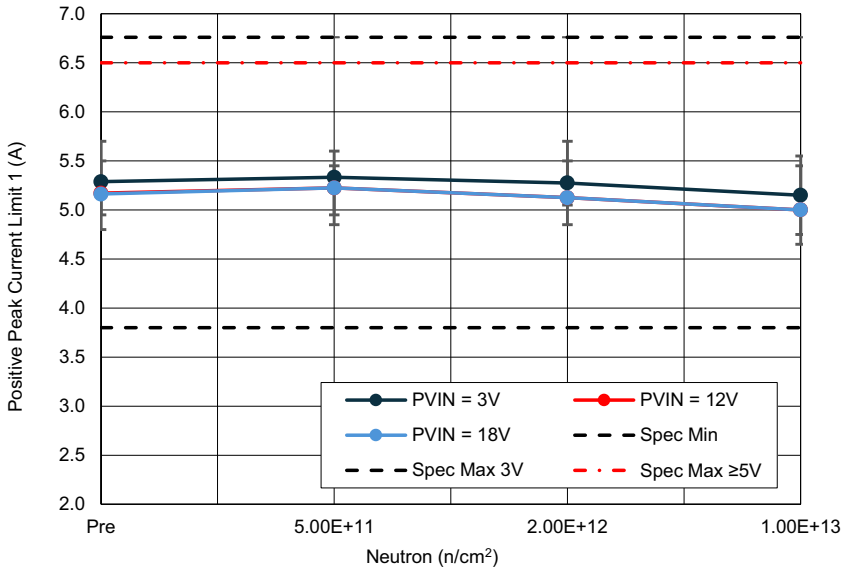

Figure 10. Average Positive Peak Current Limit 1 with PVIN = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 3.8A minimum and 6.76A maximum for PVIN = 3V and 3.8A minimum and 6.5A maximum for PVIN ≥ 5V.

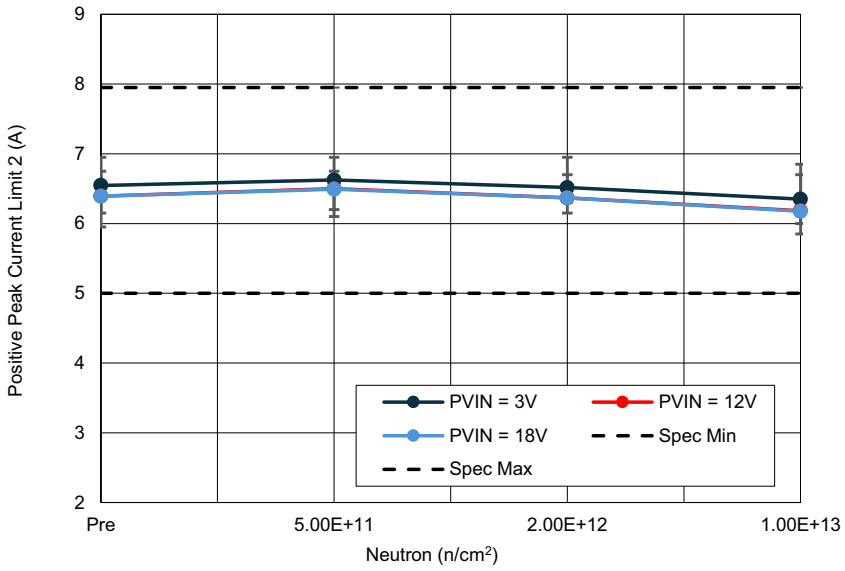

Figure 11. Average Positive Peak Current Limit 2 with PVIN = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 5A minimum and 7.95A maximum.

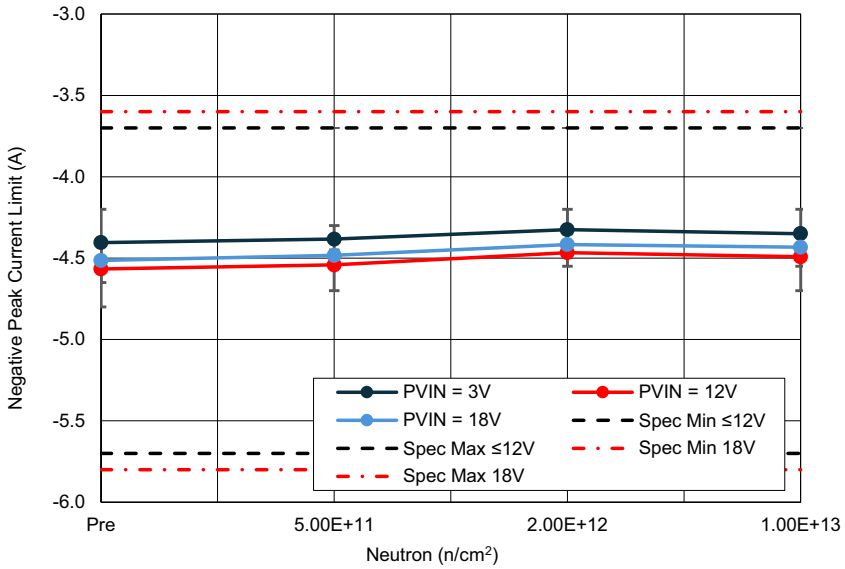

Figure 12. Average Negative Peak Current Limit with PVIN = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are -5.7A minimum and -3.7A maximum for PVIN ≤ 12V and -5.8A minimum and -3.6A maximum for PVIN = 18V.

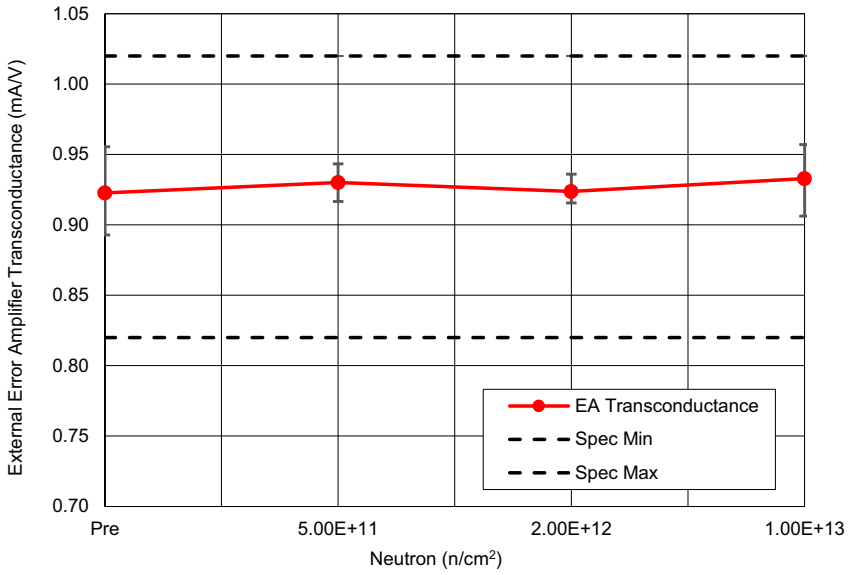

Figure 13. Average external error amplifier transconductance with PVIN = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.82mA/V minimum and 1.02mA/V maximum.

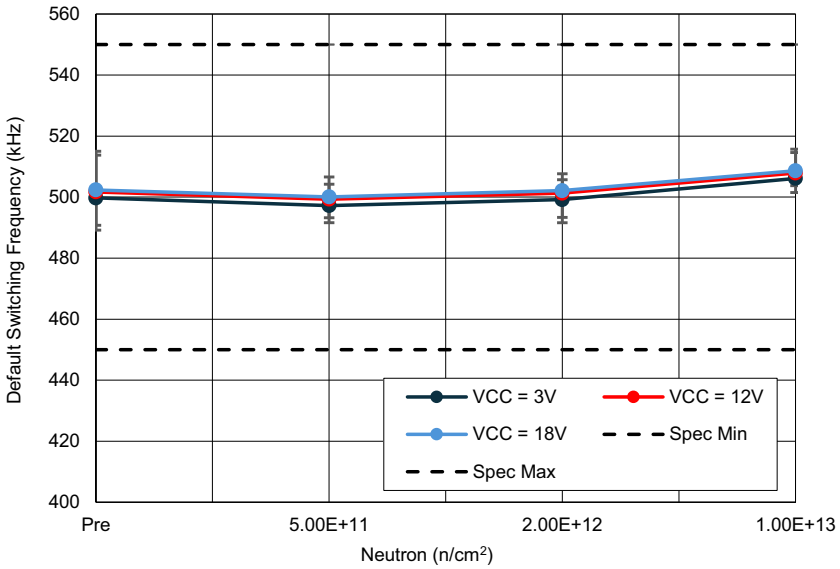

Figure 14. Average default switching frequency with $F_S = V_{CC}$ as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 450kHz minimum and 550kHz maximum.

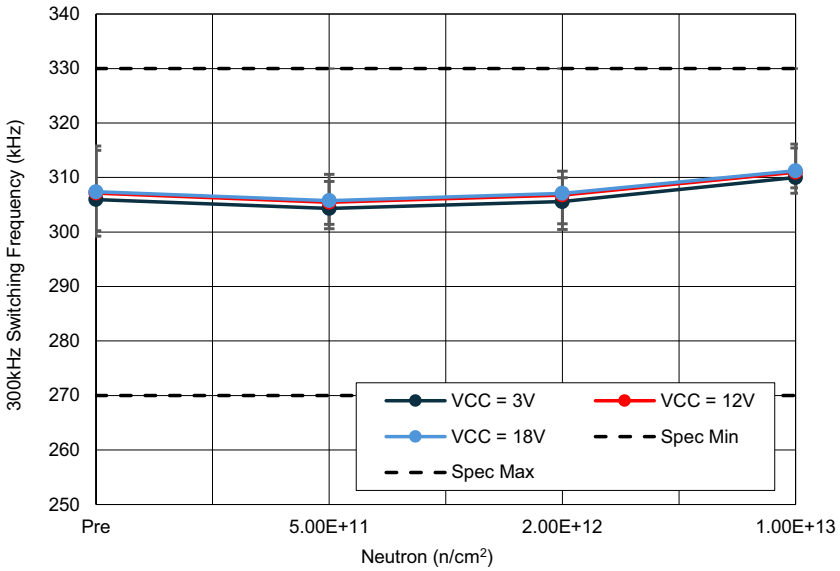

Figure 15. Average 300kHz switching frequency with F_S = 174kΩ to GND, V_{SLOPE} = 1.2V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 270kHz minimum and 330kHz maximum.

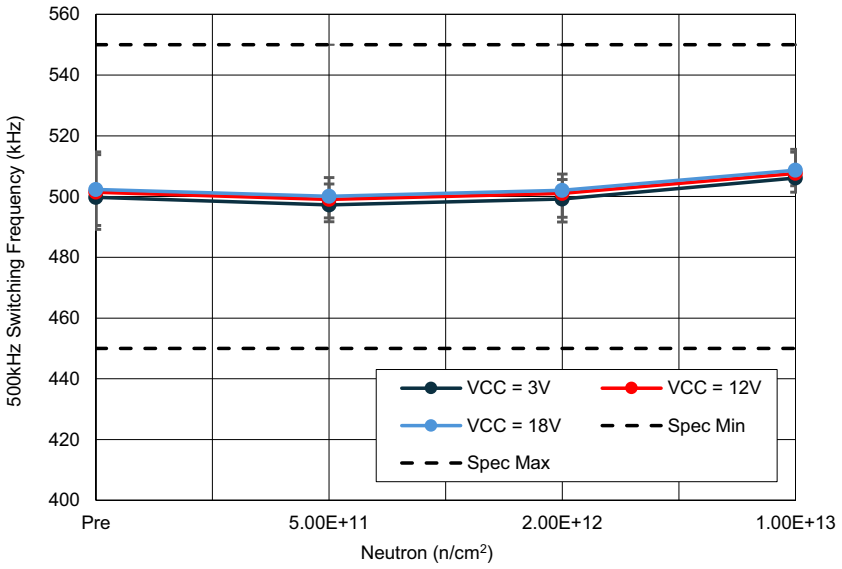

Figure 16. Average 500kHz switching frequency with F_S = 100kΩ to GND, V_{SLOPE} = 1.2V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 450kHz minimum and 550kHz maximum.

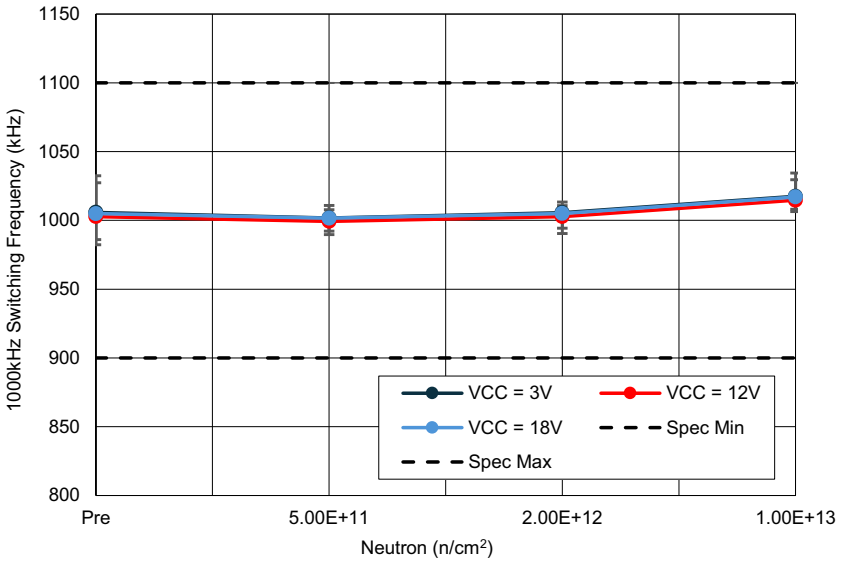

Figure 17. Average 1000kHz switching frequency with F_S = 42.7kΩ to GND, V_{SLOPE} = 1.2V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 900kHz minimum and 1100kHz maximum.

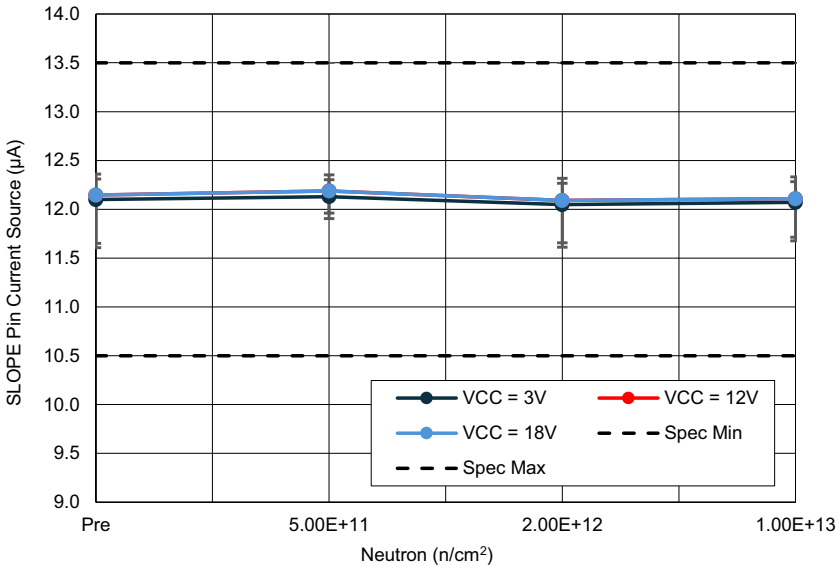

Figure 18. Average SLOPE pin current source with PVIN = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 10.5µA minimum and 13.5µA maximum.

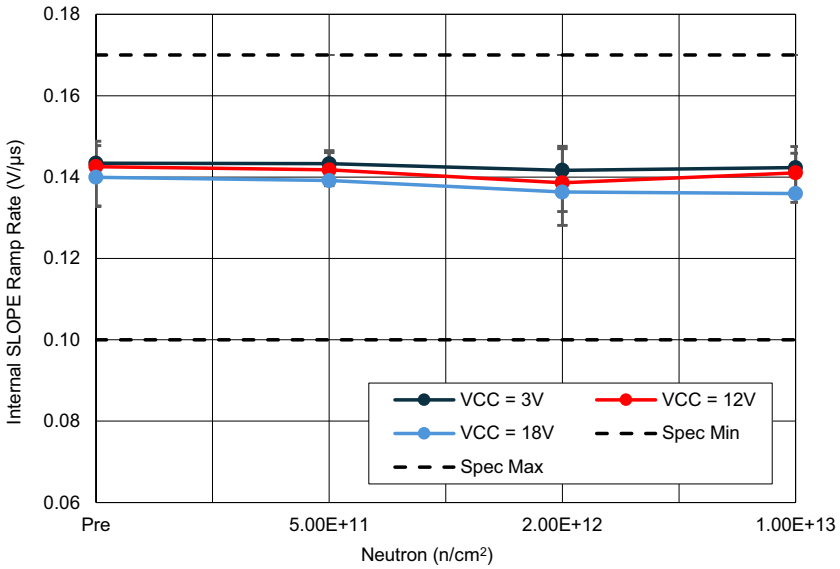

Figure 19. Average internal SLOPE ramp rate as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.10V/µs minimum and 0.17V/µs maximum.

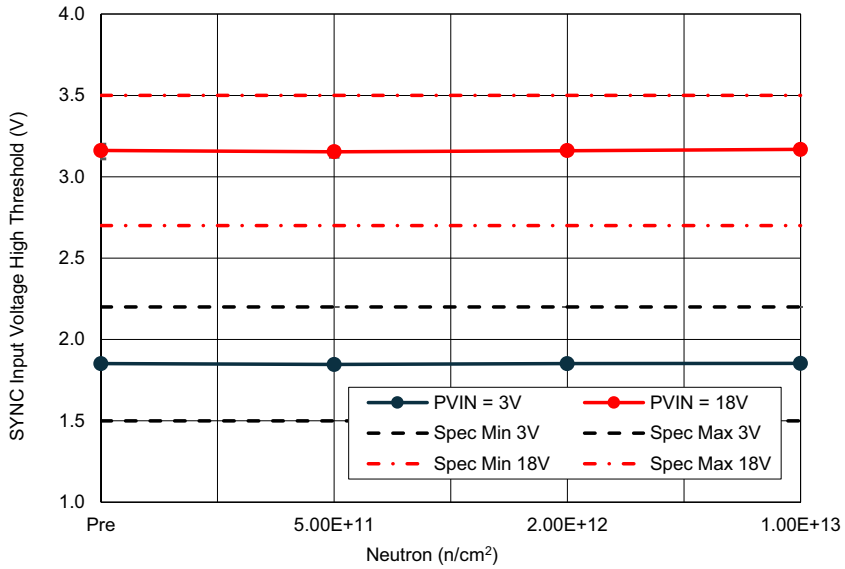

Figure 20. Average SYNC input voltage high threshold with PVIN = 3V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.5V minimum and 2.2V maximum for PVIN = 3V and 2.7V minimum and 3.5V maximum for PVIN = 18V.

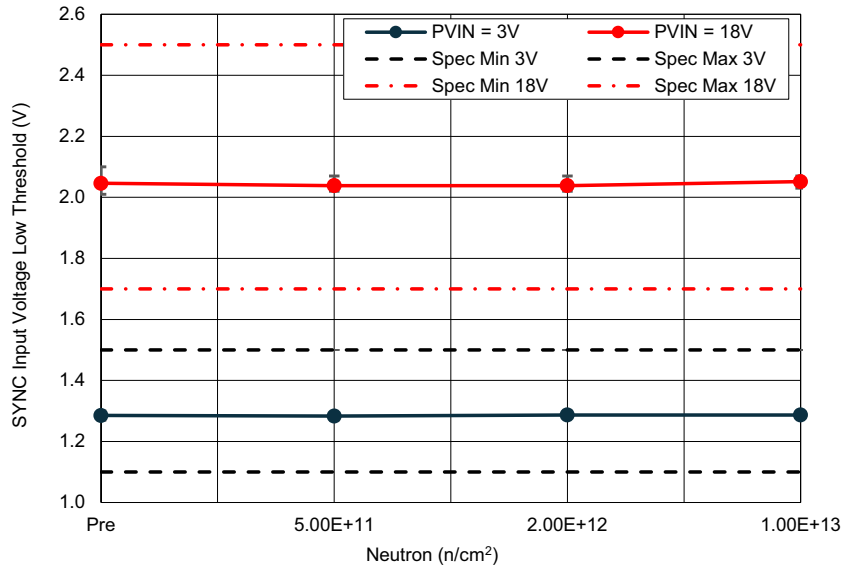

Figure 21. Average SYNC input voltage low threshold with PVIN = 3V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.1V minimum and 1.5V maximum for PVIN = 3V and 1.7V minimum and 2.5V maximum for PVIN = 18V.

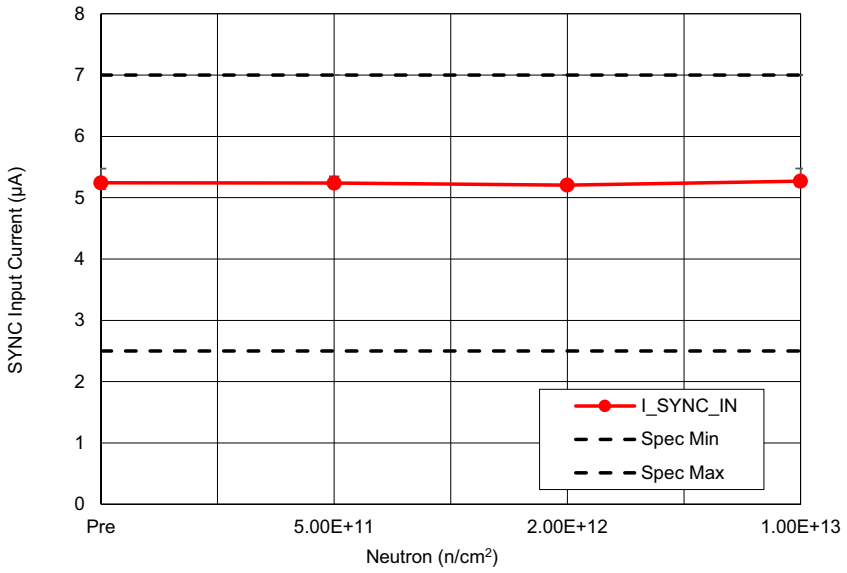

Figure 22. Average SYNC input current with V_{SYNC} = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 2.5µA minimum and 7µA maximum.

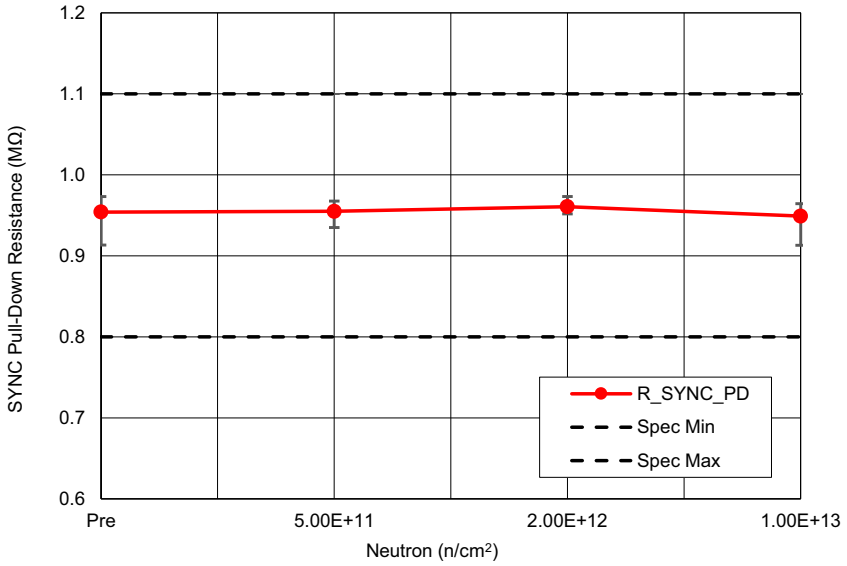

Figure 23. Average SYNC pull-down resistance with V_{SYNC} = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.8MΩ minimum and 1.1MΩ maximum.

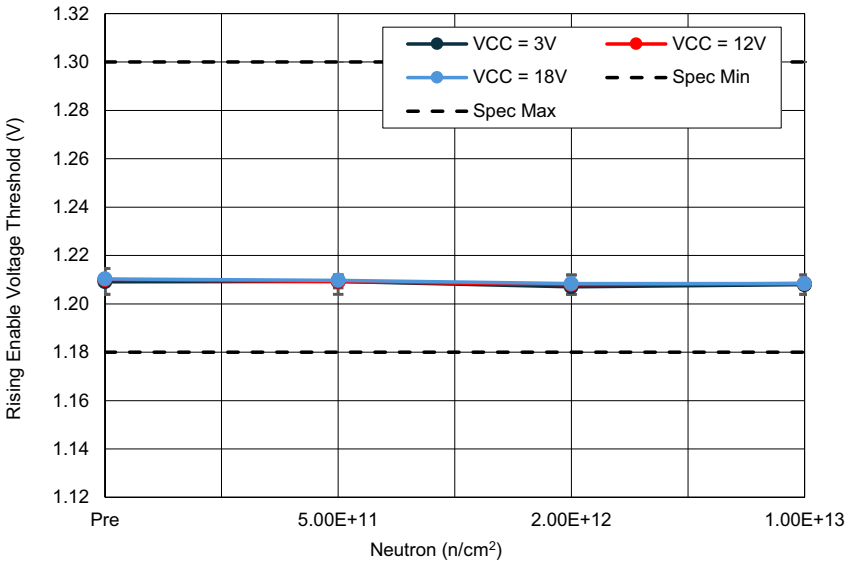

Figure 24. Average rising enable voltage threshold as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.18V minimum and 1.30V maximum.

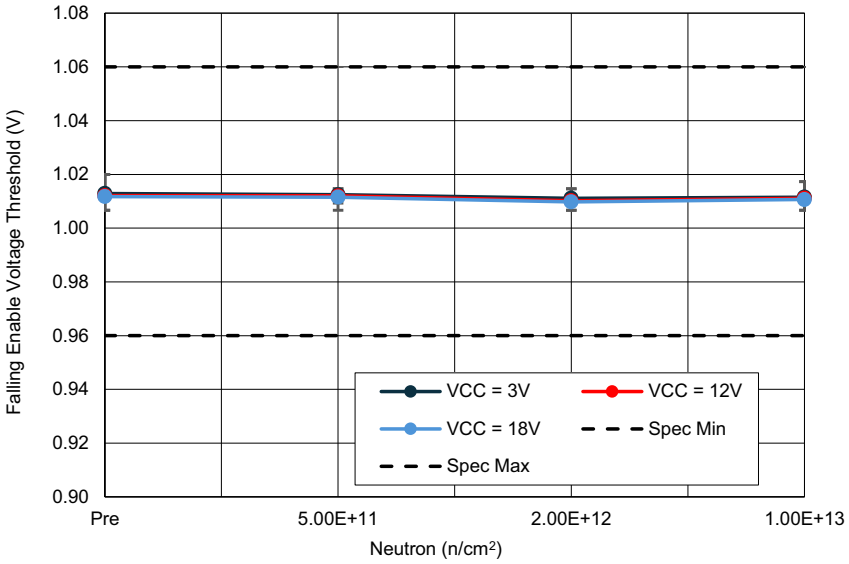

Figure 25. Average falling enable voltage threshold as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.96V minimum and 1.06V maximum.

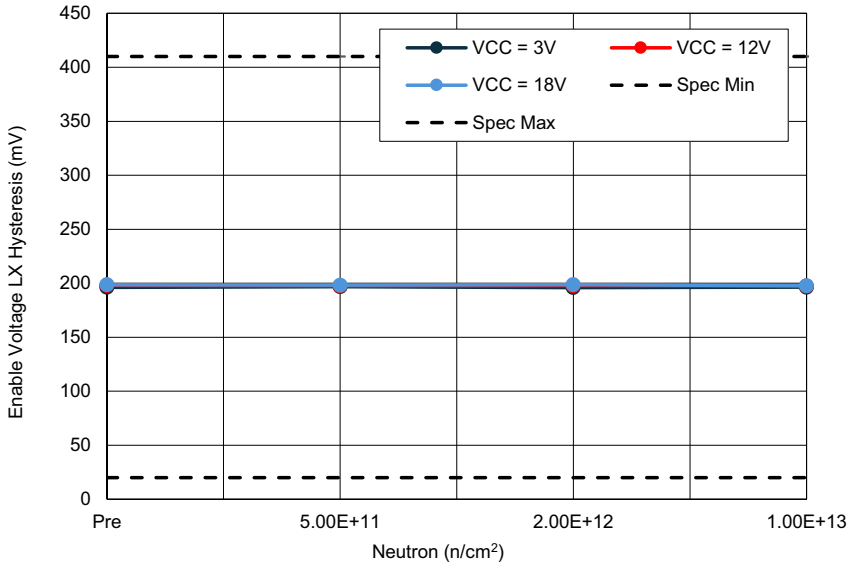

Figure 26. Average enable hysteresis LX voltage as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 20mV minimum and 410mV maximum.

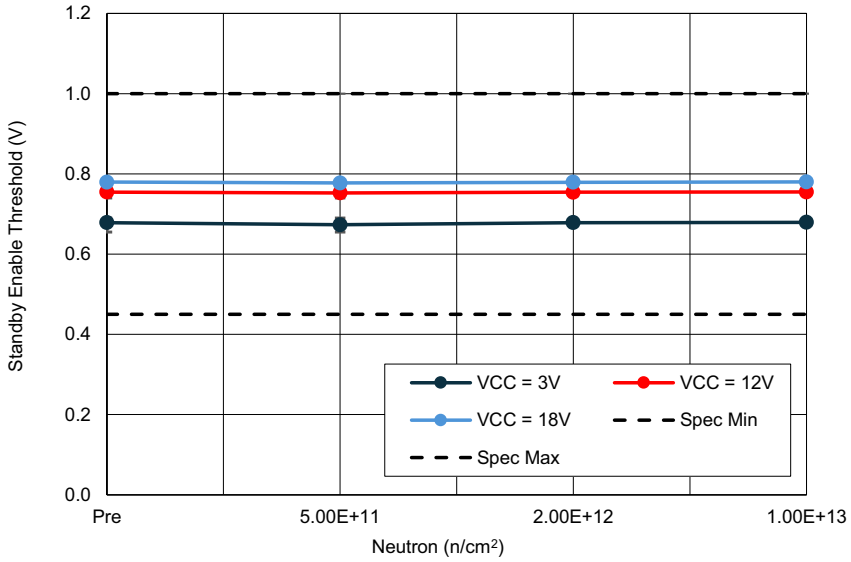

Figure 27. Average standby enable threshold voltage with V_{CC} = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.45V minimum and 1.0V maximum rising.

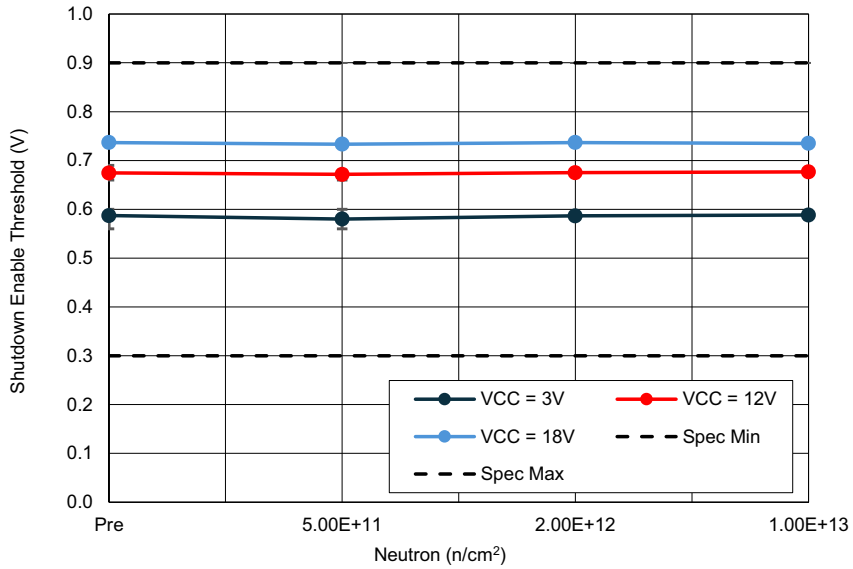

Figure 28. Average shutdown enable threshold voltage with V_{CC} = 3V, 12V and 18V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 0.3V minimum and 0.9V maximum rising.

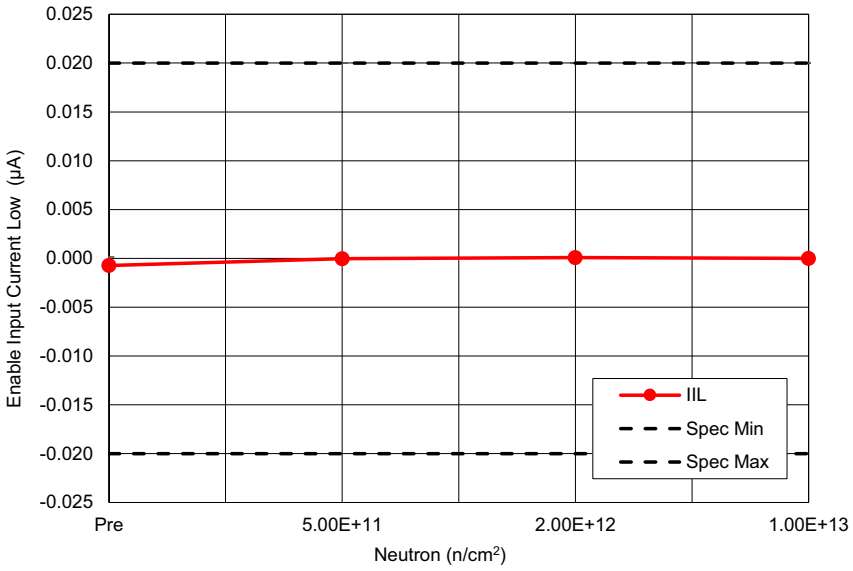

Figure 29. Average enable input current low with EN = 0V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are -20nA minimum and 20nA maximum.

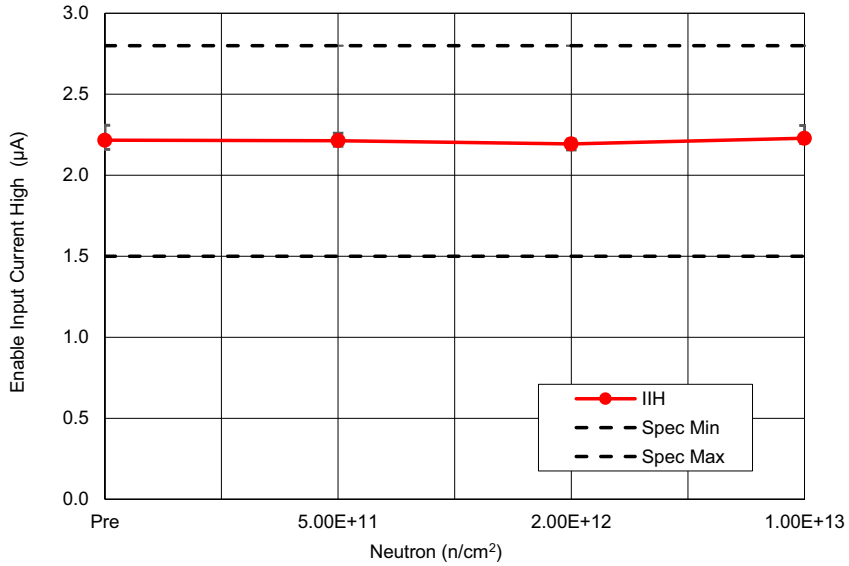

Figure 30. Average enable input current high with EN = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.6µA minimum and 2.8µA maximum.

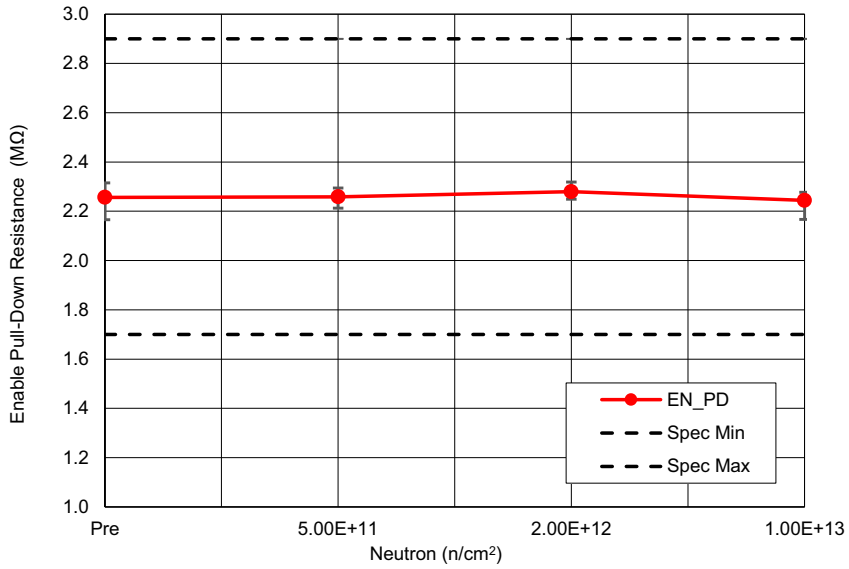

Figure 31. Average enable pull-down resistance with PVIN = 12V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.7MΩ minimum and 2.9MΩ maximum.

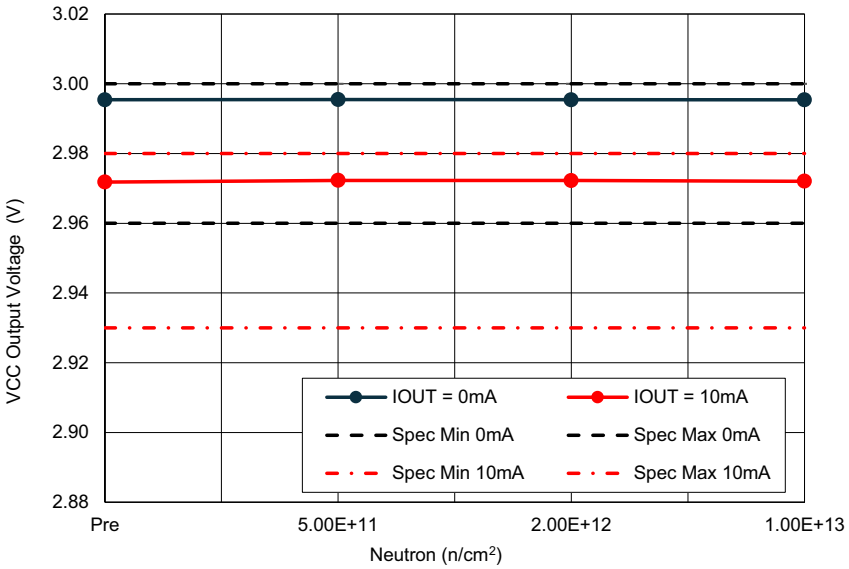

Figure 32. Average V_{CC} output voltage with PVIN = 3V, f_{SW} = 500kHz, I_{OUT} = 0mA and 10mA, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 2.96V minimum and 3.00V maximum for I_{OUT} = 0mA and 2.93V minimum and 2.98V maximum for I_{OUT} = 10mA.

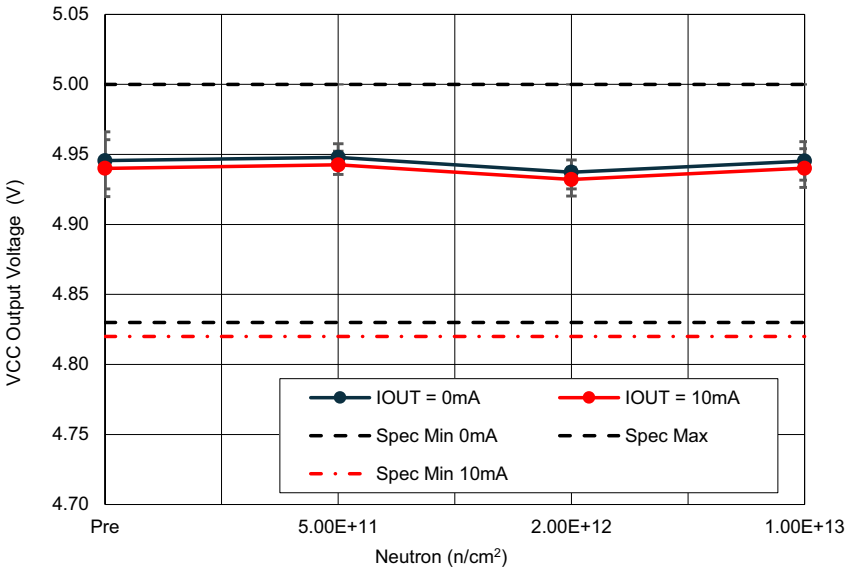

Figure 33. Average V_{CC} output voltage with PVIN = 5.5V, f_{SW} = 500kHz, I_{OUT} = 0mA and 10mA, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 4.83V minimum and 5.0V maximum for I_{OUT} = 0mA and 4.82V minimum and 5.0V maximum for I_{OUT} = 10mA.

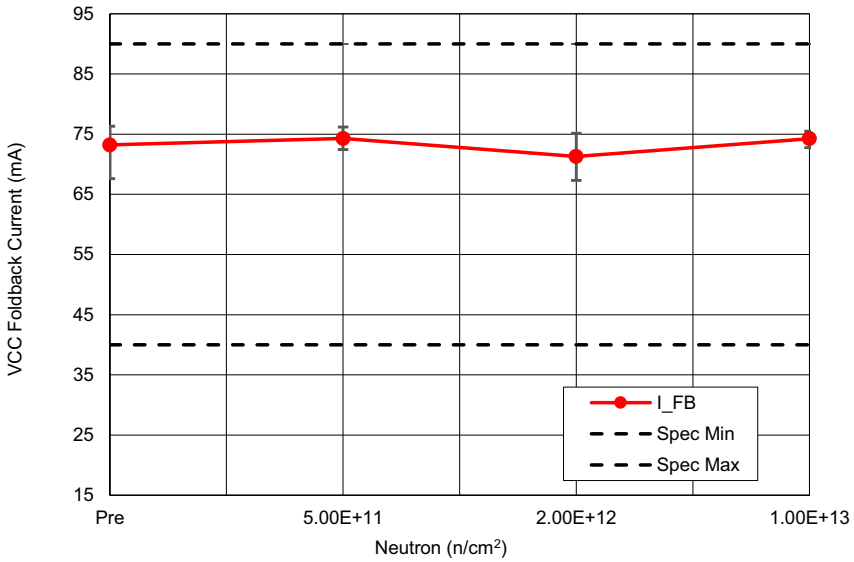

Figure 34. Average V_{CC} foldback current with PVIN = 18V, V_{CC} = 0V, EN = 1.6V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 40mA minimum and 80mA maximum.

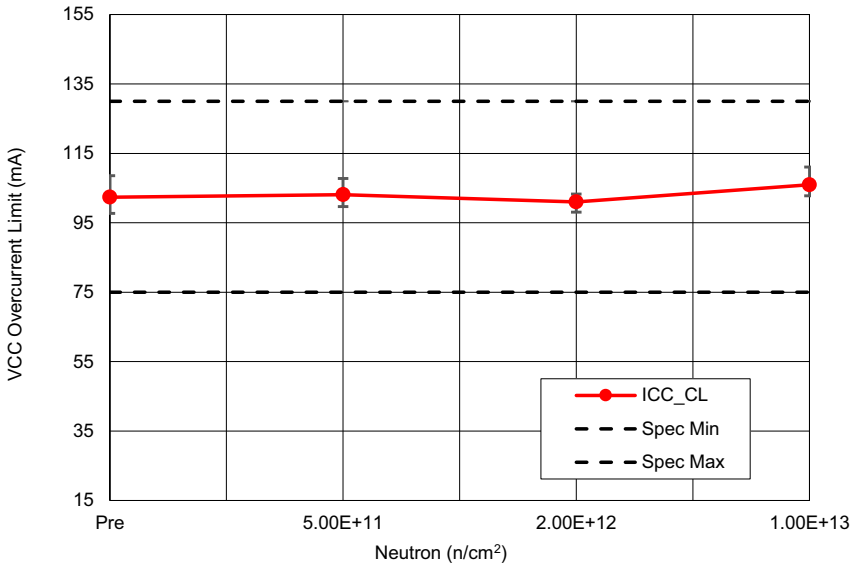

Figure 35. Average V_{CC} overcurrent limit with PVIN = 18V, V_{CC} = 4.3V, EN = 1.6V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 75mA minimum and 130mA maximum.

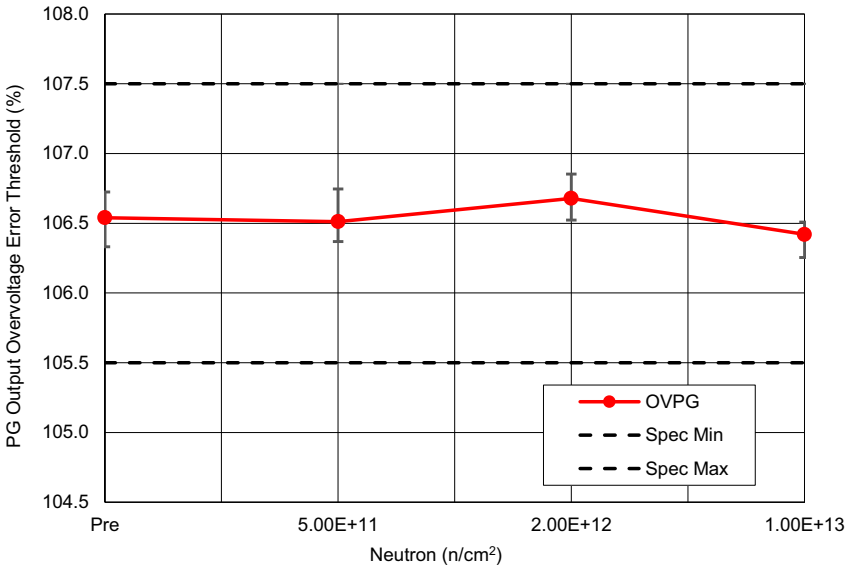

Figure 36. Average output overvoltage error threshold with PVIN = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 105.5% minimum and 107.5% maximum.

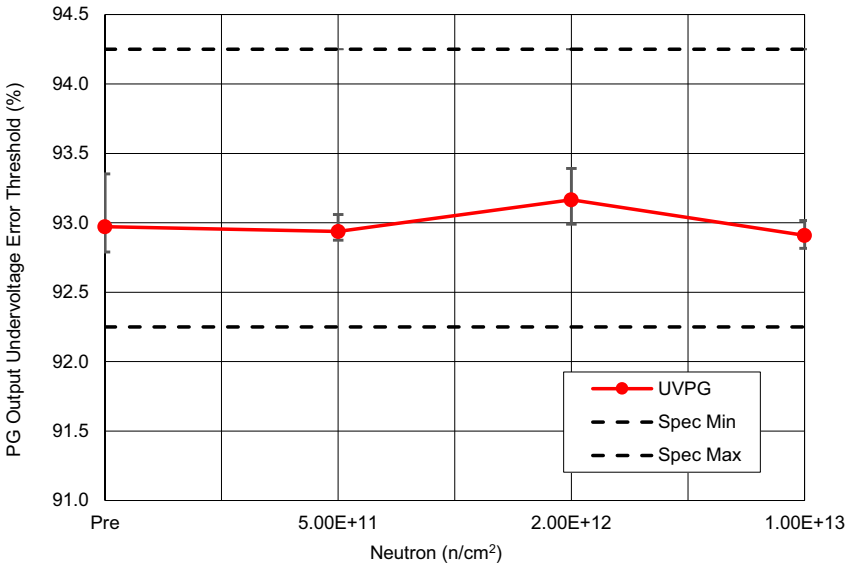

Figure 37. Average output undervoltage error threshold with PVIN = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 92.25% minimum and 94.25% maximum.

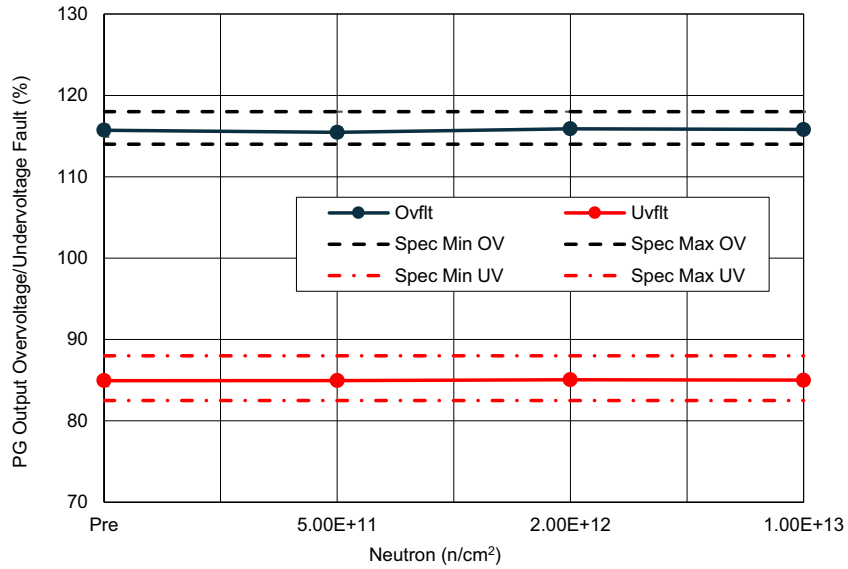

Figure 38. Average output overvoltage/undervoltage fault with PVIN = 5V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 114% minimum and 118% maximum for an overvoltage fault and 82.5% minimum and 88% maximum for an undervoltage fault.

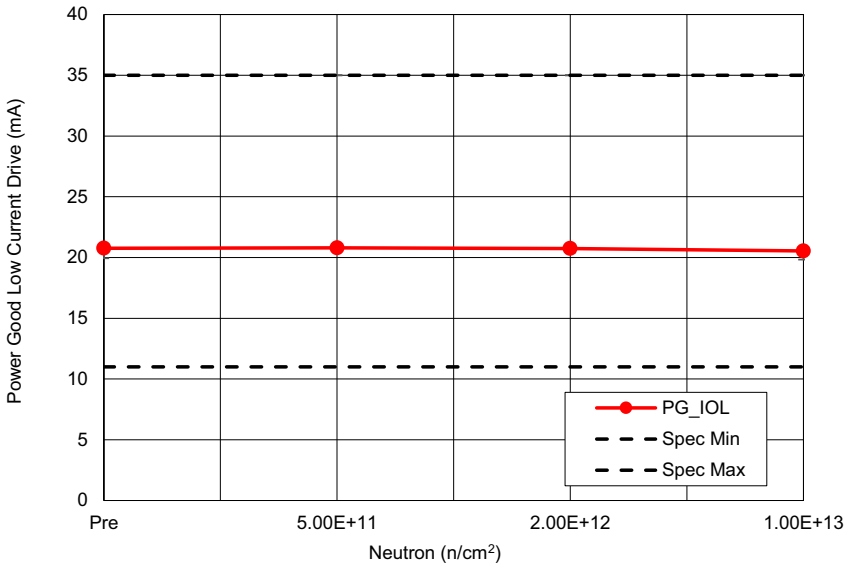

Figure 39. Average power good low current drive with PVIN = 3V, PG = 0.4V and EN = 0V as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 11mA minimum and 35mA maximum.

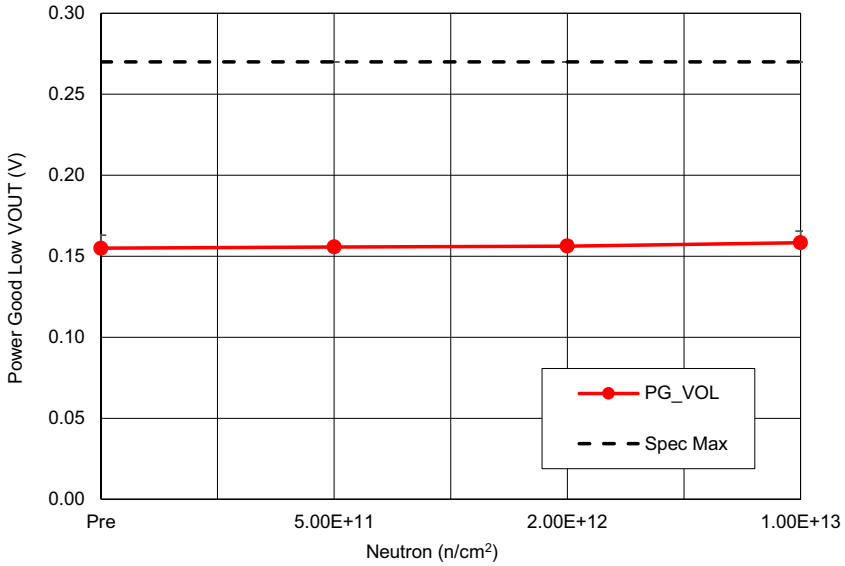

Figure 40. Average power good low V_{OUT} with PVIN = 18V, FB = 0V, EN = 0V and I_{PG} = 10mA, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limit is 0.27V maximum.

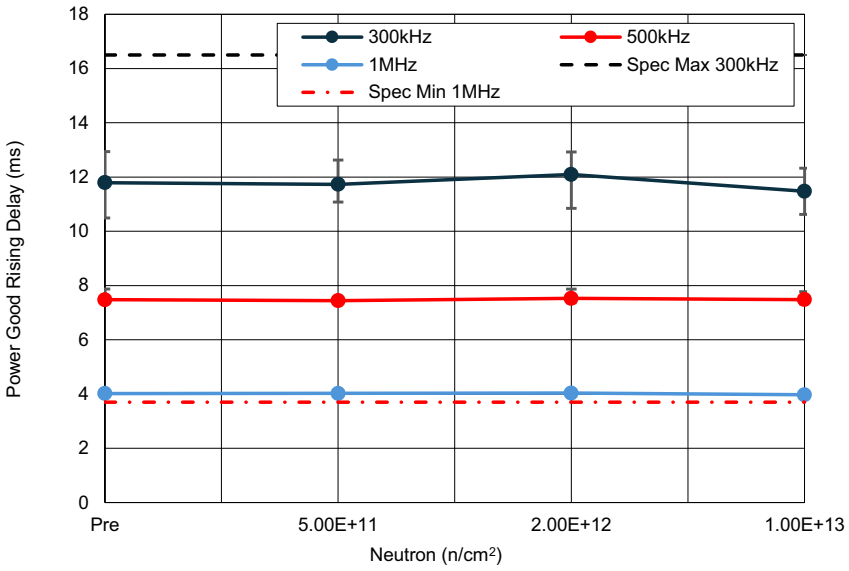

Figure 41. Average power good overvoltage and undervoltage hysteresis as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.5% minimum and 5% maximum for both parameters.

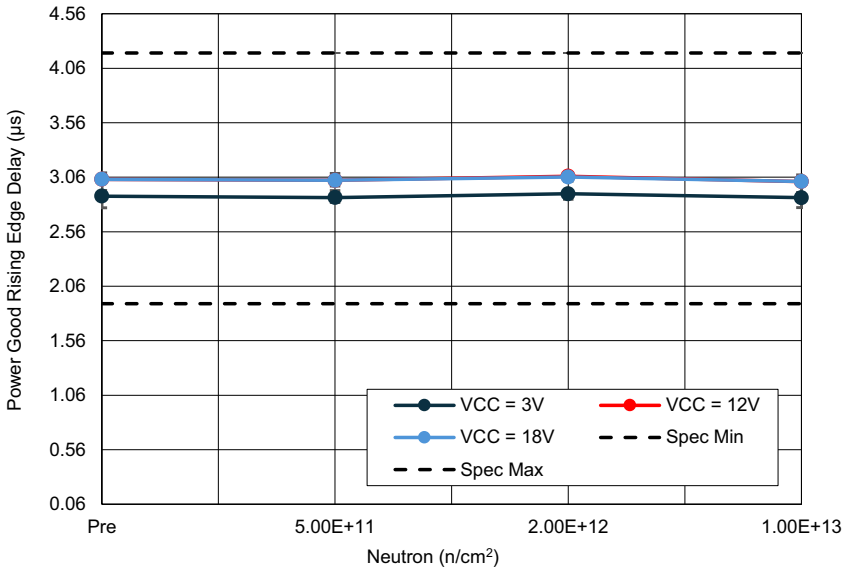

Figure 42. Average power rising edge delay with V_{CC} = 3V, 12V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 1.9µs minimum and 4.2µs maximum.

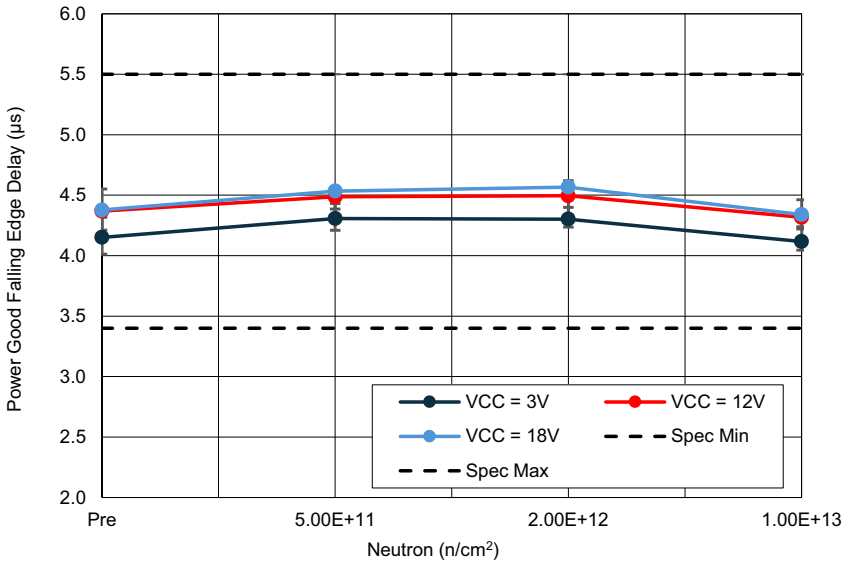

Figure 43. Average power good falling edge delay with V_{CC} = 3V, 12V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 3.4µs minimum and 5.5µs maximum for both parameters.

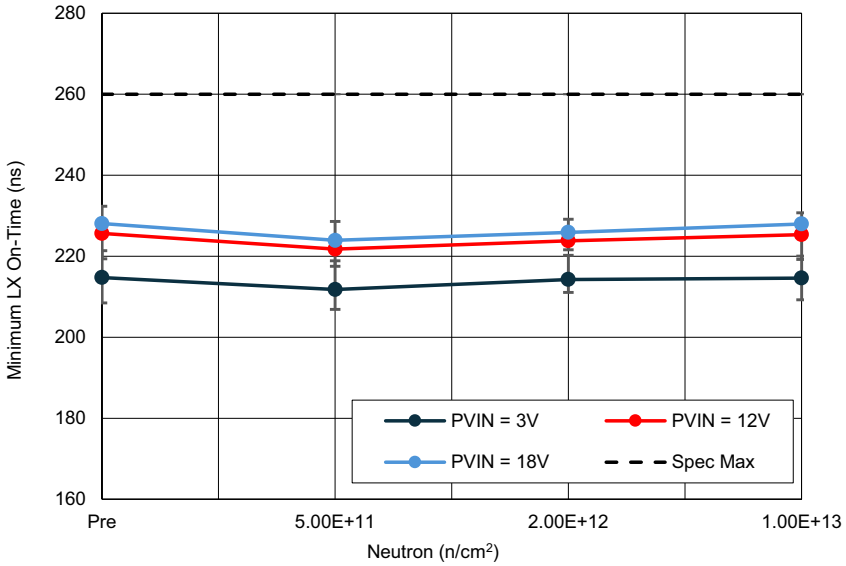

Figure 44. Average minimum LX On-Time with PVIN = 3V, 12V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limit is 260ns maximum.

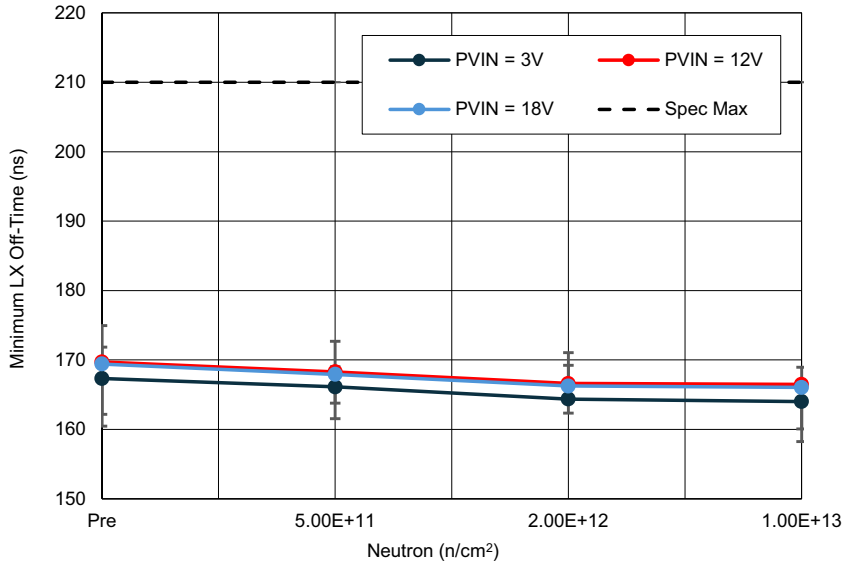

Figure 45. Average minimum LX Off-Time with PVIN = 3V, 12V and 18V, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limit is 210ns maximum.

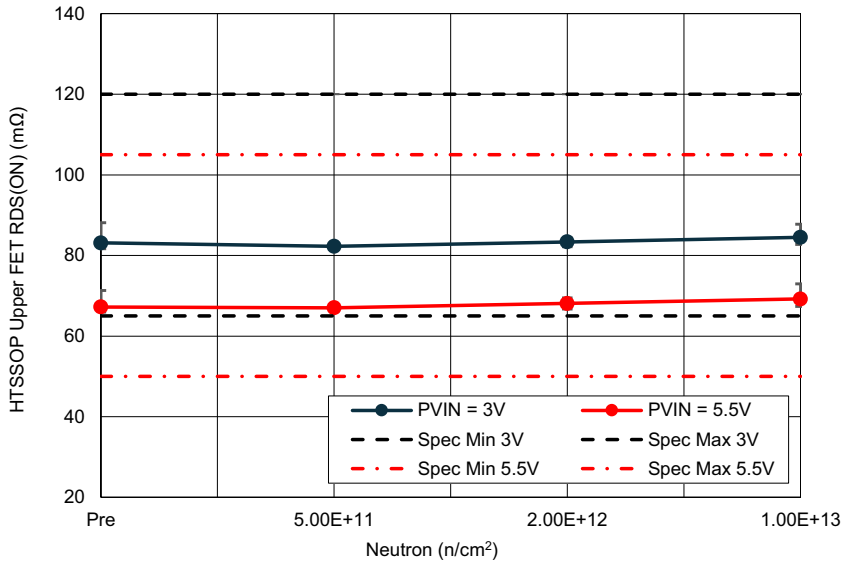

Figure 46. Average HTSSOP Upper FET $r_{DS(ON)}$ with PVIN = 3V and 5.5V and I_{OUT} = 200mA, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 65mΩ minimum and 120mΩ maximum for PVIN = 3V and 50mΩ minimum and 105mΩ maximum for PVIN = 5.5V.

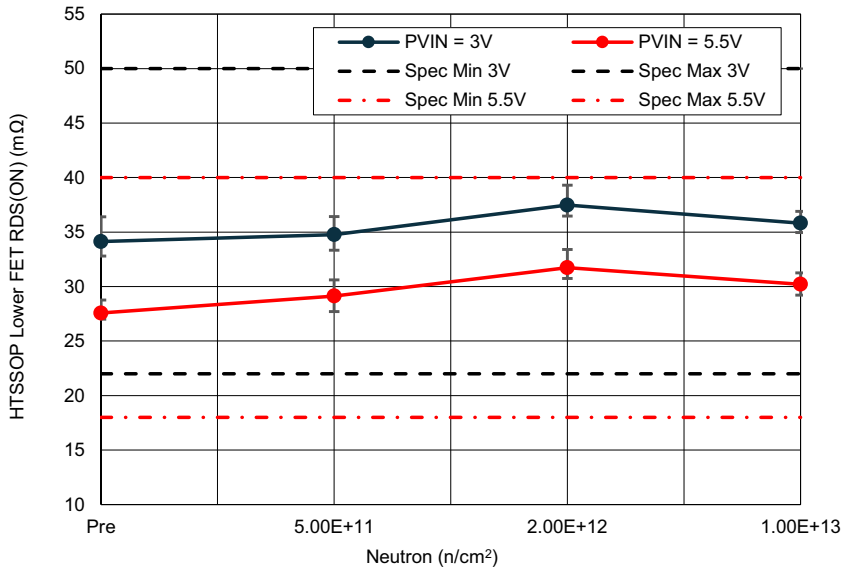

Figure 47. Average HTSSOP Lower FET $r_{DS(ON)}$ with PVIN = 3V and 5.5V and I_{OUT} = 200mA, as a function of neutron fluence. The error bars represent the minimum and maximum measured values. The datasheet limits are 22mΩ minimum and 50mΩ maximum for PVIN = 3V and 18mΩ minimum and 40mΩ maximum for PVIN = 5.5V.

3. Discussion and Conclusion

The results of 1MeV equivalent neutron testing of the ISL73007M radiation-tolerant low dropout linear regulator have been reported. Parts were tested after actual fluences of 6.12×10^{11}n/cm^2, 2.38×10^{12}n/cm^2, and 1.19×10^{13}n/cm^2. The results of selected key parameters before and after irradiation to each level are plotted in Figure 3 through Figure 47. The plots show the mean of each parameter as a function of neutron irradiation, with error bars that represent the minimum and maximum measured values. The figures also show the applicable post-radiation electrical limits taken from the datasheet. All samples passed at all levels up to and including 1.19×10^{13}n/cm^2. These results apply to all versions of this part on various flows (Rad Tolerant Plastic, Rad Hard Plastic, and Rad Hard Hermetic).

4. Revision History

Revision	Date	Description
1.00	Nov 17, 2025	Initial release.

A. Reported Parameters

Table 3 lists the key parameters that are considered indicative of part performance. These parameters are plotted in Figure 3 through Figure 47. All limits are taken from the *ISL73007M Datasheet*.

Table 3. Key Parameters (T_A = 25°C)

Figure	Parameter	Conditions	Min	Max	Unit
3	Rising Undervoltage Lockout	EN = 2.25V	-	2.95	V
	Falling Undervoltage Lockout	EN = 2.25V	2.7	-	V
4	Operating Supply Current	PVIN = 18V, EN = 5V, ext. 500kHz, no load	28	45	mA
5	Standby Supply Current	PVIN = 3V, EN = 1V	1.1	1.7	mA
		PVIN = 18V, EN = 1V	1.1	1.4	mA
6	Shutdown Supply Current	PVIN = 3V, EN = 0V	5	40	µA
		PVIN = 18V, EN = 0V	50	190	µA
7	Feedback Voltage Accuracy	VFB (including Error Amplifier V_{IO} to SGND)	594	603.5	mV
8	FB Leakage Current	PVIN = 12V, V_{FB} = 0.6V	-20	20	nA
9	Output Voltage Tolerance Over Input Voltage Range	PVIN = 3V, 18V using servo loop	-0.11	0.25	%
10	Positive Peak Current Limit 1	PVIN = 3V	3.8	6.76	A
		PVIN ≥ 5V	3.8	6.5	A
11	Positive Peak Current Limit 2	PVIN = 3 - 18V	5	7.95	A
12	Negative Peak Current Limit	PVIN = 3V	-5.7	-3.7	A
		PVIN = 12V	-5.7	-3.7	A
		PVIN = 18V	-5.8	-3.6	A
13	External Error Amplifier Transconductance	PVIN = 5V, delta COMP current/delta FB Voltage (10mV)	0.82	1.02	mA/V
14	Default Switching Frequency	F_S = V_{CC}	450	550	kHz
15	300kHz Switching Frequency	F_S = 174kΩ to GND, V_{SLOPE} = 1.2V	270	330	kHz
16	500kHz Switching Frequency	F_S = 100kΩ to GND, V_{SLOPE} = 1.2V	450	550	kHz
17	1000kHz Switching Frequency	F_S = 42.7kΩ to GND, V_{SLOPE} = 1.2V	900	1100	kHz
18	SLOPE Pin Current Source	-	10.5	13.5	µA
19	Internal SLOPE Ramp Rate	(V_{COMP} at 80%DC - V_{COMP} at 20%DC)/ (t_{MIN_ON} at 80%DC - t_{MIN_ON} at 20%DC)	0.1	0.17	V/µs

Table 3. Key Parameters (T_A = 25°C) (Cont.)

Figure	Parameter	Conditions	Min	Max	Unit
20	SYNC Input Voltage High Threshold	PVIN = 3V	1.5	2.2	V
		PVIN = 18V	2.7	3.5	V
21	SYNC Input Voltage Low Threshold	PVIN = 3V	1.1	1.5	V
		PVIN = 18V	1.7	2.5	V
22	SYNC Input Current	V_{SYNC} = 5V	2.5	7.0	µA
23	Pull-Down Resistance	V_{SYNC} = 5V	0.8	1.1	MΩ
24	Rising Enable Voltage Threshold	Enable Rising to LX Switching	1.18	1.30	V
25	Falling Enable Voltage Threshold	Enable Falling to LX Stops Switching	0.96	1.06	V
26	Enable Voltage LX Hysteresis	-	20	410	mV
27	Standby Enable Threshold Voltage	Enable Rising to V_{CC} Enabled	0.45	1.0	V
28	Shutdown Enable Threshold Voltage	Enable Falling to V_{CC} Disabled	0.3	0.9	V
29	Low Enable Current	Enable = 0V	-20	20	nA
30	High Enable Current	Enable = 5V	1.6	2.8	µA
31	Enable (EN) Pull-Down Resistance	PVIN = 12V	1.7	2.9	MΩ
32	VCC Output Voltage	PVIN = 3V, I_{OUT} = 0mA, f_{SW} = 500kHz	2.96	3	V
		PVIN = 3V, I_{OUT} = 10mA, f_{SW} = 500kHz	2.93	2.98	V
33		PVIN = 5.5V, I_{OUT} = 0mA, f_{SW} = 500kHz	4.83	5	V
		PVIN = 5.5V, I_{OUT} = 10mA, f_{SW} = 500kHz	4.82	5	V
34	VCC Foldback Current	PVIN = 18V, V_{CC} = 0V, EN = 1.6V	40	90	mA
35	VCC Overcurrent Limit	PVIN = 18V, V_{CC} = 4.3V, EN = 1.6V	75	130	mA
36	Output Overvoltage Error Threshold	PVIN = 5V, FB as a % of V_{REF}	105.5	107.5	%
37	Output Undervoltage Error Threshold	PVIN = 5V, FB as a % of V_{REF}	92.25	94.25	%

Table 3. Key Parameters (T_A = 25°C) (Cont.)

Figure	Parameter	Conditions	Min	Max	Unit
38	Output Overvoltage Fault	PVIN = 5V, FB as a % of V_{REF}	114	118	%
	Output Undervoltage Fault	PVIN = 5V, FB as a % of V_{REF}	82.5	88	%
39	PG Low Current Drive	PVIN = 3V, PG = 0.4V, EN = 0V	11	35	mA
40	PG Low V_{OUT}	PVIN = 18V, FB = 0V, EN = 0V, I_{PG} = 10mA	-	0.27	V
41	PG Rising Delay	PVIN = 5.5V From EN edge to PG high, 300kHz	8	16.5	ms
		PVIN = 5.5V From EN edge to PG high, 500kHz	6.6	8.4	ms
		PVIN = 5.5V From EN edge to PG high, 1000kHz	3.7	4.5	ms
42	PG Rising Edge Delay	Return to regulation to PG response	1.9	4.2	µs
43	PG Falling Edge Delay	Out of regulation to PG response	3.4	5.5	µs
44	Minimum LX On-Time	PVIN = 12V, Forced Min On-Time by COMP bias, No Load	-	260	ns
45	Minimum LX Off-Time	PVIN = 12V, Forced Min Off-Time by COMP bias, No Load	-	210	ns
46	HTSSOP Upper FET $r_{DS(ON)}$	PVIN = 3.0V, I_{OUT} = 200mA	65	120	mΩ
		PVIN = 5.5V, I_{OUT} = 200mA	50	105	mΩ
47	HTSSOP Lower FET $r_{DS(ON)}$	PVIN = 3.0V, I_{OUT} = 200mA	22	50	mΩ
		PVIN = 5.5V, I_{OUT} = 200mA	18	40	mΩ

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