ISL72813SEH

Total Dose Testing

TR040
Rev 1.00
February 27, 2017

Introduction

This report provides results of low dose rate and high dose rate, Total Ionizing Dose (TID) testing of the ISL72813SEH, a high-voltage, high-current driver. The tests were conducted to determine the sensitivity of the part to the total dose environment. Low dose rate irradiations were performed to 75krad(Si) at 0.01rad(Si)/s under biased and grounded conditions. High dose rate irradiations were performed to 150krad(Si) at 187.2rad(Si)/s, also under biased and grounded conditions. Both irradiations were followed by a biased anneal at +100°C for 168 hours.

Related Literature

- For a full list of related documents, visit our website
  - ISL72813SEH product page
  - MIL-STD-883 test method 1019

Product Description

The ISL72813SEH is a radiation hardened, high-voltage, high-current driver fabricated using Intersil's proprietary PR40 silicon-on-insulator process technology to mitigate single event effects. This device utilizes a "complementary Darlington" output configuration to integrate 32 current drivers that feature high-voltage, common emitter, and open-collector outputs with a 42V breakdown voltage and a peak current rating of 600mA.

To further reduce solution size and increase system power density, the ISL72813SEH integrates a 5-bit to 32-channel decoder (plus enable pin) as well as level shifting circuitry to reference the output of the decoder to a negative voltage. This conveniently allows the user to select 1 of 32 available current driver channels. The inputs to the decoder are TTL/CMOS compatible allowing easy integration to CPUs, FPGAs, or microprocessors.

The ISL72813SEH operates across the military temperature range from -55°C to +125°C and is available in a 44 Ld, hermetically sealed, Ceramic Lead-Less Chip Carrier (CLCC) package. See Figure 1 for a depiction of the pinout. Table 1 shows the pin descriptions. Refer to the relevant Intersil datasheet and other on-line information for further details.

Test Description

Irradiation Facilities

Low dose rate irradiations were performed using a Hopewell Designs N40 panoramic vault-type low dose rate ^{60}Co irradiator located in the Intersil Palm Bay, Florida facility. The dose rate was 0.0089rad(Si)/s (8.9mrad(Si)/s).

High dose rate testing was performed using a Gammacell 220 ^{60}Co irradiator located in the Palm Bay, Florida Intersil facility at a dose rate of 187.2rad(Si)/sec.

Both irradiators use PbAl spectrum hardening filters to shield the test board and devices under test against low energy secondary gamma radiation.

Test Fixturing

Figure 1 on page 2 shows the configuration used for biased irradiation.

TABLE 1. ISL72813SEH PINOUT

PIN NUMBER	PIN NAME	DESCRIPTION
1, 8, 24, 38	VEE	Common emitter of all 32 current drivers
2-7, 9-18, 28-37, 39-44	Cx	Channels 0 through 31 current driver collector output
19 - 23	Ax	Address lines for the decoder
25	EN	Active high-enable input to the decoder
26	GND	Supply ground. Connect this pin to the PCB ground plane
27	VCC	Bias supply for the decoder and the level shift circuit, connect to 5V
Package Lid	N/AN/A	Tied internally to terminal 26 (ground)

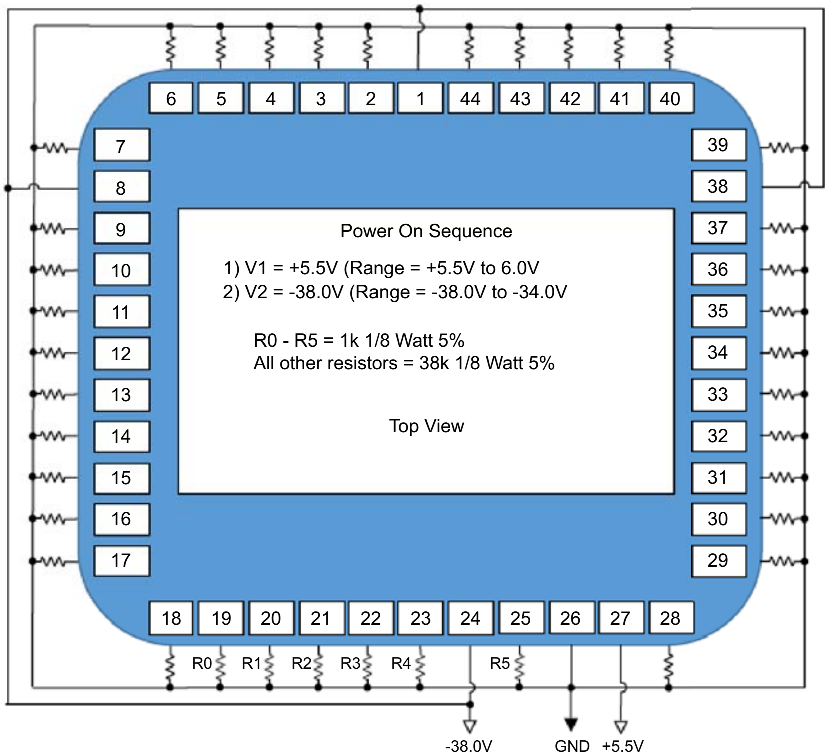

FIGURE 1. IRRADIATION BIAS CONFIGURATION FOR THE ISL72813SEH

Characterization Equipment and Procedures

All electrical testing was performed outside the irradiator using production Automated Test Equipment (ATE) with data logging of all parameters at each downpoint. All downpoint electrical testing was performed at room temperature.

Experimental Matrix

Testing proceeded in accordance with the guidelines of MIL-STD-883 Test Method 1019. The experimental matrix for the low dose rate testing consisted of five samples irradiated under bias and five samples irradiated with all pins grounded (unbiased). Six control units were used. For the high dose rate testing, two samples were irradiated under bias and two samples were irradiated with all pins grounded (unbiased). Three control units were used.

Samples of the ISL72813SEH were drawn from fabrication lot X7C0J and were packaged in the production hermetic 44 Ld CLCC, Package Outline Drawing (POD) J44.A. The samples were processed through the standard burn-in cycle and were screened to the SMD 5962-17208 limits at room, low, and high temperatures before irradiation.

Downpoints

Downpoints were 0krad(Si), 10krad(Si), 30krad(Si), 50krad(Si), and 75krad(Si). Downpoints for high dose rate testing were 0krad(Si), 30krad(Si), 50krad(Si), 100krad(Si), and 150krad(Si).

The samples were subjected to a high temperature biased anneal for 168 hours at +100°C following irradiation.

Results

Attributes Data

Testing of the ISL72813SEH at both low and high dose rates is complete. Table 2 summarizes the low dose rate results, while the high dose rate results are shown in Table 3.

TABLE 2. ISL72813SEH LOW DOSE RATE TOTAL DOSE TEST ATTRIBUTES DATA

RATE	BIAS	SAMPLE SIZE	DOWNPOINT	BIN 1 (Note 1)	REJECTS
0.0089rad(Si)/s	Figure 1	5	Pre-irradiation	5	
			10krad(Si)	5	0
			30krad(Si)	5	0
			50krad(Si)	5	0
			75krad(Si)	5	0
			Anneal, 168h at +100°C	5	0
0.0089rad(Si)/s	Grounded	5	Pre-irradiation	5	
			10krad(Si)	5	0
			30krad(Si)	5	0
			50krad(Si)	5	0
			75krad(Si)	5	0
			Anneal, 168h at +100°C	5	0

NOTE:

1. Bin 1 indicates a device that passes all pre-irradiation specification limits.

TABLE 3. ISL72813SEH HIGH DOSE RATE TOTAL DOSE TEST ATTRIBUTES DATA

RATE	BIAS	SAMPLE SIZE	DOWNPOINT	BIN 1 (Note 2)	REJECTS
187.2rad(Si)/s	Figure 1	2	Pre-irradiation	2	
			30krad(Si)	2	0
			50krad(Si)	2	0
			100krad(Si)	2	0
			150krad(Si)	2	0
			Anneal, 168h at +100°C	2	0
187.2rad(Si)/s	Grounded	2	Pre-irradiation	2	
			30krad(Si)	2	0
			50krad(Si)	2	0
			100krad(Si)	2	0
			150krad(Si)	2	0
			Anneal, 168h at +100°C	2	0

NOTE:

2. Bin 1 indicates a device that passes all pre-irradiation specification limits.

Variables Data

The plots in Figures 2 through 33 show data at all downpoints for both low and high dose rates. The plots show the average tested values of key parameters as a function of total dose for each of the two irradiation conditions, Biased (B) and Unbiased (U). PA_L on the graphs indicates Post-Anneal for the low dose rate samples and PA_H indicates the Post-Anneal downpoint for the high dose rate samples. The plots also include error bars at each test point, representing the minimum and maximum measured values of the samples, although on some of the graphs the minimum and maximum values were too close to the average to be seen on the scale used for the graph. The figure sequence and the symbols of the reported parameters are consistent with those used in the SMD.

For attributes that are tested on multiple inputs or outputs, such as voltage input levels and collector emitter saturation voltages, only a typical case is shown. The data for the graphs of the enable turn on and disable turn off times were taken in the lab because they are not part of the production ATE tests.

All parameters showed excellent stability over irradiation, with no observed dose rate or bias sensitivity.

Variables Data Plots

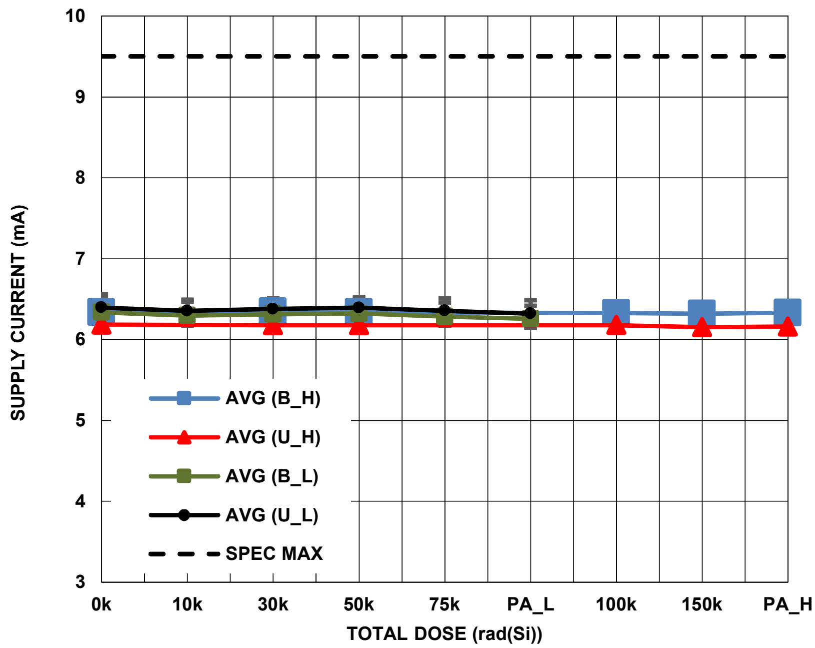

FIGURE 2. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 3.6V and V_{EE} = 0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 9.5mA.

Variables Data Plots (Continued)

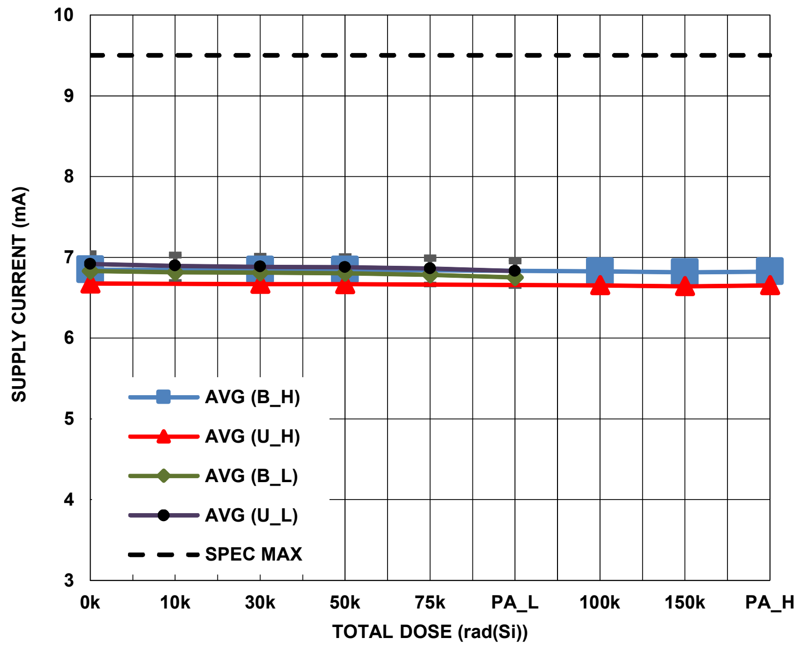

FIGURE 3. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 3.6V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 9.5mA.

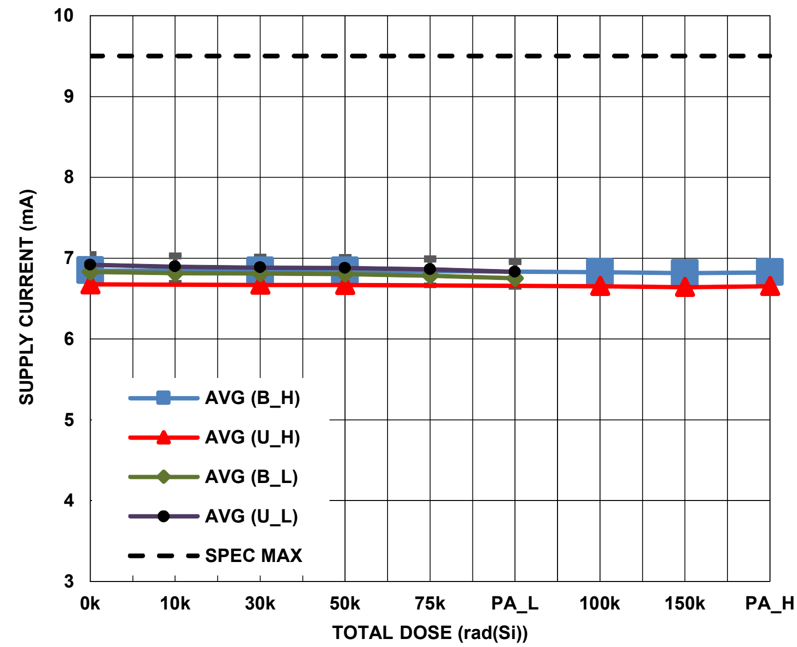

FIGURE 4. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 5.5V and V_{EE} = 0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 9.5mA.

Variables Data Plots (Continued)

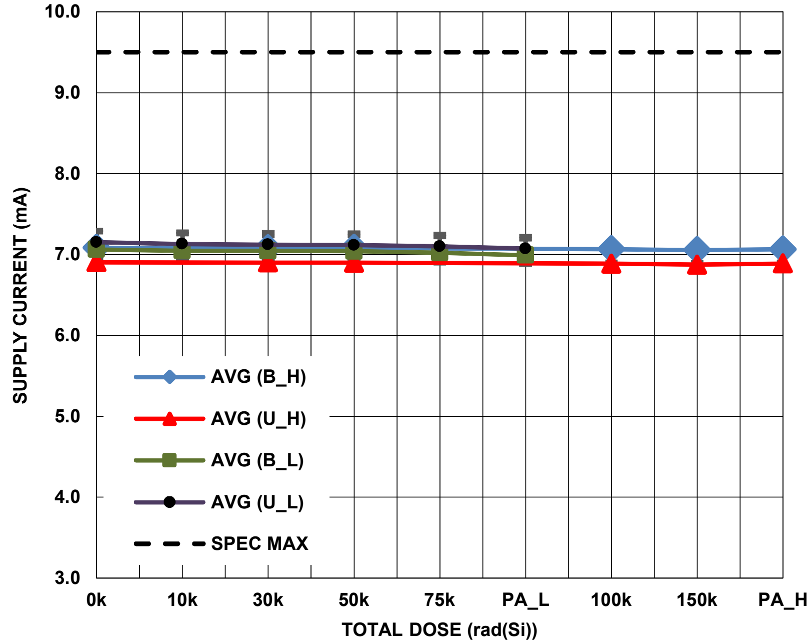

FIGURE 5. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 5.5V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 9.5mA.

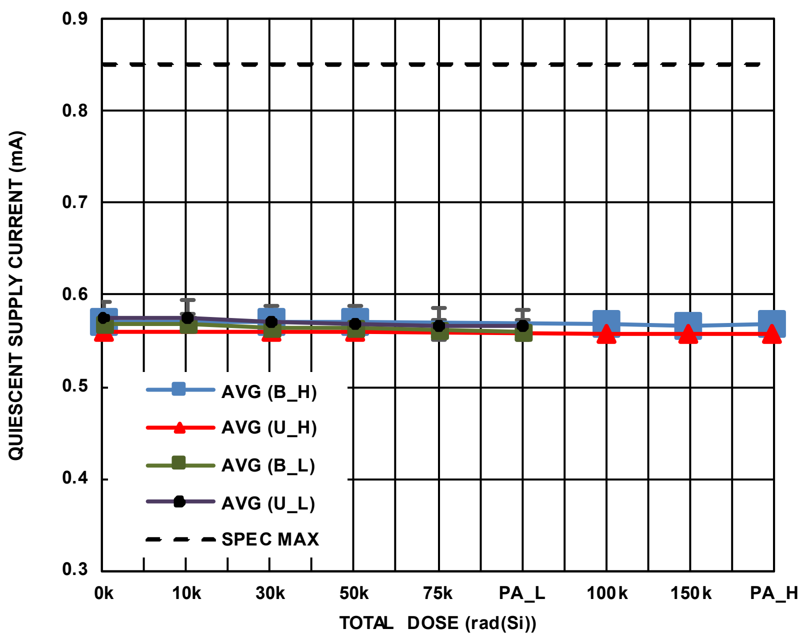

FIGURE 6. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 3.6V and V_{EE} = 0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 0.85mA.

Variables Data Plots (Continued)

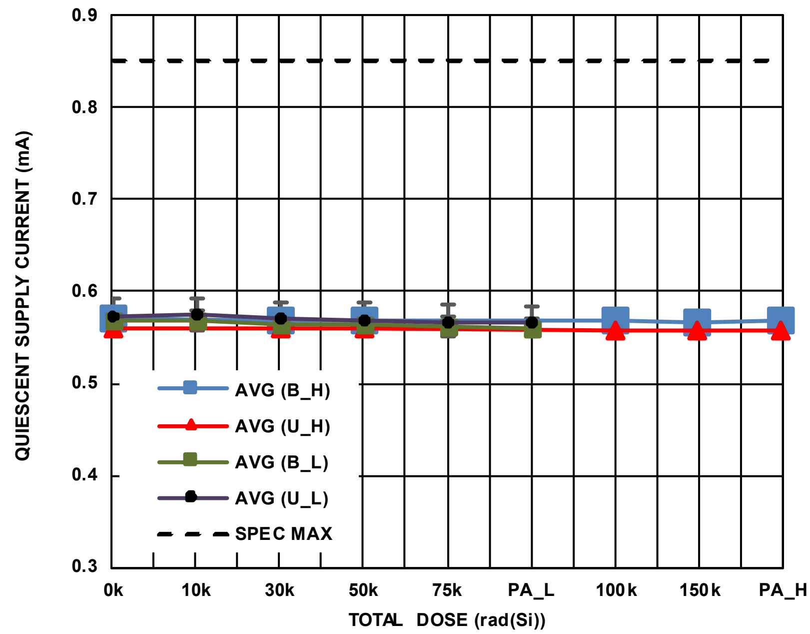

FIGURE 7. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 3.6V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 0.85mA.

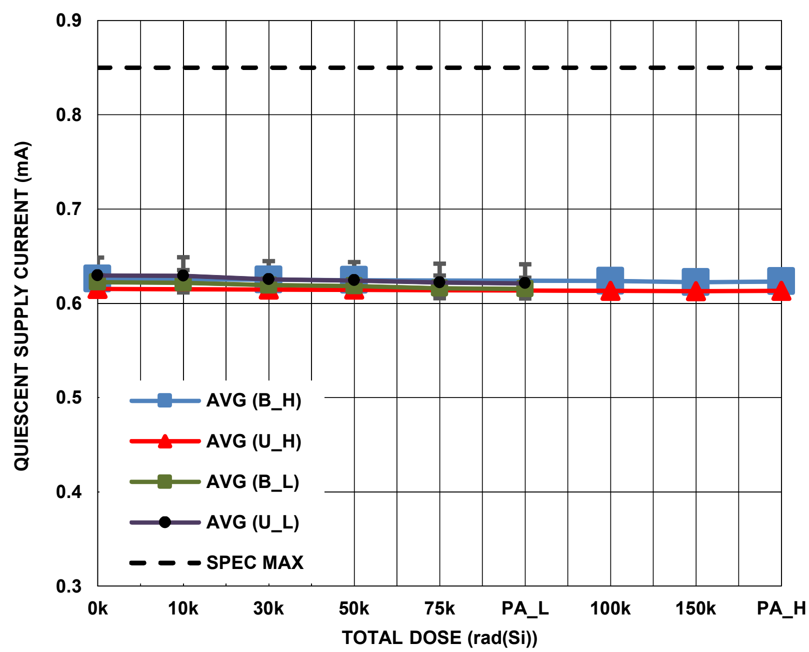

FIGURE 8. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 5.5V and V_{EE} = 0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 0.85mA.

Variables Data Plots (Continued)

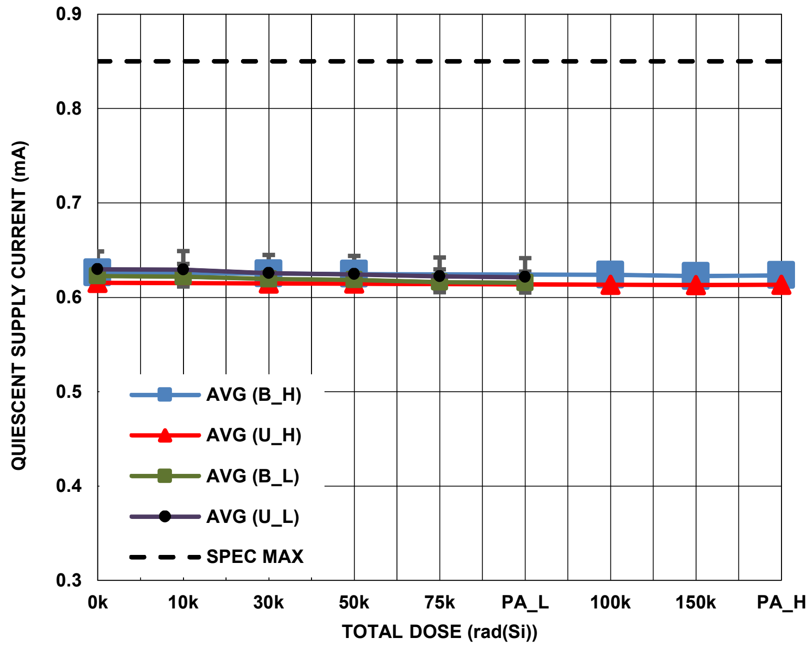

FIGURE 9. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 5.5V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limits SMD limit is 0.85mA.

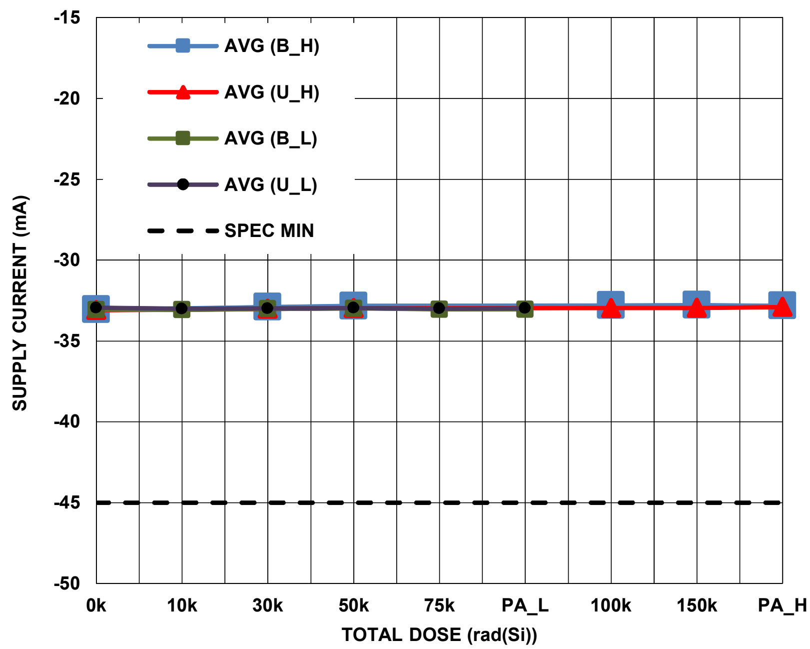

FIGURE 10. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 3.6V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -45mA.

Variables Data Plots (Continued)

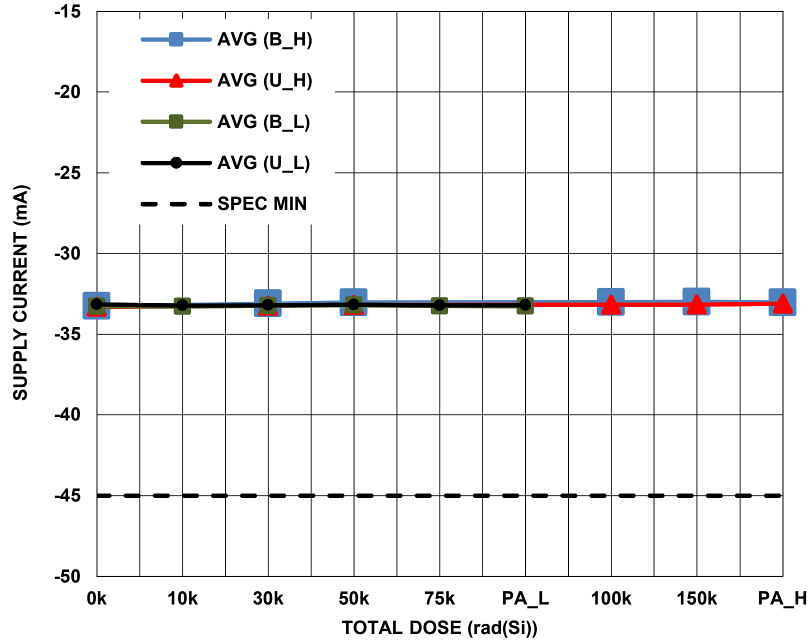

FIGURE 11. ISL72813SEH 32-Channel Driver Supply Current at V_{CC} = 5.5V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -45mA.

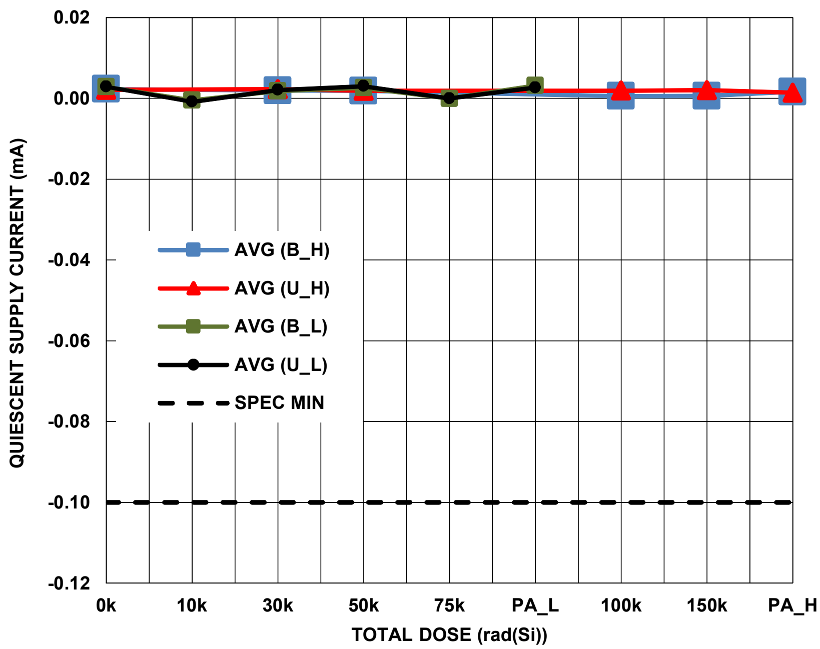

FIGURE 12. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 3.6V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -0.10 mA.

Variables Data Plots (Continued)

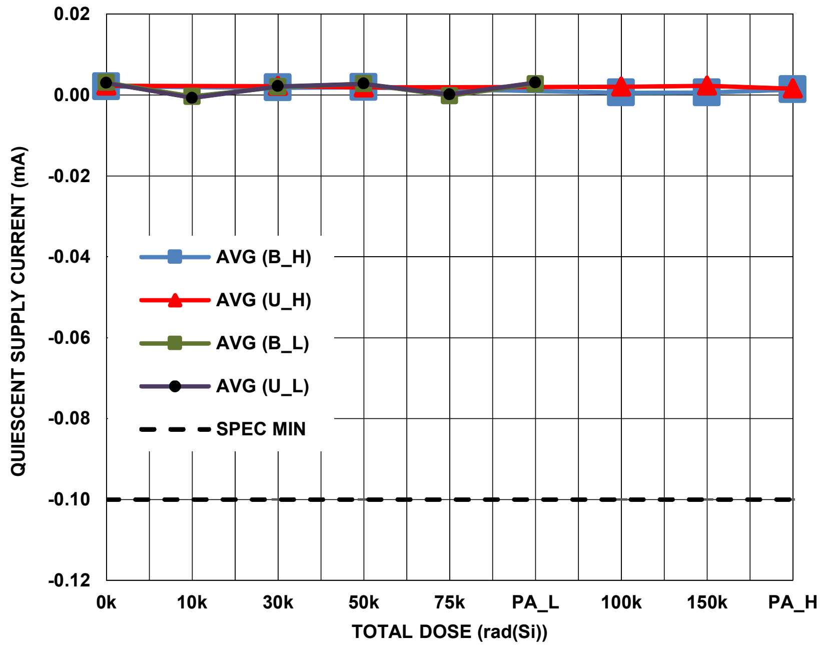

FIGURE 13. ISL72813SEH 32-Channel Driver Quiescent Supply Current at V_{CC} = 5.5V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -0.10mA.

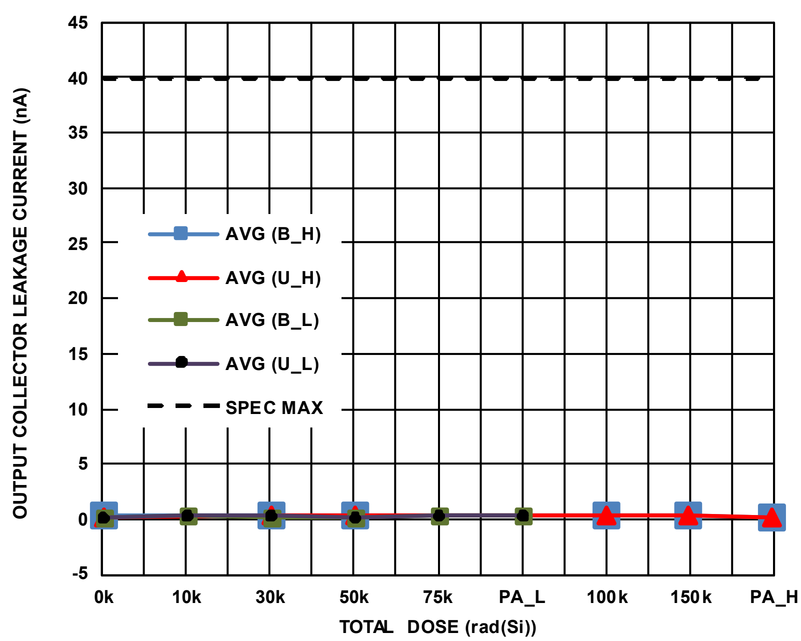

FIGURE 14. ISL72813SEH 32-Channel Driver Output Collector Leakage Current at V_{CC} = 3.6V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 40nA maximum.

Variables Data Plots (Continued)

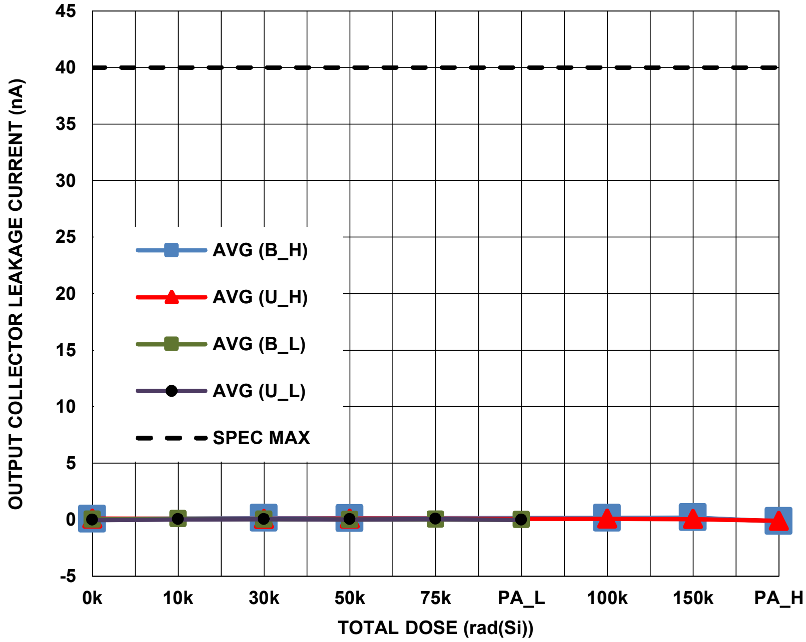

FIGURE 15. ISL72813SEH 32-Channel Driver Output Collector Leakage Current at V_{CC} = 5.5V and V_{EE} = -34V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 40nA maximum.

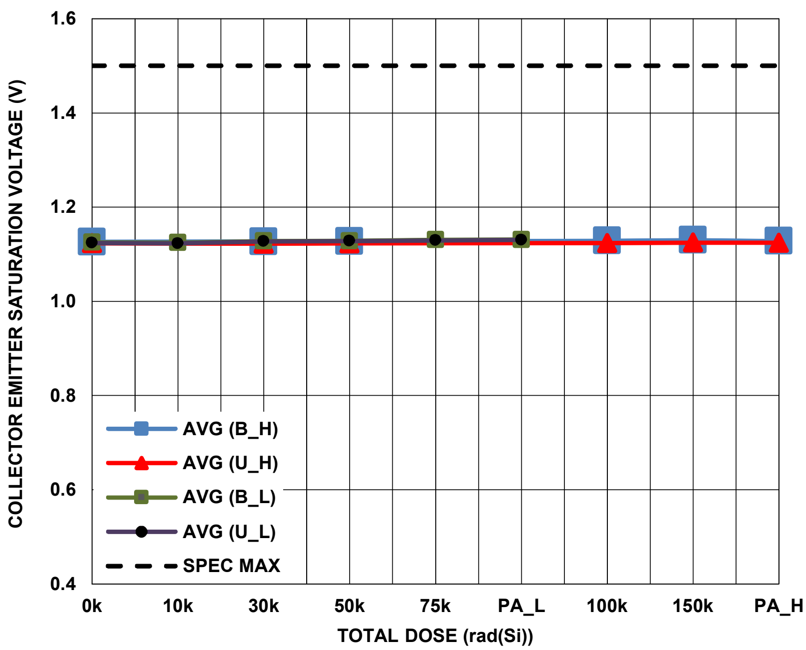

FIGURE 16. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 3.0V and I_C = 530mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.5V maximum.

Variables Data Plots (Continued)

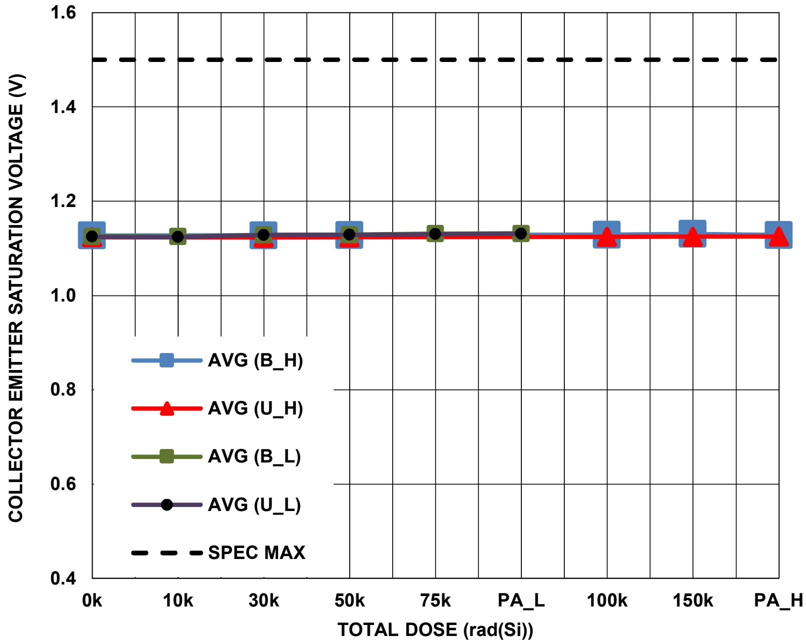

FIGURE 17. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 4.5V and I_C = 530mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.5V maximum.

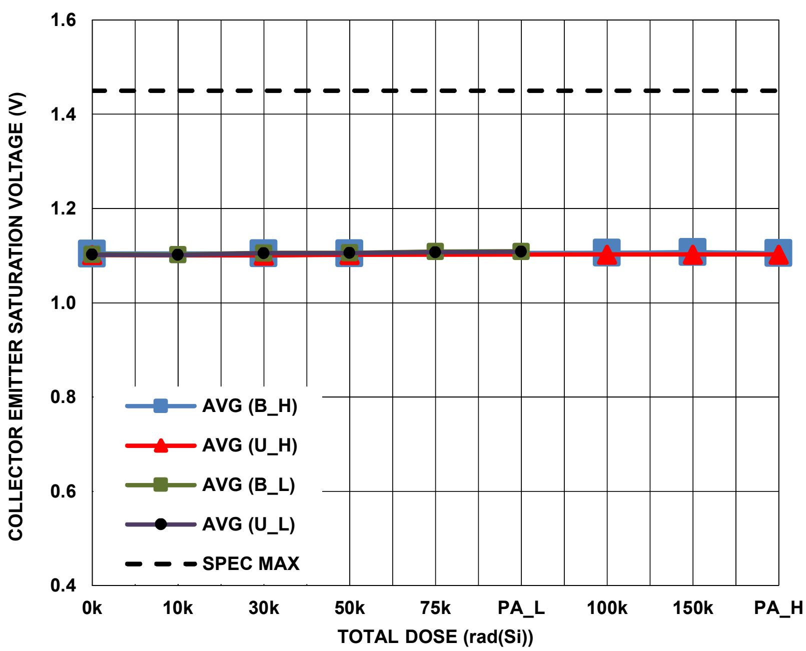

FIGURE 18. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 3.0V and I_C = 500mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.45V maximum.

Variables Data Plots (Continued)

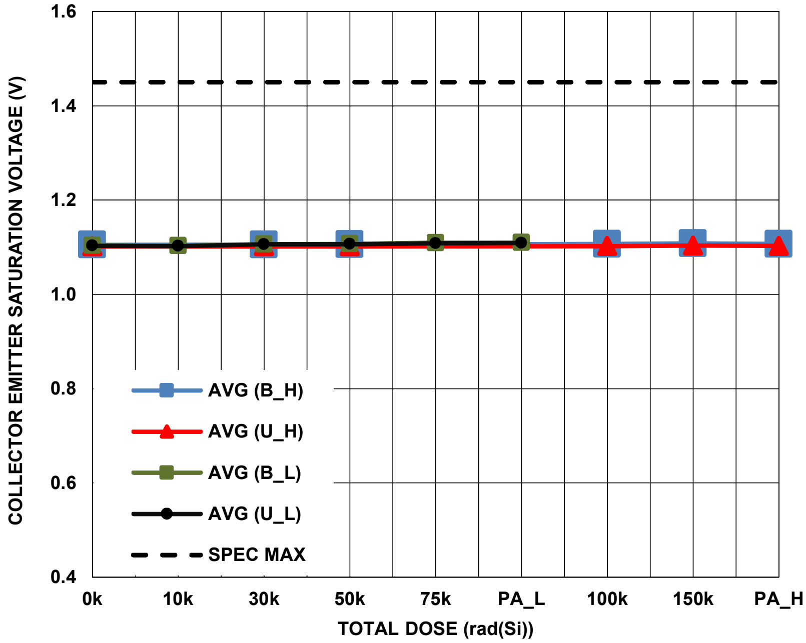

FIGURE 19. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 4.5V and I_C = 500mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.45V maximum.

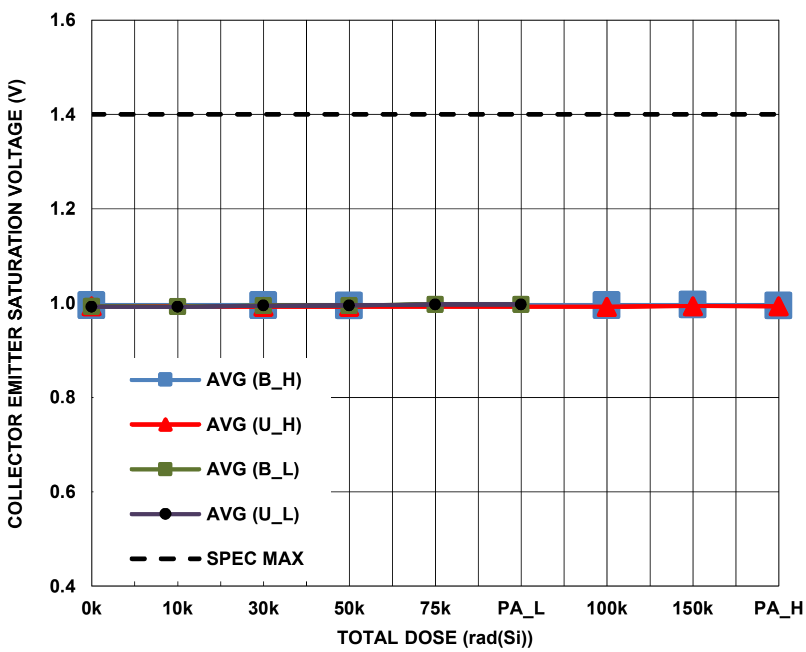

FIGURE 20. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 3.0V and I_C = 350mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.4V maximum.

Variables Data Plots (Continued)

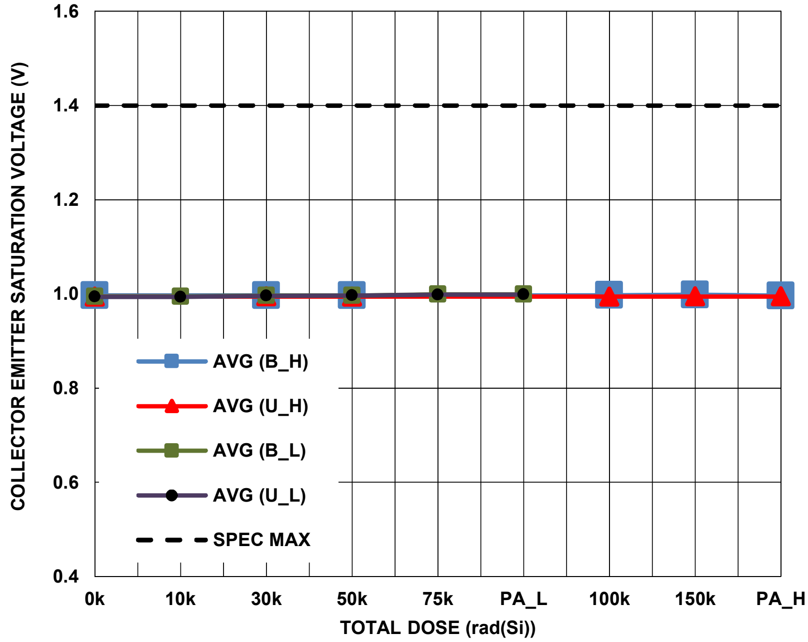

FIGURE 21. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 4.5V and I_C = 350mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.4V maximum.

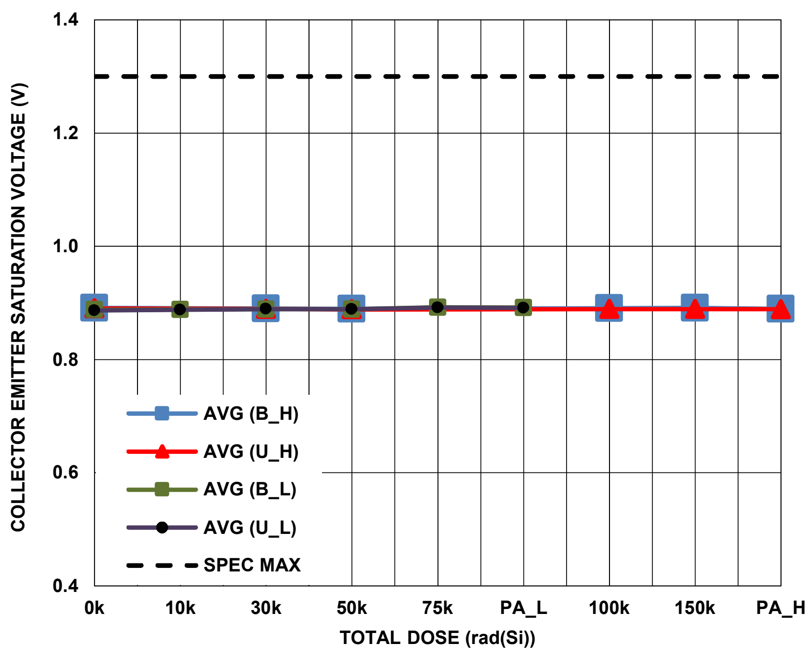

FIGURE 22. ISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 3.0V and I_C = 200mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.3V maximum.

Variables Data Plots (Continued)

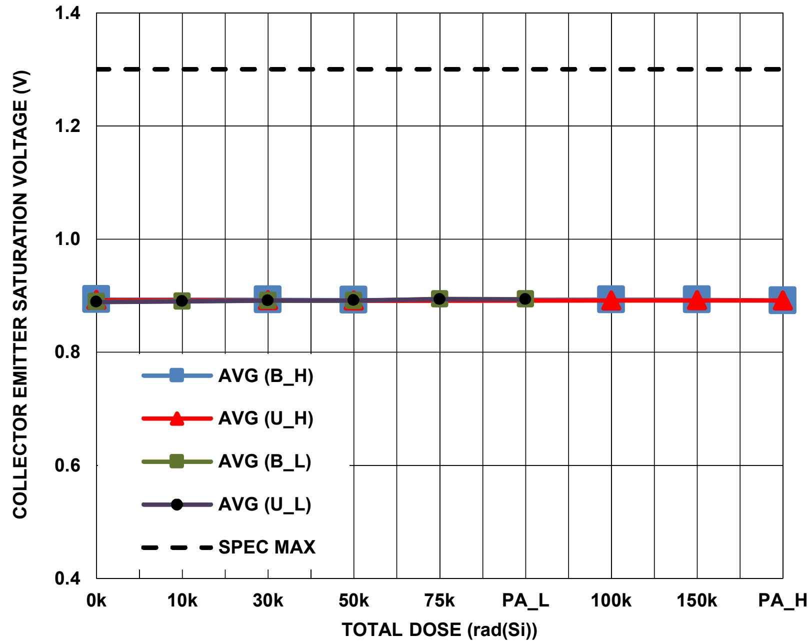

FIGURE 23. IISL72813SEH 32-Channel Driver Collector Emitter Saturation Voltage at V_{CC} = 4.5V and I_C = 200mA as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 1.3V maximum.

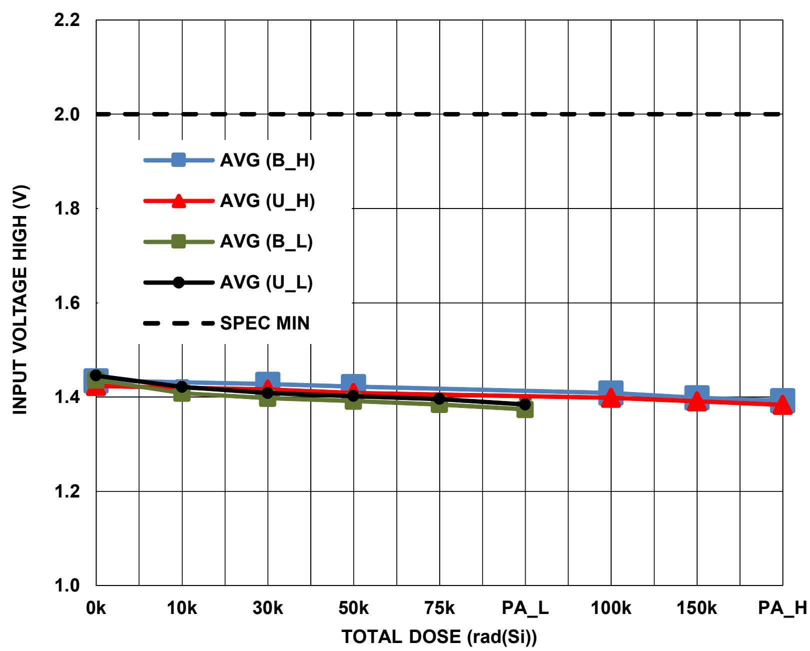

FIGURE 24. ISL72813SEH 32-Channel Driver Input Voltage HIGH at V_{CC} = 3.0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 2.0V.

Variables Data Plots (Continued)

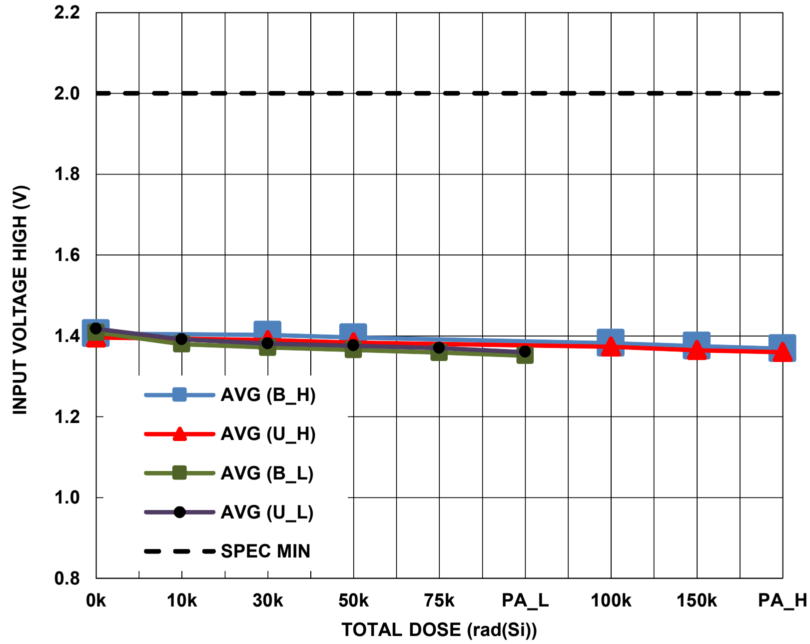

FIGURE 25. ISL72813SEH 32-Channel Driver Input Voltage HIGH at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 2.0V.

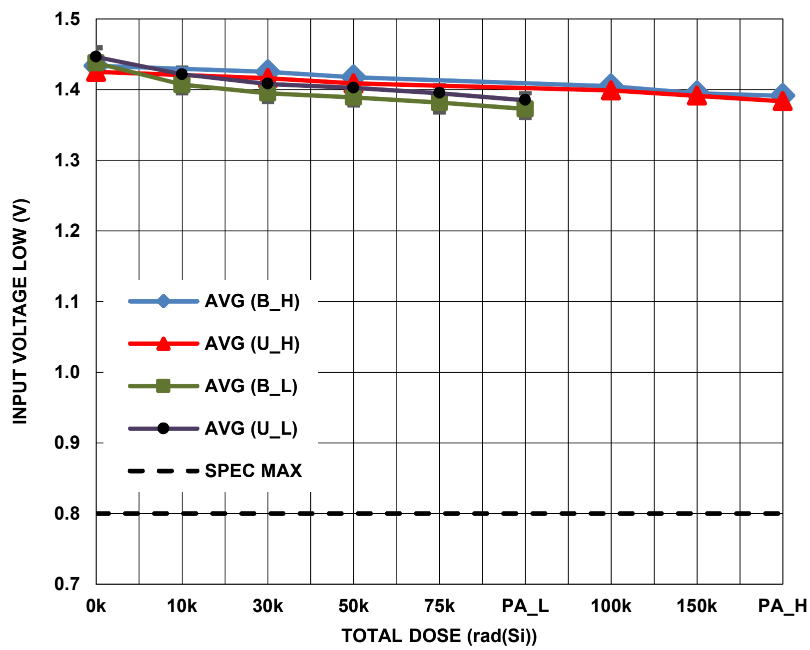

FIGURE 26. ISL72813SEH 32-Channel Driver Input Voltage LOW at V_{CC} = 3.0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 0.8V.

Variables Data Plots (Continued)

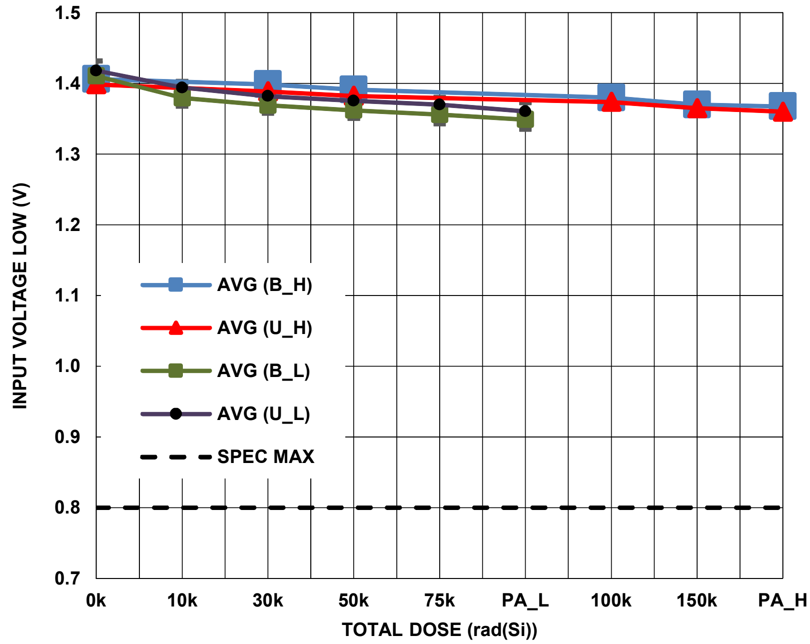

FIGURE 27. ISL72813SEH 32-Channel Driver Input Voltage LOW at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 0.8V.

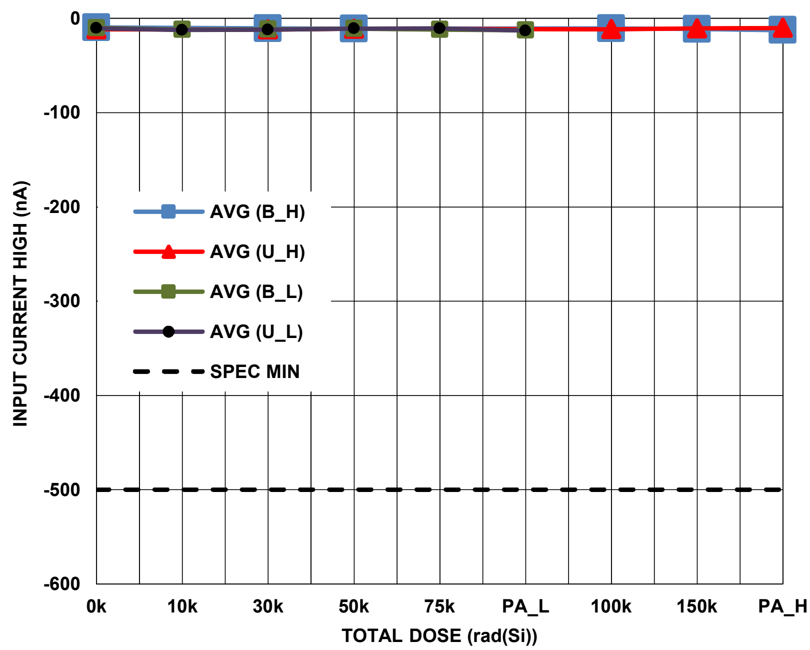

FIGURE 28. ISL72813SEH 32-Channel Driver Input Current HIGH at V_{CC} = 3.0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -500nA.

Variables Data Plots (Continued)

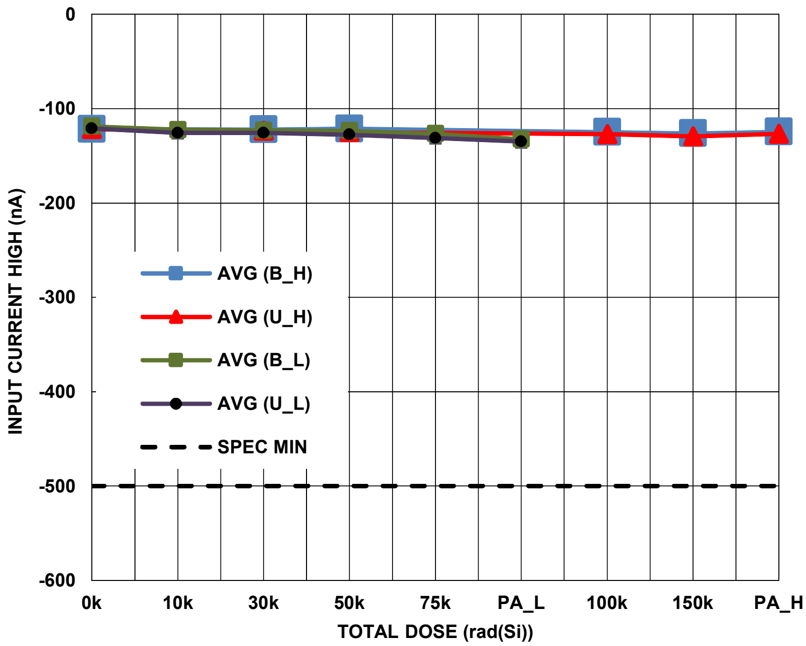

FIGURE 29. ISL72813SEH 32-Channel Driver Input Current HIGH at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -500nA.

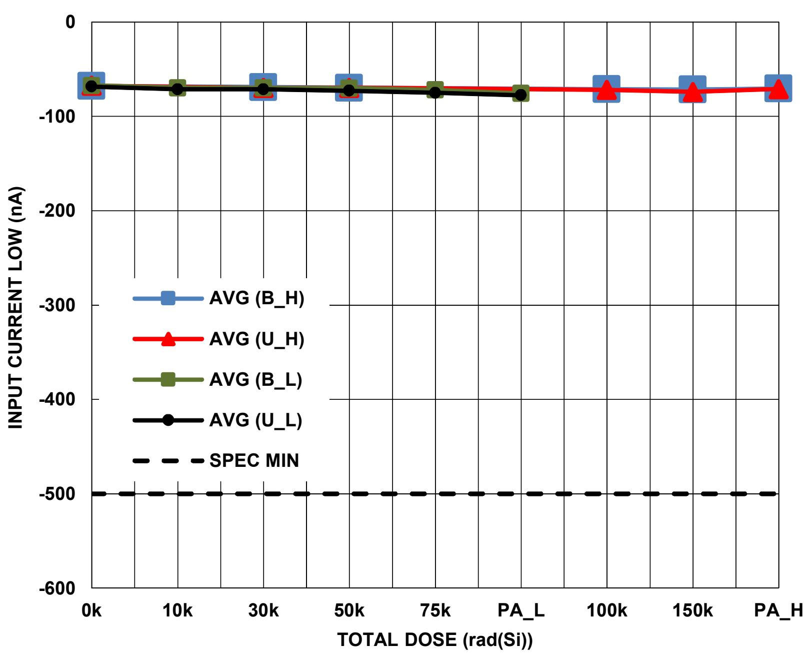

FIGURE 30. ISL72813SEH 32-Channel Driver Input Current LOW at V_{CC} = 3.0V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -500nA.

Variables Data Plots (Continued)

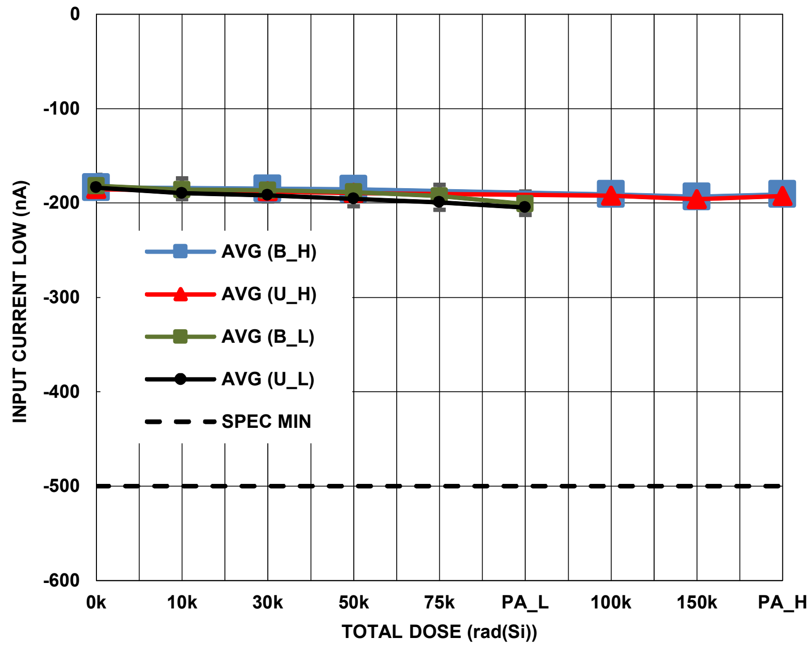

FIGURE 31. ISL72813SEH 32-Channel Driver Input Current LOW at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is -500nA.

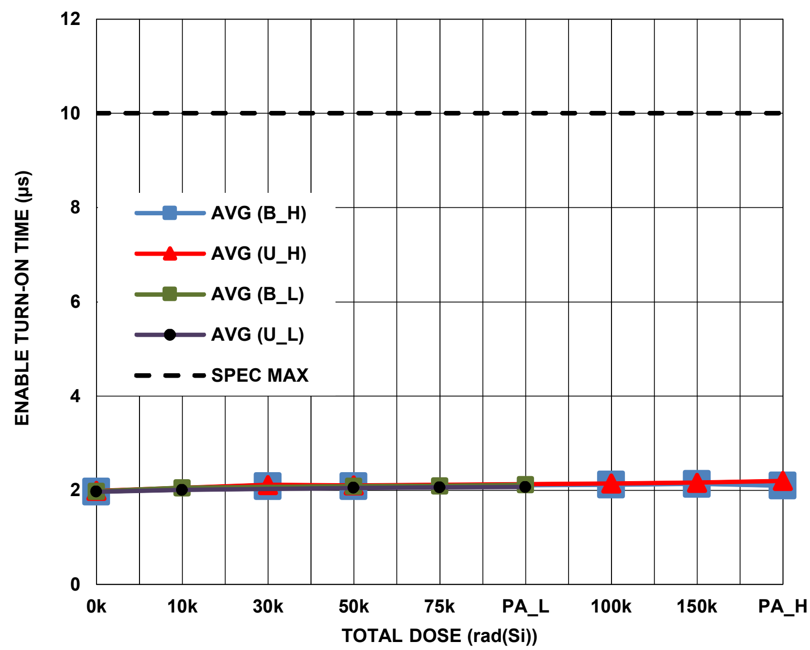

FIGURE 32. ISL72813SEH 32-Channel Driver Enable Turn-On Time at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1 and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 10µs maximum.

Variables Data Plots (Continued)

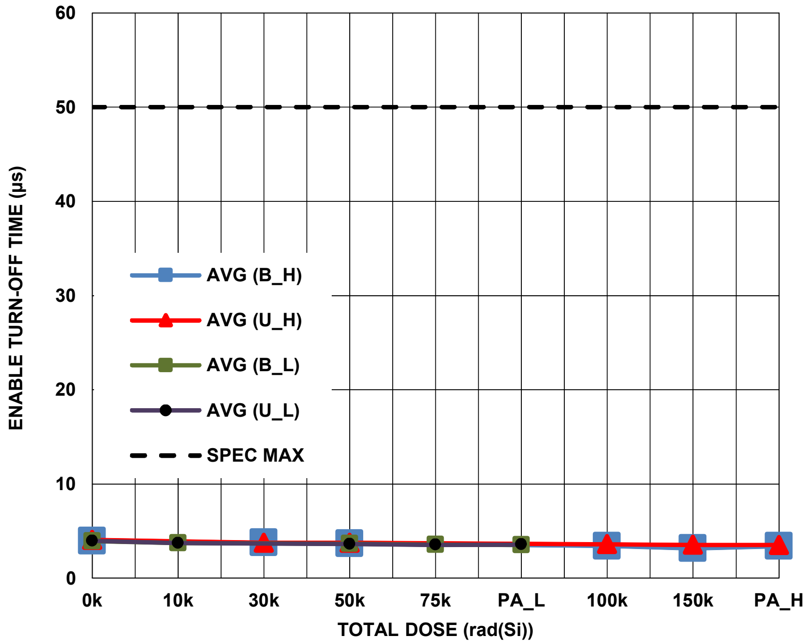

FIGURE 33. IISL72813SEH 32-Channel Driver Disable Turn-Off Time at V_{CC} = 5.5V as a function of irradiation dose for the Biased (B_H, B_L) (Figure 1) and Unbiased (U_H, U_L) (all pins grounded) cases. The error bars represent the minimum and maximum measured values. The post-irradiation SMD limit is 50µs maximum.

Conclusion

This report describes the results of the total ionizing dose (TID) tests of the ISL72813SEH high-current driver. The tests were conducted to determine the sensitivity of the part to total dose environment. Samples were tested to 75krad(Si) at a low dose rate under Biased and Unbiased conditions and were then subjected to a high temperature Biased anneal at +100°C for 168 hours. An additional set of samples were tested to 150krad(Si) at a high dose rate under Biased and Unbiased conditions and then also subjected to a high temperature Biased anneal at +100°C for 168 hours.

ATE characterization testing showed no rejects to the SMD Group A parametric limits (indicated by a ‘Bin 1’ category) after Biased and grounded irradiation at both dose rates and after the 168 hour +100°C Biased anneals. Attributes data are presented in Tables 2 and 3, while variables data are plotted in Figures 2 through 33.

For attributes that are tested on multiple inputs or outputs, such as voltage input levels and collector emitter saturation voltages, only a typical case is shown. The data for the graphs of the enable turn on and disable turn off times were taken in the lab because they are not part of the production ATE tests.

No meaningful differences between low dose rate and high dose rate exposures or between Biased and Unbiased irradiation were noted, and the samples showed no significant response to the high temperature anneal.

TABLE 4. REPORTED PARAMETERS

FIGURE	PARAMETER	SYMBOL	LIMIT, LOW	LIMIT, HIGH	UNITS	CONDITIONS
2	Supply Current	I_{CC}		9.5	mA	V_{CC} = 3.6V, V_{EE} = 0V, Cx = OPEN, EN = V_{CC}
3						V_{CC} = 3.6V, V_{EE} = -34V, Cx = OPEN, EN = V_{CC}
4						V_{CC} = 5.5V, V_{EE} = 0V, Cx = OPEN, EN = V_{CC}
5						V_{CC} = 5.5V, V_{EE} = -34V, Cx = OPEN, EN = V_{CC}
6	Quiescent Supply Current	I_{CCQ}	-	850	µA	V_{CC} = 3.6V, V_{EE} = 0V, Cx = OPEN, EN = 0
7						V_{CC} = 3.6V, V_{EE} = -34V, Cx = OPEN, EN = 0
8						V_{CC} = 5.5V, V_{EE} = 0V, Cx = OPEN, EN = 0
9						V_{CC} = 5.5V, V_{EE} = -34V, Cx = OPEN, EN = 0
10	Supply Current	I_{EE}	-45	-	mA	V_{CC} = 3.6V, V_{EE} = -34V, Cx = OPEN, EN = V_{CC}
11						V_{CC} = 5.5V, V_{EE} = -34V, Cx = OPEN, EN = V_{CC}
12	Quiescent Supply Current	I_{EEQ}	-100	-	µA	V_{CC} = 3.6V, V_{EE} = -34V, Cx = OPEN, EN = 0
13						V_{CC} = 5.5V, V_{EE} = -34V, Cx = OPEN, EN = 0
14	Output Collector Leakage Current	I_{CEX}	-	40	nA	V_{CC} = 3.6V, V_{CX} = 0V, V_{EE} = -34V, EN = 0V
15						V_{CC} = 5.5V, V_{CX} = 0V, V_{EE} = -34V, EN = 0V
16	Collector – Emitter Saturation Voltage $V_{CE(SAT)} = V_{CX} - V_{EE}$	$V_{CE\ (SAT)}$	-	1.5	V	I_C = 530mA, V_{CC} = 3.0V, V_{EE} = -34V, EN = V_{CC}
17						I_C = 530mA, V_{CC} = 4.5V, V_{EE} = -34V, EN = V_{CC}
18			-	1.45		I_C = 500mA, V_{CC} = 3.0V, V_{EE} = -34V, EN = V_{CC}
19						I_C = 500mA, V_{CC} = 4.5V, V_{EE} = -34V, EN = V_{CC}
20			-	1.4		I_C = 350mA, V_{CC} = 3.0V, V_{EE} = -34V, EN = V_{CC}
21						I_C = 350mA, V_{CC} = 4.5V, V_{EE} = -34V, EN = V_{CC}
22			-	1.3		I_C = 200mA, V_{CC} = 3.0V, V_{EE} = -34V, EN = V_{CC}
23						I_C = 200mA, V_{CC} = 4.5V, V_{EE} = -34V, EN = V_{CC}
24	High Level Threshold	V_{IH}	2	-	V	V_{CC} = 3.0V
25						V_{CC} = 5.5V
26	Low Level Threshold	V_{IL}	-	0.8	V	V_{CC} = 3.0V
27						V_{CC} = 5.5V
28	Input High Current	I_{IH}	-500	-	nA	V_{CC} = 3.0V, Tested Logic Input = 2.0V
29						V_{CC} = 5.5V, Tested Logic Input = 2.0V
30	Input Low Current	I_{IL}	-500	-	nA	V_{CC} = 3.0V, Tested Logic Input = 0.8V
31						V_{CC} = 5.5V, Tested Logic Input = 0.8V
32	Enable Turn-On Time	t_{EN}	-	10	µs	V_{CC} = 3.0V, 5.5V, RLOAD = 64.4Ω (Note 4)
33	Disable Turn-Off Time	t_{DIS}	-	50	µs	V_{CC} = 3.0V, 5.5V, RLOAD = 64.4Ω (Note 4)

3. Limits are taken from Standard Microcircuit Drawing (SMD) 5962-17208.
4. Lab characterization at 5.5V ONLY (determined to be worst case).

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