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Control No. PCN-23231

June 21, 2023

PRODUCT/PROCESS CHANGE NOTIFICATION

TYPE OF CHANGE: ☒ Design ☐ Manufacturing ☐ Other

This notification is provided in accordance with Power Integrations policy of major change notification. If you have any questions or need further assistance, please contact your regional Power Integrations sales office.

DESCRIPTION OF CHANGE

Primary controller logic adjustment. No change to device functionality or to data sheet parameters.

REASON FOR CHANGE

Address inverter system start up problem when input voltage ramp is non monotonic, such that the device DRAIN pin voltage exceeds 8V but immediately dips below 8V before increasing beyond 8V DC.

PRODUCTS AFFECTED

INN3947CQ-TL, INN3949CQ-TL

QUALIFICATION STATUS

Please refer to Appendix 1 for the qualification data.

EFFECT ON CUSTOMER

There will be no adverse impact in manufacturers' applications for customers who do not experience an input voltage dip.

For customers who want to ensure they only receive the updated parts, the Ordering Part Numbers are changed from INN3947CQ-TL and INN3949CQ-TL to INN3947CQ0500-TL and INN3949CQ0500-TL respectively.

Customers who continue to order INN3947CQ-TL or INN3949CQ-TL may receive either revision until the effective date at which point only the updated parts will be supplied.

EFFECTIVE DATE

September 21, 2023.

SAMPLE AVAILABILITY

Samples are available upon request. Please send the request for samples within two weeks after receipt of this notification to the local Power Integrations sales office.

CONFIDENTIAL

The information in this report contains confidential and proprietary information of Power Integrations and its manufacturing partners. By receiving this report, the customer agrees to use this information for the sole purpose of addressing the issues reviewed in this report and to keep the contents confidential. If it becomes necessary for the customer to disclose this information to a third party, a non-disclosure agreement, which provides reasonable and customary protection for the disclosed information, must be executed.



Appendix 1
Reliability Engineering
Qualification Report

Qualification Project: E231303

Project Title: INN3947CQ and INN3949CQ Primary Controller Change Qualification

Qual Summary:

Reliability testing was performed on the INN3947CQ to qualify a minor circuit change within the logic section of the primary controller die implemented to address start-up issues under specific application conditions. PTC, ESD and Latch-up were conducted on INN3947CQ devices to satisfy AEC-Q100 requirements for this non-periphery circuit re-routing change. The INN3949CQ is covered by extension of the INN3947CQ within the same product family. Yield analysis and temperature characterization were completed with acceptable results. Based on these results, the updated primary controller is now fully qualified for the INN3947CQ and INN3949CQ.

Qualification Vehicles: INN3947CQ (InnoSwitch3-AQ) in the InSOP-24D Package

Reliability Test Descriptions and Conditions

Test Name	Conditions	Reference Specification
PTC (Power Temperature Cycle)	-40°C to +125°C, air to air, alternating bias 5 minutes on, 5 minutes off	EIA/JESD22-A105
Human Body Model ESD	1500 Ohms, 100pF, 3 units per voltage	JESD22-A114F
Charge Device Model ESD	CDM, 3 units per voltage	JESD22-C101
Latch-up	+/- 100mA, 1.5 x Vcc, 125°C	JESD78D

PTC (Power Temperature Cycle)

Product	Lot #	Primary Controller	Test Duration	No. Failures/Sample Size
INN3947CQ	MCH131J	Updated with Logic Change	MSL3 + 1000 hours	0 / 45

Note: All units were ATE tested at room and hot temperature before and after stress per AEC-Q100 requirements

ESD & Latch-up

Product	Lot #	Primary Controller	Stress Test	No. Failures/Sample Size
INN3947CQ	MCH131J	Updated with Logic Change	HBM ESD: ±2000V All Pins	0 / 3
INN3947CQ	MCH131J	Updated with Logic Change	CDM ESD: ±500V All Pins	0 / 3
INN3947CQ	MCH131J	Updated with Logic Change	Latch-up: ±100 ma on all I/O pins and >1.5 X V(max) on all Supply pins	0 / 6

Note: All units were ATE tested at room and hot temperature before and after stress per AEC-Q100 requirements

Conclusion: Based on passing reliability results, the updated primary controller is qualified for production with the INN3947CQ and INN3949CQ.

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CUSTOMER ACKNOWLEDGEMENT

Power Integrations requests you acknowledge the receipt of the above-mentioned PCN. If no acknowledgment is received within 30 days of this notification, Power Integrations will assume the change is acceptable. Lack of any additional response within 90 days of this notification further constitutes acceptance of the change.

Power Integrations reserves the right to ship either version manufactured after the effective date.

If you have any questions or need further assistance, please contact your regional Power Integrations sales office. Otherwise, please check the box below, acknowledging the receipt of the PCN.

The indicated Product/Process Change Notification was received by the undersigned authority.

Name/Title: _____

Signature: _____ Date: _____

Email Address/Phone#: _____

Company/Location: _____

CUSTOMER COMMENTS

Please email this signed form to pcn@power.com specifying the PCN# in the subject.

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