

## Reliability Services



## Conformal Coating for Gate Drivers



### In-Line Conformal Coating Enhances Reliability and Protection

#### Applications

- Offshore and onshore wind parks
- Traction main and auxiliary inverter
- HVDC stations
- Photovoltaic inverters
- Medium voltage drives in mining and oil and gas industry

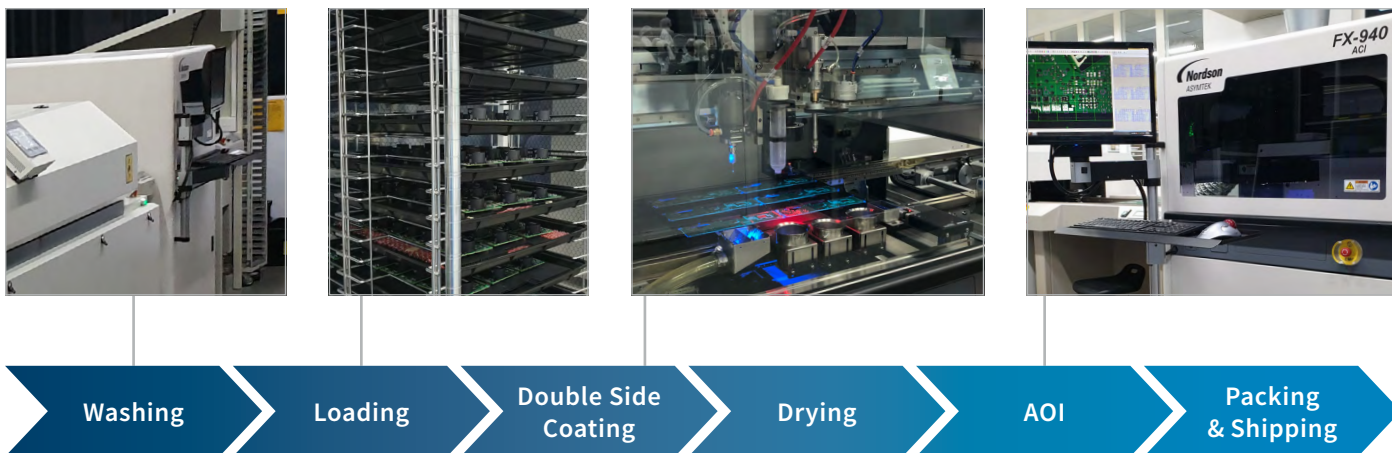
#### Qualification

- Qualification is based on tests in accordance with IEC 60068-2-xx
- Vibration (sinusoidal) test parameters according to IEC 60068-2-6:2008-10
- Shock test parameters according to IEC 60068-2-27:2010-02
- Damp heat, steady-state test parameters according to IEC 60068-2-78:2012-10
- Cold test parameters according to IEC 60068-2-1:2007-03
- Dry heat test parameters according to IEC 60068-2-2:2007-07
- Thermal cycle test parameters according to IEC 60068-2-14:2009-01
- Salt mist test parameters according to IEC 60068-2-11

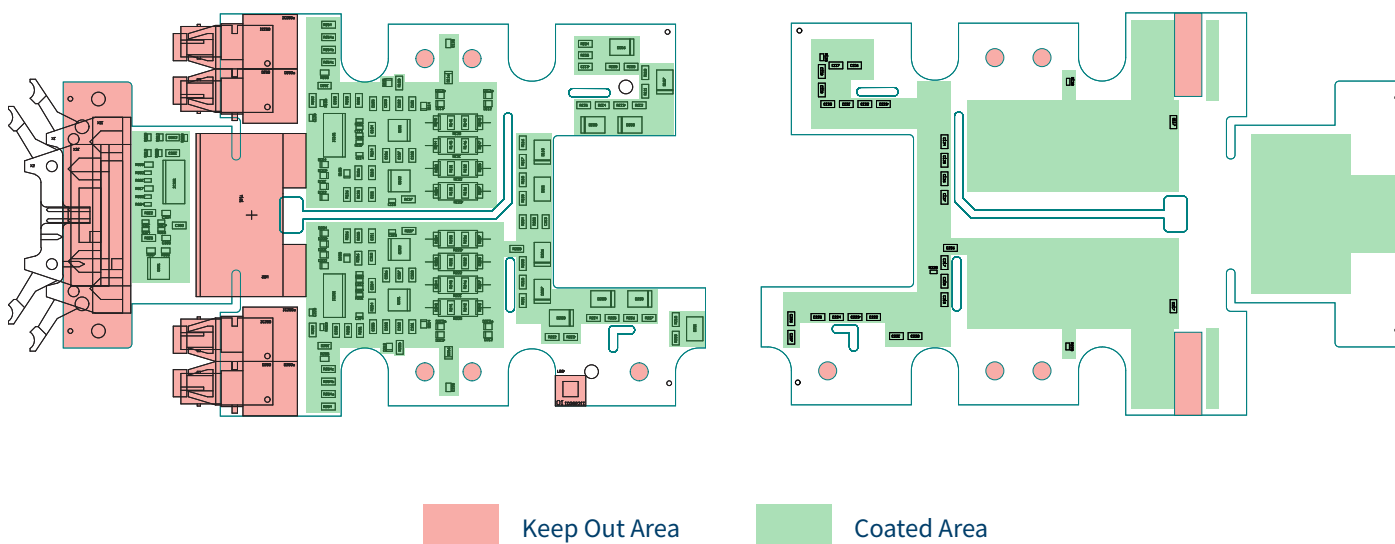
#### Key Features

- Reduced total cost of ownership and streamlined production
- Internal solutions and specialized subcontractors become obsolete
- Full conformal coating qualification with testing in accordance with IEC 60068-2 standards
- Controlled process with 100% automatic optical inspection at end-of-line
- SCALE™-2+ gate driver cores retain UL recognition
  - E321757 for UL508C (NMMS2/8)
  - E346491 for UL60950-1C (NWGQ2/8)
- Extended warranty available with conformal coating

## Conformal Coating – In-Line Process Flow



## Typical Coated and Keep Out Areas (2SP0320V2Ax-xxxx)



## Ordering Information

Part Number	Part Number	Part Number
2SC0106T2A1C-12 (1)	2SP0115T2A0C-xxxx (2)	2SC0115T2A0C-12
2SC0108T2F1C-17 (1)	2SP0115T2B0C-xxxx (2)	2SD300C17A2C
2SC0108T2G0C-17 (1)	2SP0115T2C0C-xxxx (2)	2SD300C17A3C
2SC0108T2H0C-17 (1)	1SP0335V2M1C-xxxx (2)	2SC0535T2A1C-33
2SC0108T2D0C-12 (1)	1SP0335S2M1C-xxxx (2)	2SC0535T2G0C-33
2SC0435T2F1C-17	1SP0335D2S1C-xxxx (2)	1SP0635V2M1C-xxxx
2SC0435T2G1C-17 (1)	1SC0450E2B0C-xx	1SP0635S2M1C-xxxx
2SC0435T2H0C-17 (1)	1SC0450V2B0C-xx	2SP0320T2A0C-xxxx

Other Products On Request

## Burn-In for Gate Drivers



### Enhanced Field Reliability

#### Applications

- Mission-critical and high reliability systems
- Transportation
- Electrical generation and transmission

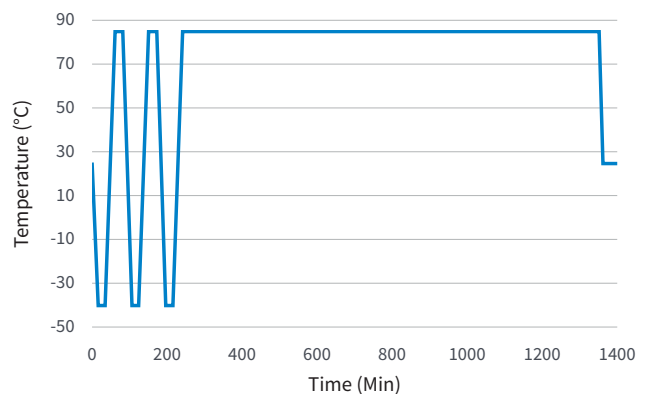
#### Burn-In Process

- 100% production test
- Burn-in profile
  - 23 hour burn-in cycle
  - Controlled oven profile
    - Three cycles -40 °C to +85 °C (258 minutes)
    - 1092 minute dwell-time at 85 °C
    - 30 minute off-time at 25 °C
    - Customer-specific burn-in profile on request

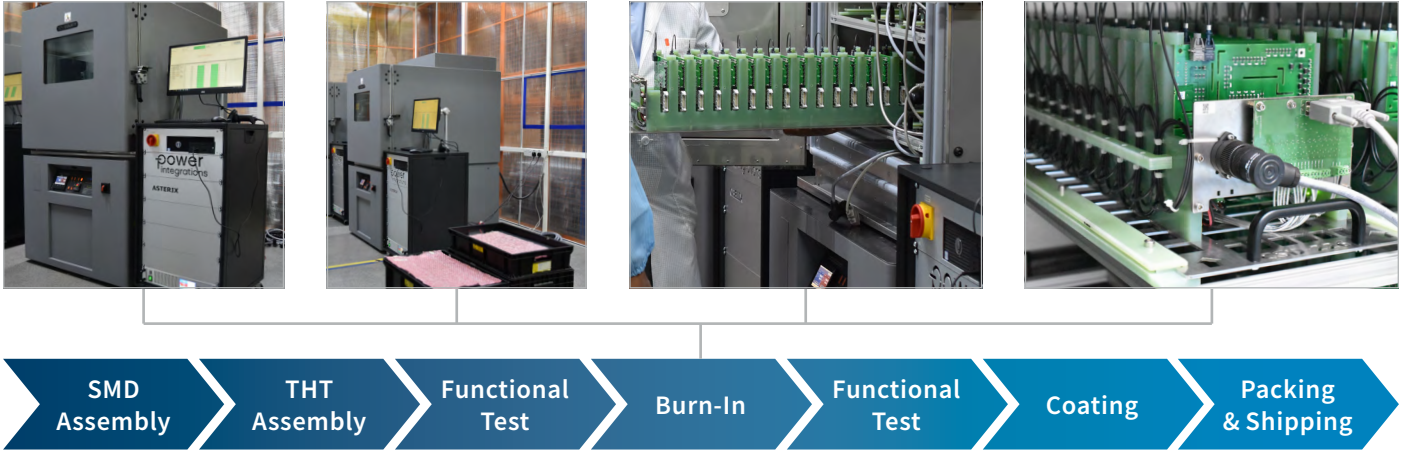
#### Key Features

- Reduces total cost of ownership and streamlines production
- Eliminates challenges posed by in-house solutions and removes the need for specialized subcontractors
- Reduces failure rate by up to 15 PPM
- Extended warranty available with burn-in

#### Burn-In Profile

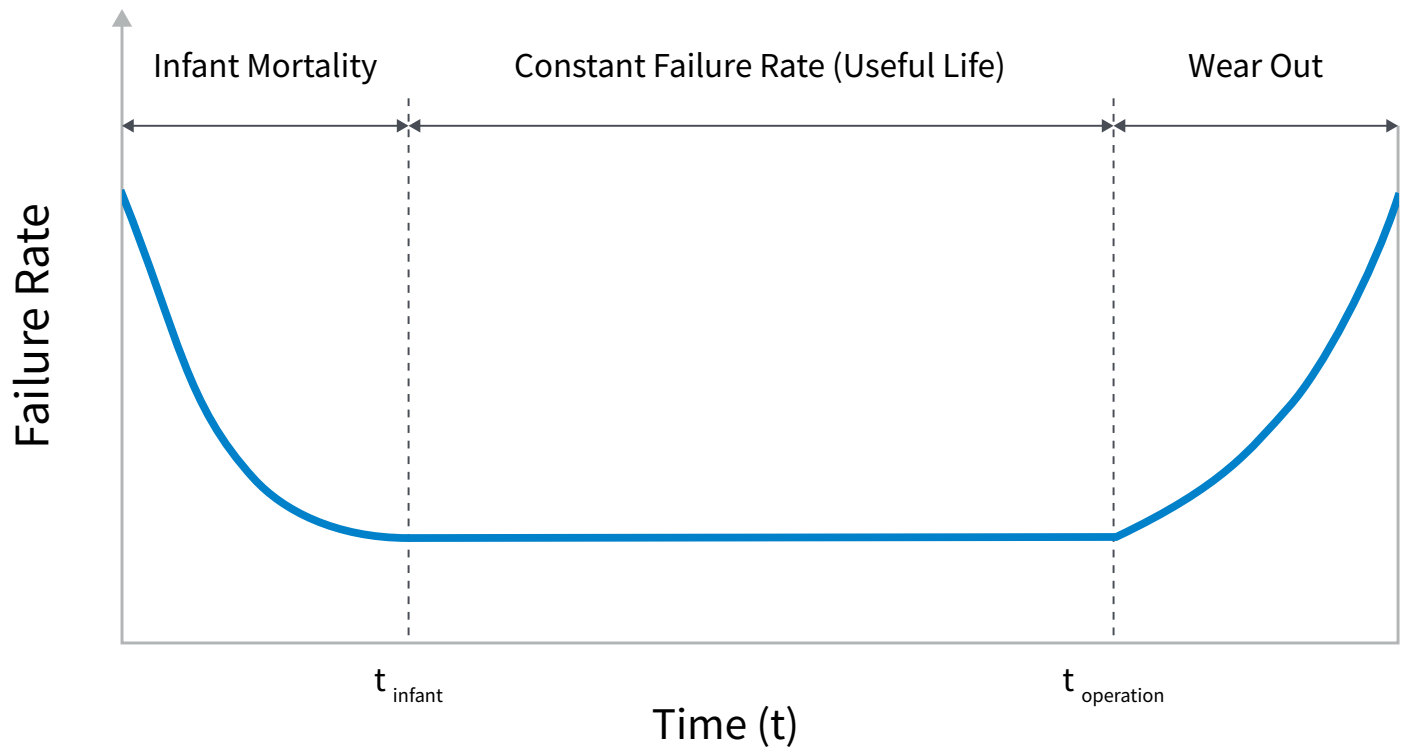


## Burn-In – In-Line Process Flow



## Increase Reliability

Power Integrations gate driver products for demanding applications with >100,000 hour operating lifetime. Burn-in test eliminates infant mortality improving system reliability and reducing maintenance challenges.





## Reliability Services Warranty

**Five-Year** Extended Warranty

Factory **Burn-In** and **Conformal Coating** Process

**Complete Confidence** for High Reliability  
Mission-Critical Applications & Harsh  
Environments

Addresses **Contaminants, Salt Spray, Moisture,**  
**Vibration, Shock, Cold,** and **Heat**

For more information or to request extended warranty on other PI products  
contact your Local PI representative at [gate-driver.power.com/sales](https://gate-driver.power.com/sales)

See full Terms and Conditions

## Americas Terms and Conditions of Sale

These Americas Terms and Conditions of sale (“Terms and Conditions”) are entered into between Power Integrations, Inc., a Delaware Corporation having its principal place of business at 5245 Hellyer Avenue, San Jose, California 95138 (“PI”), and the purchaser of products from PI (“Customer”).

1. THESE TERMS AND CONDITIONS ARE A LEGAL AGREEMENT GOVERNING ANY Customer PURCHASE AND PI SALE OF ANY Products Customer DESIRES TO PURCHASE FROM PI (“Products(s)”). Customer’s USE, SALE OR RETENTION OF THE Product(s) CONSTITUTES ACCEPTANCE BY Customer OF THESE TERMS AND CONDITIONS. Customer SHALL ORDER PRODUCTS BY ISSUED PURCHASE ORDER (“PO”). PI EXPRESSLY REJECTS AND SHALL NOT BE BOUND BY ANY PROVISION IN ANY PO OR OTHER COMMUNICATION FROM Customer THAT IS IN ADDITION TO, INCONSISTENT WITH, AND/OR CONFLICTING WITH THESE TERMS AND CONDITIONS, UNLESS EXPRESSLY AGREED TO IN WRITING BY AN AUTHORIZED REPRESENTATIVE OR AUTHORIZED AGENT OF PI. PI’S FAILURE TO OBJECT TO ANY PROVISION CONTAINED IN ANY COMMUNICATION FROM Customer SHALL NOT BE DEEMED TO BE A WAIVER OF ANY PROVISION OF THESE TERMS AND CONDITIONS. Customer TAKING DELIVERY OF THE Product(s) IS CONCLUSIVE ACCEPTANCE OF THESE TERMS AND CONDITIONS.
2. **Prices**

The price of the Products shall be set forth in PI’s confirmation of the acceptance of the PO to Customer. PI reserves the right to change a Product’s price without notice, prior to such confirmation.
3. **Price Quotes**

Any price quotations shall be binding only if given in writing, will automatically expire thirty (30) calendar days from the date issued, and may be cancelled or amended within such period upon written notice to Customer.
4. **Payment**
  - 4.1 **Payment Terms**

Customer shall pay all invoices issued under these Terms and Conditions within thirty (30) days from date of invoice. Shipments, deliveries, and performance of work will at all times be subject to the approval of PI’s credit department and PI may at any time decline to make any shipments or deliveries or perform any work except upon receipt of full payment or upon terms, conditions, and security, satisfactory to PI. Further, without liability and without prejudice to any other remedy PI may have, PI may withhold or delay shipment of Products if Customer is late in payment or is otherwise in breach of these Terms and Conditions. If PI elects to continue to ship Products despite any Customer breach, PI’s action shall not constitute a waiver thereof or in any way affect PI’s legal and equitable remedies therefor.

**4.2 Payment upon Delay or Unpermitted Cancellation by Customer**

If shipment of Products is delayed by Customer, PI will issue an invoice for such Products on the original shipment date if PI is prepared to make shipment on that date. If a Customer cancels Products other than under Section 6.3 (“Reschedule or Cancellation”), payment for the cancelled Products shall be due based on the purchase price and the percentage of completion of the Products.

**4.3 Security Interest**

Customer hereby grants PI a security interest in the Products sold under these Terms and Conditions and the proceeds thereof until payment of the full purchase price to PI. Customer agrees to execute any financing statements, continuation statements, or other documents as PI requests to perfect, protect or maintain its security interest. In addition to any other right or remedy PI may have under these Terms and Conditions, in the event of uncured breach or default of any of Customer’s obligations to PI, PI shall have the right, without liability, to repossess the Products sold hereunder.

**4.4 Late Payments**

A service charge not exceeding the lesser of one and one-half percent (1 ½ %) per month, or the maximum amount permitted by applicable law, shall be paid on past due payment obligations until such past due payment obligations are paid in full.

**5. Taxes**

Customer will pay, or reimburse PI for, all sales, use, value-added and other taxes (except taxes on PI’s net income), now or hereafter claimed or imposed by any governmental authority upon the sale of the Products or upon payments to PI under these Terms and Conditions. Further, Customer shall be responsible for all import duties, similar taxes, and any other expenses incurred for licenses or clearances required at port of entry and destination for Products delivered.

**6. Shipment and Delivery**

**6.1 Shipping Terms, Title, Risk of Loss**

PI shipping terms are Incoterms 2000, Ex Works PI’s manufacturing facility. Customer will specify the destination country in its PO and the destination country will be stated on PI’s confirmation. Before or immediately after receipt of PI’s confirmation, Customer shall notify PI of a carrier reasonably acceptable to PI, which PI will use to transport the Products. If Customer does not select the carrier, PI may do so. Subject to Section 4.3 (“Security Interest”), title and risk of loss or damage will pass to Customer upon the Products’ delivery to the carrier. Damage after passage of title shall be borne by Customer and shall not relieve Customer from any payment obligation.

**6.2 Packaging**

Products shall be shipped in PI’s standard packaging.

**6.3 Reschedule or Cancellation**

Unless otherwise agreed in writing, PO’s for Standard Products or Extended Warranty



Products may be rescheduled or cancelled upon thirty (30) days written notice to PI. For special process Products, such as Customer-Specific Products, if Customer cancels the PO or any part thereof, Customer agrees to pay PI for completed work allocated to Customer's PO at the time of cancellation at the unit price and all additional costs, both direct and indirect, for work in progress as well as costs resulting from the cancellation, and a reasonable profit thereon.

**6.4 Partial Shipments**

PI may make deliveries in installments and these Terms and Conditions shall be severable as to any such installments and Customer shall pay for each installment as set forth in Section 4.1 ("Payment Terms"). Delay in delivery or breach with respect to any installment shall not relieve Customer of its obligation to accept and pay for remaining installments. In the event PI is unable to fulfill all PO's, PI shall have the right to omit during the period of such conditions all or any portion of the quantity ordered during such period, whereupon the total quantity ordered hereunder shall be reduced by the quantity so omitted. If, due to any contingency, PI is unable to supply the total demands for any Product specified hereunder, PI shall have the right to allocate its available supply, in PI's sole discretion. In no event shall PI be obligated to purchase the Products from others in order to deliver any such Products to Customer hereunder.

**6.5 Dates Approximate**

PI will use commercially reasonable efforts to meet its committed shipping and delivery dates. However, PI shall not be liable for any damage, loss or expense incurred by Customer if PI fails to meet the above shipping or delivery dates.

**6.6 Incoterms**

Incoterms 2000 applies to the transaction(s) governed by these Terms and Conditions, except to the extent such terms are modified by these Terms and Conditions.

**7. Warranty to Customer**

**7.1 Definitions**

**Extended Warranty Products ("EWP")**

The products identified in the PI Price List as being EWP.

**Standard Product(s)**

The standard product(s), other than Extended Warranty Product(s), set forth in the PI Price List.

**PI Price List**

PI's most recent list of prices in effect in the Distribution Territory for the Products, as such list is modified by PI at its sole discretion, where "Distribution Territory" is defined in any PI distribution agreement that references these terms and conditions. Where the Customer is a direct Customer, such as an original equipment manufacturer, and not a distributor, the term "PIIL Price List" shall be interpreted to mean PIIL's direct Customer

Price List.

**7.2 Limited Warranty for Standard Products**

Subject to Section 7.4 (Warranty Obligations), PI warrants to Customer that the Standard Products will substantially conform with PI's published specifications for the Standard Products for a period of one (1) year after the shipment of the Standard Products to Customer from PI or from an authorized distributor or reseller. For avoidance of doubt, where the Customer is an authorized distributor or reseller, the one (1) year after the shipment of the Standard Products begins on the date of shipment from PIIL to the authorized distributor or reseller.

**7.3 Limited Warranty for EWP Product**

Subject to Section 7.4 (Warranty Obligations), PI warrants to Customer that the EWP Products will substantially conform with PI's published specifications for such products for a period of five (5) years from the assembly date of the EWP Products.

**7.4 Warranty Obligations**

The respective warranties in Sections 7.2 (Limited Warranty for Standard Products) and 7.3 (Limited Warranty for EWP Product) are conditional on the Products being properly used in accordance with the procedures described in documentation respectively supplied therefor by PI. PI's exclusive obligation with respect to a nonconforming Product shall be, at PI's option, (a) to replace that Product with one that conforms to the Product specifications, or (b) to provide Customer a credit adjustment not to exceed the purchase price paid for the Product. THE FOREGOING IS PI'S SOLE AND EXCLUSIVE OBLIGATION, AND Customer's SOLE AND EXCLUSIVE REMEDY, FOR BREACH OF WARRANTY BY PI WITH RESPECT TO THE Products. Replacement Products will be warranted only for the remaining warranty period of the replaced Product. Products not purchased from PI, or from an authorized distributor or reseller will have no warranty.

**7.5 Return Procedures**

Products shall be non-returnable except for nonconformance under Section 7.2 (Limited Warranty for Standard Products) and Section 7.3 (Limited Warranty for EWP Products), in accordance to the return procedure as set forth on the website [www.power.com/repw/](http://www.power.com/repw/), which may be revised at PI's sole discretion. Any Product not returned in accordance with Section 7.2 (Limited Warranty Standard Products) Section 7.3 (Limited Warranty for EWP Product) or which are not eligible for warranty pursuant to Section 7.4 (Warranty Obligations), will be returned to Customer freight collect. Products returned to PI that are determined by PI to be nonconforming and covered by the limited warranty of Section 7.2 (Limited Warranty Standard Products) and Section 7.3 (Limited Warranty for EWP Products) become the property of PI upon PI's execution of its warranty obligation as to such Products.

**7.6** Customer will report nonconformance of a PI Product to the specifications to PI within ten (10) days of discovery thereof. Customer additionally shall provide supporting infor-

mation reasonably requested by PI to enable it to verify, diagnose and correct the non-conformance. PI Products shall not be returned to PI until Customer meets all product return requirements specified by PI.

**7.7 Limitation**

The remedy set forth in Sections 7.2 (Limited Warranty Standard Products) and 7.3 (Limited Warranty for EWP Products) is available only if: (a) Customer shall within such warranty periods notify PI of the nonconforming Product (in accordance with Section 7.5 (Return Procedures)), and (b) PI determines in its sole discretion that the reported non-conformity is valid and was not caused by misuse, neglect, improper installation, testing or handling, or any other cause beyond the scope of normal usage, or by accident or intentional damage or operation, or use of the Products outside their specified operating ranges. PI will be responsible for the shipping costs of Products found to be nonconforming by PI and that were properly returned to PI and any shipping costs for replacement units to Customer.

**7.8 Disclaimer of Warranties**

EXCEPT AS EXPRESSLY SET FORTH ABOVE, NEITHER PI NOR ITS LICENSORS OR SUPPLIERS MAKE ANY OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, REGARDING THE Products. ALL IMPLIED WARRANTIES AS TO SATISFACTORY QUALITY, PERFORMANCE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT ARE EXPRESSLY DISCLAIMED. NEITHER PI NOR ITS LICENSORS OR SUPPLIERS WARRANT THAT THE Products ARE ERROR-FREE, THAT THEIR USE WILL BE UNINTERRUPTED, OR THAT SUCH USE WILL PROVIDE Customer's DESIRED RESULTS.

**8. Force Majeure; Limitation of Liability**

8.1 PI shall not be liable for any loss, damage or penalty resulting from failure to perform any of its obligations under these Terms and Conditions due to force majeure or any cause beyond PI's reasonable control.

8.2 IN NO EVENT WILL PI, ITS LICENSORS OR SUPPLIERS BE LIABLE TO Customer FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO ANY LOST PROFITS AND LOST SAVINGS, HOWEVER CAUSED, WHETHER FOR BREACH OR REPUDIATION OF CONTRACT, TORT, BREACH OF WARRANTY, NEGLIGENCE, OR OTHERWISE, WHETHER OR NOT PI OR A LICENSOR OR A SUPPLIER OF PI WAS ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGES. NOTWITHSTANDING ANY OTHER PROVISION OF THESE TERMS AND CONDITIONS, PI'S TOTAL LIABILITY TO Customer ARISING FROM OR IN RELATION TO THESE TERMS AND CONDITIONS OR THE PRODUCTS SHALL BE LIMITED TO THE TOTAL PAYMENTS MADE TO PI UNDER THESE TERMS AND CONDITIONS FOR THE RELEVANT PRODUCTS. IN NO EVENT WILL PI OR ITS LICENSEES OR SUPPLIERS BE LIABLE FOR THE COST OF PROCUREMENT OF SUBSTITUTE PRODUCTS.

**8.3 No Life Support Usage**

Customer warrants that it will not, directly or indirectly, cause the Product to be used in any life support equipment or life support application.

## 9. Intellectual Property Rights

- 9.1 In addition to obligations in any confidentiality agreement now in place between Customer and PI or its parent company or its subsidiaries, if Customer learns confidential information in connection with a Product or these Terms and Conditions, Customer will not use such confidential information other than for the purposes of these Terms and Conditions (“Purpose”). Customer will not disclose such confidential information to anyone except to its employees with a need to know it for the Purpose, and who agree in writing to be bound by terms no less restrictive than this Section 9.1. Customer will not manufacture or have manufactured any Product, or reverse engineer, disassemble, modify, or create derivatives of any Product, in whole or in part.
- 9.2 Customer is not granted any license or other right, directly, indirectly, by implication, estoppel, exhaustion or otherwise, to manufacture the Products or have the Products manufactured. Customer may not use PI’s or its parent company’s trademarks without PI’s or such parent’s prior written consent. Customer will not remove or deface any patent, copyright, maskwork, trademark or other intellectual property right notice that is on the Products.
- 9.3 All specifications, drawings, designs, data, information, ideas, concepts, methods, patterns and/or inventions made, conceived, or developed by PI or its licensors or suppliers in connection with its performance under these Terms and Conditions are the sole property of PI.

## 10. Term and Termination

The term of these Terms and Conditions shall continue unless terminated in accordance with this Section 10. In any one or more of the following events of breach, default or other event, Customer shall immediately pay to PI the full amount of any payment obligations to PI and PI shall have the right, by written notice to such effect to Customer, to terminate PI’s obligations hereunder:

- 10.1 In the event (a) Customer makes a general assignment for the benefit of creditors, or transfers all or substantially all of its assets to a receiver or a trustee in bankruptcy, (b) a proceeding is commenced by Customer for its own relief under bankruptcy or similar laws, (c) a proceeding is commenced against Customer for relief under bankruptcy or similar laws and such proceeding is not dismissed within thirty (30) days, or (d) Customer is adjudged insolvent or bankrupt;
- 10.2 Upon failure of Customer to pay when due any sums payable hereunder if such failure shall continue for fifteen (15) days after the date when due; or
- 10.3 Upon failure of Customer to perform any of its obligations hereunder, other than the pay-

ment of money, if such default shall continue for a period of fifteen (15) days after receipt by Customer of written notice from PI specifying such default.

10.4 Sections 4 (“Payment”), 7.4 (“Warranty Obligations”), 7.7 (“Disclaimer of Warranties”), 8 (“Force Majeure; Limitation of Liability”), 9 (“Intellectual Property Rights”), 11 (“Export Control”) and 13 (“General Provisions”) shall survive termination of these Terms and Conditions.

#### 11. **Export Control**

Customer specifically acknowledges that certain of the PI Products may be subject to export control laws and regulations of the United States and other countries and Customer shall comply strictly and fully with all export controls and regulations imposed on the Products by the United States and by every country or organization or nation within whose jurisdiction Customer operates or does business.

#### 12. **Notices**

Any notice or other communication required or permitted to be given to PI under these Terms and Conditions shall be given in writing and delivered by overnight courier, signature of receipt required, and shall be deemed delivered upon written confirmation of delivery by the courier, if sent to the following address or such new address as may from time to time be supplied by PI hereunder.

Power Integrations, Inc.  
5245 Hellyer Avenue  
San Jose, California 95138  
Attention: Customer Service

#### 13. **General Provisions**

##### 13.1 **Assignment**

These Terms and Conditions may not be assigned or otherwise transferred by Customer, in whole or in part, without the express prior written consent of PI and any attempted assignment in derogation of the foregoing will be null and void. These Terms and Conditions shall be binding upon, and inure to the benefit of, the successors and permitted assigns of the parties.

##### 13.2 **Law, Venue**

These Terms and Conditions will be governed by and construed according to the laws of the state of California, United States of America, without regard to that body of law controlling conflicts of law. The United Nations Convention on Contracts for the International Sale of Products shall not apply to these Terms and Conditions. In the event of any dispute or claim arising out of these Terms and Conditions, the parties hereby submit to the jurisdiction of the federal and state courts located in Santa Clara County, California, as applicable.

### 13.3 **Amendment, Waiver**

These Terms and Conditions may be amended or supplemented only by a writing that refers explicitly to these Terms and Conditions and that is signed on behalf of both parties by persons with authority to bind them. No waiver will be implied from conduct or failure to enforce rights, and no waiver will be effective unless in writing signed on behalf of the party against whom the waiver is asserted.

### 13.4 **Severability**

If any part of these Terms and Conditions is found invalid or unenforceable that part can be enforced to the maximum extent permitted by law and the remainder of these Terms and Conditions will remain in full force.

### 13.5 **Attorney's Fees**

If any action is brought for any breach of these Terms and Conditions, the prevailing party shall be entitled to receive its attorney's fees and court costs in addition to any other relief it may receive.

### 13.6 **Headings**

Section headings used in these Terms and Conditions are for reference purposes only and in no way define, limit, construe or describe the scope or extent of such section, or in any way affect these Terms and Conditions.

### 13.7 **Entire Agreement**

These Terms and Conditions represent the entire agreement between the parties relating to its subject matter, and supersedes all prior representations, warranties, discussions and agreements relating thereto, whether written or oral, between the parties other than (a) the agreements referenced in Section 9.1, and (b) any other prior agreement in writing that states that it supersedes any confirming terms and conditions.



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