

OSRAM HILLSBORO
Automotive Lighting

Supplier Handbook

for Direct Materials & PFR's

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Introduction

Welcome to the Automotive Lighting Division of OSRAM. We are a global supplier of Automotive Lighting and the leader in supplying quality products to all major automotive manufacturers. Our leadership role in supplying quality products has been achieved by partnering with qualified suppliers that can provide quality materials.

OSRAM Hillsboro expects our suppliers to utilize the standards of ISO 9001 with the ultimate goal of achieving IATF 16949 certification. All materials are expected to be defect free and 100% on time.

As our marketplace changes we must continually revise the expectations of supplier performance. This handbook is the product of changing market conditions that we need to face jointly. Some of the specific areas covered, are the MANDATORY requirements of IATF 16949 and the global automotive industry.

Our goal is to steadily develop a supply base, which exhibits a high level of flexibility, expands the horizons on quality, service, and new technology, and will work with the Automotive Team to produce leading edge technology to maintain a leadership role in the Global Automotive Marketplace.

1. Supplier Requirements

Requirement	Explanation	Documents needed
OSRAM Hillsboro Supplier Handbook	Supplier Handbook addressing OSRAM Hillsboro expectations	Confirmation of understanding expectations
Supplier Self-audit	Self-audit form filled before starting business	Filled supplier self-audit form
IATF 16949	The supplier has to be certified according to the latest edition of IATF 16949	IATF 16949 Certificate
VDA process audit result greater 90% and minimum A	Supplier audit score	Audit report
ISO 14001	The supplier has to be certified according to the latest edition of ISO 14001	ISO 14001 Certificate
Quality Assurance Agreement	Signed QAA has to be in place	Signed QAA
IMDS	International Material Data System, must be submitted at the time of PPAP submission for review: http://www.mdssystem.com	IMDS signed OSRAM Hillsboro IMDS Location ID Number is 6856
ILE (Index List of Environment)	Lists of prohibited hazardous & declarable substances.	ILE signed

Ongoing Requirements

Raw Materials

Suppliers must have a comprehensive knowledge of manuals, and automotive processes supported by AIAG. These include; Production Part Approval Process (PPAP), Advanced Product Quality Planning and Control Plan (APQP), Potential Failure Mode and Effects Analysis (FMEA), Measurement Systems Analysis (MSA), and Statistical Process Control (SPC).

- a. More information on IATF 16949 is available through IATF Oversight Organization in North America at www.iatfglobaloversight.org or AIAG (Automotive Industry Action Group) at www.AIAG.org.

Suppliers should verify their product quality by utilizing tools such as SPC, and understand that OSRAM Hillsboro can at any time request Cpk/historical data from our suppliers for key characteristics identified on our specification. Summaries will include characteristics studied, number of measurements taken, X-bar, r-bar, CPK values and standard deviation.

- a. *Cpk data requirements:* Key raw material suppliers may be requested to submit quarterly Cpk data on all key characteristics currently identified on our specification or their control plan. This should be provided in an electronic format. If the Cpk values fall below 1.33, then a written explanation of the result should accompany the data submission. A corrective action or letter documenting why no action is needed should be provided with the data.

Bulk material suppliers are required to maintain material certificates for each shipment for a minimum period of two years. Bulk raw material suppliers include paint, gases, blacktop, and ink.

A copy of any of the following maybe requested at any time.

- Certificate of Quality Systems Registration
- Copy of Quality Assurance Manual
- Description of relevant process equipment
- Samples of similar products and/or workmanship
- Control plans & FMEAs
- Financial statements including credit references
- Customer references

Purchase for Resale (PFR)

For each lamp type submitted for qualification any number of the following may be requested:

- PPAP (level to be determined on a case by case basis)
- Samples
- Photometry data
- Dimensional data
- Shelf life data
- Life test data quarterly for each lamp type sold to OSRAM Hillsboro
- Control Plan / FMEA

2. Supplier Performance

Requirements to maintain qualification to supply products, materials, or services

Performance Requirements

Raw Materials and Purchase for Resale (PFR)

Following are the basic supplier performance objectives that must be established by our suppliers. Any deviation in actual performance from the criteria will result in corrective action procedures being implemented to bring performance in line with expectations.

1. Quality defects at 0 PPM.
2. 100% On-time delivery, following Logistic Requirements
3. 100% responsibility to issue credit for all discrepant materials or lamps, any packaging materials and costs associated with lost labor due to discrepant product.
4. PPAP's and samples supplied as requested (see attached documents: "PPAP submission Process" form and Prototype & Special Sample Inspection & Verification Requirements).
5. Obtain, and maintain, ship to stock status for their materials. Which is reached by receiving PPAP approval, passing Incoming Inspection criteria for (3) consecutive production lots, and passing performance data review with relevant functions within OSRAM Hillsboro.
 - a. The first three lots submitted after a new product launch should have special labels applied identifying them as a "new production part".

Any cost associated with nonconforming materials may be charged back to the supplier.

Supplier Change Requirements

Any product or process change requested by our suppliers that deviates from original PPAP must be documented on an OSRAM Supplier Change Request (SCR) form. The form must be sent to OSRAM Hillsboro within (9) months to permit required testing or planning to protect our customer and comply with quality standards. All suppliers must obtain approval prior to making any definitive changes. Existing key parts that incorporate any process or agreed upon specification changes may require new PPAP / Part Submission Warrants as defined by AIAG.

- a. The first three lots submitted after a product change, should have special labels applied identifying them as an "engineering/product/process change".

OSRAM also needs to be notified in writing of any change in a supplier's ownership.

All notifications should be made in writing to:

Purchasing Manager & Supplier Quality Engineer
OSRAM
Hillsboro Automotive Lighting
275 West Main Street
Hillsboro, NH 03244

3. Material Concerns and Corrective Actions

Process and Expectations for addressing material concerns

Corrective Action Model

OSRAM uses the 8D format to document corrective action activities when there are product/process critical concerns. The guidelines for this process are outlined in the QAA.

Supplier sorting, certification, and/or material replacement expectations

Raw materials and PFR's purchased by OSRAM Hillsboro are expected to meet our specification. If Hillsboro receives product that does not meet specification, then it is the supplier's responsibility to insure that all defective product is contained, and that they undertake all aspect associated with providing certified replacement material. It is also under supplier's responsibility all costs associated from this event: e.g., charge backs associated with labor cost, equipment downtime, etc.

- 1) Once the supplier has been notified (Supplier Quality Claim issued), or has found the defect internally at their facility, they should contact the OSRAM Hillsboro buyer/planner to determine how critical the inventory level is.
 - a) If time permits and replacement material is available, then the first option should be to return all defective material to the supplier for sort or scrap.
 - b) If time does not permit the return of the material to the supplier, then it is the suppliers responsibility to do one of the following, in this order;
 - i) Send an associate from their facility to sort the defective material.
 - ii) Set up the sorting activity with an external sorting supplier, at their own cost.
 - iii) If both option (i) and (ii) are exhausted, or cannot be implemented fast enough, then the supplier can request the use of Hillsboro personnel to sort.
- (1) All associated cost is Supplier's responsibility, unless otherwise agreed upon between OSRAM Hillsboro Purchasing and the supplier. The supplier must submit a written request

to OSRAM Supplier Quality and Purchasing requesting the use of Hillsboro personnel for sorting.

- 2) If the supplier and OSRAM Hillsboro are not in agreement with the rejection, then it is still the responsibility of the supplier to ensure continuity of material while the supplier and OSRAM Hillsboro investigate the rejection. Until the product is approved, the rejected inventory is removed from inventory, and must be replaced.

Supplier Quality Review Meetings at Hillsboro

Upon issues of multiple concerns or noted performance declines OSRAM Hillsboro may request the Supplier to attend meetings at Hillsboro to review concerns. The focus of meetings will be based on problem solving and establishing a plan to regain quality performance levels. Suppliers are required to be prepared to present data and facts on current performance levels in place at their facility. Supplier Quality will present requests for supplier's attendance at Hillsboro.

4. Logistics

Requirements to insure timely and cost effective transportation and processing of shipments for all supply chain members

Transportation

Domestic

OSRAM maintains freight contracts for all modes of transportation. Suppliers shipping under the freight terms of collect to any OSRAM location are expected to abide by the routing instructions as provided by the buyer/planner.

The Bill of Lading for collect shipments to these locations must specify OSRAM, 275 West Main Street, Hillsboro, NH, 03244, as the 3rd party billing.

International

All imports must specify the correct consignee/importer of record and import broker as advised by the buyer/planner. Import paperwork must be correct and clearly state the commodity, price and quantities. OSRAM mandates that all US Customs requirements be met at all times.

Import Documentation

OSRAM Suppliers, or their agents, will prepare the commercial invoice and shipping documentation as follows:

- **Consignee/Importer of record:** OSRAM, 200 Ballardvale St, Wilmington, MA 01887 as the Importer of record

- **Notify Party & Import Broker:** Customs broker information will be provided at time of contract
- **Ship to party:** As designated by OSRAM

A complete set of documents, including the commercial invoice, packing list and bill of lading will be sent to the designated customs broker and to the buyer/planner.

Any questions should be directed to the buyer/planner as soon as possible.

Product Label Requirements

All product sent to OSRAM Hillsboro must have identification labels, and they must be placed on both inner and outer boxes. Buyers/planners will discuss data requirements with new suppliers upon inception, but, as minimum, below requirements must be covered.

Outer labels:

We suggest a label size of 4"x 6". The bar code is 'code 128'. All bar-coded data must have human readable text above the bar code. All bar codes must start with the "data identifier" shown in each respective box. The label material must be of good reflectivity and must meet AIAG standards for scan-ability.

The human readable font must be at least 1/4 " in height but no more than 5/8 ". The '128' bar code must be at least 1/2" and no more than 3/4" in height.

Description

The description of the product that is used by OSRAM Hillsboro.

Manufacturing Date

This is the date the product was manufactured in the following 10 character format: YY DD MM dd CO.
YY = year, DD = day, MM = month, dd = manufacturing deck/machine, CO = country of origin.

Example: 181602W4DE. This is Feb. 16, 2018, W4 is manufacturing equipment, DE is Germany.

Quantity

The quantity of product inside. If there are smaller boxes inside a larger shipping box both boxes must be labeled accordingly.

Part

The part number assigned by OSRAM Hillsboro and not the part number of the supplier.

Identification code

Manufacturer or Supplier part number assigned to the product.

County of Origin

This is a two-digit code assigned to countries by the ISO3166 standard.

Machine/Deck

The designation of the assembly deck or machine on which the product was manufactured. OSRAM will utilize this in discussion with the supplier in cases where there is a known quality issue prevalent to a specific piece of manufacturing equipment.

Example:



Inner labels:

The label is a combination of human readable information, lineal barcode (code 128) and 2D barcode (PDF-417 or Dot Matrix). The label material must be of good reflectivity and must meet AIAG standards for scanability. ***Size and shape are left to supplier decision.*** Below are minimum content requirements, supplier can add any additional information that will help them with traceability in case any quality incident, such as Lot#, Batch#, Frame#, Serial#, etc.

Description

The description of the product that is used by OSRAM Hillsboro.

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Manufacturing Date

This is the date the product was manufactured.

Quantity

The quantity of product inside each individual box/package.

Part #

The part number assigned by OSRAM Hillsboro and not the part number of the supplier.

Identification code

Manufacturer or Supplier part number assigned to the product.

Revision/Version level

As stated in most recent OSRAM specification shared to the supplier.

Machine/Deck

The designation of the assembly deck or machine on which the product was manufactured.

2D barcode requirements:

Use of a PDF-417 format is suggested as it can contain up to 1850 characters and will allow OSRAM Hillsboro to better utilize the manufacturing information that our Suppliers presently provide. Supplier can place within the data string information that it is not provided via 'code 128' or human readable, for better traceability purposes.

Each data item within the 2D barcode format must contain a data identifier at the start of the data string, ex: (P) = part number (P123456).

The required data identifiers and details on the barcodes are found in the attachment "[Standard for Material Labeling with PDF-417 Barcode](#)".

Below is an example of a PDF-417 2D bar code format containing the following information:

(V) Vendor, (P) Part number, (2P) Rev Level, (D1) Mfg. date/time, (S) Serial number, (T) Lot number, (1F) Frame number, (C1) Cavity, (CI) C.I.M. ID number and (SO) SO number.



Examples:

		REV LEVEL 03
SPRING H13		
E05190		
QUANTITY 8000	SUPPLIER 100011	
		
SERIAL B41900084	Lot: B41901010	
	N/A	
	CIM ID: 009-B4	
	SO#: 291541	
Supplier's name & address	DATE: 012219 02:29 AM	
DIE: 10002		

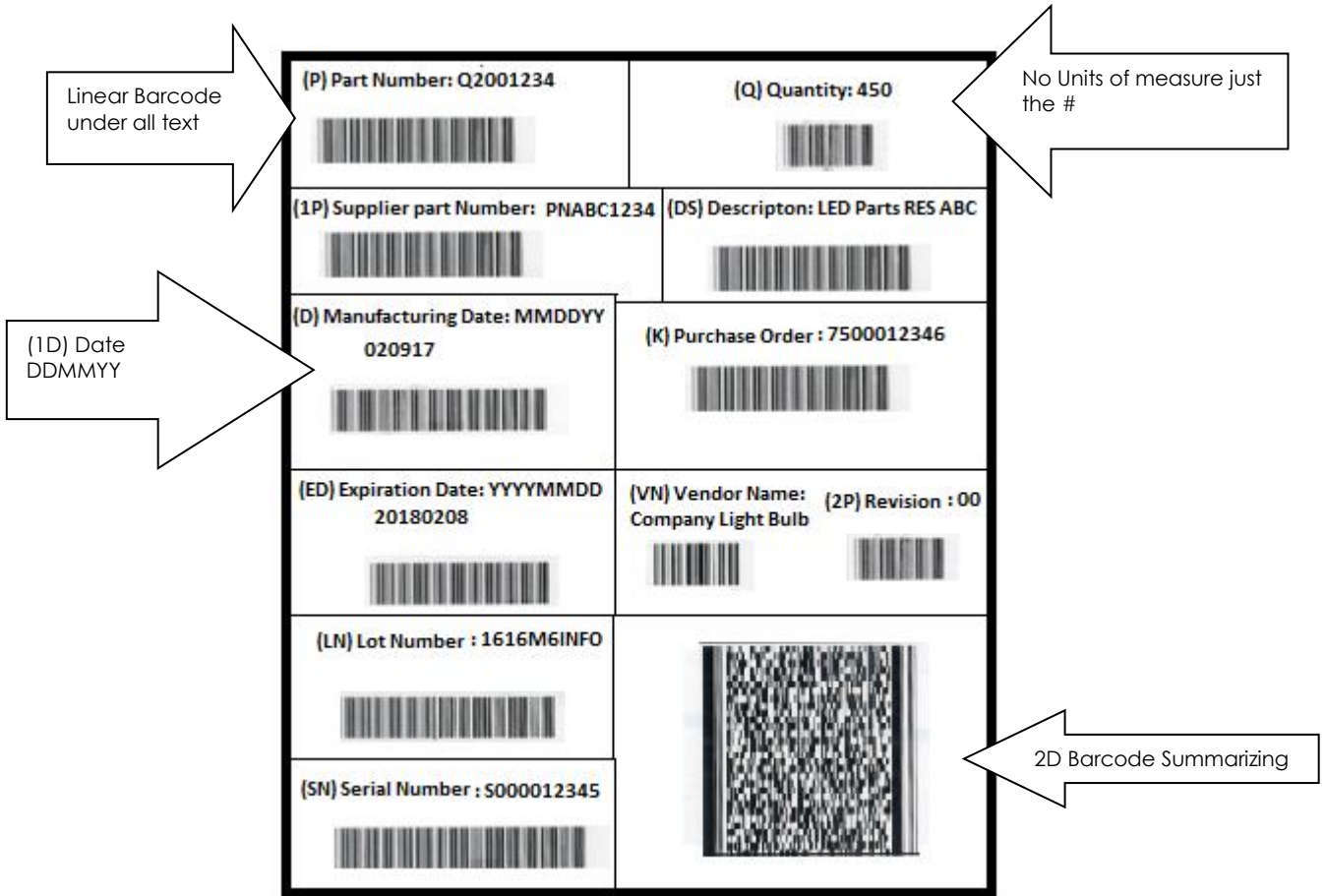
PART # CUST (P) Q19221801		
		
QUANTITY (LBS) (Q) 40	PART DESCRIPTION XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
	REVISION: 06	
VENDOR ID (V) 1300944	Supplier's name & address	
		
PKG ID-UNIT (S) FSL343H40LB	DATE OF MANUFACTURE 16/11/2016	
		

Inner labels for electronic components:

For this type of components, we ask our suppliers to follow below template. Each label must have all of the following in 'code 128' and human readable. All of the human readable data must be in the 2D barcode.

1. (P) Part Number (OSRAM Hillsboro)
2. (1P) Supplier Part Number
3. (1D) Date of Manufacture
 - a. Format for this (1D) is DDMMYY
 - b. (15D) Expiration Date DDMMYYYY
4. (LN) Lot Number / (W) Work order number
5. (Q) Quantity
 - a. Number only. No units
6. (DS) Part Description
7. (K) Purchase Order Number
8. (VN) Vender/Supplier Name
 - a. (V) Vendor code (Optional)
9. (2P) Revision Number

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Product Preparation

Pallets:

- All shipments originating outside of the 48 Continental United States on wooden pallets must conform to the IPPC ISPM_15 International Standard. Examples would be GMA or EAU standard pallets.
- All shipments originating within the U.S. must be on GMA standard pallets.
- Cardboard or plastic pallets can **only** be used with prior approval of the OSRAM Purchasing/Warehouse Manager.
- All pallets must be of the dimensions 40x44 up to 48x48.
- Product must be secured to the pallets and protected from damage in transit.
- **Do not** mix product on any pallet unless arrangements have been made in advance with your respective Buyer/planner. If the Buyer/planner agrees to mixed product on a pallet, the pallet must be clearly identified as a "Mixed Pallet" and the each product identified by "part #", "description" and "total number of boxes" on that particular pallet.
- Pallets **cannot be** more than 54" in height. This includes the shipping pallet.
- Product **cannot** overhang the edges of the pallet.
- All labels should be visible from the exterior of the pallet where practical.

Safety:

- No shipping carton may weigh more than 27 lbs.
- All shipping cartons must be of sufficient strength and quality to protect the product during transit to Hillsboro. Supplier is responsible of making sure chosen packaging withstands all shipment methods. The attached "Supplier Packaging" Form needs to be submitted to OSRAM for approval,
- Recycled boxes may be used as long as any previous labels have been removed and the box is in good condition.

Paperwork:

- Packing list must include the following information:
 - OSRAM Part number
 - Total quantity by part number in shipment
 - Description
 - PO number

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- A unique number to identify this particular shipment

REVISION HISTORY

Date	Revision	Revision description
8/22/2017	AA	Updated link to internet website for Supplier Handbook. Changed Purchasing Manager's phone #. Added C1/S1 & Premium Freight reporting to Supplier Scorecards.
02/18/2019	15	General update. Removed redundant and unnecessary information. Updated labeling section.
03/14/2019	16	Fixed typos.
04/24/2019	17	Fixed typos & formatting.
10/2/2019	18	Add the following forms: PPAP submission process Supplier Packaging Prototype & Special Sample Inspection & Verification Requirements