

SUPPLIER QUALITY MANUAL

Flash Technology

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1.0 Vision

Our vision is for all Flash Technology suppliers to implement and maintain a Quality System that allows them to produce and deliver products and services that help us become a world class leader in lighting and monitoring solutions that protect critical assets.

2.0 Goal

The goal of Flash Technology is to provide a standard communication of our minimum requirements expected of our supply chain.

3.0 Purpose

This manual's purpose is to define our Quality System expectations for our supply chain that helps guarantee the delivery of quality product, services and promotes continuous improvement.

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4.0 Quality Management System

4.1 Requirements

Suppliers shall have a documented Quality Management System that is implemented, maintained and continuously improved upon.

4.2 Document Requirements

4.2.1 General

Documentation shall be provided for:

- Management policies and objectives
- Quality Manual approved by management
- Process flow for where and how quality assurance takes place in overall process
- Escalation matrix of who is responsible when a quality issue arises

4.2.2 Manual

Manual shall include and cover:

- Purchasing/Receiving inspection
- Manufacturing and in process inspection
- Final acceptance inspection
- Equipment calibration control

5.0 New Product Realization and/or Engineering Changes

5.1 First Articles

The supplier is responsible for ensuring that all fabricated materials and assemblies comply with the current version of the Specification Document(s), Bill of Materials and all applicable Vendor Requirement Documents (VRD). Only specified parts and materials may be used. The BOM takes precedence over all other documents. See or request newly generated BOM with each order. No deviations or substitutions without Flash Technology Engineering approval prior to shipment and receipt are permitted.

- Suppliers shall adhere to the following VRD where applicable:

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Vendor Requirement Document

Document Number	VRD001
Document Revision	A
Effective Date	May 15, 2008
Revision Date	May 15, 2008
Document Title	Approved Parts
Applicability	The requirement applies to the following: All purchased parts whether supplied alone or as part of an assembly
Exceptions	The requirement does not apply to the following: N/A
Vendor Requirement	All parts, components, and materials supplied to Flash Technology either alone or as part of an assembly must be as specified on the Specification Document(s) or for assemblies, the current Bill of Material. The BOM takes precedence over all other documents. No deviations or substitutions without Engineering approval are permitted.
Notes:	<p>For assemblies, the Bill of Material (BOM) specifies the approved part number(s), manufacturer(s), and any alternate approved parts. Due to frequent changes in the electronics industry, changes to these specifications occur frequently and do not require a change to the BOM revision. A newly generated BOM should be requested for each PO.</p> <p>Only the exact part number(s) specified may be used. An exception is unspecified nonfunctional characteristics (Ex: packaging) which are left to the discretion of the supplier. If no part number is specified, any component meeting the Part Description may be used. Any substitution or alternate request must be submitted to Engineering for approval along with data sheets; sample parts may be required for testing.</p> <p>In the BOM, part numbers are specified in two places, the "Description" and "Text" fields. Normally the part number is shown between asterisks and is followed by a three letter Manufacturer Code which specifies the manufacturer. See the Flash Technology Manufacturer Code List for a complete listing.</p> <p>Example: SPACER 3/8" ROUND *617A-7716-17*CON Part Number: 617A-7716-17 Manufacturer: CON = CONCORD</p> <p>Note: The "text" notes should be read carefully. Some later notes may override earlier part approvals, however the earlier notes are maintained for reference. Therefore, all part numbers shown in the text area may not be currently approved.</p> <p>For PCB's, a Reference Designator List may be supplied; this list is an assembly aid only and any part numbers specified on it should be disregarded.</p>

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Vendor Requirement Document

Document Number	VRD002
Document Revision	A
Document Title	Wiring Harness Lead Tinning
Effective Date	May 15, 2008
Revision Date	May 15, 2008
Applicability	The requirement applies to the following: Wiring Harness Assemblies
Exceptions	The requirement does not apply to the following: N/A
Vendor Requirement	For all wiring harnesses manufactured for Flash Technology, do not tin or dip solder leads which are to be inserted in Phoenix plugs. Existing documentation which specifies tinning of leads or dip solder ("DS") will be corrected when the documentation is revised. Terminal specification to be changed to "STRIP". Vendor to strip wire 5/16" to 3/8".
Notes:	This document replaces a letter to vendors dated December 8, 2004 "WiringHarnessLeadTinning.pdf" which specifies the above stated vendor requirement. This requirement is based on recommendation of Phoenix (following taken from Phoenix Combicon product catalog): Conductor Pretreatment: Phoenix clamping parts are designed so that all kinds of copper conductors can be clamped without pretreatment. It is forbidden to solder the conductors. The solder tin yields and fractures under high pressure. The result is increased contact resistance and excessive temperature rise. In addition, corrosion has been observed with soldered conductor ends caused by pickling or fluxes. Notch fractures at the transition point from the rigid to the flexible conductor parts are also possible.

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Vendor Requirement Document

Document Number	VRD003
Document Revision	A
Document Title	Printed Circuit Board Specific Requirements
Effective Date	May 15, 2008
Revision Date	May 15, 2008
Applicability	The requirement applies to the following: Printed Circuit Boards
Exceptions	The requirement does not apply to the following: N/A
Vendor Requirement	See the <u>PCB Specification</u> document for the particular PCB for requirements including: Document, File, and Firmware Revisions Vendor Testing Requirements Conformal Coating Requirements Programmable Part Vendor Responsibilities Bare PCB Specifications Note on Vendor Testing All supplied vendor test procedures must be performed before shipment to Flash Technology. If no vendor test is supplied, a thorough visual inspection must be performed.
Notes:	

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Vendor Requirement Document

Document Number	VRD004
Document Title	Labeling of Fabricated Components and Assemblies
Document Revision	A
Effective Date	May 15, 2008
Revision Date	May 15, 2008
Applicability	The requirement applies to the following: Fabricated components and assemblies including: Capacitors Coils, Chokes, Windings, Inductors Trigger Transformers Transformers Printed Circuit Board Assemblies Wiring Harness Assemblies
Exceptions	The requirement does not apply to the following: Standard Purchased "Catalog" parts Wire Jumpers (Single wire with crimped terminals) RC and Capacitor Networks Metalwork Molded Parts (lenses, Flashhead base, etc) Info Cards and Labels Flashtubes
Vendor Requirement	The applicable components and assemblies as specified on this document when supplied to Flash Technology shall be labeled with the following information: Flash Technology Part Number (7 or 11 digits) Part Revision Vendor Code (6 digits) Date Code (YYWW) (optional for wiring harnesses) Serial Number (optional) For custom cables and cable assemblies, labeling shall be as specified in the cable specification document.
Notes:	1. The information must be human readable; barcodes are optional. 2. The Vendor Name must not appear on any part or assembly.

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Vendor Requirement Document

Document Number	VRD005
Document Revision	B
Document Title	ROHS Compliant Metalast finish replaces (Hexavalent Chromate - yellow) on metalwork
Effective Date	May 15, 2008
Revision Date	June 23, 2009
Applicability	The requirement applies to the following: All metalwork currently specified to be finished with either yellow chromate or alodine.
Exceptions	The requirement does not apply to the following: Metalwork that calls out for finishes other than yellow chromate or alodine.
Vendor Requirement	Use Metalast TCP-HF coating in lieu of the specified finish 'Yellow Chromate' or 'Alodine' Existing documentation which specifies 'Yellow Chromate' or 'Alodine' will be changed to 'Metalast TCP-HF' when the documentation is revised.
Notes:	NA

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- Disposition of First Article will be given on the First Article Approval Form

	FORM (REV 01) FIRST ARTICLE DISPOSITION	
PART NUMBER	DESCRIPTION	SUPPLIER <input type="checkbox"/> NEW <input type="checkbox"/> EXISTING
SAMPLE INFO		
USED ON		
INSPECTION/TEST		
VENDOR TEST	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
QUALITY VISUAL	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
MEETS APPROVED PART/BOM REQUIREMENT	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
MEETS APPLICABLE VENDOR REQUIRED DOC	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
OTHER TESTING IF REQUIRED	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
MEET DRAWING SPECIFIC REQUIREMENTS	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
PART LABELING	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
CONFORMAL COATING	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
BURN IN SHORT TEST	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
TUNNEL	NA <input type="checkbox"/>	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
PRODUCT CAPABLE	Cp: _____ Cpk: _____	PASS <input type="checkbox"/> FAIL <input type="checkbox"/>
<small>25 PC SAMPLE MINIMUM...MIN Cp 1.33</small>		
PART DISPOSITION		
APPROVED <input type="checkbox"/> REJECTED <input type="checkbox"/> OTHER <input type="checkbox"/>		
QUALITY SIGNATURE	DATE	
ENGINEER SIGNATURE	DATE	
COMMENTS		

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5.2 New Vendors

An on-site assessment shall be allowed if requested by Flash Technology before sourcing is approved

5.3 Engineering Changes

Flash Technology retains the right to request a first article after any ECO is approved or released.

6.0 Deviation Request

Deviations are not permitted without documented permission from Flash Technology prior to shipment and receipt.

All product not built to Engineering Specifications and/or BOM's, cannot be shipped to Flash Technology without an approved Deviation. A copy of the Deviation must be attached to the outside of each individual box or skid in a location that is easily seen by our Receiving Department.



Deviation

VENDOR	DATE OF DEVIATION	VENDOR CONTACT
PART NUMBER	DESCRIPTION	DEVIATION #
DEVIATION DESCRIPTION		
Approved / Misc. Requirements		
<input type="checkbox"/> DEVIATION APPROVED <input type="checkbox"/> OTHER		
FLASH TECHNOLOGY CONTACT INFORMATION		
ISSUED BY	EMAIL	PHONE #



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7.0 Control of Nonconforming Product

If nonconforming product is found at Flash Technology or if it becomes a warranty issue, the supplier shall:



- Provide containment at suppliers site, parts in transit and support if needed at Flash Technology
- Identify next lot of material to be shipped with a visual label stating parts have been inspected
- Issue a RMA # if required
- Initiate and provide corrective action
- Follow requirements listed on Vendor Quality Concern form:

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 <p>FLASH TECHNOLOGY AN SPX DIVISION</p>	<p>FORM (REV A 1/23/03)</p> <p>QUALITY CONCERN</p>	 <p>SPX WHERE IDEAS MEET INDUSTRY</p>	
VENDOR	DATE	CONTACT	
PART NUMBER	DESCRIPTION	PCS REJECTED	QC #
DETAIL			
ACTIONS REQUIRED			
<input type="checkbox"/> CONTAINMENT NEEDED AT VENDOR SITE		<input type="checkbox"/> OTHER:	
<input type="checkbox"/> RMA SENT TO MELISSA.ROBERTS@SPX.COM		<input type="checkbox"/> OTHER:	
<input type="checkbox"/> CORRECTIVE ACTION REQUIRED WITHIN 7 WORKING DAYS			
ISSUED BY	EMAIL	PHONE #	

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7.1 Vendor Debit Memo

Flash Technology shall be entitled to recover all cost from supplier reasonably incurred from a nonconformance.

The Debit Memo shall include:

- Purchase price of parts if returned to supplier or scrapped at Flash Technology
- Standard administrative cost of \$100.00 per Vendor Quality Concern issued (multiple rejects from the same lot will be combined on one debit memo; if repeat rejects are found after containment is implemented, a new debit memo will be issued)
- Rework cost incurred at Flash Technology of a minimum of one hour at a rate of \$25.00 per hour if Flash labor is used
- Freight cost if nonconforming parts are returned to the supplier (Supplier can provide account # of preferred shipping method or give written authority to scrap at Flash Technology)

8.0 Receiving / Packaging and Inbound Labeling Specifications

- All inbound material must have a packing slip
- All packing slips must reflect quantity shipped, Flash Technology purchase order number and the total number of boxes shipped
- All inbound material containers must be labeled with part number, quantity, purchase order and total order box count if shipment exceeds 2 boxes, i.e. 2 of 4
- Mixed containers of inbound production goods will not be permitted without prior written authorization from Flash Technology Purchasing Department
- All material received not in compliance with any of the above will be segregated until disposition has been determined. The supplier will be contacted for one of the following dispositions: returned to supplier for relabeling (preferred), relabeled on site by Flash Technology for a fee of \$50.00 per hour which will be a credit taken against the supplier invoice or the supplier can send someone to relabel as necessary or fax a packing slip. Flash Technology will not relabel without written authorization from the supplier. If the supplier sends someone to relabel at Flash Technology, it must be completed within 4 days of receipt.

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Revision	Date	Change Description	Originator
<i>1.0</i>	<i>6/18/09</i>	Initial release	<i>MS</i>
<i>A</i>	<i>7/14/09</i>	Publish	<i>MS</i>
<i>B</i>	<i>8/21/09</i>	Revised 7.1	<i>MS</i>
<i>C</i>	<i>7/8/2010</i>	Deviation Request Updated 6.0	<i>MS</i>

Reference Documents:

Vendor Requirement Documents VRD 001 – 005

First Article Submission Form

Deviation Request Form

Quality Concern Form

Debit Memo