

Lead-Free & RoHS Compliant Products



The LF suffix on RO model numbers designates part numbers that are both "lead free" and are in compliance with the European Union Directive, 2002/95/EC on the Restricted use Of Hazardous Substances in electrical and electronic equipment (RoHS).

We certify that our lead free RoHS compliant products are not intentionally manufactured with and do not contain concentrations of the 6 substances banned by the RoHS directive in excess of the regulatory limits except where specifically exempted by the directive.

The 6 banned substances are:

- * Lead
- * Mercury
- * Cadmium
- * Hexavalent Chromium
- * Polybrominated Biphenyls (PBB's)
- * Polybrominated Diphenyl Ethers (PBDE's)

Part number examples:

- * nV300-5LF
- * PFC-600LF

5/6 RoHS Compliant Products

The RoHS directive and it's amendments allow for certain lead in solder exemptions for roughly the next four years (to be reviewed 2009). Specifically, the following lead in solder exemptions are made:

- * Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead.
- * Lead in solders for servers, storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications.

The first is commonly used for die attach solder in semiconductors. The second exemption listed above is commonly referred to as the "server exemption".

RO has an ongoing program to provide "5/6" RoHS compliant products for our customers that are taking the lead in solder "server exemption". Such products are manufactured with tin-lead solder and a tin-lead solder process but do not contain any of the other 5 substances prohibited by the RoHS directive and are therefore termed 5/6 RoHS compliant. There is no part number change for 5/6 compliant products.

List of 5/6 Compliant Products

Model	Compliance Began
QV24-3.3-35-1	January-05
SV28-5-175	January-05
SV48-5-150	January-05
SV48-5-200	January-05
SVD48-0503	September-05
uV300-5	January-05
uV48-5	January-05
uV48-5-164	January-05
uV48-5-S	January-05
uV48-5-S-164	January-05

Solder Process Compatibility and 2nd Level Interconnect

RO lead free RoHS compliant through hole products have gold plating on the module pins (JESD97 2nd level interconnect category e4). The high current copper alloy pins are gold-over-nickel plated while the lower current brass alloy signal pins are gold plated. They are intended for SnAgCu lead-free wave soldering but are also backward compatible with SnPb solder processes.

Product and packaging marking

The LF suffix to the model number will be marked on the module label on all lead free RoHS compliant products. Additionally the module label will bear the JEDEC Standard JESD97 Pb-free symbol.

The packaging for lead free RoHS compliant products will be marked with a label in accordance with JEDEC JESD97 Marking, symbols and labels for identification of lead-free assemblies, components and devices. This label will contain the Pb-free symbol, the words RoHS Compliant as well as the 2nd level interconnect information.

Sample:



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SUGGESTED RoHS COMPLIANT REPLACEMENT:

Suggested lead free replacement products marked similar are the same footprint and have equal or greater power output. Consult specific product data for exact mechanical and electrical differences.

Current Product	Suggested Replacement	Compatibility	Availability
MV380 Series			
MV48 Series			
nV300 Series	nV300LF Series	Drop in replacement	NOW
nV48 Series			
PFC-600, -1000	PFC-600LF, -1000LF	Drop in replacement	NOW
pV300 Series	pV300LF Series	Drop in replacement	NOW
pV48 Series			
QV24 Series	QV24LF Series	Drop in replacement	Q4
QV48 Series	QV48LF Series	Drop in replacement	Q4
QVB48 Series	QVB48LF Series	Drop in replacement	Q4
SV28 Series			
SV48 Series			
SVD48 Series			
SYV48 Series			
SYVHC48 Series			
uV24-164 Series	uV24-164LF Series	Exact match	Q3/Q4
uV28 Series Single Outputs	uV24-164LF Series	Similar product	Q3/Q4
uV28 Series Triple Outputs			
uV300 Series Single Outputs	uV300-164LF Series	Similar product	Q2/Q3
uV300 Series Triple Outputs	uV300-TLF Series	Drop in replacement	Q3
uV48 Series Single Outputs	uV48-164LF Series	Similar product	Q3
uV48 Series Triple Outputs			
uV48-164 Series	uV48-164LF Series	Exact match	Q3

RoHS PRODUCT CONVERSION ROADMAP

PRODUCT FAMILY	Q4/05	Q1/06	Q2/06	Q3/06	Q4/06
nV300	6/6				
PFC		5/6 & 6/6			
nV48			5/6		
PV300			6/6		
QV24			5/6		6/6
QV48			5/6		6/6
QVB			5/6		6/6
SV			5/6		
SVD			5/6		
uV48-164				5/6 & 6/6	
uV24-164				5/6 & 6/6	
uV300-T's				6/6	
SYVHC				5/6	