

**BI Technologies**  
**RoHS compliance roadmap**

Compliance herein is the same as Pb-free and indicates meeting E.U. RoHS legislation (Directive 2002/95/EC and revisions to date). Pb in Cu (brass), steel, and Al are assumed exemptions (not listed). If P/N is changing, compliant date code indicates compliant production date not shipment date (due to non-compliant inventory) "RoHS" is E.U. reduction of hazardous substances legislation (Directive EC/2002/95/EC). TBD is "to be determined." "n/a" is not applicable. "est." is estimate. "Q" is calendar quarter. "CP" is conductive plastic. "BGA" is ball grid array.

Part family	Example P/N's (*x varies by R-value, pins, or other options)	Pb-free & RoHS status	What changes make it RoHS compliant?	RoHS Annex exemptions for compliant part	Compliant P/N (also see separate on-line guide)	Part marking indicating compliance	Packaging mark indicating compliance	Compliant sample availability	Start of compliant production	Will standard non- compliant part be continued?	Compliant part compatible with leaded solder process?	Compliant part compatible with LF solder process (260 °C peak reflow)?	Comments
<b>Trimming Potentiometers</b>													
Model 22 trimmer	22x	Pb in lead plating. Now compliant, dates codes after May 1, 2005	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	May 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Model 23 trimmer	23x	Cd in thick film. Now compliant, date codes after 2/1/05	thick film composition	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	February 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Model 24 trimmer	24x	compliant, date codes after 11/1/04	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	LF in the P/N	now	November 1, 2004	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Models 25 trimmer	25x	Pb in lead plating and Cd in thick film. Now compliant, date codes after 2/1/05	thick film composition, lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	February 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Models 78, 91, and 93 trimmers	78x, 91x, 93x	Pb in lead plating. Now compliant, dates codes after 2/1/05	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	February 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Open trimmers	35x, 36x, 37x, 38x, 39x, 40x	compliant	none required	Lead in electronic ceramic.	P/N not changing	none	RoHS compliant on label	none required	born compliant	n/a	yes	yes	
Other single turn trimmers	62x, 72x, 82x	Pb in lead plating. Now compliant, dates codes after 2/1/05	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	January 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Other multi-turn trimmers	44x, 45x, 64x, 67x, 68x, 84x, 89x	Pb in lead plating. Now compliant, dates codes after 2/1/05	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS on label of LF-optioned P/N's	now	January 1, 2005	no	yes	yes	Compliant label marking only shown on LF-optioned P/N's
<b>Thin Film Networks</b>													
Thin film NiCr-on-ceramic plastic packaged networks	NQSx, 66x, 68x, 69x	Pb in leadframe plating. Now compliant date codes after 3/26/12.	Lead plating becomes matte tin	none	Add LF after TCR code and before any packaging option	none	RoHS on label	now	January 1, 2005	no	yes	yes	
Thin film NiCr-on-silicon plastic packaged networks	Sx	Pb in leadframe plating. Now compliant, date codes after 3/26/12.	Lead plating becomes matte tin	none	Add LF after TCR code and before any packaging option	none	RoHS on label	now	January 1, 2005	no	yes	yes	
<b>Thick Film Resistors and Networks</b>													
BGA resistor networks	BBx	Pb in balls and attachment solder	n/a	no compliant version	no compliant version	n/a	n/a	none	never	yes, only the non-compliant version	n/a	n/a	BB-series will not become compliant
2512 size thick film chip array	BCN31x	Compliant, date codes after 1/1/04	none required	Lead in electronic ceramic	P/N not changing	none	RoHS compliant on label	none required	December 1, 2004	no	yes	yes	
Thick film chip arrays and chip RC networks other than BCN31	BCNx, RCx	Pb in solderable finish. Now compliant, date codes after 7/1/05	Terminations become matte tin	Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	upon request	July 1, 2005	no	yes	yes	
Thick film plastic packaged SOIC's	618x, 627x, 628x	Cd in thick film. Now compliant, date codes after 5/1/05	thick film composition	Pb in high melting temperature solders, Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	upon request	May 1, 2005	no	yes	yes	
T-series SIP networks	Tx	Pb in internal junction and leadframe plating	n/a	no compliant version	no compliant version	n/a	n/a	none	never	yes, only the non-compliant version	n/a	n/a	T-series will not become compliant
Other SIP networks	BHx, Cx, Lx, Mx, CRx	Pb in internal junction and leadframe plating	Internal junction becomes Sn/Ag/Cu solder. Lead plating becomes tin/copper.	Pb in glass of electronic components	Add LF after tolerance options and before any packaging option	none	RoHS compliant on label	upon request	now	no, phasing out	yes	yes	
Thick film ceramic packaged DIP's	887x, 888x, 898x, 899x	Cd in thick film. Single-sided now compliant, date codes after 5/1/05 and inventory purged as of 5/14/07. Double-sided not yet compliant	thick film edgeband composition	Pb in high melting temperature solders, Pb in glass of electronic components	No change to P/N required, as of 5/14/07	none	RoHS compliant on label	now	5/1/05 for single sided. TBD for double-sided versions	no	yes	yes	Double-sided versions (e.g. -5 series) not yet compliant
Leaded SIP high voltage power resistors	BHVxRWx (or RF, PF, PW)	Pb in leadframe plating, Cd in thick film. Now compliant, date codes after 5/1/05	Lead plating becomes matte tin, thick film composition	Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	now	May 1, 2005	no	yes	yes	
Leadless SIP high voltage power resistors	BHVxxRS	Cd in thick film. Now compliant, date codes after 5/1/05	thick film composition	Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	now	May 1, 2005	no	yes	yes	
Planar thick film power networks	BPCx, BPRx,	Cd in thick film. Now compliant, date codes after 5/1/05	thick film composition	Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	now	May 1, 2005	no	yes	yes	
Plastic packaged power resistors	MHPx, SMHPx	Cd in thick film. Now compliant, date codes after 5/1/05	thick film composition	Pb in high melting temperature solders, Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	now	May 1, 2005	no	yes	yes	
Thick film chip surge resistors	BSRx	compliant	none required	Pb in glass of electronic components	P/N not changing	none	RoHS compliant on label	none required	May 1, 2005	n/a	yes	yes	
Leadless chip inductor/capacitor	LCx	compliant, date codes after 1/11/05	none required	Lead in electronic ceramic	P/N not changing	none	RoHS compliant on label	none required	January 11, 2005	no	yes	yes	

**BI Technologies  
RoHS compliance roadmap**

Part family	Example P/N's (*x* varies by R-value, pins, or other options)	Pb-free & RoHS status	What changes make it RoHS compliant?	RoHS Annex exemptions for compliant part	Compliant P/N (also see separate)	Part marking indicating compliance	Packaging mark indicating compliance	Compliant sample availability	Start of compliant production	Will standard non- compliant part be continued?	Compliant part compatible with leaded solder process?	Compliant part compatible with LF solder process (260 °C peak reflow)?	Comments
<b>Precision Potentiometers</b>													
Single turn potentiometers, CP & wirewound, except 338x and 618x	51xx, 54xx, 56xx, 57xx, 61xx, 62xx, 63xx	compliant	none required	none	P/N not changing, LF option exists to force compliant marking	none	RoHS on label of LF-optioned P/N's	none required	now	n/a	yes	yes	Compliant label marking only shown on LF-optioned P/N's
338x and 618x single turn CP potentiometers	338x, 618x	Pb in lead plating. Now compliant, date codes after March 1, 2005	Lead plating becomes matte tin	none	Add LF at end of P/N	none	RoHS on label	now	March 1, 2005	no	yes	yes	
Multi-turn potentiometers, CP & wirewound	Ax, Bx, Cx, 72xx, 73xx, 74xx, 76xx, 81xx	compliant	none required	none	P/N not changing, LF option exists to force compliant marking	none	RoHS on label of LF-optioned P/N's	none required	now	n/a	yes	yes	Compliant label marking only shown on LF-optioned P/N's
Linear motion potentiometers with terminals	404x, 424x, 434x, 474x, 484x	Pb in lead plating and internal solder joints	Pb plating becomes matte tin. Internal solder changed to SAC alloy	none	Add LF at end of P/N	none, 404 gets LF mark starting on 4/24/13 (d/c 1317)	RoHS on label	now	now	no	yes	yes	
Panel Potentiometers	Px	compliant	none required	Pb in electronic ceramic. P230, P232, & P270 have Pb in Cu alloy (brass)	P/N not changing	none	RoHS compliant on label	none required	born compliant	n/a	yes	yes	
<b>Encoders &amp; Turns Counting Dials</b>													
Encoders	ENx	compliant	none required	none	P/N not changing	none	RoHS compliant on label	none required	born compliant	n/a	yes	yes	
Turns counting dials	RBx, 26x	compliant	none required	none	P/N not changing, LF option exists to force compliant marking	none	RoHS on label of LF-optioned P/N's	none required	now	n/a	yes	yes	Compliant label marking only shown on LF-optioned P/N's
<b>Switches</b>													
Sealed switch	82xSW	Pb in lead plating. Now compliant, date codes after 5/1/05	Lead plating becomes matte tin	Lead in electronic ceramic	Add LF after R-value and before any packaging option	none	RoHS compliant on label	now	January 1, 2005	yes	yes	yes	
Tactile switches	SWx	compliant	none required	none	P/N not changing	none	RoHS compliant on label	none required	born compliant	n/a	yes	yes	
<b>Microcircuits and Modules</b>													
Standard power modules	77xx	Pb in high-temperature solders (>85%), Pb in lead finish	TBD on lead finish	Pb in glass of electronic component, Pb in high-melting temperature solders	TBD	TBD	RoHS compliant on label	TBD	TBD	TBD	TBD	TBD	
DC-DC converter	830x-004Vxx	>85% Pb in high-temp solder, Pb in lead finish, low temp solder, and SMD leads	TBD on lead finish and low temperature solder	Pb in glass of electronic component, Pb in high-melting solder	TBD	TBD	RoHS compliant on label	TBD	TBD	TBD	TBD	TBD	
<b>Standard Magnetics</b>													
Through-hole chokes	HM series 18x, 19x, 28x	Pb in lead finish	Lead plating becomes matte tin	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
ISDN isolation	HM80	Pb in lead finish	Lead plating becomes matte tin	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
Ferrite beads	BMBx	Pb in lead finish	Lead plating becomes matte tin	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
Chip inductors	BMCx, BMLx	Pb in lead finish	Lead plating becomes matte tin	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
Plastic packaged inductor	BCLx	Pb in lead finish	Lead plating becomes matte tin	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
<b>Power Magnetics</b>													
Through-hole Power magnetics	HM series 11-13, 15, 31, 32, 41, 50, 53, 55, 55A	Pb in lead finish	Lead plating changes to matte Sn, SnAgCu, or other Sn alloy. Varies by model (contact factory).	none	LF appended to existing P/N	per customer requirement	per customer requirement	upon request	now	no	yes	yes	
Custom surface mount Power magnetics	HM00 series	varies, contact factory	varies, contact factory	none	varies, contact factory	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
Surface mount Power magnetics	HM 33, 61, 64-68, 71, 73-79, 100	Pb in lead finish	Pb plating changes to matte Sn, SnAgCu, or precious metal by model (contact factory).	none	Add LF after inductance and before any packaging option	per customer requirement	per customer requirement	upon request	now	no	yes	yes	
<b>Telecom/LAN Magnetics</b>													
Through hole Telecom/LAN magnetics	HSx, HTx in through hole configuration	Pb in lead finish	Lead plating becomes matte tin	none	Add LF after inductance and before any packaging option	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	
Surface mount Telecom/LAN magnetics	HSx, HTx in SMT configuration	Pb in lead finish	Lead plating becomes matte tin	none	Add LF after inductance and before any packaging option	per customer requirement	per customer requirement	upon request	now	yes	yes	yes	