

Description	Low Value Metal Film Resistor	Ultra-High Value Precision Resistor	Axial Lead Precision Wirewound Resistor	Precision Wirewound Printed Circuit Board and Radial Leaded Resistor	Wirewound Resistor	Wirewound Resistor	Chassis Mounted Power Wirewound Resistor	Telecommunications Line Feed Resistor	High Power Metal Glaze Resistor	Semi-Preformed Power Wirewound Resistor	Beryllia Core, Silicon Coated Power Resistor	Carbon Film	Precision High Voltage Thick Film Resistor	Metal Glaze Cylindrical Surface Mount Resistors (General Purpose)	Metal Glaze Cylindrical Surface Mount Resistors Surge	Metal Glaze Cylindrical Surface Mount Resistors (1/4 Watt Package)
Product Series	2500	3810	7000	4000 SERIES	2LPW	4LPW	AL	ALFR	ARG	AS	B SERIES	CF	CGH	CHP	CHP1S	CHP1X
TIMELINE																
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	July 1, 2005	July 1, 2005	Not Planned	Not Planned	July 1, 2005	July 1, 2005	July 1, 2005	Not Planned	Not Yet Available	July 1, 2005	Not Planned	Product lead-free >5 yrs	Not Yet Available	July 1, 2005	July 1, 2005	July 1, 2005
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	July 1, 2005	July 1, 2005	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead-Free finish	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	N/A	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	100% Matte Sn over Ni	N/A	96% Sn / 3.5% Ag / 0.5% Cu	96% Sn / 3.5% Ag / 0.5% Cu	96% Sn / 3.5% Ag / 0.5% Cu
REFLOW CONDITIONS																
Peak Reflow Temperature (°C)	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°
MSL in accordance with J-STD 020C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
COMPONENT AND PACKAGE MARKING																
Component Marking (Pb Free Indicator)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 6 February 2003																
	YES	YES	NO	NO	YES	YES	YES	NO	NO	YES	NO	YES	NO	YES	YES	YES
RESTRICTED SUBSTANCES																
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)																
LEVEL-A	None	None	None	Lead (Pb)	None	None	None	None	Lead (Pb)	None	None	None	Lead (Pb)	None	None	None
LEVEL-B	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu) Beryllium (Be)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni)	Nickel (Ni)	Nickel (Ni)
IMDS REPORTABLE SUBSTANCES																
Reference: IMDS International list of reportable substances																
Nickel (Ni)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lead (Pb)			X	X					X		X		X			
Copper (Cu)	X	X	X	X	X	X	X	X	X	X	X	X	X			
Beryllium (Be)											X					
ROHS Substances - Content (PPM)																
Lead (Pb)	0	0	contained on terminals only	contained on terminals only	0	0	0	0	applications usually are exempt (telecom)	contained on terminals only	0	contained on terminals only	0	contained on terminals only	0	0
Mercury (Hg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexavalent Chromium (Cr ⁶⁺)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Biphenyls (PBB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Diphenylethers (PBDE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cadmium (Cd)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.

Description	Metal Glaze Cylindrical Surface Mount Resistors (Temperature Sensitive)	Military Thick Film High Voltage Resistors	Four Terminal Open Air Sense Resistor	Two Terminal Molded Low Ohm Current Sense Resistor	High Voltage Thick Film Resistor	Precision Non-Military Metal Glaze Resistor	Thick Film Semi-Precision Thick Film Resistor	Carbon Composition, Axial Leaded	Low Cost Semi-Precision Power Wirewound Resistor	Low Resistance Metal Element Resistor	Metal Glaze Cylindrical Surface Mount Resistor (High Reliability)	Flame Proof Power Metal Film Resistor	Metal Film Resistors	Metal Film Resistors	Metal Oxide, Axial Lead	Metal Oxide, Miniature, Axial Lead
Product Series	CHPT	CMH	CSL	CSS	F SERIES	GF	GS-3	IBT	LAS	LOB	MCHP	MFR	MFR	MFR4P	MO	MOM
TIMELINE																
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	Not Yet Available	Not Planned	July 1, 2005	July 1, 2005	July 1, 2005	October 2005	October 2005	Product lead-free >5 yrs	July 1, 2005	February 2005	Not Planned	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead-Free finish	N/A	N/A	98% Sn / 3.5% Ag / 0.5% Cu	96% Sn / 4% Ag	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni
REFLOW CONDITIONS																
Peak Reflow Temperature (°C)	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°
MSL in accordance with J-STD 020C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
COMPONENT AND PACKAGE MARKING																
Component Marking (Pb Free Indicator)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 February 2003																
	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES
RESTRICTED SUBSTANCES																
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)																
LEVEL-A	Lead (Pb)	Lead (Pb)	None	None	None	None	None	None	None	None	None	None	None	None	None	None
LEVEL-B	Nickel (Ni)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu) Lead (Pb)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)
IMDS REPORTABLE SUBSTANCES																
Reference: IMDS International list of reportable substances																
Nickel (Ni)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lead (Pb)	X	X									X					
Copper (Cu)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Beryllium (Be)																
ROHS Substances - Content (PPM)																
Lead (Pb)	0	contained on terminals only	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mercury (Hg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexavalent Chromium (Cr ⁶⁺)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Biphenyls (PBB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Diphenylethers (PBDE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cadmium (Cd)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.

Description	Metal Glaze Cylindrical Surface Mount Resistors (1/4 Watt Package)	Metal Glaze Cylindrical Surface Mount Resistors (1/2 Watt Package)	Metal Glaze Cylindrical Surface Mount Resistors (1/2 Watt Package)	Military Thick Film High Voltage Resistors	Four Terminal Open Air Sense Resistor	Two Terminal Molded Sense Resistor	High Voltage Thick Film Resistor	Precision No-Military Metal Glaze Resistor	Thick Film Semi-Precision Thick Film Resistor	General Purpose Metal Film	Low Cost Semi-Precision Wirewound Resistor	Low Resistance Metal Element Resistor	Metal Glaze Cylindrical Surface Mount Resistor (High Reliability)	Flame Proof Power Metal Film Resistor	Metal Film Resistors	Metal Film Resistors	Metal Film Resistor - Cement Coated
Product Series	CHP1X	CHPT	CMH	CSL	CSS	F SERIES	GF	GS-3	GP	LAS	LOB	MCHP	MFR	MFR	MFR4P	MF-S	
TIMELINE																	
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	July 1, 2005	Not Yet Available	Not Yet Available	July 1, 2005	February 2005	July 1, 2005	October 2005	October 2005	July 1, 2005	July 1, 2005	July 1, 2005	Not Planned	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Lead-Free finish	96% Sn / 3.5% Ag / 0.5% Cu	N/A	N/A	96% Sn / 3.5% Ag / 0.5% Cu	96% Sn / 4% Ag	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	
REFLOW CONDITIONS																	
Peak Reflow Temperature (°C)	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	
MSL in accordance with J-STD 020C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
COMPONENT AND PACKAGE MARKING																	
Component Marking (Pb Free Indicator)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 February 2003																	
	YES	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	
RESTRICTED SUBSTANCES																	
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)																	
LEVEL-A	None	Lead (Pb)	Lead (Pb0)	None	None	None	None	None	None	None	None	None	Lead (Pb)	None	None	None	
LEVEL-B	Nickel (Ni)	Nickel (Ni)	Nickel (Ni)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	
IMDS REPORTABLE SUBSTANCES																	
Reference: IMDS International list of reportable substances																	
Nickel (Ni)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lead (Pb)		X	X										X				
Copper (Cu)				X	X	X	X	X	X	X	X	X		X	X	X	
Beryllium (Be)																	
ROHS Substances - Content (PPM)																	
Lead (Pb)	0	0	contained on terminals only	0	0	0	0	0	0	0	0	0	contained on terminals only	0	0	0	
Mercury (Hg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hexavalent Chromium (Cr ⁶⁺)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Polybrominated Biphenyls (PBB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Polybrominated Diphenylethers (PBDE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cadmium (Cd)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.

Description	Metal Glaze Cylindrical Surface Mount Resistor (General Purpose)	Metal Glaze Cylindrical Surface Mount Resistor (High Power Density)	Open Air Current Sense Resistor	Open Air Surface Mount Current Sense Resistor	Extremely Low Wirewound	Metal Glaze Cylindrical Surface Mount Resistor (High Power Ceramic Package)	Semi-Precision Power Wirewound Resistor (Pulse Surge)	General Purpose Metal Lead Power Wirewound Resistor	High Power Wire Resistor	General Purpose Stand-Up Power Wirewound Resistor	General Purpose Power Metal Glaze Resistor	Low Resistance Stand-Up Power Wirewound Resistor	Precision Wirewound Printed Circuit Board Resistor (Mini-R-93)	Precision Wirewound and Radial Leaded Resistor (Mini-R-93)	Precision No Military Metal Glaze Resistor	Metal Glaze Finishing Resistor	
Product Series	MM	MRC	OAR	OARS	PLO	PPS-1	PPW	PW	PWHW	PWR	PWRG	PWRL	RB	RBR	RG	RGF	
TIMELINE																	
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	September 2005	September 2005	February 2005	February 2005	July 1, 2005	September 2005	July 1, 2005	July 1, 2005	Lead-free for product lifetime	July 1, 2005	November 2005	July 1, 2005	Not Planned	Not Planned	Not Yet Available	Not Yet Available	
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Lead-Free finish	96% Sn / 3.5% Ag / 0.5% Cu	100% Matte Sn over Ni	100% Matte Sn over Ni	96% Sn / 4% Ag	100% Matte Sn over Ni	96% Sn / 3.5% Ag / 0.5% Cu	100% Matte Sn over Ni	100% Matte Sn over Ni	Application Specific	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	N/A	N/A	
REFLOW CONDITIONS																	
Peak Reflow Temperature (°C)	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	
MSL in accordance with J-STD 020C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
COMPONENT AND PACKAGE MARKING																	
Component Marking (Pb Free Indicator)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 6 February 2003																	
	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	
RESTRICTED SUBSTANCES																	
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)																	
LEVEL-A	None	None	None	None	None	None	None	None	None	None	None	None	None	Lead (Pb)	Lead (Pb)	Lead (Pb)	Lead (Pb)
LEVEL-B	Nickel (Ni)	Nickel (Ni)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	
IMDS REPORTABLE SUBSTANCES																	
Reference: IMDS International list of reportable substances																	
Nickel (Ni)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lead (Pb)														X	X	X	
Copper (Cu)			X	X	X		X	X	X	X	X	X	X	X	X	X	
Beryllium (Be)																	
ROHS Substances - Content (PPM)																	
Lead (Pb)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mercury (Hg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hexavalent Chromium (Cr ⁶⁺)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Polybrominated Biphenyls (PBB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Polybrominated Diphenylethers (PBDE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cadmium (Cd)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.

Description	Thick Film Temperature Compensation Resistor	Semi-Precision Mil-Qualified Metal Glaze Resistor	Established Reliability Mil-Qualified Metal Glaze Resistor	Precision Mil-Qualified Metal Glaze Resistor	Established Reliability Mil-Qualified Metal Glaze Resistor	Axial Lead Precision Wirewound Resistor	General Purpose Failure Molded Wirewound Resistor	General Purpose Failure Molded Wirewound Resistor	General Purpose Failure Molded Wirewound Resistor	General Purpose Failure Molded Wirewound Resistor	Low Cost General Purpose Conformal Resistor	Semi-Precision Power Wirewound Resistor	Precision Non-Military Metal Glaze Resistor	Precision Non-Military Metal Glaze Resistor	Precision Non-Military Metal Glaze Resistor	Precision Non-Military Metal Glaze Resistor	Thick Film on Stainless Steel Substrate
Product Series	RGT	RL	RLR	RN	RNC	SP	SP20	SPF	SPH	SPP	T (POWER WW)	T0	T2	T9	TF	TFS	
TIMELINE																	
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	July 1, 2005	Not Yet Available	Not Yet Available	Not Yet Available	Not Yet Available	July 1, 2005
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead-Free finish	N/A	N/A	N/A	N/A	N/A	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	100% Matte Sn over Ni	N/A	N/A	N/A	N/A	Application Specific
REFLOW CONDITIONS																	
Peak Reflow Temperature (°C)	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°	260°
MSL in accordance with J-STD 020C	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
COMPONENT AND PACKAGE MARKING																	
Component Marking (Pb Free Indicator)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 6 February 2003																	
	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	YES
RESTRICTED SUBSTANCES																	
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)																	
LEVEL-A	Lead (Pb)	Lead (Pb)	Lead (Pb)	Lead (Pb)	Lead (Pb)	None	None	None	None	None	None	None	Lead (Pb)	Lead (Pb)	Lead (Pb)	Lead (Pb)	None
LEVEL-B	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)	Nickel (Ni) Copper (Cu)
IMDS REPORTABLE SUBSTANCES																	
Reference: IMDS International list of reportable substances																	
Nickel (Ni)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lead (Pb)	X	X	X	X	X								X	X	X	X	
Copper (Cu)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Beryllium (Be)																	
ROHS Substances - Content (PPM)																	
Lead (Pb)	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	0	0	0	0	0	0	0	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint; Pb on terminals	exempted internal hi-T solder joint
Mercury (Hg)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hexavalent Chromium (Cr ⁶⁺)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Biphenyls (PBB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polybrominated Diphenylethers (PBDE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cadmium (Cd)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.



Lead Free Certification and RoHS Compliance

International Resistive Company - IRC
 Wire and Film Technologies - WAFT
 736 Greenway Road
 P.O. Box 1860
 Boone, NC 28607 USA
 telephone: 828.264.8861
 fax: 828.264.8865

Description	Wirewound Surface Mount	Metal Glaze Cylindrical Surface Mount Resistors (Z-zerohm Jumpers)	Jumper Wire Resistor
Product Series	WSM	ZCHP	ZEROHM
TIMELINE			
Scheduled Transition Date Code (Date that manufacturing will shift to lead free.)	July 1, 2005	October 2005	July 2006
Discontinuation Date Code For Tin-Lead Finish (YYWW) (Date after which no tin-lead will be manufactured.)	July 1, 2005	N/A	N/A
Lead-Free finish	100% Matte Sn over Ni	96% Sn / 3.5% Ag / 0.5% Cu	100% Matte Sn over Ni
REFLOW CONDITIONS			
Peak Reflow Temperature (°C)	260°	260°	260°
MSL in accordance with J-STD 020C	2	2	2
COMPONENT AND PACKAGE MARKING			
Component Marking (Pb Free Indicator)	No	No	No
Packaging Marking (Pb Free Indicator on reel, tube, etc.)	Yes	Yes	Yes
RoHS Compliance including DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 and DIRECTIVE 2003/11/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 February 2003	YES	YES	YES
RESTRICTED SUBSTANCES			
Reference: EIA/EICTA/GPSSI JOINT INDUSTRY GUIDE-MATERIAL COMPOSITION DECLARATION GUIDE (DRAFT XX-XXXX, September 19, 2003)			
LEVEL-A	None	None	None
LEVEL-B	Nickel (Ni) Copper (Cu)	Nickel (Ni)	Nickel (Ni) Copper (Cu)
IMDS REPORTABLE SUBSTANCES			
Reference: IMDS International list of reportable substances			
Nickel (Ni)	X	X	X
Lead (Pb)			
Copper (Cu)	X		X
Beryllium (Be)			
ROHS Substances - Content (PPM)			
Lead (Pb)	0	0	exempted internal hi-T solder joint; Pb on terminals
Mercury (Hg)	0	0	0
Hexavalent Chromium (Cr ⁺⁶)	0	0	0
Polybrominated Biphenyls (PBB)	0	0	0
Polybrominated Diphenylethers (PBDE)	0	0	0
Cadmium (Cd)	0	0	0

* Materials content are IRC-WAFT Engineering good faith estimates.

** RoHS-compliant components must be specified with appropriate part numbers.

*** Many WAFT components will remain available with Sn/Pb terminations. Consult factory for details.