

SMT RoHS Compliance Worksheet

Series or Type	Description or Photo	RoHS Compliance Identification on Device	Termination Finish	Pb Free	RoHS Compliant	Compliant Part Number	Package Marking	Date Compliant	Moisture Sensitivity Level (IPC/JEDEC J-STD-020C)	Soldering Conditions (Temp/Time)	Notes		
V-Chips													
AEB	(10 mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A		CDE Case Code "J" & "K" use a low boiling point electrolyte which will not stand up to Pb-Free soldering processes http://www.cde.com/catalogs/AEB.pdf		
AEB	(12.5 - 18 mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 230° C (12.5 mm to 18mm Dia)	CDE Case Code: L, P, U, R, S http://www.cde.com/catalogs/AEB.pdf		
AFC	(4 - 10mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn 3Bi/Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 250° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 235° C (8mm to 10 mm Dia)	CDE Case Codes: B, C, D CDE Case Codes: E, F, G http://www.cde.com/catalogs/AFC.pdf		
AFC	(12.5 - 18 mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 250° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 235° C (8mm to 10 mm Dia)	CDE Case Code: L, P, R, S http://www.cde.com/catalogs/AFC.pdf		
AFK	(4 - 10 mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn 3Bi/Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 250° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 235° C (8mm to 10 mm Dia)	CDE Case Codes: B, C, D, X CDE Case Codes: E, F, G http://www.cde.com/catalogs/AFK.pdf		
AFK	(12.5 - 18 mm Dia) Aluminum Electrolytic Capacitors (SMT)	N	Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 20 Sec at 230° C (≥ 12.5 mm Dia)	CDE Case Codes: H, P, R http://www.cde.com/catalogs/AFK.pdf		
AHA	Aluminum Electrolytic Capacitors (SMT)	N	Sn 3Bi/Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 250° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 235° C (8mm to 10 mm Dia)	CDE Case Codes: B, C, D, X CDE Case Codes: E, F, G http://www.cde.com/catalogs/AHA.pdf		
AHD	Aluminum Electrolytic Capacitors (SMT)	N/A	N/A	N	N	N/A	N/A	N/A	N/A	≤ 5 Sec at 240° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 230° C (8mm to 10 mm Dia)	CDE Case Codes: B, C, D CDE Case Codes: E, F, G http://www.cde.com/catalogs/AHD.pdf		
AVS	Aluminum Electrolytic Capacitors (SMT)	N	Sn 3Bi/Sn	<1000 PPM	Y	Add -F	Per JESD97	8/1/2003	N/A	≤ 5 Sec at 250° C (4 mm to 6.3mm Dia); ≤ 5 Sec. At 235° C (8mm to 10 mm Dia)	CDE Case Codes: A, B, C, D, X CDE Case Codes: E, F, G http://www.cde.com/catalogs/AVS.pdf		
SOLID POLYMER ALUMINUM													
ESR	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002	Temperature 5° C to 30° C without direct sunlight. Humidity: Less than 70% RH. Maximum Storage term and condition before opening the package: 2 years after manufacturing (JEDEC J-STD-020B MSL: Level 2) Maximum Storage term and condition after opening the package: Less than 14 days* (JEDEC J-STD-020B MSL: Level 3) * Part Numbers: (7 days or less) ESRD4R7M12R, ESRD100M12R, ESRD150M12R, ESRD200M12R, ESRD2R2M16R, ESRD4R7M16R, ESRD6R8M16R, ESRD8R2M16R and ESRL150M12R All products should be used within the storage term after opening the package. *After the storage limit, baking treatment is necessary to be able to use the products* The storage conditions after baking	240 °C max., 5 s; ≥ 200 °C: 30 s max.	Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond		
ESRD	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002			Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond http://www.cde.com/catalogs/ESRD.pdf		
ESRE	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002			Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond http://www.cde.com/catalogs/ESRE.pdf		
ESRH	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002			Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond http://www.cde.com/catalogs/ESRH.pdf		
ESRL	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002			Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond		
SPA	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	5/2002			Terminal Base Material: Cu Terminal Finish Material: Sn RoHS Compliant: Date Code May 2002 and beyond http://www.cde.com/catalogs/SPA.pdf		
SPCX	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	SINCE INCEPTION			MSL LEVEL 3 in Bag, MSL LEVEL 2 once bag is opened	260 °C max., 5 s	http://www.cde.com/catalogs/SPCX.pdf
SPSX	SMT Specialty Polymer Aluminum Electrolytic Capacitors	N	Sn	<1000 PPM	Y	NO CHANGE	Per JESD97	SINCE INCEPTION			MSL LEVEL 3 in Bag, MSL LEVEL 2 once bag is opened	260 °C max., 5 s	Terminal Base Material: Cu Terminal Finish Material: Sn http://www.cde.com/catalogs/SPSX.pdf
SMT Film													
FCA	SMT Film Chip Capacitors	N	Sn-Ag-Cu	<1000 PPM	Y	NO CHANGE	Per JESD97	11/02	5A	Peak Temp: 240° C max 5 sec Recommended Temp: 235° C max 5 sec	Terminal Finish - Sn-Ag-Cu RoHS Compliant Date Code November 2002 and beyond http://www.cde.com/catalogs/FCA.pdf		

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Series or Type	Description or Photo	RoHS Compliance Identification on Device	Termination Finish	Pb Free	RoHS Compliant	Compliant Part Number	Package Marking	Date Compliant	Moisture Sensitivity Level (IPC/JEDEC J-STD-020C)	Soldering Conditions (Temp/Time)	Notes
FCN	SMT Film Chip Capacitors	N	Sn-Ag-Cu	<1000 PPM	Y	NO CHANGE	Per JESD97	11/02	N/A	Peak Temp: 240° C max 5 sec Recommended Temp: 235° C max 5 sec	Terminal Finish - Sn-Ag-Cu RoHS Compliant Date Code November 2002 and beyond http://www.cde.com/catalogs/FCN.pdf
FCP	SMT Film Chip Capacitors	N	Sn-Ag-Cu	<1000 PPM	Y	NO CHANGE	Per JESD97	Nov. 2002	N/A	Peak Temp: 260° C max 5 sec Recommended Temp: 240° C max 5 sec	Terminal Finish - Sn-Ag-Cu RoHS Compliant Date Code November 2002 and beyond http://www.cde.com/catalogs/FCP.pdf
CS_G	SMT CAPSTICK	N	SnPb	N	RoHS-5	NO CHANGE			4	220°C for 30 sec.	
CS_G-FA	SMT CAPSTICK	N	Sn	<1000 PPM	Y	add -FA	Per JESD97		4	220°C for 30 sec.	
CB_G	SMT CAPSTICK	N	SnPb	N	RoHS-5	NO CHANGE			4	220°C for 30 sec.	
CB_G-FA	SMT CAPSTICK	N	Sn	<1000 PPM	Y	add -FA	Per JESD97		4	220°C for 30 sec.	
CB_G-FS	SMT CAPSTICK	N	Sn	<1000 PPM	Y	add -FS	Per JESD97		4	245°C for 30 sec.	

SMT MICA											
MIN (MIN02-002 style)	Teflon® SMT Metal Clad	N/A	Ag	<1000 PPM	Y	add suffix -F	PER JESD97	Always	N/A	260°C/10s	http://www.cde.com/catalogs/mcm-min.pdf
MIN (MIN02-002 style)	Mica SMT Metal Clad	N/A	Ag	<1000 PPM*	Y	add suffix -F	PER JESD97	1/1/2006	N/A	260°C/10s	http://www.cde.com/catalogs/MCM-MIN.pdf
MCM (MCM01-009 style)	Mica SMT Metal Clad	N/A	Ag	<1000 PPM*	Y	add suffix -F	PER JESD97	1/2/2006	N/A	260°C/10s	http://www.cde.com/catalogs/MCM-MIN.pdf
MC	SMT Mica Chip	N	Sn	<1000 PPM*	Y	add suffix -F	PER JESD97	3/25/2005	2A	220-260/10s	http://www.cde.com/catalogs/MC.pdf
MCH, MCH V-Chips	Nonmagnetic SMT Mica Chip	N	Sn	<1000 PPM*	Y	always been compliant	PER JESD97	3/25/2005	2A	220-260/10s	http://www.cde.com/catalogs/MCH-MCHN.pdf
AVE	Aluminum Electrolytic Capacitors (SMT)	N	Sn	yes	Y	n/a	no	7/5/2007	n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVE.pdf
AVE			Sn	yes					n/a	seconds, max. of 40 sec. at or above 260°C	http://www.cde.com/catalogs/AVE.pdf
AVES			Sn	yes					n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVES.pdf
AVEK			Sn	yes					n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVEK.pdf
AVEK			Sn	yes					n/a	seconds, max. of 40 sec. at or above 260°C	http://www.cde.com/catalogs/AVEK.pdf
AVEZ			Sn	yes					n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVEZ.pdf
AVGA			Sn	yes					n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVGA.pdf
AVGA			Sn	yes					n/a	seconds, max. of 60 sec. at or above 260°C	http://www.cde.com/catalogs/AVGA.pdf
AVGA			Sn	yes					n/a	seconds, max. of 40 sec. at or above 260°C	http://www.cde.com/catalogs/AVGA.pdf
HZA	SMT Hybrid-Polymer	N	Sn3Bi/Sn	< 1000 PPM	Y	Add -F	JESD97	Always	N/A	Dia)	CDE Case Codes C, D, F, G, X
HZC	SMT Hybrid-Polymer	N	Sn3Bi/Sn	< 1000 PPM	Y	Add -F	JESD97	Always	N/A	Dia)	CDE Case Codes C, D, F, G, X

Revision Date: 4/2/15

* subject to exemption #15

To the best of our knowledge, the information provided on the enclosed is correct as of the date indicated on the document. Since some of the information is provided by the acceptance of data from sources outside of Cornell Dubilier Electronics, we can not guarantee that all is complete and accurate.

Humidity: Less than 70% RH

Maximum Storage term and condition before opening the package:

2 years after manufacturing

(JEDEC J-STD-020B MSL: Level 2)

Maximum Storage term and condition after opening the package:

Less than 14 days*

(JEDEC J-STD-020B MSL: Level 3)

* Part Numbers: (7 days or less) ESRD4R7M12R, ESRD100M12R, ESRD150M12R, ESRD220M12R, ESRD2R2M16R, ESRD4R7M16R, ESRD6R8M16R,

ESRD8R2M16R and ESRL150M12R

All products should be used within the storage term after opening the package.

After the storage limit, baking treatment is necessary to be able to use the products

The storage conditions after baking are the same as those after opening the package.