

8mm Coeur CST High Current Connector System

SERIES:

204313	Pressfit option with 1.0mm of float
204365	SMT option with 1.0mm of float
204318	SMT standard
204316	Pressfit standard
204608	1/0 crimp option
204600	2 circuit male assembly
204599	2 circuit crimped female assembly



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 1 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

1.0 SCOPE:

This Product Specification covers the 8mm CST Connector System using 1/0 (50mm²) cable size.

2.0 PRODUCT DESCRIPTION:

The CST Connector series is a single circuit connector system with available 1mm of actual float for high power applications seen in busbars, board to board and wire to board. The power circuit terminals are terminated to a busbar, board or 1/0 wire and uses a gold mating to silver interface with a terminal tarnish protection lubricant.

2.1 DIMENSIONS:

2.1.1 Overall envelopes vary based on configuration and CST option. For individual envelopes and further information see respective sales drawings.

2043130010-SD	Pressfit option with 1.0mm of float
2043650010-SD	SMT option with 1.0mm of float
2043180001-SD	SMT standard
2043160001-SD	Pressfit standard
2046080001-SD	1/0 crimp option
2046000001-SD	2 circuit male assembly
2045990001-SD	2 circuit crimped female assembly*

*components of 204599 series can be purchased individually and assembled on site

2.2 MATERIALS:

2.2.1 Housings: see individual sales drawings for various plastic materials

2.2.2 Power male terminals: Copper base material with silver plating, a tarnish inhibitor is applied to terminal

2.2.3 Power female terminals: Copper base material with gold plated mating interface. Remainder of terminal is silver plating, a tarnish inhibitor is applied to terminal

Power cable: Product tested with Champlain Cable part number EXTRAD-FSX1/0 (1/0 Cable is 1007 strands of copper wire with EMI braid)

Product can be used with equivalent wire (OD, stranding, voltage rating...per Application Specification)

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 2 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

2.3 Safety Agency Approvals



2.3.1 **File Number*: 70184994**

CSA approval meets following standards/test procedures:

- a) CSA std. C22.2 No. 182.3-M1987
- b) UL-1977

* - "C" and "US" mark adjacent to CSA signifies that the product has been evaluated to the applicable CSA and ANSI/UL standards, for use in Canada and US respectively.

CSA NON-current interruption
175 Amps @ 600V for standard interface 175 Amps @ 600V for floating interface

2.3.2 **UL File Number: E29179**

UL NON-current interruption
175 Amps @ 600V for standard interface 175 Amps @ 600V for floating interface

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 3 of 18
DOCUMENT NUMBER: 2043130008-PS		CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor
		APPROVED BY: J.Gaumer	

3.0 DOCUMENTS AND SPECIFICATIONS:

3.1 Sales Drawing

1. 2043130010-SD pressfit float
2. 2043650010-SD smt float
3. 2043180001-SD smt std
4. 2043160001-SD pressfit std
5. 2046080001-SD 1/0 crimp
6. 2045990001-SD 2 circuit female assy

3.2 Pin Sales Drawing

1. 2032630001-SD std pressfit
2. 2032630007-SD ultra short pressfit
3. 2032637580-SD std SMT
4. 2046000001-SD 2 circuit touch proof male

3.3 Application Specification AS-204313-001

3.4 Packaging specifications

1. 2043139001-PK
2. 2046000001-PK

4.0 RATINGS:

4.1 VOLTAGE

600 Volts

Connector Rating per UL-1977

Connector voltage rating meets the connector approval level defined by UL 1977, Sect. 11 for spacing per table 11.1. Example: 1.2 mm for ≥ 250 volt; 3.2 mm for ≤ 250 volt.

Exception taken for spacing less than those specified are permitted, if the device complies with the requirements in the dielectric voltage withstanding test per Sect. 17.

Application Voltage Guideline

For application voltage requirements please refer to UL-60950 or other applicable standards, the creepage & clearance also needs to be determined based upon pads/traces on the PCB.

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 4 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

4.2 CURRENT ON APPLICABLE WIRES

See Temp Vs Current charts in section 6.0 for applicable current rating per application.

**Current rating is application dependent. The ratings should be used as a guideline only. Appropriate de-rating is required per ambient conditions, bussbar size, gross heating from adjacent modules or components, and other factors that influence connector performance. Wire type and stranding, tin coated or bare copper, wire length & crimp quality are other factors that influence current rating*

4.3 TEMPERATURE

Operating: -40°C to +105°C (including T-Rise from load)

Storage/Non-operating: -40°C to +85°C

Temperature life tested per EIA 364-17 Method A for 228 hrs@105° per table 8 to meet field temperature of 65° C for 10 years life.

4.4 CONNECTOR DURABILITY

200 Cycles mechanical / non environmental durability. *

*Based on EIA-364-1000.01 test method C section 7

5.0 QUALIFICATION

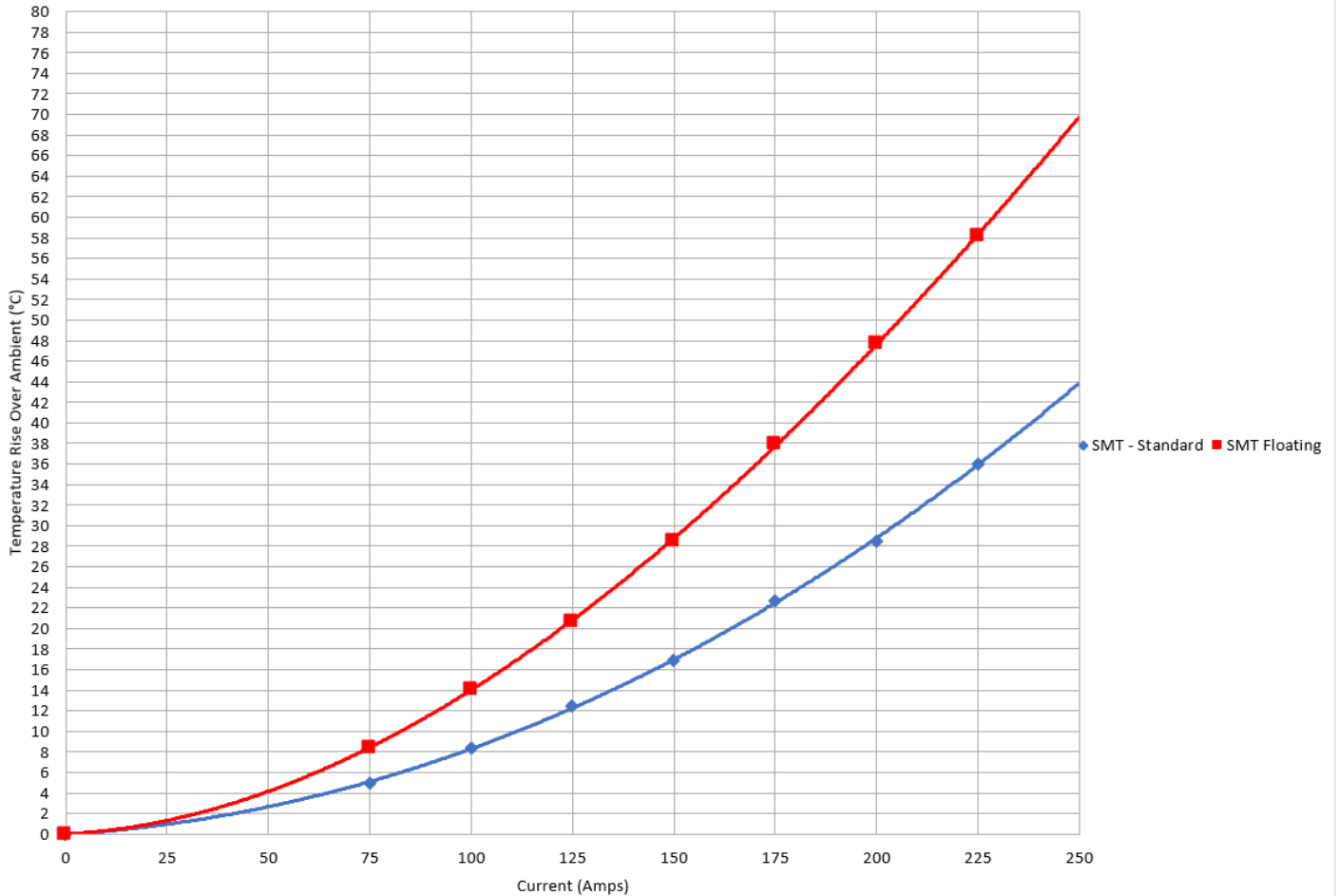
Laboratory condition and sample selection are in accordance with EIA-364-1000.01.
See page _ for detail test sequence of EIA-364-1000.01

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 5 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

6.0 PERFORMANCE

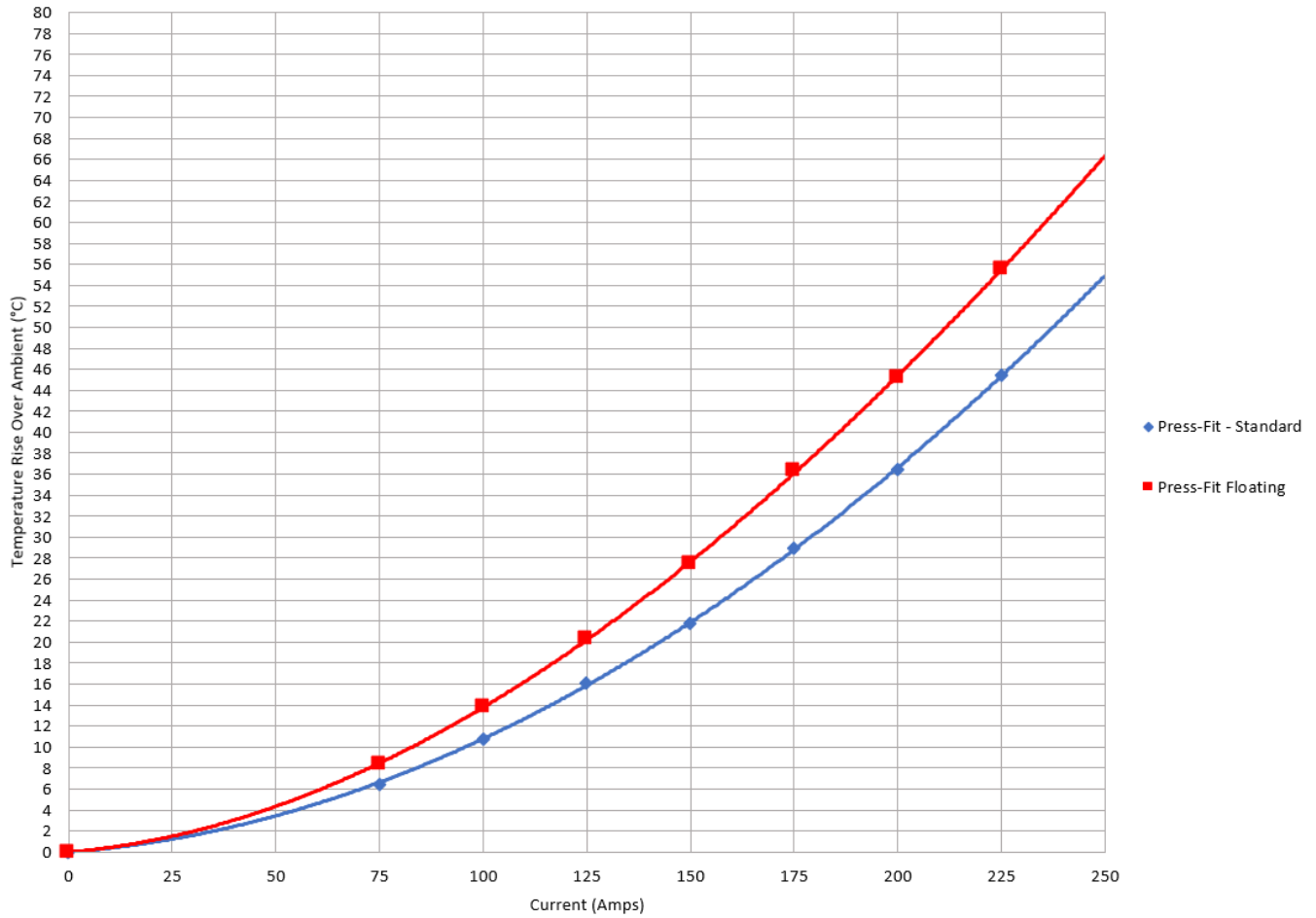
Temperature Rise vs. Current and step current charts for each cst option

CST Surface Mount (SMT) Connectors - Temperature vs Current Chart



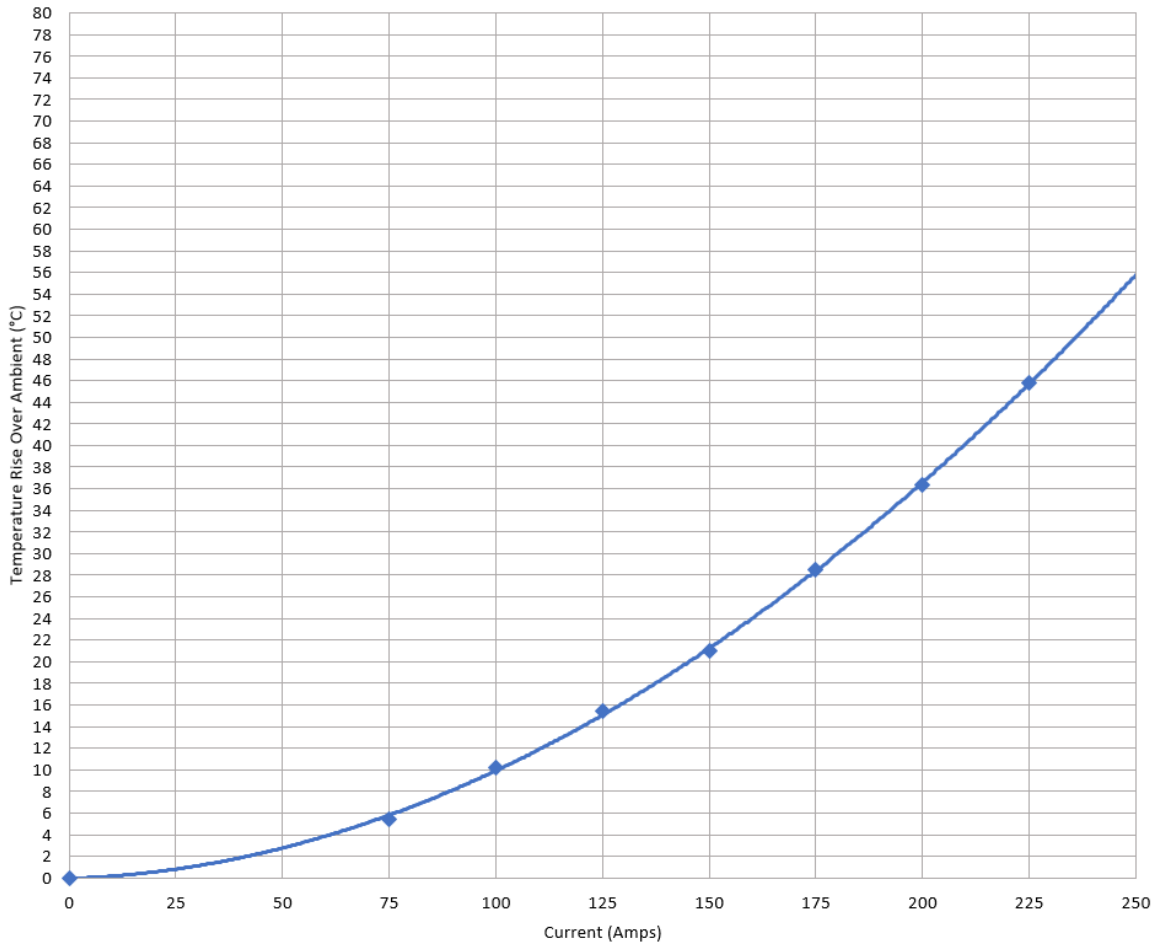
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DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

CST Press-Fit Connectors - Temperature vs Current Chart



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 7 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

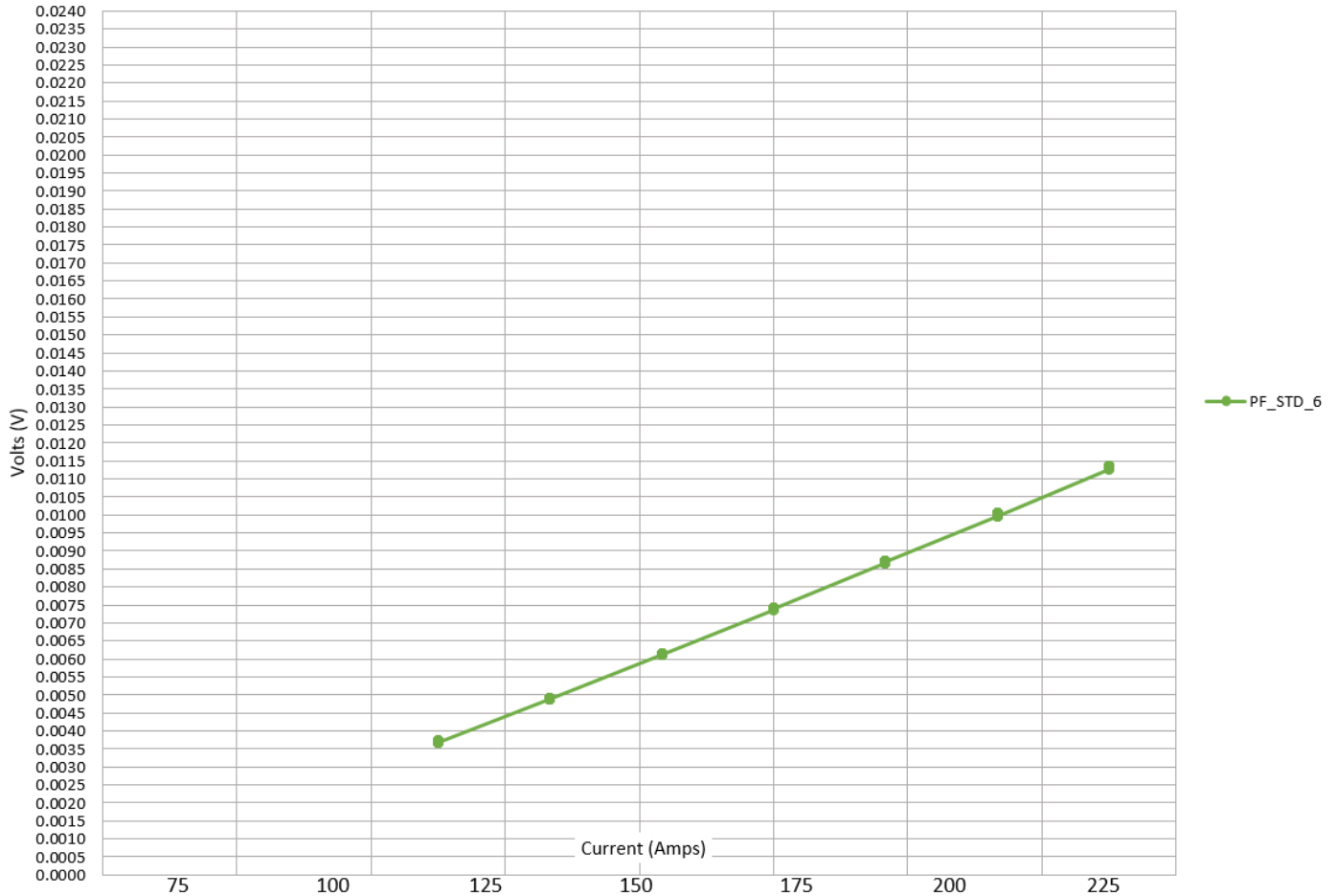
CST Crimped Connectors (1/0 AWG Wire) - Temperature vs Current Chart



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 8 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

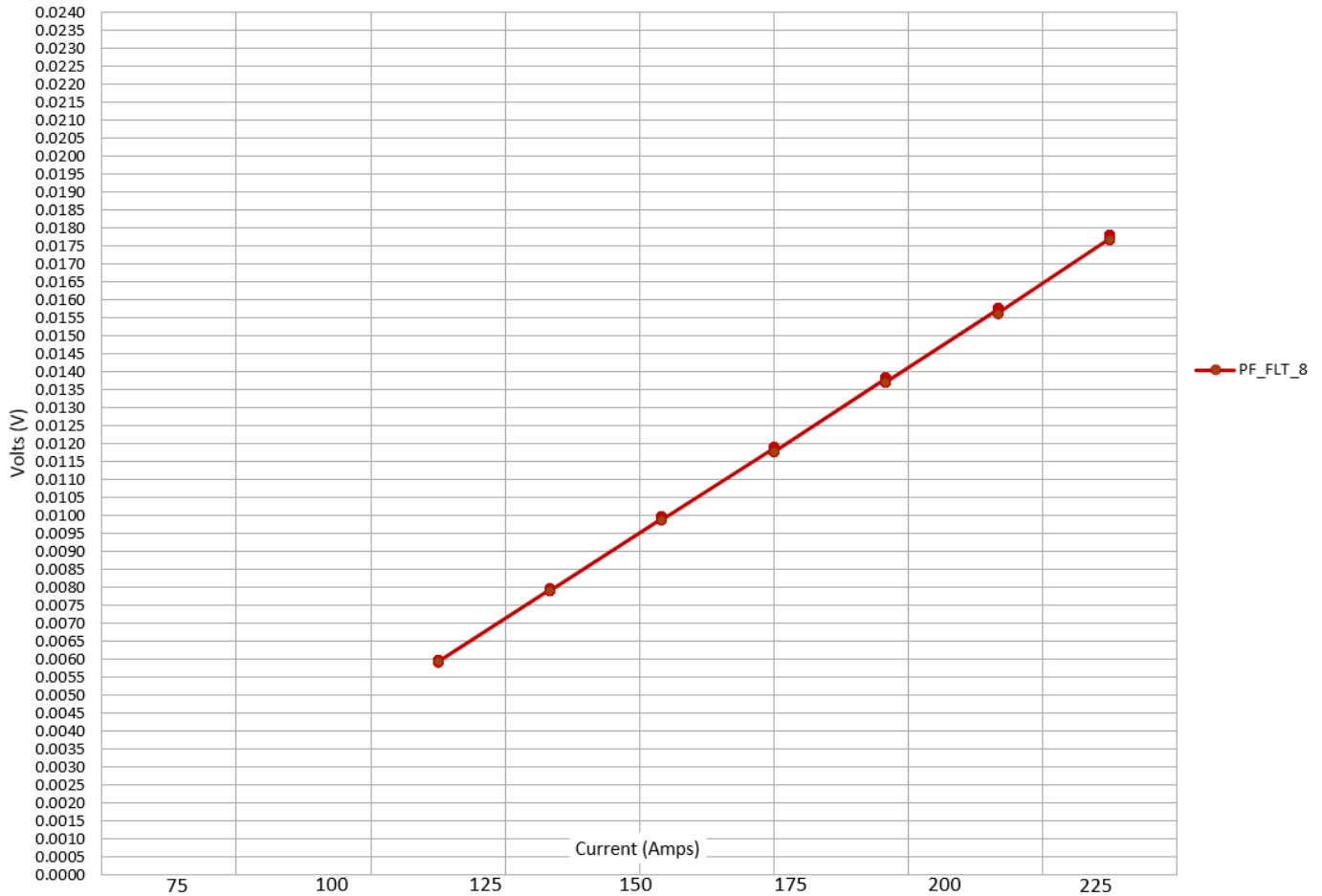
6.1 Voltage Drop vs. Current for 1/0 cable size

CST - Voltage Drop Profile Data - Press-Fit Standard Samples



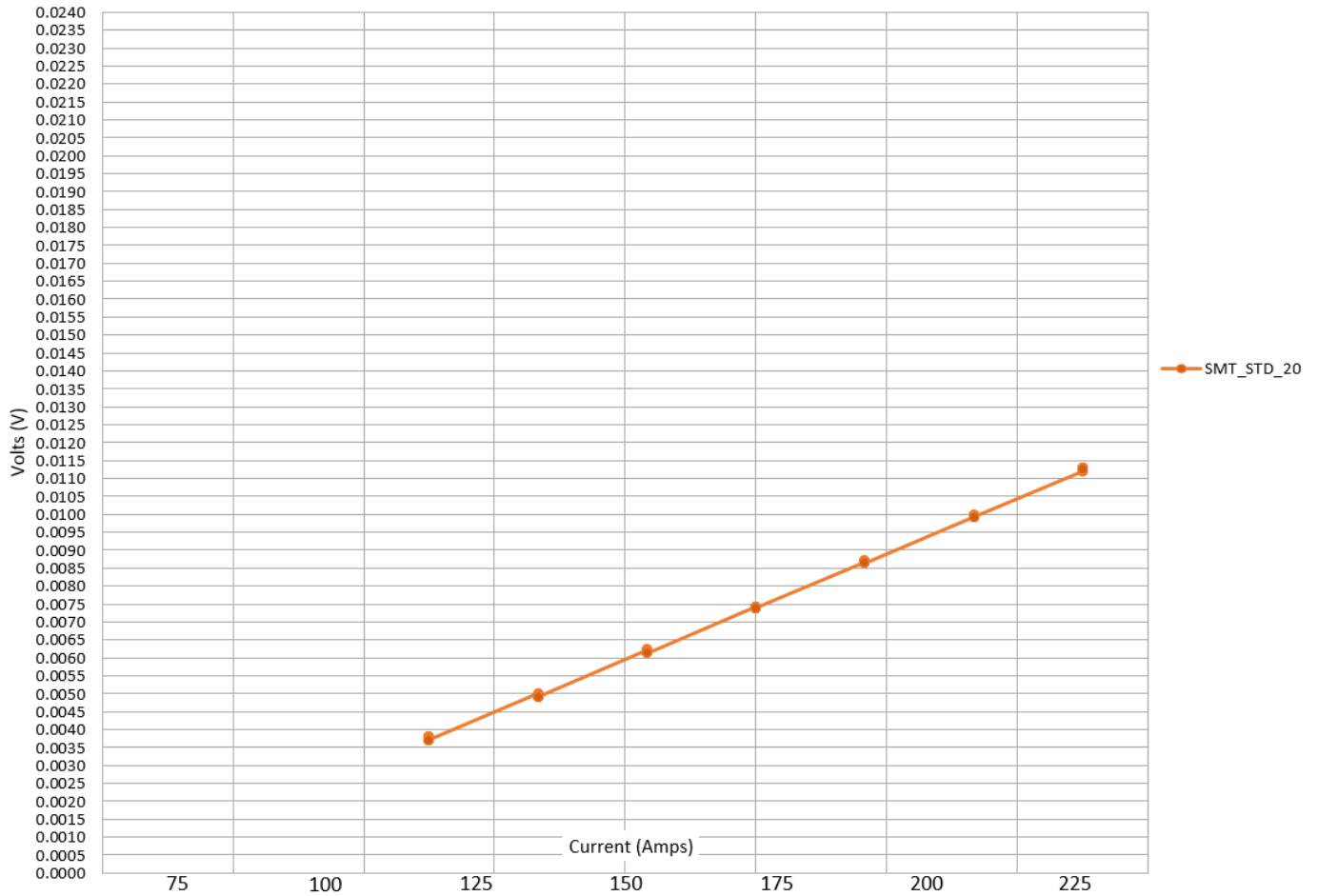
REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 9 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

CST - Voltage Drop Profile Data - Press-Fit Floating Samples



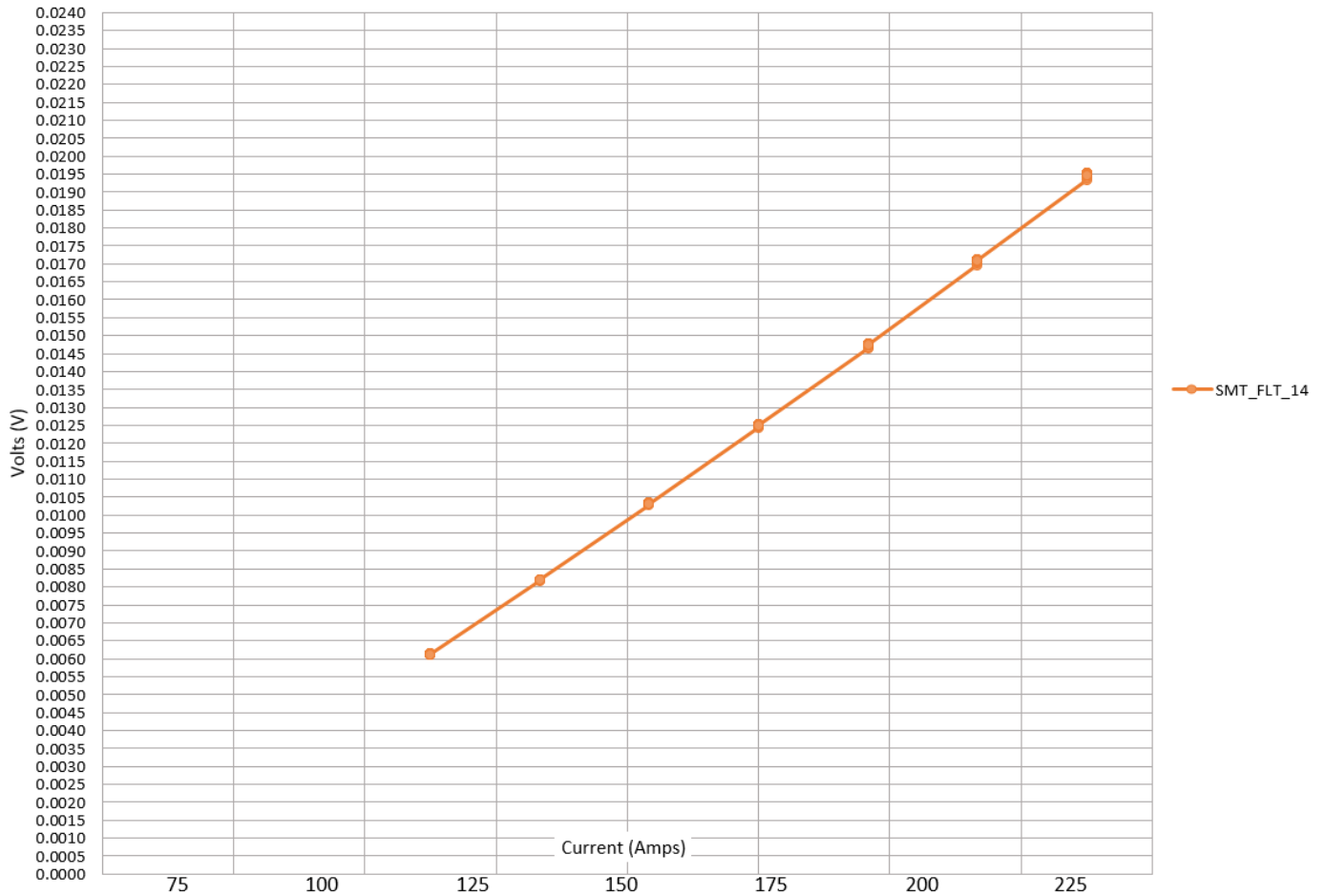
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DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

CST - Voltage Drop Profile Data - SMT Standard Samples



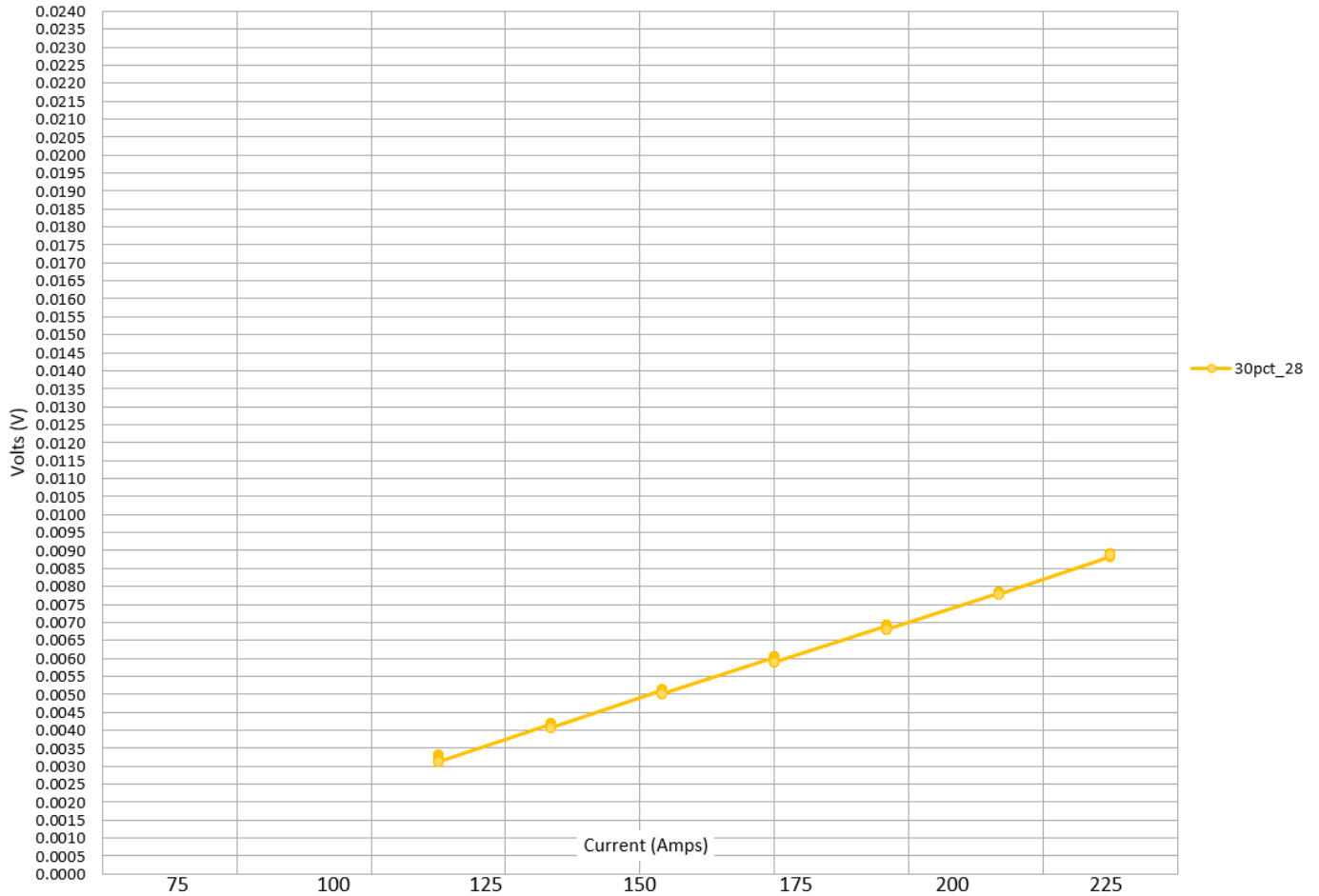
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DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

CST - Voltage Drop Profile Data - SMT Floating Samples



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 12 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

CST - Voltage Drop Profile Data - Crimped Samples



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 13 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

6.2 ELECTRICAL PERFORMANCE

DESCRIPTION	TEST CONDITION	REQUIREMENT
INITIAL CIRCUIT RESISTANCE (LOW LEVEL)	Mate connectors; apply maximum voltage of 20 mV and current of 100 mA	1.0 mΩ max
VOLTAGE DROP @ RATED CURRENT	Mate connectors; apply maximum current of 175 amps	See Charts; Section 6.0

5.3 ENVIRONMENTAL PERFORMANCE

DESCRIPTION	TEST CONDITION	REQUIREMENT
MECHANICAL SHOCK AND VIBRATION	Mated connectors Shock and Vibrate Shock: 50G half-sine shock pulse using 10 positive pulses per axis with a 5-10 millisecond duration for the pulse Vibration: Random vibrate for 15 minutes in each of the 3 axes	0.17 mΩ max change No Discontinuities

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 14 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

THERMAL SHOCK	Mate connectors, expose to 10 cycles from -55°C to 85°C	0.17 mΩ max change
TEMPERATURE LIFE	Mate Connectors, expose to 228 hours at 105°C Mate Connectors, expose to 114 hours at 125°C	0.17mΩ max change
CYCLIC TEMPERATURE AND HUMIDITY	Mate connectors: expose to 24 cycles from 25°C/ 80% RH to 65°C/ 50% RH	0.17 mΩ max change
DUST EXPOSURE	Exposed to dust per EIA-364-91 benign dust composition	0.17 mΩ max change
MIXED FLOWING GAS	Exposed to MFG per EIA-365-65 with an exposure time of 224 hours unmated and 114 hours mated	0.17 mΩ max change

5.4 MECHANICAL PERFORMANCE:

DESCRIPTION	TEST CONDITION	REQUIREMENT
MATING FORCE	Mate connectors at a rate of 25 ± 6 mm per minute	45 N max

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 15 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

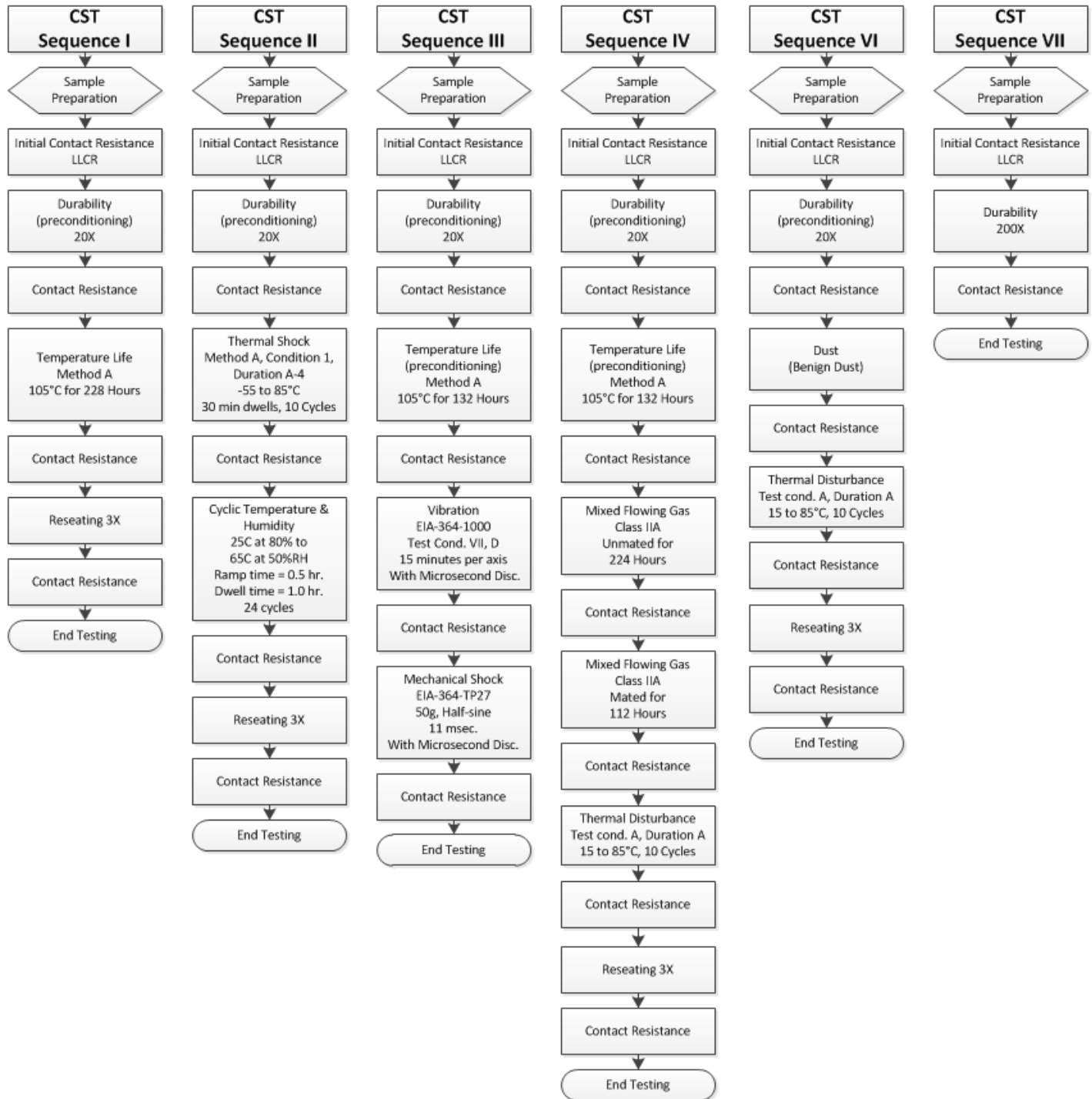
UNMATING FORCE,	Unmate connectors at a rate of 25 ± 6 mm per minute	10 N min
DURABILITY W/O ENVIRONMENT	Mate connectors 200 cycles at a maximum rate of 10 cycles per minute	No damage which would impair operation
FLOAT DISPLACEMENT FORCE (SIDE FORCE)	Displace float feature 1.5mm	10N min
OFFSET MATING INSERTION FORCE INTO FLOATER	Mate and unmate receptacle male power pin 10 times in the offset position	90N max

CABLE CRIMPED TO TERMINAL PULL FORCE	Crimped 1/0 (aught) cable to terminal	1500 N Min
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5.5 ENVIRONMENTAL SEQUENCE

EIA-364-1000.01 SEQUENCE 1
 EIA-364-1000.01 SEQUENCE 2
 EIA-364-1000.01 SEQUENCE 3
 EIA-364-1000.01 SEQUENCE 4
 EIA-364-1000.01 SEQUENCE 6
 EIA-364-1000.01 SEQUENCE 7

REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 16 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer



REVISION: A	ECM INFORMATION: ECMNo: 178462 DATE: 07/05/2018	TITLE: PRODUCT SPECIFICATION FOR Coeur CST 8mm	SHEET No. 17 of 18
DOCUMENT NUMBER: 2043130008-PS	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszczor	APPROVED BY: J.Gaumer

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REVISION: 1	ECR/ECN INFORMATION: EC No: UCP2014-4994 DATE: 2013/09/23	TITLE: PRODUCT SPECIFICATION FOR CST 8mm	SHEET No. 18 of 18
DOCUMENT NUMBER: PS-204313-001	CREATED / REVISED BY: J.Joniak	CHECKED BY: B.Piszcior	APPROVED BY: J.Gaumer