

1.0 Document Scope.

This document describes the attributes of an electronic high-frequency current transformer for end-use in DC to AC inverters that operate between 35 kHz and 100 kHz. This document is intended to be a binding specification of this current transformer to include (but not limited to) mechanical characteristics, and electrical characteristics. The overall intent to assure a consistent, high quality product.

2.0 Applicable Documents.

In the event of a conflict between documents, this specification is the to take precedence over other documents.

- MIL-STD-2000 Solderability Requirements
- SGQ-1135 Receiving Inspection, Magnetics
- IPC/JEDEC J-STD-020A (4/99) IR Reflow

3.0 Electrical Characteristics

MARKING	Items	Inductance (at 10Khz, 0.1V)			Items	D.C Resistance		
		Min	Nom	Max		Min	Nom	Max
2AP	L1-2 (uH)	60	90	125	Rdc1-2(mΩ)	95	121	140
	L3-4 (mH)	1.50	2.0	3.0	Rdc3-4(mΩ)	425	488	550
	L1-2 (uH)				Rdc1-2(mΩ)			
	L3-4 (mH)				Rdc3-4(mΩ)			
Coupling Capacitance					HP4280A 1Mhz C meter, Floating mode			
C2-4(pF)			1.5	2.5				
Turn Ratio Test		Apply 40mVpp, 60KHz Sinewave between pin 1and 2 measure V3-4			V3-4/V1-2		5.0 +/- 0.3	
Insulation Strength Test		Apply test voltage between pin 1,2 and pin 3,4, 60Khz ± 10Khz. sine wave source, measured with Tektronix P6015 (or equiv.)			Should not be monitored greater than 200uApk corona discharge at 2500Vrms min, 25°C±3°C, 5sec min. See Note			

Note: Leakage current by coupling capacitance is not corona discharge current. Corona discharge will generate voltage and current spike on top of leakage current.

4.0 Winding Specifications

Core: A10(T4*2*2), ACME Co. Special six layers-coated with Parylene C	Primary	Secondary
	Pin 1 – 2	Pin 3-4
Winding Sequence	1S-2F	4S-3F
Wire Size & Type	#38, Teflon Insulation	0.1mm UEW 130, Class 0(Triple insulation)
Number of Turns	6	30

5.0 Safety Agency Requirements.

This component is to be designed and manufactured to meet the requirements of UL 1950 standard. All raw materials used in the construction of this component are to be UL-listed, and are to consistent with the UL1950 standard. This component is to be capable of meeting UL94V-0 and CSA requirements.

6.0 Environmental Requirements.

The completed component is to be designed and manufactured to meet the following environmental requirements, when housed in the final enclosure assembly. The completed component is to perform to the normal electrical requirements after being subjected to any of the following environmental conditions. The following paragraphs define the operating and non-operating environments for the completed transformer and its next higher assembly level. These requirements are to be used to qualify the component in its actual operating assembly configuration.

6.1 Operating Temperature Range. -40°C to +105°C.

6.2 Non-Operating Temperature Range. -40°C to +130°C.

6.3 Thermal Cycling. The completed part is to be capable of passing 100 thermal cycles from -40°C to +110°C, 5 °C ±1°C /min, with 15 minute dwells at each temperature.

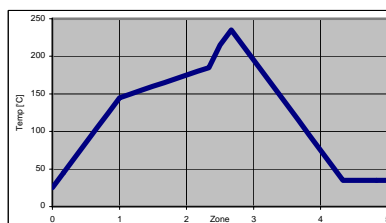
6.4 Operating Relative Humidity. 5% to 95% Humidity, Non-Condensing, +40°C to +85°C.

6.5 Non-Operating Relative Humidity. 0% to 100% Humidity, 0°C to +60°C.

6.6 Operating Altitude. Sea Level to 10,000 Feet Above Sea Level.

6.7 Non-Operating Altitude. Sea Level to 50,000 Feet Above Sea Level.

6.8 IR Reflow Process. Completed parts are to survive 5 times an IR Solder Reflow process without degradation in electrical performance or mechanical characteristics (No crack, swelling on plastic and no gap on bottom epoxy potting area). The IR Reflow process temperature profile is provided by the following:



- 6.9 Continuous Elevated Temperature.** The completed component is to maintain conformance to the inductance specification after being exposed to 85°C for extended periods of time.
- 6.10 Expected Product Life.** The expected product MTBF is 500,000Hours

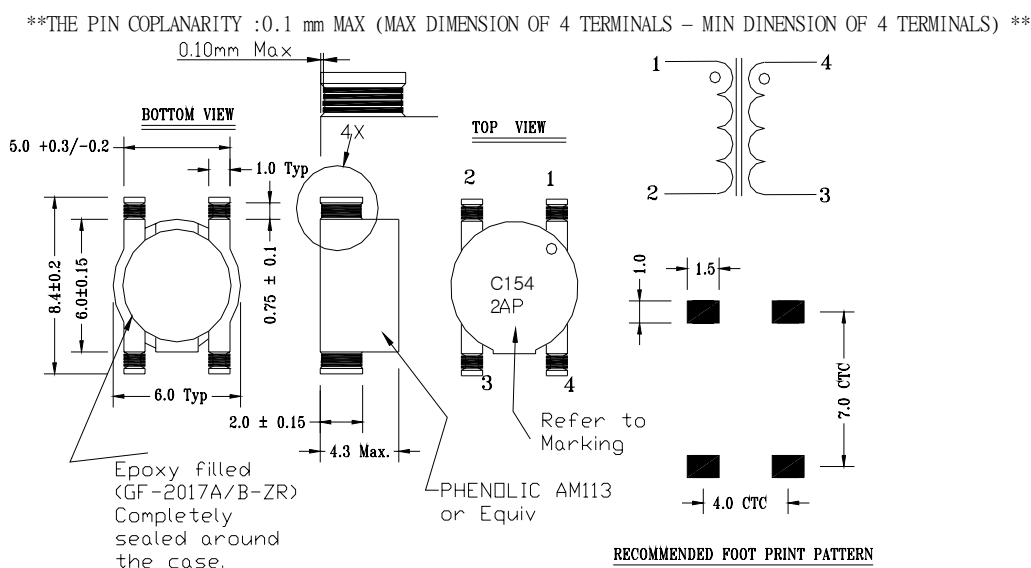
7.0 Identification & Packaging Specifications.

7.1 Part shall be marked or printed “2AP” and “Datecode” on top surface area.

7.2 Parts Packaging. Parts are to be packaged in a manner which provides adequate protection for normal shipping and handling. Parts are to be placed gently into trays, and each completed tray is to be placed gently into the packaging box and it should be machine placeable. Packed boxes are to be clearly marked for easy identification of part number and manufacturer. Box label is to include:

- ◆ Manufacturer Name & Customer Name
- ◆ Part Number
- ◆ Manufacturing Lot-Code Number
- ◆ Quantity Per Box.

8.0 Physical Specification & Wiring Diagram



9.0 Markings

MFG Code Marking : 2AP – Rubadue Wire

Date Code Marking : C153

C – Month (Jan.:A, Feb:B, Mar:C, Apr:D, May:E, Jun:F, July:G, Aug.:H, Sep:J, Oct.:K, Nov:L, Dec.:M)

15 – Date , 3 – YEAR (3 – 2003, 4 -2004, 5-2005, 6-2006, 7-2007, 8-2008, 9-2009, R-2010, S-2011, T-2012
U-2013, V-2014, W-2015, X-2016, Y-2017, Z-2018)