

RXO7050R

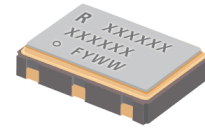


SMD Clock Oscillator

High performance XO in 7 x 5 mm Surface Mount package

Product description

The RXO7050R XO delivers high performance with low RMS phase jitter, tight stability and low power in an industry standard 7 x 5 mm SMD package. 2000+ frequency configurations are available for immediate sampling and short lead-times enable reduced inventory levels.



Applications

- Basestation
- Communications
- Consumer Products
- DSL/ADSL
- Ethernet (10G/40G)
- WiFi
- WiMAX/WLAN
- Serial Rapid I/O (SRIO)
- PCI Express

Features

- <1ps integrated RMS phase jitter (12 kHz to 20 MHz)
- Tight frequency stability
- Fast sample turnaround available
- LVCMOS, LVPECL, or LVDS Output options
- Wide frequency range
- Low power differential outputs

Specifications

1.0 SPECIFICATION REFERENCES

| Line | Parameter | Description |
|------|-------------------|-------------|
| 1.1 | Model Description | RXO7050R XO |
| 1.2 | Reference Number | |
| 1.3 | Rakon Part Number | |

2.0 FREQUENCY CHARACTERISTICS

| Line | Parameter | Test Condition | Value | Unit |
|------|-----------------------------|--|-----------|------|
| 2.1 | Frequency | | 8 to 1500 | MHz |
| 2.2 | Operating Temperature Range | | -40 to 85 | °C |
| 2.3 | Frequency Stability | Including Temperature range, Supply variation, Load variation and 10 years aging at 25°C | ±20 to 50 | ppm |
| 2.4 | Temperature Stability | Temperature range only | ±10 to 20 | ppm |

3.0 POWER SUPPLY

| Line | Parameter | Test Condition | Value | Unit |
|------|----------------------|--------------------------|--------|------|
| 3.1 | Supply Voltage (VDD) | With a tolerance of ±10% | 3.3 | V |
| 3.2 | Supply Voltage (VDD) | With a tolerance of ±5% | 2.5 | V |
| 3.3 | Supply Current | For LVCMOS | 30 max | mA |
| 3.4 | Supply Current | For LVPECL | 65 max | mA |
| 3.5 | Supply Current | For LVDS | 40 max | mA |

4.0 OUTPUT CHARACTERISTICS - CMOS (UP TO 200 MHz)

| Line | Parameter | Test Condition | Value | Unit |
|------|----------------------|---------------------------|----------|------|
| 4.1 | Output Voltage (Vol) | 15pF load | 10 max | %VDD |
| 4.2 | Output Voltage (Voh) | 15pF load | 90 min | %VDD |
| 4.3 | Duty Cycle | @ 50% VDD | 48 to 52 | % |
| 4.4 | Rise Time/Fall Time | 90%/10% | 3 max | ns |
| 4.5 | RMS Phase Jitter | Integrated 12kHz to 20MHz | 0.9 | ps |

5.0 OUTPUT CHARACTERISTICS - LVPECL ONLY

| Line | Parameter | Test Condition | Value | Unit |
|------|----------------------|--------------------------------------|----------|------|
| 5.1 | Output Voltage (Vol) | 50Ω nominal load. (VDD - 1.6V) max. | | |
| 5.2 | Output Voltage (Voh) | 50Ω nominal load. (VDD - 1.03V) min. | | |
| 5.3 | Duty Cycle | @ VDD-1.3V (45 to 55% over 600MHz) | 48 to 52 | % |
| 5.4 | Rise Time/Fall Time | 80%/20% | 0.6 max | ns |
| 5.5 | RMS Phase Jitter | Integrated 12kHz to 20MHz | 0.9 | ps |

6.0 OUTPUT CHARACTERISTICS - LVDS ONLY

| Line | Parameter | Test Condition | Value | Unit |
|------|--|---|----------|------|
| 6.1 | Differential Output: Voltage Swing (Vod) | | 350 | mV |
| 6.2 | Duty Cycle | Measured at 1.25V (45 to 55% over 150MHz) | 48 to 52 | % |
| 6.3 | Rise Time / Fall Time | RL = 100 Ω / CL = 10 pF | 0.6 max | ns |
| 6.4 | RMS Phase Jitter | Integrated 12kHz to 20MHz | 0.9 | ps |

7.0 PIN CONNECTIONS

| Line | Parameter | Description |
|------|-------------------|---|
| 7.1 | Pin 1 | E/D* or NC |
| 7.2 | Pin 2 | E/D* or NC |
| 7.3 | Pin 3 | GND |
| 7.4 | Pin 4 | OUTPUT |
| 7.5 | Pin 5 | COMPLIMENTARY OUTPUT (LVPECL/LVDS only), or E/D*, or NC |
| 7.6 | Pin 6 | VDD |
| 7.7 | * Output Enabled | >70% of VDD on E/D pin, or E/D pin left open (connected to internal pull-up resistor) |
| 7.8 | * Output Disabled | <30% of VDD on E/D pin, or E/D pin to GND |

8.0 PACKAGE DETAILS

| Line | Parameter | Description |
|------|--------------|--|
| 8.1 | Package | B |
| 8.2 | Top line | [R #####] Part identifier |
| 8.3 | Middle line | [#####] Part information |
| 8.4 | Bottom line | [o FYWW] Pin 1, Manufacturing code, Year code* and Week code** |
| 8.5 | * Year code | A = 2010, B = 2011, C = 2012, D = 2013, ... Z = 2035 |
| 8.6 | ** Week Code | WW = 01 = Week of first Monday of the year |

9.0 ENVIRONMENTAL SPECIFICATION

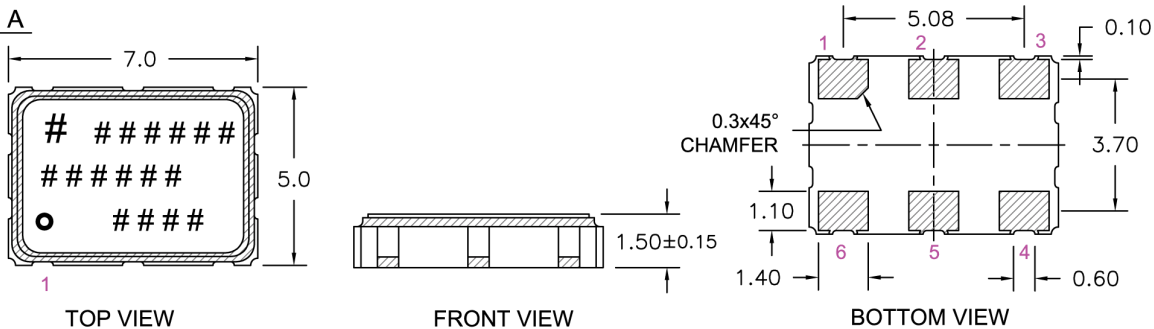
| Line | Parameter | Description |
|------|---------------------------|--|
| 9.1 | Mechanical Shock | MIL-STD-883, Method 2002 |
| 9.2 | Storage Temperature Range | -55 to 125 °C |
| 9.3 | Humidity | After 48 hours at 85 °C±2 °C 85 % relative humidity non-condensing |
| 9.4 | Thermal Shock | MIL-STD-883, Method 1011 |
| 9.5 | Vibration | MIL-STD-883, Method 2007 |
| 9.6 | Gross and Fine Leak | MIL-STD-883, Method 1014 |
| 9.7 | RoHS Compliant | Yes |

10.0 MANUFACTURING INFORMATION

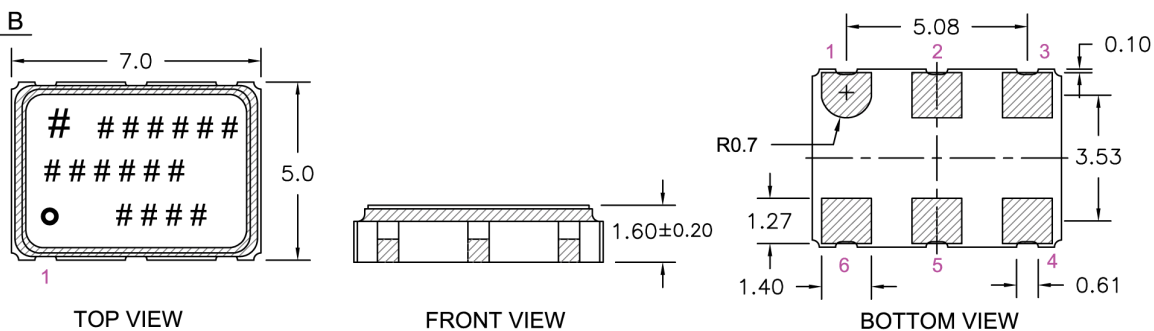
| Line | Parameter | Description |
|------|-----------------------|---|
| 10.1 | Packaging Description | Tape and Reel. Standard packing quantity is 2000 per reel |
| 10.2 | Reflow | Solder reflow process as per attached profile |

Drawing Name: XO/VCXO 7050 Model Drawing

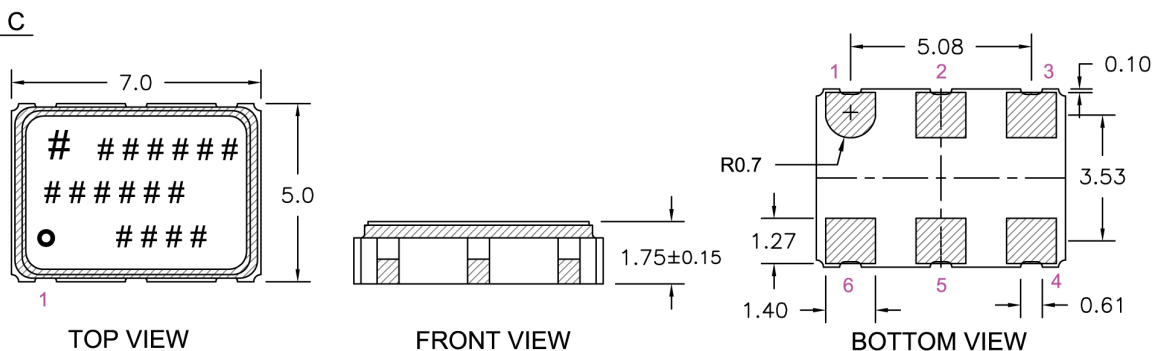
PACKAGE A



PACKAGE B

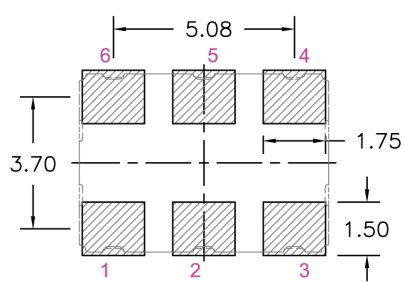


PACKAGE C



RECOMMENDED PAD LAYOUT

- TOP VIEW



NOTE :

1. PIN CONNECTIONS ARE DETAILED IN THE SPECIFICATION.
2. MARKING INFORMATION IS DETAILED IN THE SPECIFICATION.

TITLE: XO/VCXO 7050 SERIES MODEL

FILENAME: CAT207

TOLERANCES:

RELATED DRAWINGS:

REVISION: J

XX =

DATE: 03-Apr-12

X.X = ±0.15

SCALE: 5 : 1

X.XX = ±0.10

Millimetres

X.XXX =

X° =

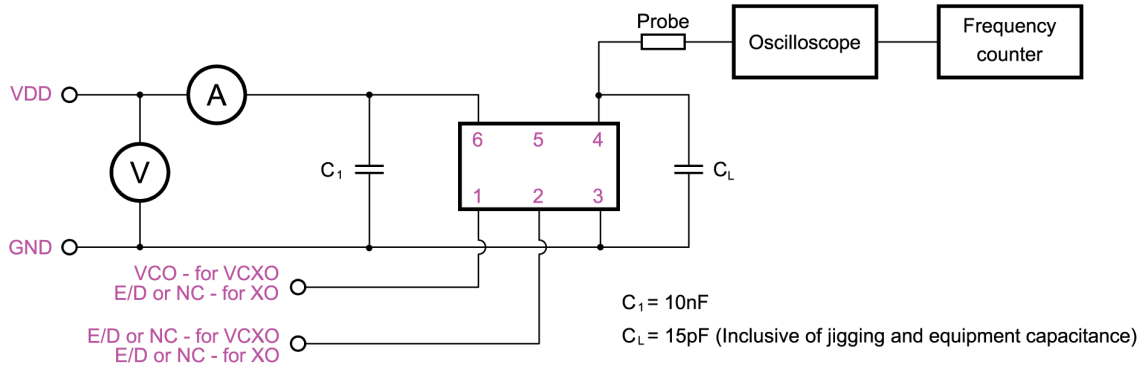
Hole =



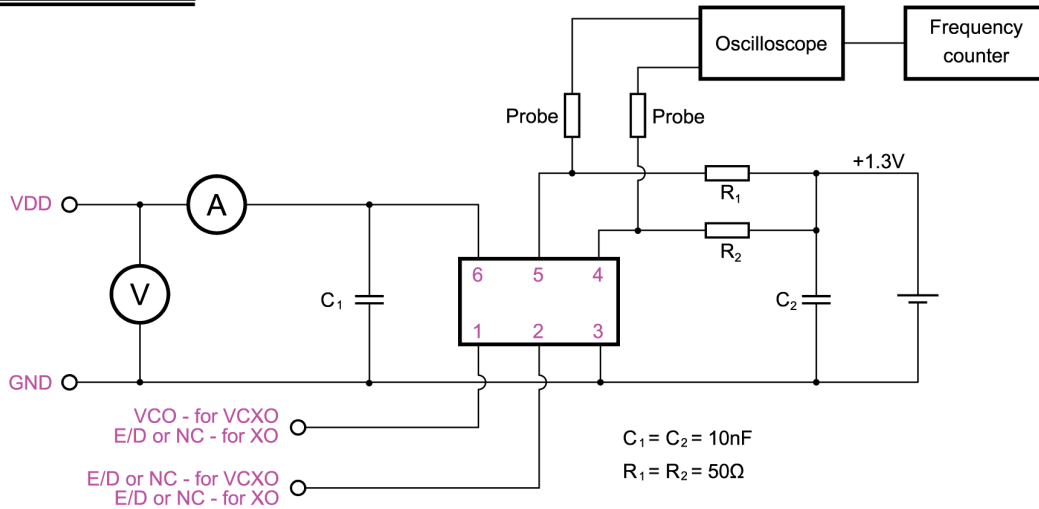
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Drawing Name: XO/VCXO 6 Pin Series Test Circuit

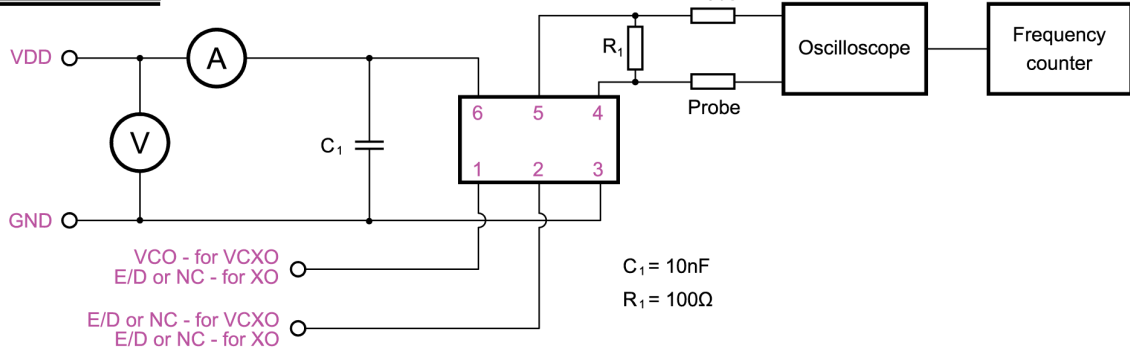
LVC MOS TEST CIRCUIT:



LVPECL TEST CIRCUIT:



LVDS TEST CIRCUIT:



TITLE: XO/VCXO 6 PIN SERIES TEST CIRCUIT

FILENAME: CAT088

RELATED DRAWINGS:

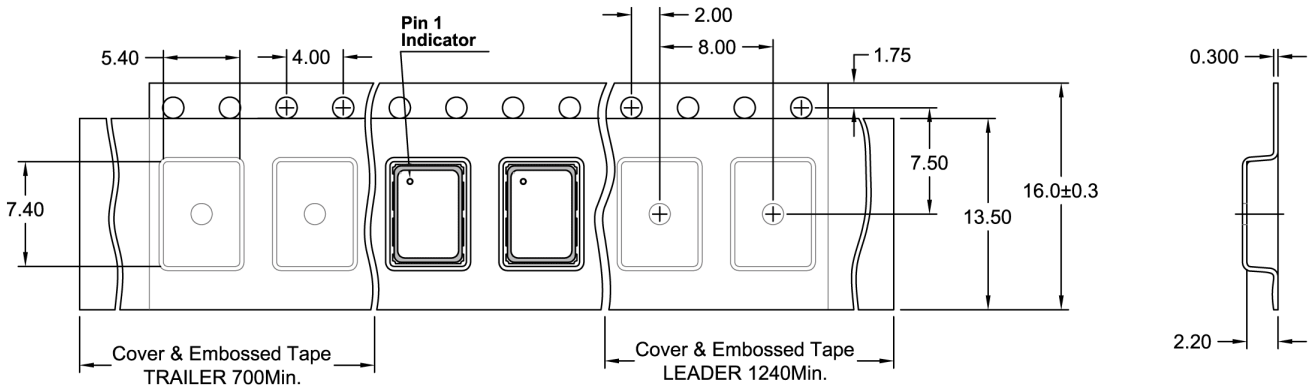
REVISION: F
DATE: 03-May-12
SCALE: 1 : 1
Millimetres



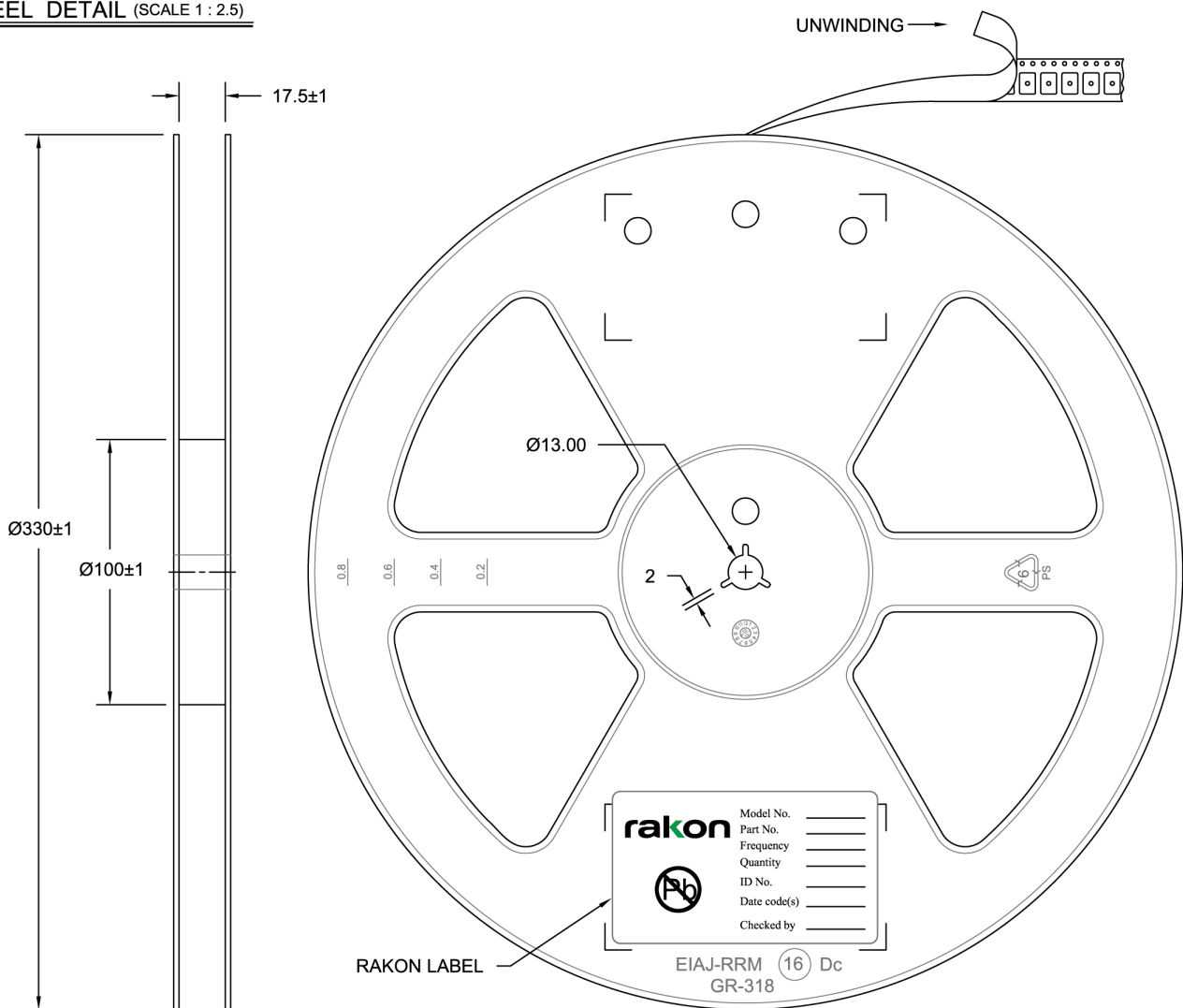
© 2009 Rakon Limited

Drawing Name: XO/VCXO 7050 Series Tape & Reel

TAPE DETAIL (SCALE 2 : 1)



REEL DETAIL (SCALE 1 : 2.5)



TITLE: XO/VCXO 7050 SERIES TAPE & REEL

RELATED DRAWINGS:

FILENAME: CAT032

REVISION: D

DATE: 05-Sep-11

SCALE: 2 : 1

Millimetres

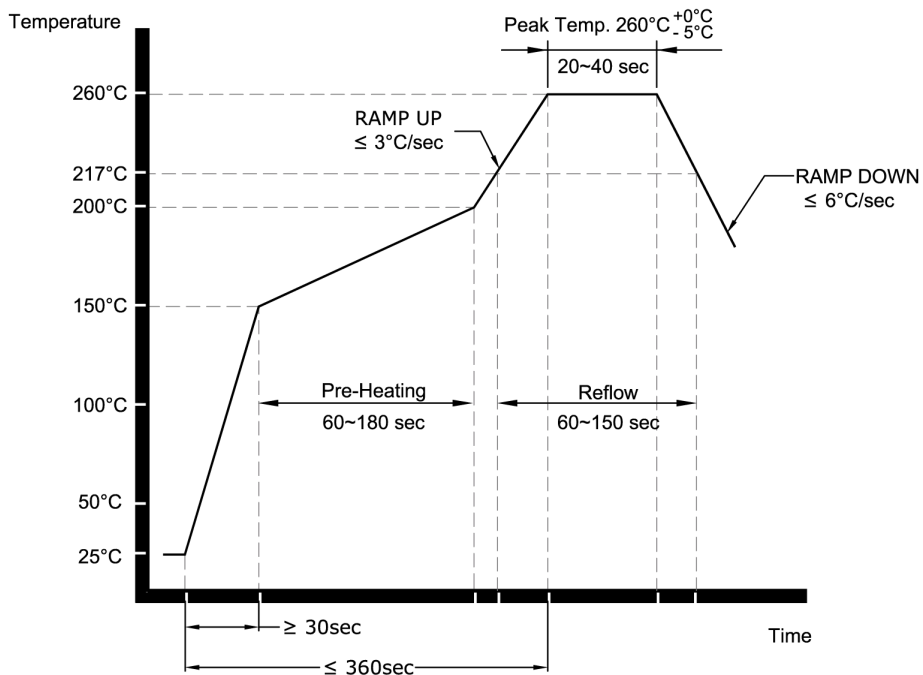
TOLERANCES:

XX = ±0.5
 X.X = ±0.2
 X.XX = ±0.10
 X.XXX = ±0.05
 X° =
 Hole =

rakon

© 2009 Rakon Limited

Drawing Name: Pb-Free Reflow



NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon products is determined by the solder paste Manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown above.

TITLE: Pb-FREE REFLOW

FILENAME: CAT541

RELATED DRAWINGS:

REVISION: B

DATE: 05-Sep-11

SCALE: NTS

Millimetres



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