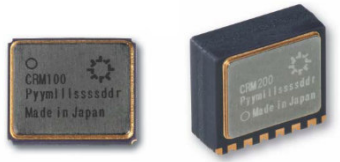
SILICON SENSING®

everything in motion

PinPoint®



Precision Navigation and Pointing Gyroscope

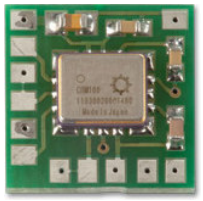
PinPoint® Gyro Evaluation Boards

400046-00-0100-132 Rev 2
DCR : 710004009

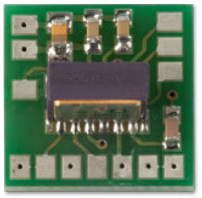
PinPoint® Gyro Evaluation Boards

Three PinPoint® gyro evaluation boards are available:

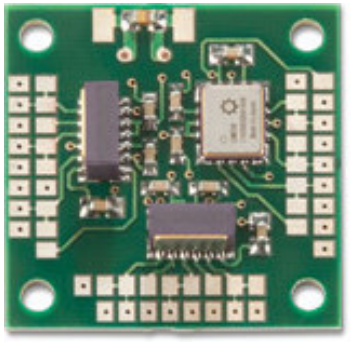
Single-axis CRM100 Gyro Evaluation Board
(Part Number – 400046-0100)



Single-axis CRM200 Gyro Evaluation Board
(Part Number - 400046-0200)



Three-axis CRM100/200 Gyro Evaluation Board
(Part Number - 400046-0300)



Statement of Use and Disclaimer

Statement of Use and Disclaimer For Silicon Sensing Systems Evaluation Boards

The Evaluation Boards described in this document are development tools and as such are provided solely for the evaluation and assessment by the Purchaser of the suitability of the Silicon Sensing Systems Limited (SSSL) range of Inertial Sensors within the Purchaser's application. They are not to be used either as an integral or discrete part or component within any Purchaser application or product. SSSL does not warrant the specification or performance of these boards in anyway whatsoever in such circumstances where use by the Purchaser for any application or product is in contravention of the foregoing advice from SSSL.

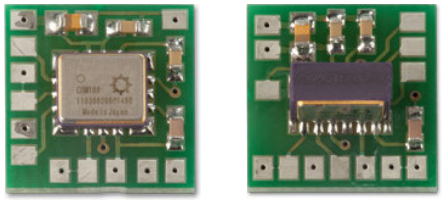
The Purchaser uses these Evaluation Boards entirely at its own risk and shall fully indemnify SSSL from any and all Purchaser or third party claims, losses, costs, damages and expenses and related liability whether in contract or tort that may arise from such improper use as provided in this statement.

This statement is supplementary to SSSL Standard Terms and Conditions. In the event of any conflict this Statement shall prevail and all other terms shall remain valid and enforceable.

Single-Axis PinPoint® Evaluation Boards

Single-Axis CRM100 and CRM200 PinPoint® Gyro Evaluation Boards:

Two Part Numbers Available: 400046-0100 (CRM100) & 400046-0200 (CRM200)
Board Size: 12mm x 12mm
Board Mounting: No mounting holes (anticipate gluing/taping onto customer's host system).
PCB material: 1.6mm FR4, solder resist.
Power Supply: +3V and 0V (2 SMT solder pads).
Analogue outputs: 1 channel + 1 signal ground (2 SMT solder pads in total).
Digital interface: Not available.
Rate range: 75, 150, 300, or 900 deg/sec. 75deg/sec default as supplied. Other rate ranges can be selected by cut-able copper tracks – see Schematic Drawing.
Rate range selection: Solder wire links. 4 SMT pads in total. See Schematic Drawing.
Bandwidth capacitor: An 0805 SMT footprint to accommodate values of between 560pF and 33nF. Default as supplied 60Hz (47nF)
Other components: Decoupling 0.1µF, 10µF. Vref_cap 0.1µF.
Total number of customer usable SMT solder pads: 12 mounted on component side.



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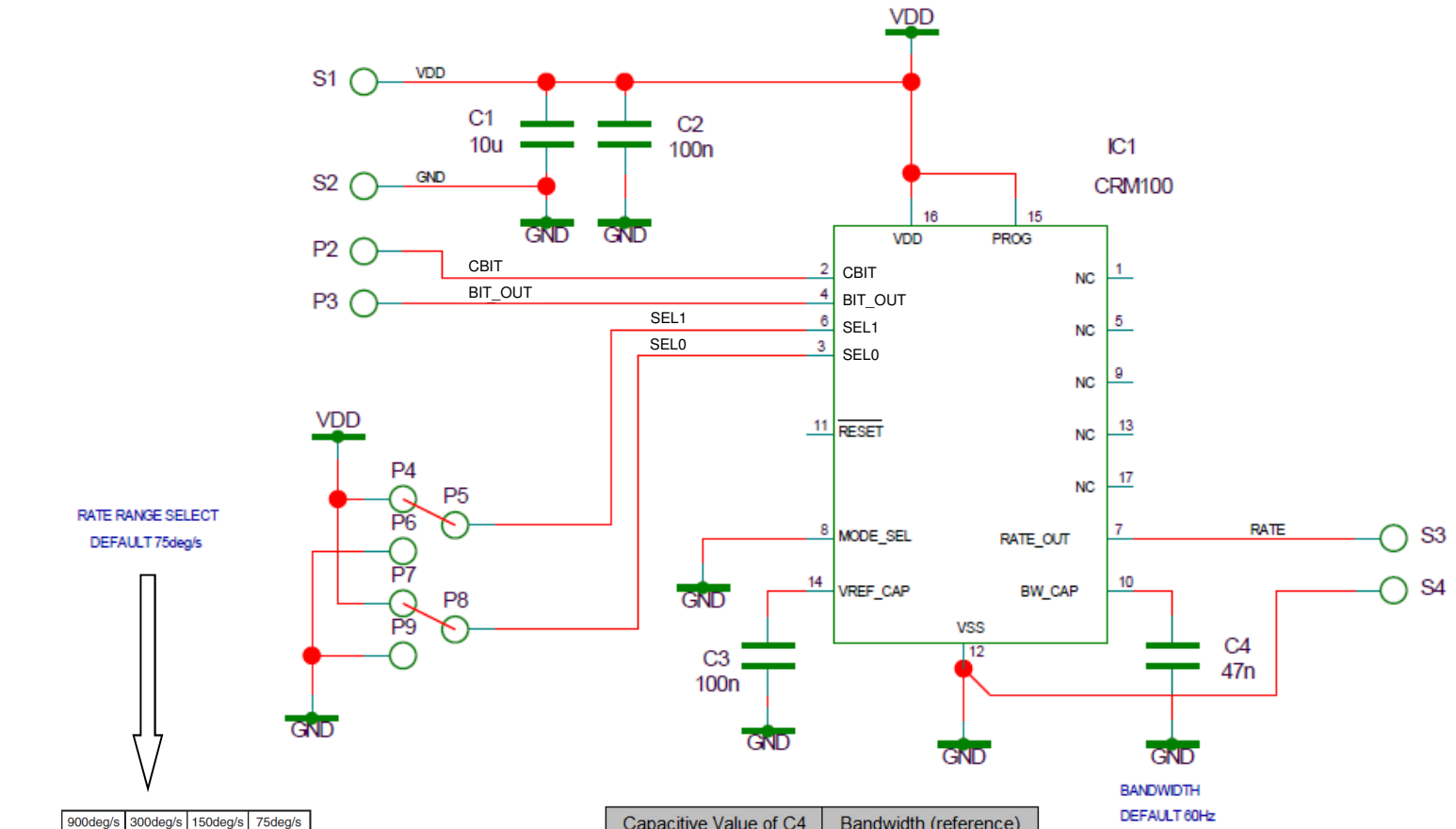
Single-Axis CRM100 - Schematic



Capacitive Value of C4	Bandwidth (reference)
33nF	Typ 95Hz
47nF	Typ 70Hz
68nF	Typ 50Hz
100nF	Typ 33Hz
120nF	Typ 27Hz
270nF	Typ 12Hz

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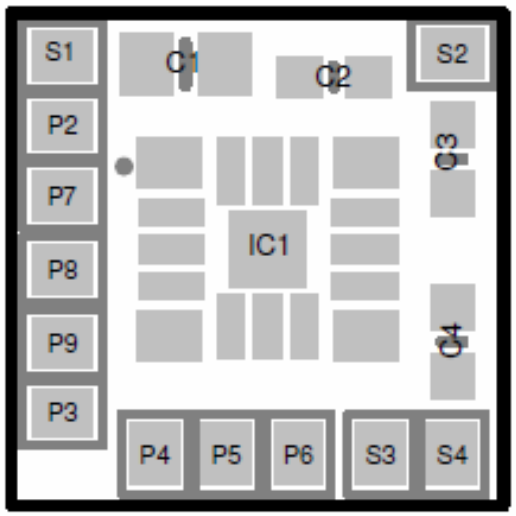
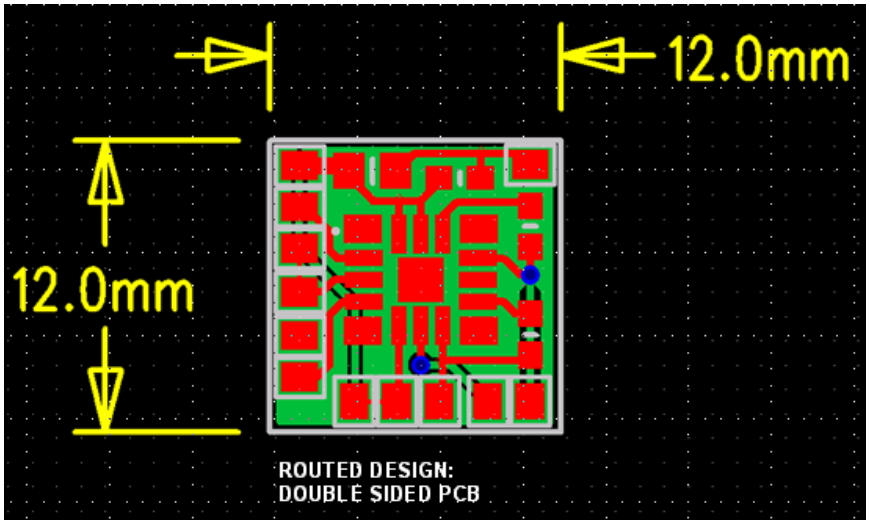
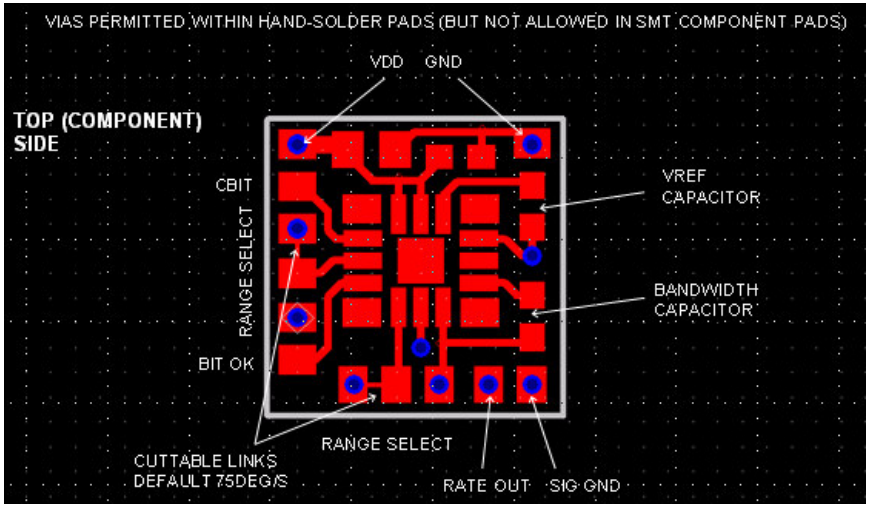
Single-Axis CRM100 – Pad locations

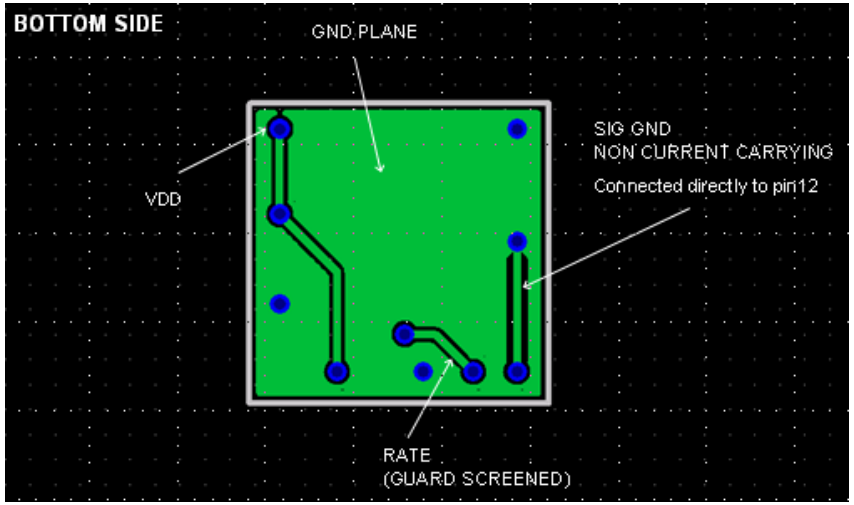


Top-side View

Single-Axis CRM100 - Layout







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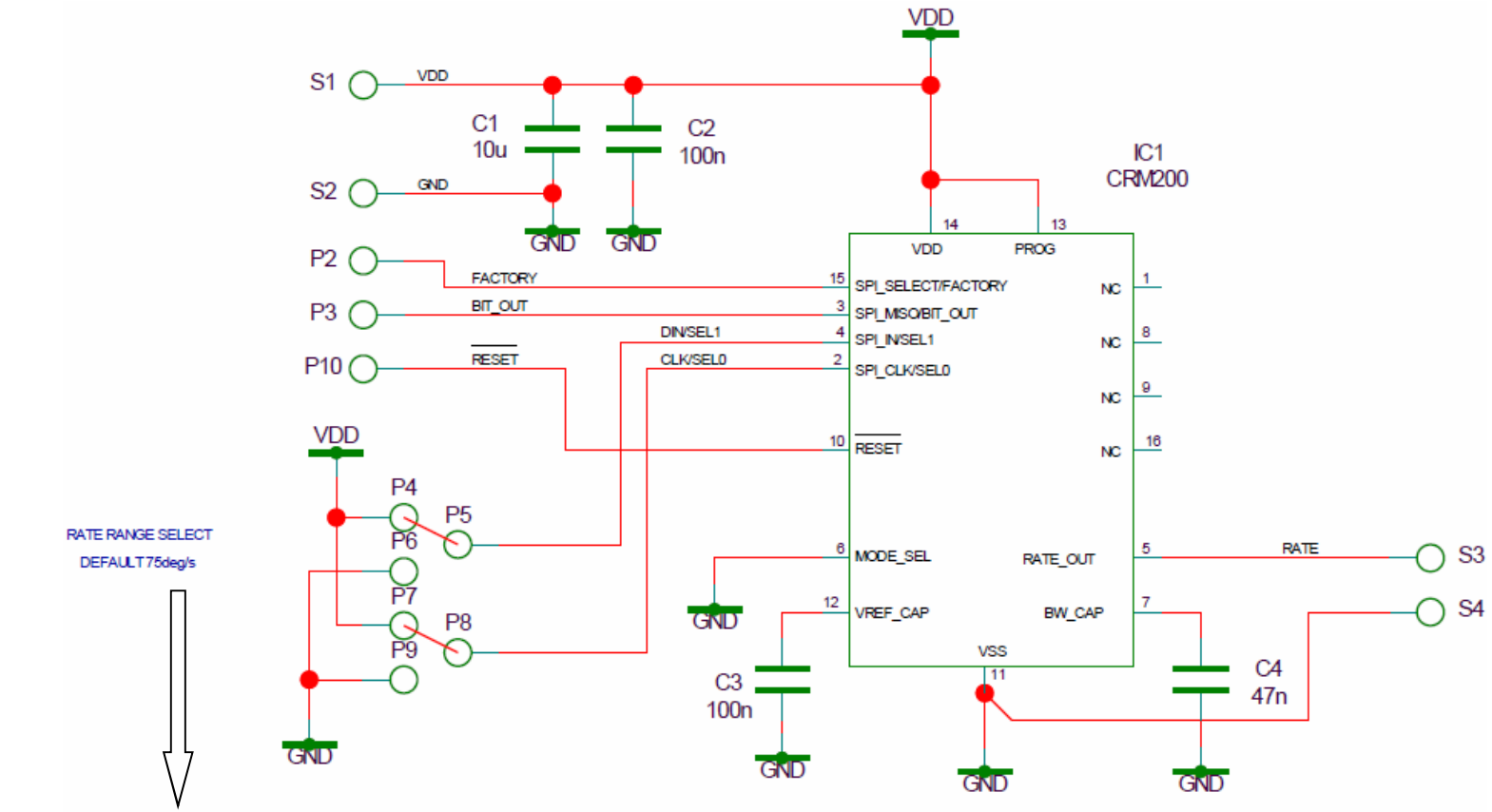
Single-Axis CRM200 - Schematic



Capacitive Value of C4	Bandwidth (reference)
33nF	Typ 95Hz
47nF	Typ 70Hz
68nF	Typ 50Hz
100nF	Typ 33Hz
120nF	Typ 27Hz
270nF	Typ 12Hz

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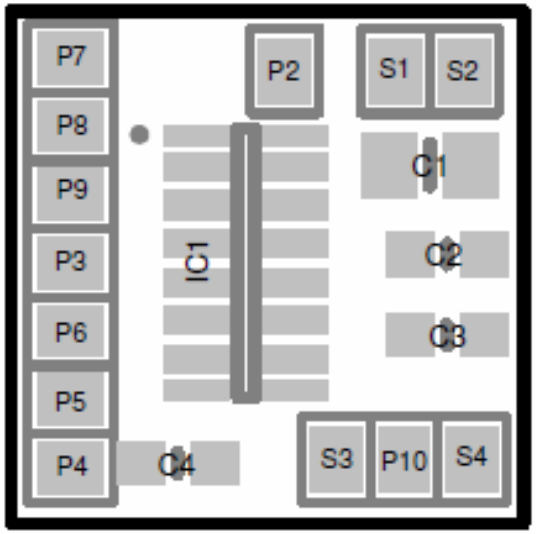
Single-Axis CRM200 – Pad locations



Top-side View

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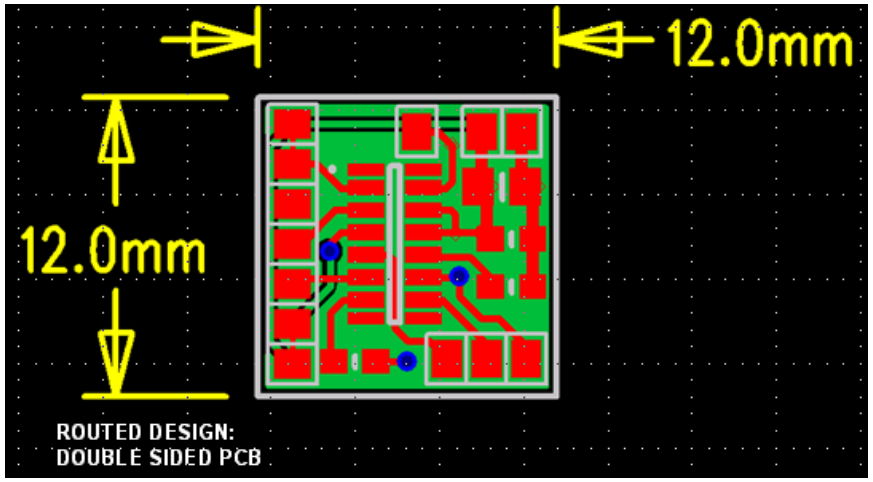
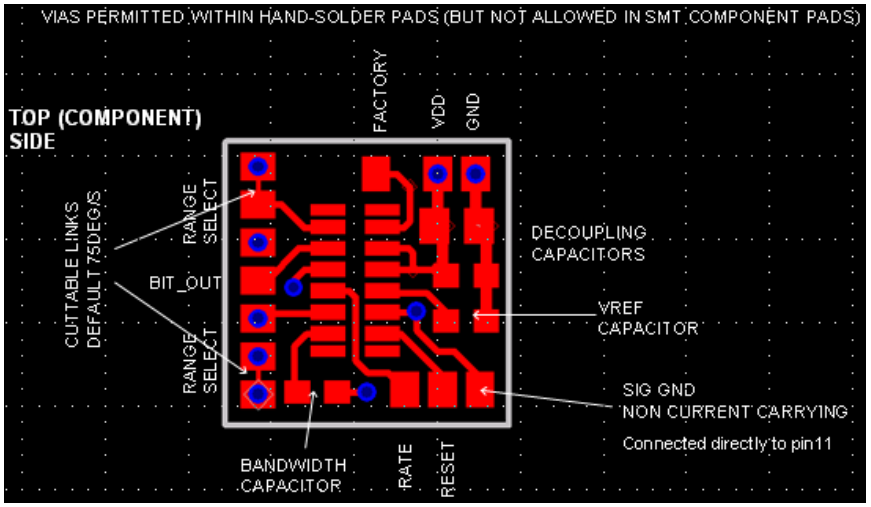
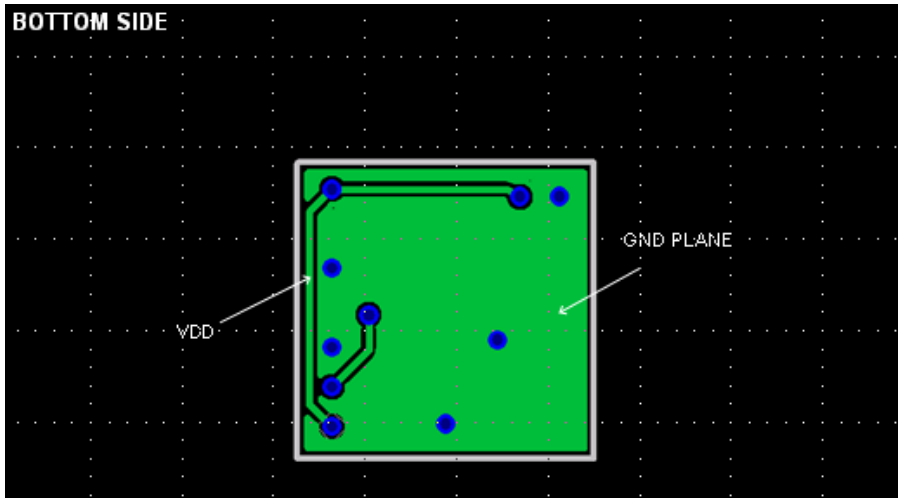
Single-Axis CRM200 - Layout







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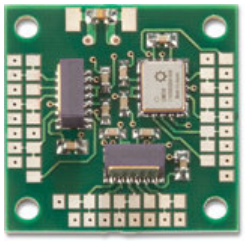
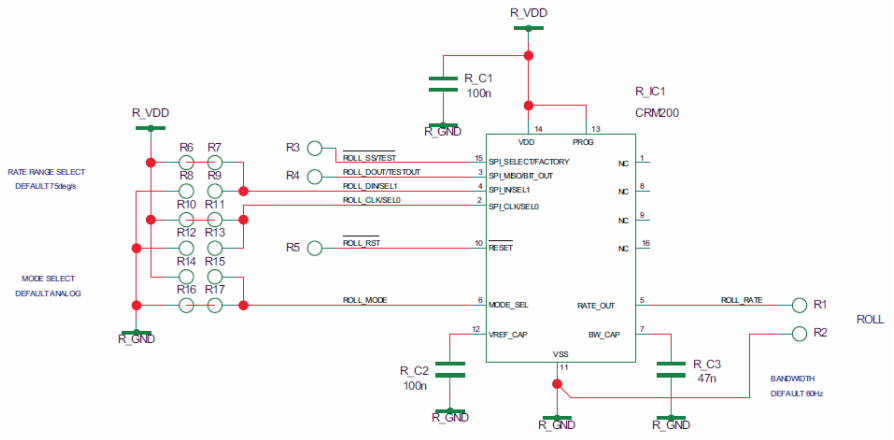
3-Axis PinPoint® Evaluation Board

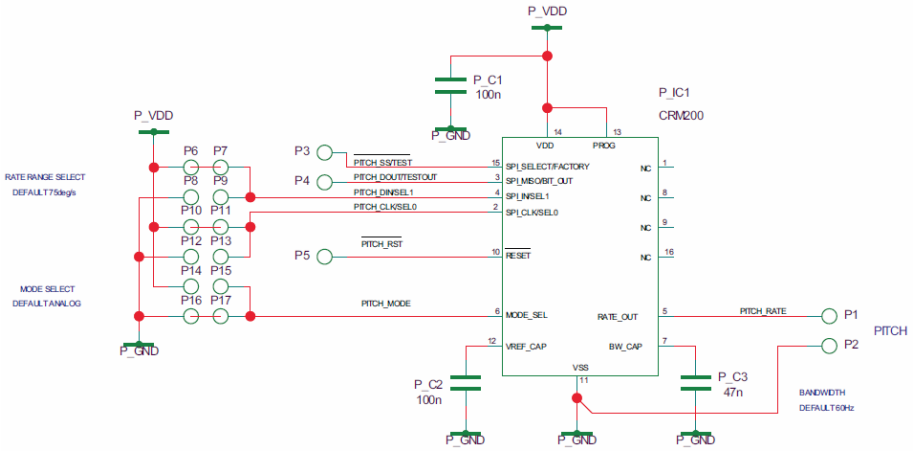
3-Axis CRM100/200 PinPoint® Gyro Evaluation Board

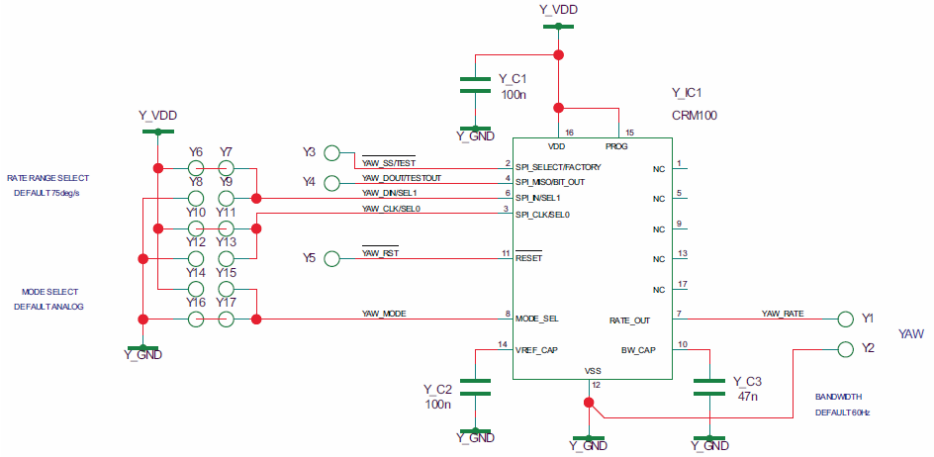
Part Number: 400046-0300
Board Size: 25mm x 25mm
Board Mounting: Four screw mounting holes.
PCB material: 1.6mm FR4, solder resist.
Devices used: 1 piece CRM100 (e.g. yaw), 2 pieces CRM200 (e.g. roll and pitch).
Power Supply: +3V and 0V (2 SMT solder pads).
Analogue outputs: 3 independent channels (one for each axis) + 1 (non-current carrying) signal ground? (4 SMT solder pads in total).
Digital interface: 3 independent SPI buses (one for each axis), each comprising of CLK, MISO, MOSI, /EN (12 SMT solder pads in total).
Rate range: 75, 150, 300, or 900 deg/sec for each axis. 75deg/sec default as supplied. Other ranges selected by cut-able copper tracks. See Layout Drawing.
Rate range selection: Solder wire links. 3 independent channels (one for each axis), each comprising of 4 pads (12 SMT pads in total). See Layout Drawing.
Bandwidth capacitor: 3 independent channels (one for each axis) each comprising of an 0805 SMT footprint (3 in total) to accommodate values of between 560pF and 33nF.
Other components: Decoupling 0.1µF, 10µF. Vref_cap 0.1µF.
Total number of customer usable SMT solder pads: 30 mounted on component side.



3-Axis - Schematic







For rate range and bandwidth adjustment, see next slide

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3-Axis – Pad locations and links

Rate range is set individually for each axis. Replace An below by Rn, Pn, Yn for the Roll, Pitch and Yaw axes

75°/s (default)
A6 – A7
A8 A9
A10 – A11
A12 A13

150°/s
A6 A7
A8 – A9
A10 – A11
A12 A13

300°/s
A6 – A7
A8 A9
A10 A11
A12 – A13

900°/s
A6 A7
A8 – A9
A10 A11
A12 – A13

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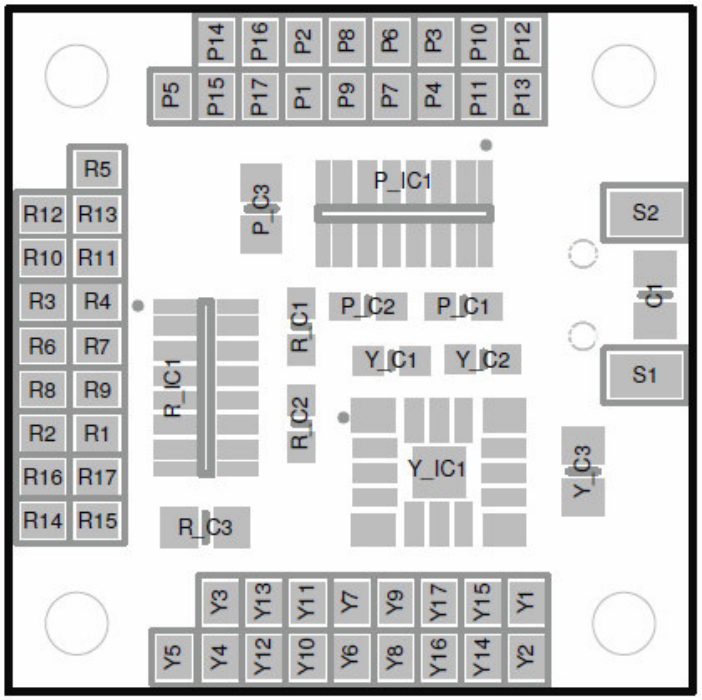
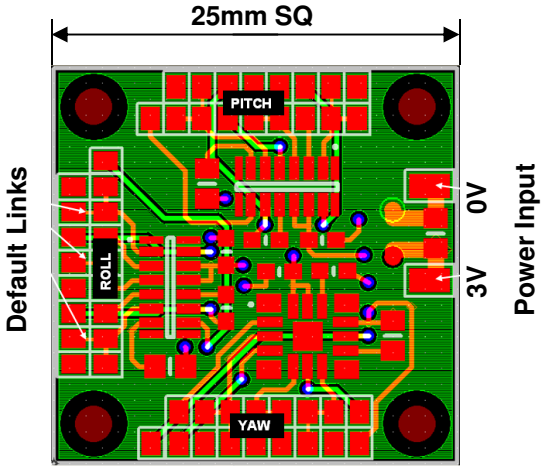


Top-side View

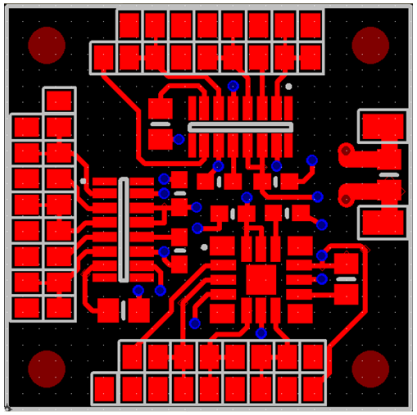
Bandwidth is set individually for each axis. The capacitors R_C3, P_C3, Y_C3 should be fitted in accordance with the table below

Capacitive Value	Bandwidth (reference)
33nF	Typ 95Hz
47nF	Typ 70Hz
68nF	Typ 50Hz
100nF	Typ 33Hz
120nF	Typ 27Hz
270nF	Typ 12Hz

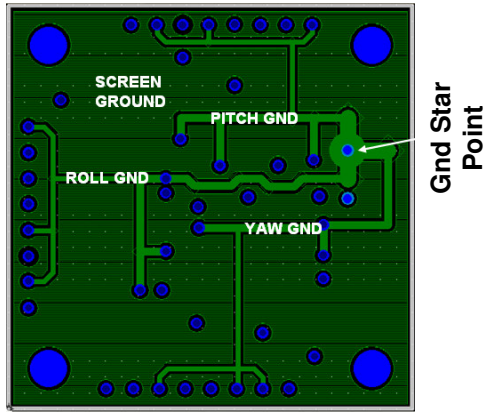
3-Axis - Layout



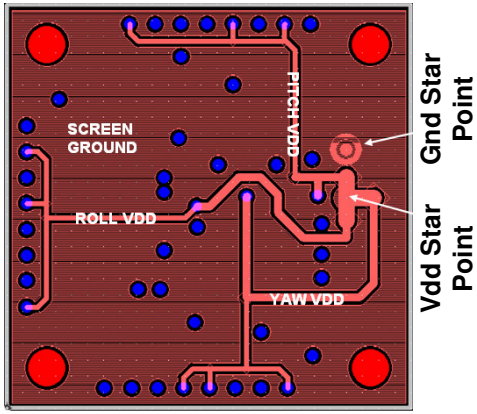
General View



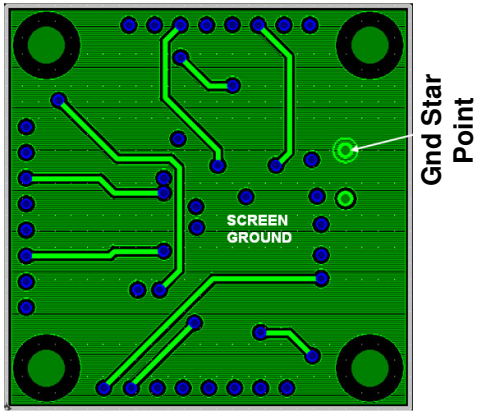
Top Layer (Component Side)



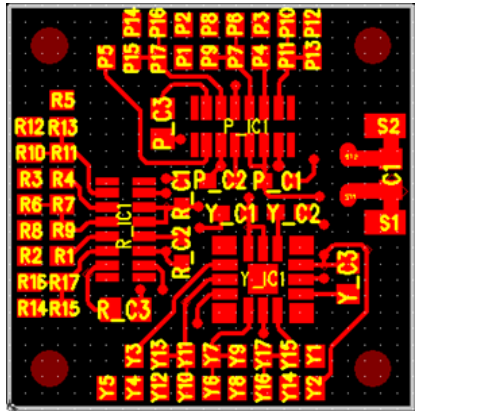
Inner Layer 2 (Tracked Grounds, Screen Ground Plane)



Inner Layer 3 (Tracked Vdd, Screen Ground Plane)



Inner Layer 4 (Non-current Carrying Screen Plane)



Component Indent Location

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