Application Note HTPA-Series

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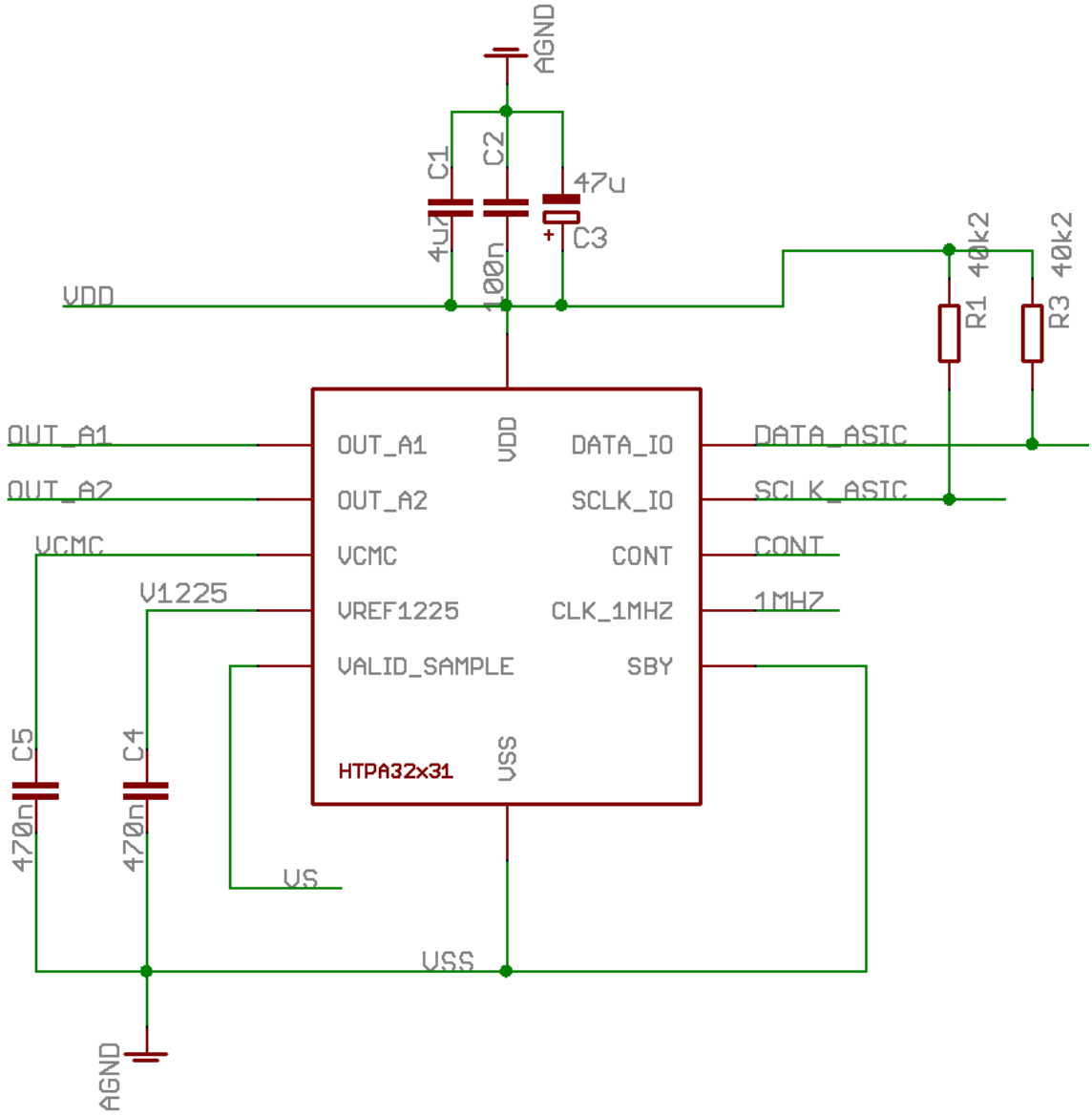
HTPA32x31 Fixed Operating Point:



Connect CONT, 1MHZ, SCLK_ASIC, DATA_ASIC and VS to the microcontroller.
VS should trigger an interrupt service routine. 1MHZ should be supplied by a suitable timer.
CONT should be connected to a digital output, DATA_ASIC and SCLK_ASIC should be connected to a digital I/O.
Connect OUT_A1 and OUT_A2 to the ADC.
VDD=5V in respect to VSS.
Locate C4 and C5 as close as possible to the pin of the HTPA.

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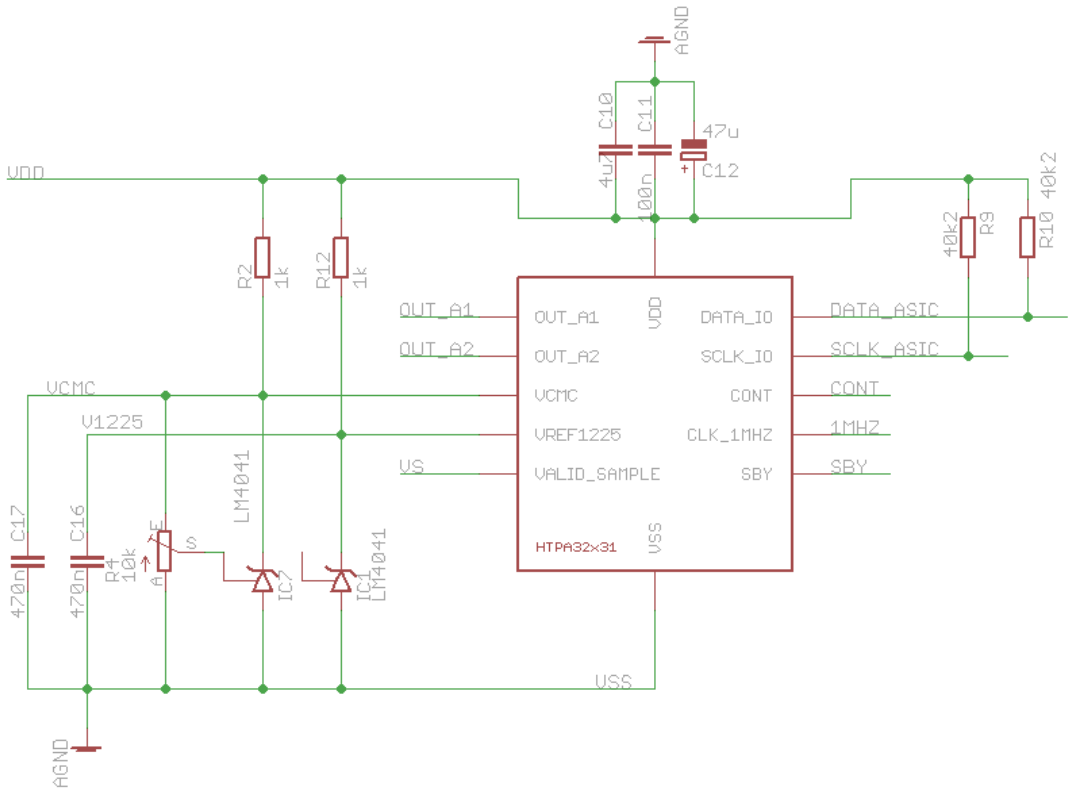
HTPA32x31 Variable Operating Point:



Connect CONT, 1MHZ, SCLK_ASIC, DATA_ASIC and VS to the microcontroller.
Connect OUT_A1 and OUT_A2 to the ADC.
VS should trigger an interrupt service routine. 1MHZ should be supplied by a suitable timer.
CONT should be connected to a digital output, DATA_ASIC and SCLK_ASIC should be connected to a digital I/O.
SBY should be connected to a digital output. SBY=low enables the internal reference, SBY=high enables the external reference.
VDD=5V in respect to VSS.
Locate C17 and C16 as close as possible to the pin of the HTPA.
Use the trimmer R4 to change the operating point of the pixels.
Use LM4041-1.2 as IC1 to ensure a 1.225V level at node V1225.
Use LM4041-ADJ as IC7 to create a low impedance voltage source at node VCMC.

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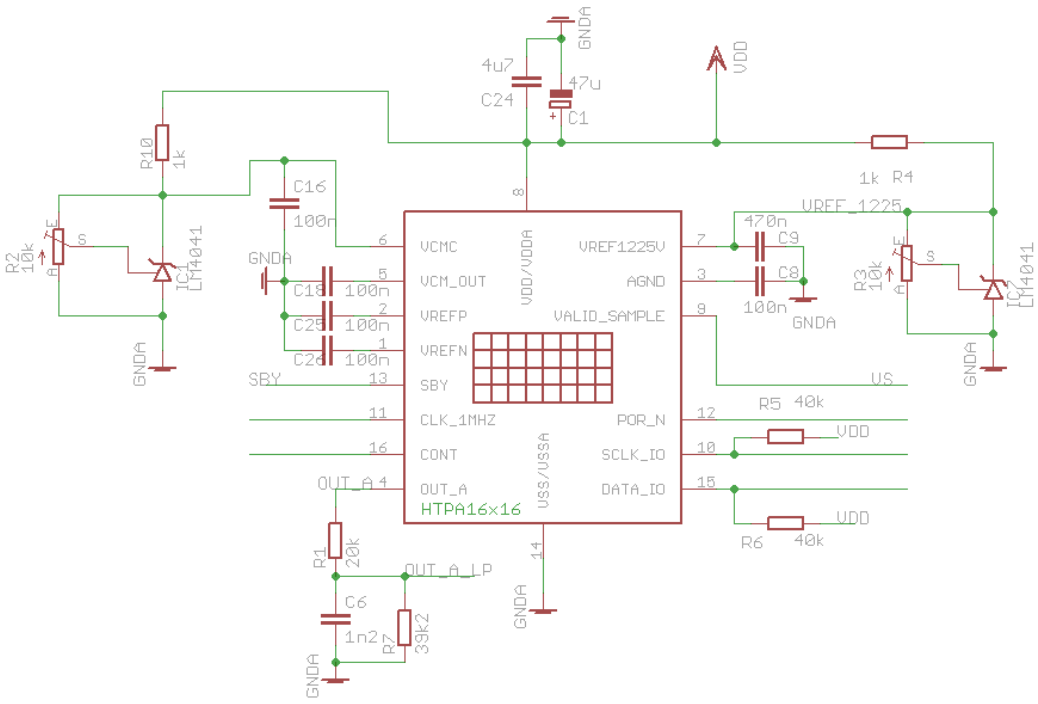
HTPA16x16 Analogous variable Operating Point:



Connect CONT, 1MHZ, SCLK_IO, DATA_IO and VS to the microcontroller.
Connect OUT_A_LP to the ADC.
VS should trigger an interrupt service routine. 1MHZ should be supplied by a suitable timer.
CONT should be connected to a digital output, DATA_ASIC and SCLK_ASIC should be connected to a digital I/O.
SBY should be connected to a digital output. SBY=low enables the internal reference, SBY=high enables the external reference.
VDD=5V in respect to GNDA.
Locate C9 and C16 as close as possible to the pin of the HTPA.
Use the trimmer R2 to change the operating point of the pixels.
Use LM4041-ADJ as IC7 to ensure a low impedance voltage source at node VREF_1225.
Use LM4041-ADJ to create a low impedance voltage source at node VCMC.

In development phase the levels at the nodes VREF_1225 and VCMC may depend on the wafer lot. Empirical values are 2.6V at node VREF_1225 and 3.7V at node VCMC in respect to GNDA.

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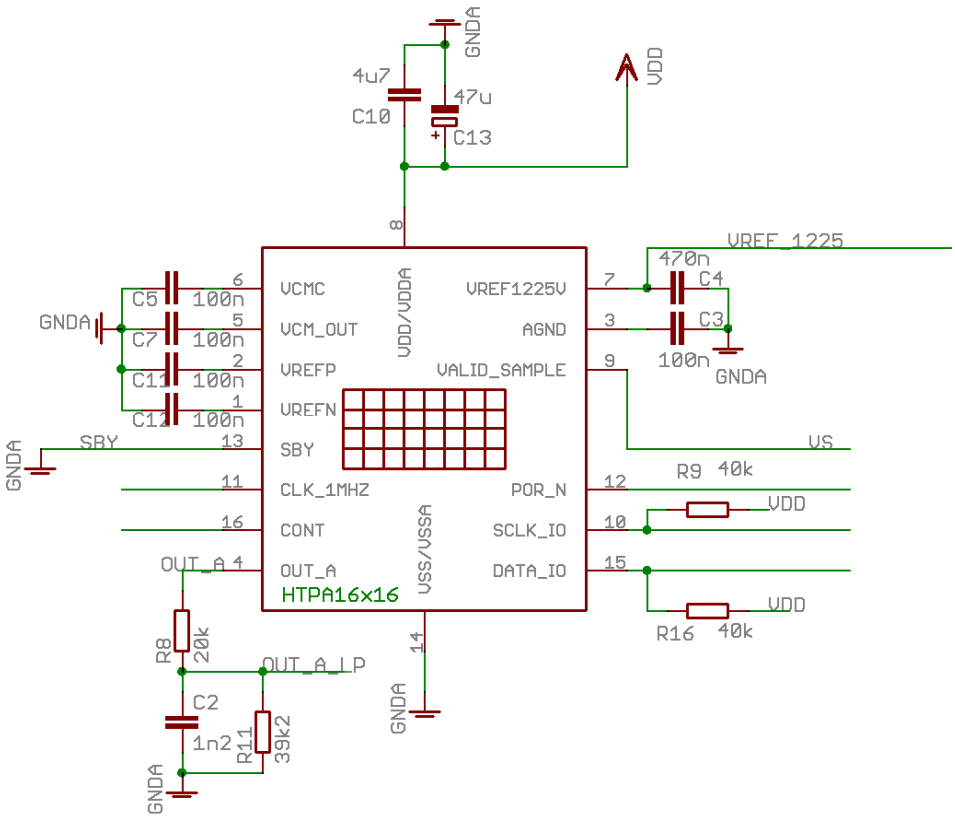
HTPA16x16 Digital variable Operating Point:



Connect CONT, 1MHZ, SCLK_ASIC, DATA_ASIC and VS to the microcontroller.
Connect OUT_A_LP to the ADC.
VS should trigger an interrupt service routine. 1MHZ should be supplied by a suitable timer.
CONT should be connected to a digital output, DATA_ASIC and SCLK_ASIC should be connected to a digital I/O.
VDD=5V in respect to GNDA.
Locate C4 and C5 as close as possible to the pin of the HTPA.

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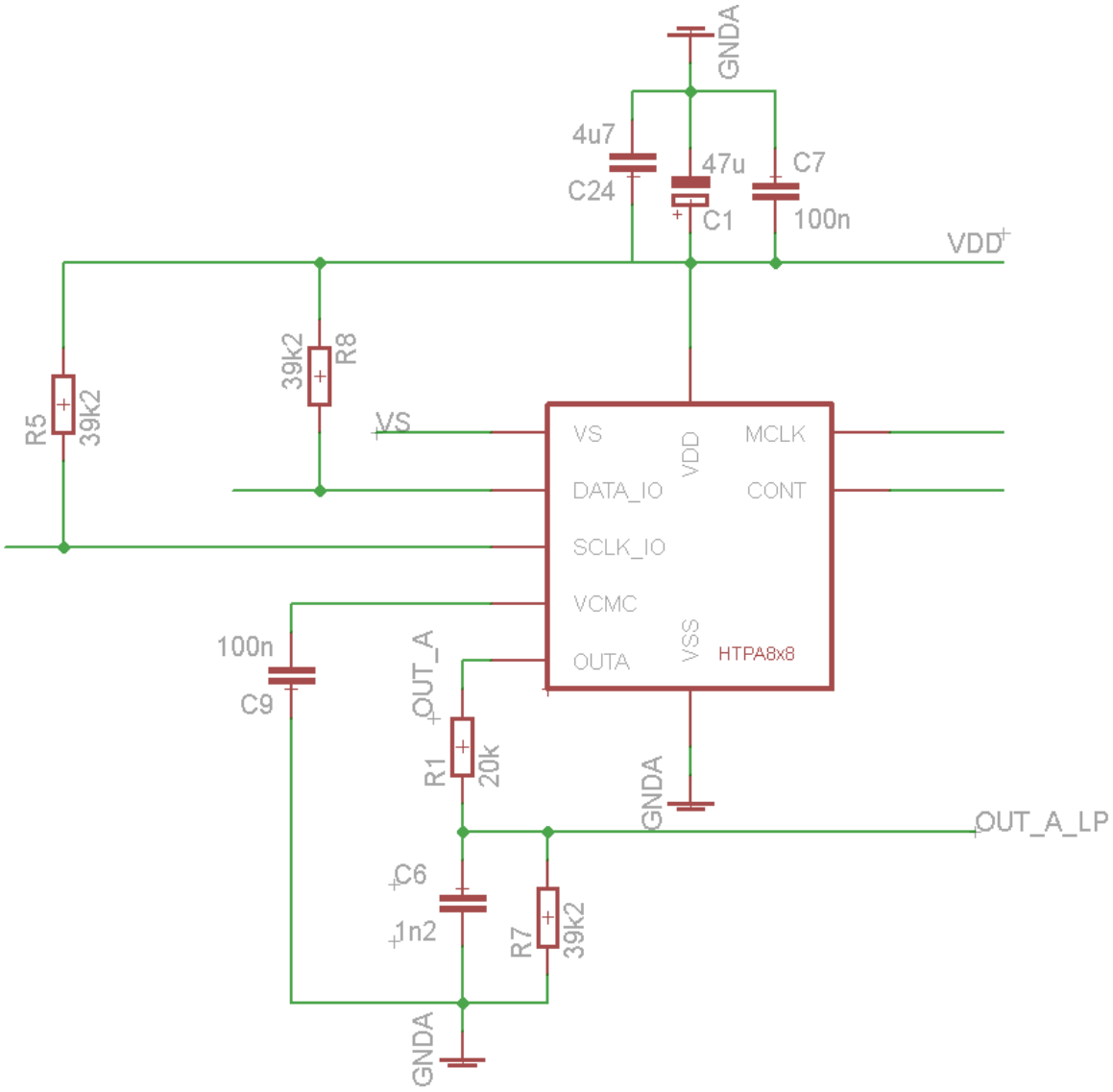
HTPA8x8 in TO39:



Connect CONT, MCLK, SCLK_IO, DATA_IO and VS to the microcontroller.
Connect OUT_A_LP to the ADC.
VS should trigger an interrupt service routine. MCLK should be supplied by a suitable timer.
CONT should be connected to a digital output, DATA_IO and SCLK_IO should be connected to a digital I/O.
VDD=5V in respect to GNDA.
Locate C9 as close as possible to the pin of the HTPA.

For HTPA8x8 in TO8 package refer to "**HTPA16x16 Digital variable Operating Point**", sparing the SBY Pin.