



Electrical Specifications

Table 5: Electrical Characteristics and Operating Conditions
 $T_A = 25^\circ\text{C}$

Parameter ¹	Condition	Min	Typ	Max	Unit
I/O and core digital voltage (VDD)	N/A	2.5	2.8	3.1	V
LVDS PLL voltage	N/A	2.5	2.8	3.1	V
Video DAC voltage	N/A	2.5	2.8	3.1	V
Analog voltage (VAA)	N/A	2.5	2.8	3.1	V
Pixel supply voltage (VAAPIX)	N/A	2.5	2.8	3.1	V
Leakage current	STANDBY, no clocks			10	μA
Imager operating temperature ²	N/A	-30		+70	$^\circ\text{C}$
Storage temperature	N/A	-30		+125	$^\circ\text{C}$

- Notes:
1. VDD, VAA, and VAAPIX must all be at the same potential to avoid excessive current draw. Care must be taken to avoid excessive noise injection in the analog supplies if all three supplies are tied together.
 2. Customers requiring a similar part with greater temperature range should consider using the Micron MT9V125.

Table 6: Video DAC Electrical Characteristics
 $T_A = 25^\circ\text{C}$; All table values are estimates until the block is tested and characterized

Parameter	Condition	Min	Typ	Max	Unit
Resolution			10		bits
DNL	Single-ended mode		0.8	1.1	bits
INL	Single-ended mode		5.7	8.1	bits
Output local load	Single-ended mode, output pad (DAC_POS)		75		Ohm
	Single-ended mode, unused output (DAC_NEG)		0		Ohm
Output voltage	Single-ended mode, code 000h		0.02		V
	Single-ended mode, code 3FFh		1.42		V
Output current	Single-ended mode, code 000h		0.6		mA
	Single-ended mode, code 3FFh		37.9		mA
DNL	Differential mode		0.7	1	bits
INL	Differential mode		1.4	3	bits
Output local load	Differential mode per pad (DAC_POS and DAC_NEG)		37.5		Ohm
Output voltage	Differential mode, code 000h, pad dacp		0.37		V
	Differential mode, code 000h, pad dacn		1.07		V
	Differential mode, code 3FFh, pad dacp		1.07		V
	Differential mode, code 3FFh, pad dacn		0.37		V
Output current	Differential mode, code 000h, pad dacp		0.6		mA
	Differential mode, code 000h, pad dacn		37.9		mA
	Differential mode, code 3FFh, pad dacp		37.9		mA
	Differential mode, code 3FFh, pad dacn		0.6		mA
Differential output mid level	Differential mode		0.72		V
Supply current	Estimate			55	mA



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Table 7: Digital I/O Parameters

Signal	Parameter	Definition	Condition	Min	Typ	Max	Unit
All Outputs		Load capacitance		1		30	pF
		Output signal slew	2.8V, 30pF load		0.72		V/ns
			2.8V, 5pF load		1.25		V/ns
	V _{OH}	Output high voltage		2.5	2.8	3.1	V
	V _{OL}	Output low voltage		-0.3		0.3	V
	I _{OH}	Output high current	V _{DD} = 2.8V, V _{OH} = 2.4V	16		26.5	mA
	I _{OL}	Output low current	V _{DD} = 2.8V, V _{OL} = 0.4V	15.9		21.3	mA
All Inputs	V _{IH}	Input high voltage	V _{DD} = 2.8V	1.48			V
	V _{IL}	Input low voltage	V _{DD} = 2.8V			1.43	V
	I _{IN}	Input leakage current		-2		2	μA
	Signal CAP	Input signal capacitance			3.5		pF
EXTCLK	freq	Master clock frequency	Absolute minimum	2			MHz
			VGA at 30 fps		27		MHz

Power Consumption

Table 8: Power Consumption

T_A = Ambient = 25°C; All supplies at 2.8V

Mode	Sensor (mW)	Image-Flow Proc (mW)	I/Os (mW) ¹	DAC (mW)	LVDS (mW)	Total (mW)
Active mode ²	60	100	10	150	80	400
Standby						0.56

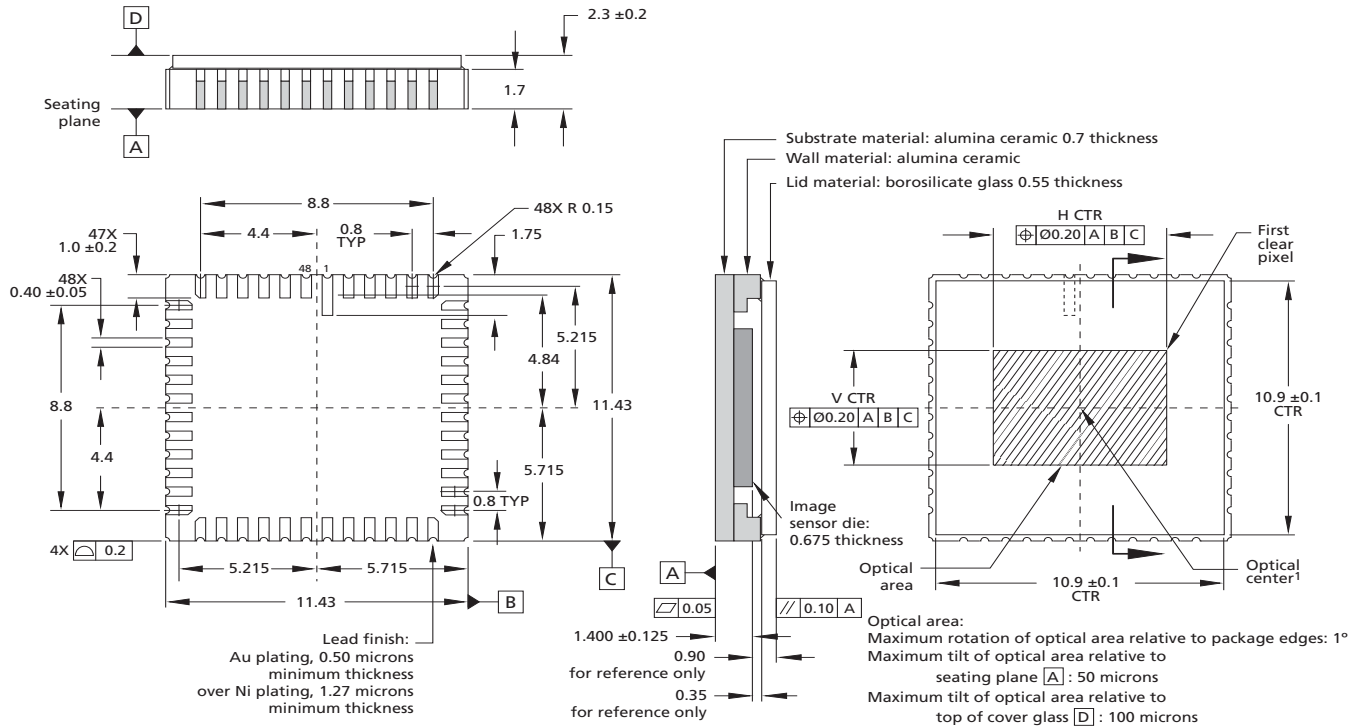
- Notes: 1. 10pF nominal.
2. (NTSC or PAL) and LVDS should not be operated at the same time.



MT9V135: SOC VGA Digital Image Sensor Package Diagram

Package Diagram

Figure 10: 48-Pin CLCC Package Outline Drawing



1. Optical center = package center.
2. All dimensions are in millimeters.



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Preliminary: This data sheet contains initial characterization limits that are subject to change upon full characterization of production devices.



Revision History

Rev. B	3/28/2007
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- Updated package drawing.