

**Standard 512 Linear Array
ISC9802**

**Specification
and Requirements**

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FLIR ISC9802 Standard 512 Linear Array

ISC9802 Specification and Requirements Review (1 of 3)

ROIC PARAMETER	SPECIFICATION REQUIREMENT	COMMENTS	SEE CHART(S)	PROJECTED COMPLIANCE
Array Configuration	512 Element Linear	Support 128 / 256 / 512	5, 13	'1
Channel Pitch	25um (for 512 elements)	50um - 256 Elements 100um - 128 Elements	14-18	'1
Detector Type	p-on-n or n-on-p	Bipolar Integration	13, 30-32	'1
Detector Impedance	Rdet > 100KOhm Cdet < 10pF		45-46	By Definition
Input Configuration	Differential Auto Zero CTIA	Bipolar Integration	13, 19, 39	'1
Readout Noise	< 500e-	Rdet > 1e10 ohm Cdet < 0.25pF Tint = 1msec	66-73	'1



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Integration Cap	0.125, 0.25, 0.5, 1.0, 2.0, 4.0, 8.0, and 16.0pF	3 Bit programmable (2.5 Volt Swing)	28, 42	'1
Input Bias Non-uniformity	<500uV rms Rdet=100Meg Cdet= .25pF	Goal < 250uV Auto Zero Input	39, 46	'1
CDS Gain (After Offset Adjust)	1.0, 1.33, 2.0, and 4.0 X		20, 28, 43	'1
Non-Linearity	< 0.2%	Max deviation from straight line fit	65	'1

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ISC9802 Specification and Requirements Review (2 of 3)

ROIC PARAMETER	SPECIFICATION REQUIREMENT	COMMENTS	SEE CHART(S)	PROJECTED COMPLIANCE
Supplies / Biases	VPOS 5.0V VNEG 0V VSUB 0V VPOSOUT 5.0V VNEGOUT 0V VPD 5.0V VND 0V	See Interface Definition for complete listing	27, 144-145	'1
Input Clocks	CLK SYNC DATA	Clocks Swing VND to VPD	21-26, 84-87 146	'1
Input Clock Rise and Fall	20nS 10% to 90%	10nsec Ideal	146	'1
Number of Outputs	2 For 512 Array	1 for 256 or 128 Array	13, 92	'1



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Output Interface	Rload > 100K Cload < 25pF	3.85 MHz Pixel Rate @ 77K 2.7 MHz Pixel Rate @ Room High Current Mode	57-63	'1
Output Swing	> 2.5 V @ 77K > 2.3V @ Room Temp	Lowest Swing @ POW(1-0)=11	65	'1
Output Settling	$\leq 0.1\%$ in 120nS @77K $\leq 0.1\%$ in 190nS @ Room	High Current Mode	57-63	'1
Line Rate	> 14 KHz @ 77K > 9.8 KHz @ Room	Highest Power Mode 1 Output for 256 elements 2 Output for 512 elements	34-35	'1



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ISC0802 Specification and Requirements Review (3 of 3)

ROIC PARAMETER	SPECIFICATION REQUIREMENT	COMMENTS	SEE CHART(S)	PROJECTED COMPLIANCE
Output Order	See Output Order Description *Direction Control Reverses Order		92-93	'1
Power Dissipation	$\leq 55\text{mW}$ 256 Channels $\leq 110\text{mW}$ 512 Channels	Nominal Current Mode Multiply by ~ 1.37 for T=77k Operation	74, 133	'1
Temperature Operating Range	77K to 340K	Cryogenic or Room Temp Operation	45-74	'1



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Testability	Extensive		40, 77-79	'1
Physical Size	14.4mm x 5.0mm 14.4mm x 10.54mm	For 128 / 256 Channels For 512 Channels	14-15, 135-6, 141	'1
Detector Pads	Layout for Bumps and Wire Bonds	Electronic Selection of Wire Bond Pads	16-18, 137	'1



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