ARCTIC 314
PRODUCT DATASHEET

Overview

The SMIA-compliant ARCTIC 314 Series of variable focus liquid lenses enables camera module and camera phone manufacturers to develop ever thinner devices while still providing enhanced mobile imaging user experience on high resolution, small pixel pitch image sensors, up to 5MP.

1 DESCRIPTION

With the current trend in reducing image sensor pixel pitch (from 2.2µm down to 1.75µm), camera phone manufacturers can now embed more pixels into their products, while keeping the same camera module form factor. Hence with 1.75µm pixel pitch sensors, it is now possible to pack 3MP into a 1/4" camera module, and 5MP into a 1/3" camera module.

The new ARCITC 314 Series of liquid lenses has been especially designed for addressing the requirements for 1/3" camera modules, targeting 3 and 5MP sensors. The ARCTIC 314 Series is the ideal fit for high performance, reliable and inexpensive auto-focus solutions.

1.1 APPLICATIONS

This product is ideally suited for Mobile Phone applications, and is the perfect fit for low footprint camera modules.

More generally, it can be used in any 3 to 5 Mega Pixels, 1/3" optical system, such as:

- Mobile Phones,
- PDAs,
- Webcams,
- BarCode Readers,

where its small size, fast response time, large dynamic range and low wave front distortion will deliver outstanding performance, even in low light conditions.

1.2 FEATURES

- Small: diameter 7.75mm / thickness 1.4mm
- Extended range of focus: from 10cm to infinity
- Fast response time
- Low WFE, compliant with 3MP and 5MP requirements
- Ease of integration: add-on solution

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2 SPECIFICATIONS

2.1.1 FUNCTIONAL SPECIFICATION

@ 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Electro-Optical					
Low optical power	P_L		-2		m^{-1}
Voltage for P_L	V_L	34	39	44	V
High optical power	P_H		+10		m^{-1}
Voltage for P_H	V_H		49	60	V
Power consumption	I_{Max}			200	µA
Optical					
Wave Front Distortion, rms	WFE		80		nm
Transmission @ 587nm	T_{587}		97		%
Electrical					
Driving frequency	f		1		kHz
Capacitance	C		150		pF
Mechanical					
Height (1)	h		1.4		mm
Total Height	H		2.00		mm
External diameter	D		7.75	7.8	mm
Top aperture (2)			3.4		mm
Bottom aperture (2)			2.5		mm

(1) From back of rear window to front of lens
(2) Guaranteed optical aperture

2.1.2 ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Maximum Voltage *AC, rms*	V_{Max}			60	V
Storage Temperature	-	-40	..	85	°C
Operating Temperature	-	-20	..	60	°C

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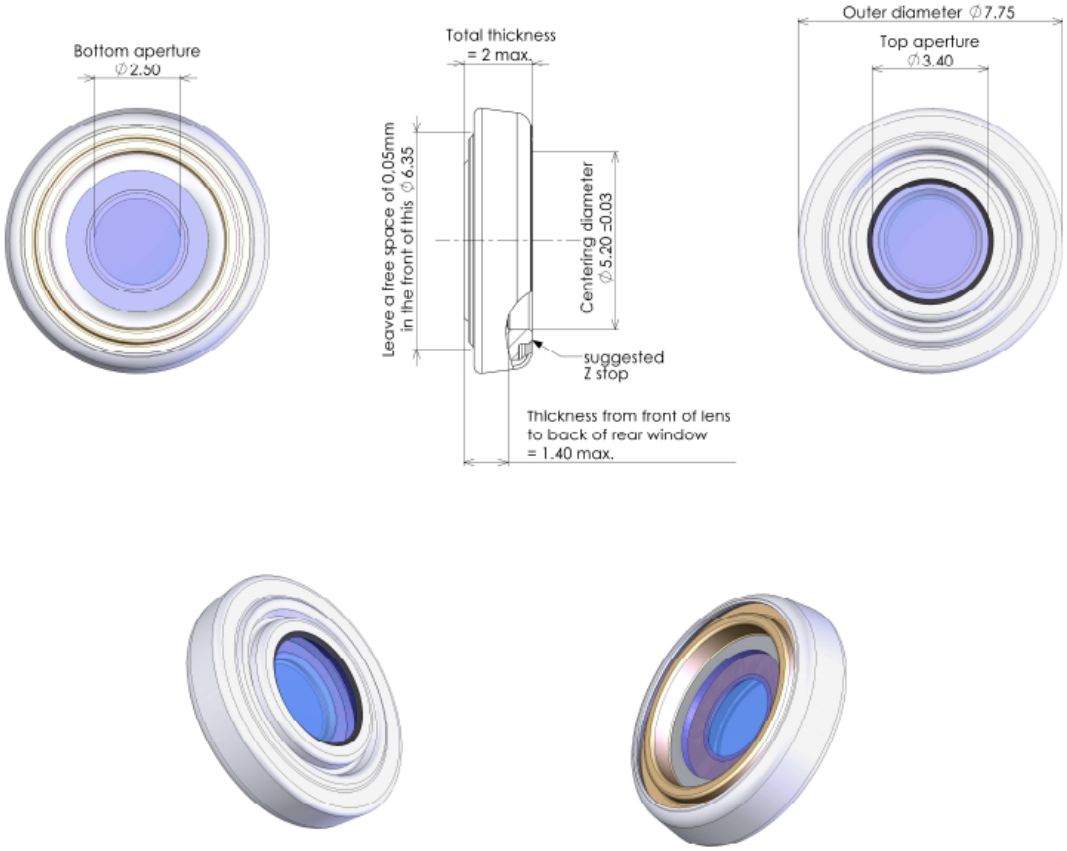
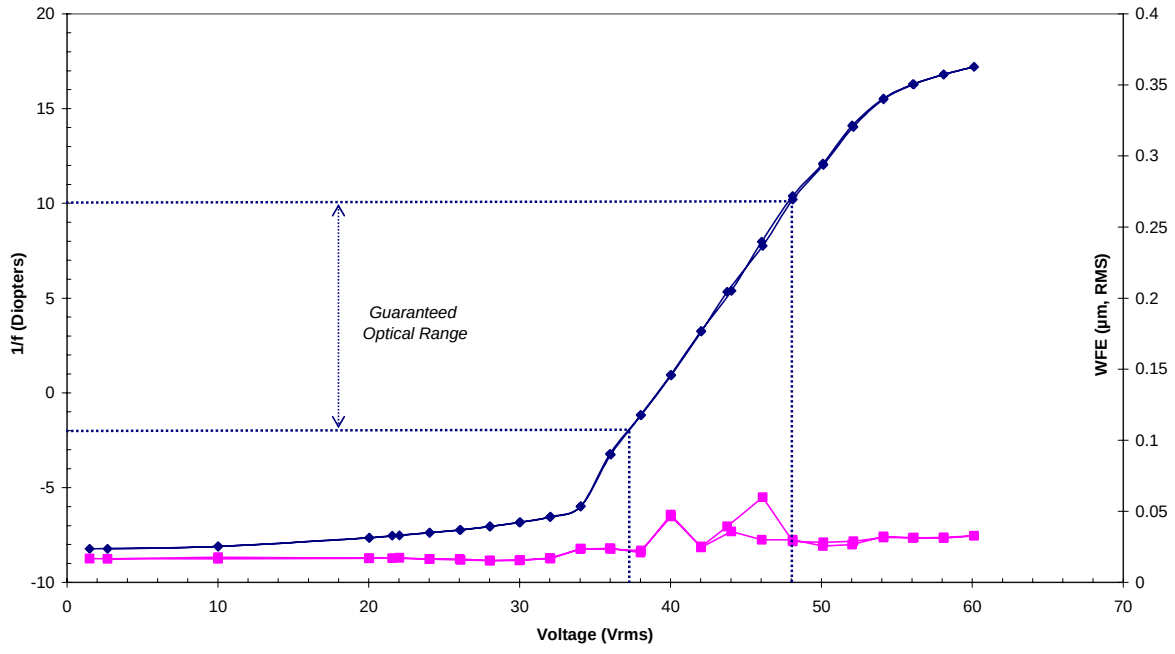
3 DRAWINGS



4 CHARACTERIZATION

1/f and WFE RMS versus Voltage



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