

FEATURES

- 1024 by 1024 1:1 Image Format
- Image Area 13.3 x 13.3 mm
- Frame Transfer Operation
- 13 μm Square Pixels
- Symmetrical Anti-static Gate Protection
- Very Low Noise Output Amplifiers
- Gated Dump Drain on Output Register
- 100% Active Area

APPLICATIONS

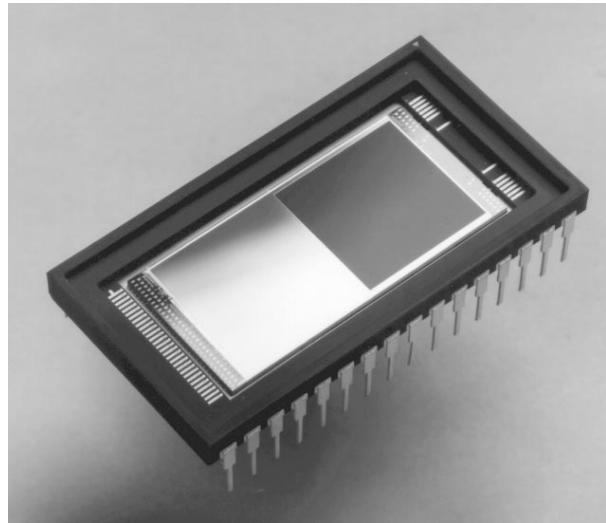
- Spectroscopy
- Scientific Imaging
- Star Tracking
- Medical Imaging

INTRODUCTION

This version of the CCD47-20 is a front-face illuminated, frame transfer CCD sensor with high performance low noise output amplifiers, suitable for use in slow-scan imaging systems. The image area contains a full 1024 by 1024 pixels which are 13 μm square. The output register is split, allowing either or both of the two output amplifiers to be employed, and is provided with a drain and control gate for charge dump purposes.

In common with all Marconi Applied Technologies CCD Sensors, the CCD47-20 is available with a fibre-optic window or taper, a UV coating or a phosphor coating for X-ray detection. Other variants of the CCD47-20 include IMO, back-thinned and full-frame devices.

Designers are advised to consult Marconi Applied Technologies should they be considering using CCD sensors in abnormal environments or if they require customised packaging.



TYPICAL PERFORMANCE

Maximum readout frequency	5	MHz
Output responsivity	4.5	$\mu\text{V}/\text{e}^-$
Peak signal	120	ke^-/pixel
Dynamic range (at 20 kHz)	~60 000:1	
Spectral range	400 - 1100	nm
Readout noise (at 20 kHz)	2.0	$\text{e}^- \text{ rms}$
QE at 700 nm	45	%

GENERAL DATA

Format

Image area	13.3 x 13.3	mm
Active pixels (H)	1024	
(V)	1024	
Pixel size	13 x 13	μm
Storage area	13.3 x 13.3	mm
Pixels (H)	1024	
(V)	1024	

Additional pixels are provided in both the image and storage areas for dark reference and over-scanning purposes.

Number of output amplifiers	2
Weight (approx, no window)	7.5 g

Package

Package size	22.7 x 42.0 mm
Number of pins	32
Inter-pin spacing	2.54 mm
Window material	quartz or removable glass
Type	ceramic DIL array