

Thermoelectric Cooled HgCdTe (MCT)

Product Data Sheet



They offer high performance, with ease of operation. Standard detectors are optimized in the $2\mu\text{m}$ to $5\mu\text{m}$ wavelength. Extended range detectors operate in the wavelength region beyond $5\mu\text{m}$. Optically Enhanced detectors are available with both reflective and refractive optical elements to improve the collection efficiency of these devices. The apparent enhanced responsivity and D^* , of these detectors, relies on the ability of the optical components to refocus energy, which might not normally be incident, on the detector element. These devices are most suitable for applications in which the energy incident is either collimated or diverging. The optically enhanced detectors are, therefore, ideally suited for applications in which fiber optics are employed.



Typical Applications:

- Thermal Imaging
- Laser Detection
- Gas Analysis
- Railroad Hot Boxes
- Line Scanner

The detectors are mounted on two-stage, three-stage, or four-stage coolers in [TO style packages](#) as shown in the tables below. A thermistor is included in the package for temperature monitoring or for temperature control. Soldered windows and welded caps are used to hermetically seal the packages. The packages are backfilled with inert gas for more efficient cooler operation.

They can be supplied with the following accessories: preamplifiers, power supplies and temperature controllers.

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Standard TE Cooled HgCdTe Detectors

Model Number	Element Size (mm)	Wave-length Peak λ_p (μm)	Wavelength Response (20% λ_{co}) (μm)	D* ($\lambda_p, 10000, 1$) Jones	Resistance (Ω)	Time Constant (μsec)	Oper. Temp. (K)	Std. Pkg.	Std. Window
2 μm to 5 μm									
MCT-3.5-TE2-0.25 MCT-3.5-TE2-1.00	0.25 X 0.25 1.00 X 1.00	~3.0	≥ 3.5	$\geq 1.0\text{E}11$	200-1200	≤ 2	240	2-Stage TO-3 TO-8 <u>TO-66</u>	Sapphire
MCT-4.5-TE2-0.25 MCT-4.5-TE2-1.00	0.25 X 0.25 1.00 X 1.00	~4.0	≥ 4.5	$\geq 4.0\text{E}10$					
MCT-5-TE2-0.10 MCT-5-TE2-0.25 MCT-5-TE2-0.50 MCT-5-TE2-1.00	0.10 X 0.10 0.25 X 0.25 0.50 X 0.50 1.00 X 1.00	~4.5	≥ 5.0	$\geq 2.0\text{E}10$	100-1000				
MCT-5-TE2-2.00	2.00 X 2.00			$\geq 1.0\text{E}10$					
MCT-4.5-TE3-0.25 MCT-4.5-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~4.0	≥ 4.5	$\geq 6.0\text{E}10$	200-1200		215	3-Stage TO-3 TO-8 <u>TO-66</u>	
MCT-5-TE3-0.10 MCT-5-TE3-0.25 MCT-5-TE3-0.50 MCT-5-TE3-1.00	0.10 X 0.10 0.25 X 0.25 0.50 X 0.50 1.00 X 1.00	~4.5	≥ 5.0	$\geq 3.0\text{E}10$	100-1000				
MCT-5-TE3-2.00	2.00 X 2.00			$\geq 2.0\text{E}10$					
MCT-5-TE4-0.10 MCT-5-TE4-0.25 MCT-5-TE4-0.50 MCT-5-TE4-1.00	0.10 X 0.10 0.25 X 0.25 0.50 X 0.50 1.00 X 1.00			$\geq 6.0\text{E}10$					
MCT-5-TE4-2.00	2.00 X 2.00			$\geq 4.0\text{E}10$					

Extended Range TE Cooled HgCdTe Detectors

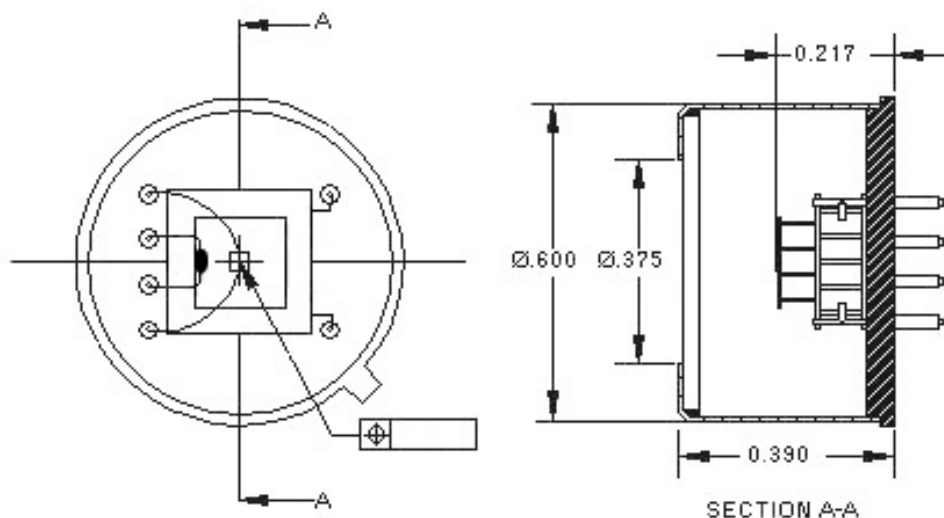
Model Number	Element Size (mm)	Wave-length Peak λ_p (μm)	Wavelength Response (20% λ_{co}) (μm)	D* ($\lambda_p, 10000, 1$) Jones	Resistance (Ω)	Time Constant (μsec)	Oper. Temp. (K)	Std. Pkg.	Std. Window
> 5 μm									
MCT-6-TE3-0.25 MCT-6-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~5.5	≥ 6.0	$\geq 1.5\text{E}10$	100-1000	≤ 2	220	3-Stage TO-3 TO-66	AR Coated ZnSe
MCT-7.5-TE3-0.25 MCT-7.5-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~6.5	≥ 7.5	$\geq 5.0\text{E}9$					
MCT-8-TE3-0.25 MCT-8-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~7.0	≥ 8.0	$\geq 2.0\text{E}9$					
MCT-9-TE3-0.25 MCT-9-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~8.0	≥ 9.0	$\geq 1.0\text{E}9$					

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Optically Enhanced TE Cooled HgCdTe Detectors

Model Number	Element Size (mm)	Wavelength Peak λ_p (μm)	Wavelength Response (20% λ_{co}) (μm)	D^* ($\lambda_p, 10000, 1$) Jones	Resistance (Ω)	Time Constant (μsec)	Oper. Temp. (K)	Std. Pkg.	Std. Window
> 5 μm									
OE-MCT-6-TE3-0.25 OE-MCT-6-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~5.5	≥ 6.0	$\geq 8.0\text{E}10$	100-1000	≤ 2	220	3-Stage TO-3 TO-66	AR Coated ZnSe
OE-MCT-7.5-TE3-0.25 OE-MCT-7.5-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~6.5	≥ 7.5	$\geq 2.0\text{E}10$					
OE-MCT-8-TE3-0.25 OE-MCT-8-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~7.0	≥ 8.0	$\geq 8.0\text{E}9$					
OE-MCT-9-TE3-0.25 OE-MCT-9-TE3-1.00	0.25 X 0.25 1.00 X 1.00	~8.0	≥ 9.0	$\geq 4.0\text{E}9$					

Typical Thermoelectric Cooled MCT (2-Stage)



Thermoelectric Cooled HgCdTe (MCT)

Contact Details

Manufacturer

Infrared Associates

2851 SE Monroe Street

Stuart, FL 34997

Phone: 772-223-6670 ext. 101

Distributor

Acal BFi

www.acalbfi.com

Disclaimer

This data sheet has been compiled to the best of our knowledge and with the utmost care. Nevertheless, we cannot guarantee that the information contained herein is up to date, accurate, complete or suitable for specific applications. The technical data and specifications are provided solely for the purpose of providing non-binding preliminary information. They do not constitute any warranted characteristics in the legal sense.

The user is obliged to check the suitability and applicability of the product for their specific intended use on their own responsibility. We accept no liability for any damage arising from the use of the information provided here.

We expressly reserve the right to make changes to the technical data and to correct any errors.