



Model 406MBK

DETECTOR SPECIFICATIONS DATA SHEET

optimized for 20 Hz operating frequency (RL= 2x10e9 Ohms)

MODEL: 406MBK-442
DETECTOR TYPE: Single Element
ELEMENT SIZE: 2.49 mm x 2.49 mm
ELEMENT MATERIAL: Lithium Tantalate
OPTICAL BANDWIDTH OF -442 FILTER:

CWL- 4.260 μm +/- 0.01 μm
HBW- 0.195 μm +/- 0.01 μm
Tx at Peak- $\geq 75\%$
Tx Profile - Widths at 80%, 10%, 1%: 146 nm min., 263 nm max.,
410 nm max. respectively.
Blocking: Complete
Angle of Incidence - 30 degree cone angle
Temperature range - 10 to 70 °C (Specifications at 45 °C, CWL will shift at
a rate of approximately 0.4 nm per °C. An increase in temperature
shifts towards longer wavelength and a decrease shifts towards
shorter wavelengths.
Surface quality - 80/50 scratch / dig
Adhesion - MIL-F-48616, para 4.6.8.1
Abrasion - MIL-F-48616, para 4.6.8.3
Humidity - MIL-F-48616, para 4.6.8.2
Filter Substrate- Sapphire

RESPONSIVITY (MIN.): 80 V/W

NOISE (MAX): 5.75 X 10⁻⁴ times the sensitivity reading (3.39 X 10⁻⁶ V for a detector with a 80 V/W Responsivity)

NEP (MAX.): 4.24 X 10⁻⁸ W/√Hz

D STAR (MIN.): 4.07 X 10⁷ cm² Hz/W

CHARACTERISTICS AT: 4.1625 μm to 4.3575 μm , 500°C, 20 Hz, at 25°C
Rs = 100k ohms, V = 8 V DC, Blackbody aperture = 2.217 cm, distance = 10 cm
Noise measured with Oridion Amplifier with a gain of 250 and 48 Hz BW in conjunction
with Miclyn True RMS - DC converter which has a gain of 100.

OPERATING VOLTAGE (MIN. & MAX.): 5 to 15 V DC

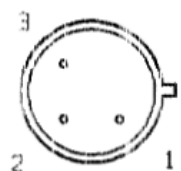
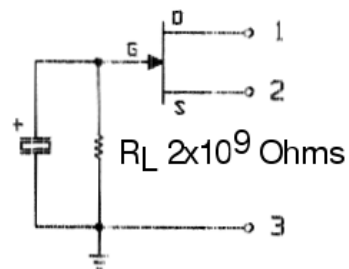
OFFSET VOLTAGE (MIN / MAX.): 0.3 to 1.2 V
CURRENT DRAW (MIN / MAX.): 3.0 to 12 micro Amps.

Rs = 100k ohms
Rs = 100k ohms

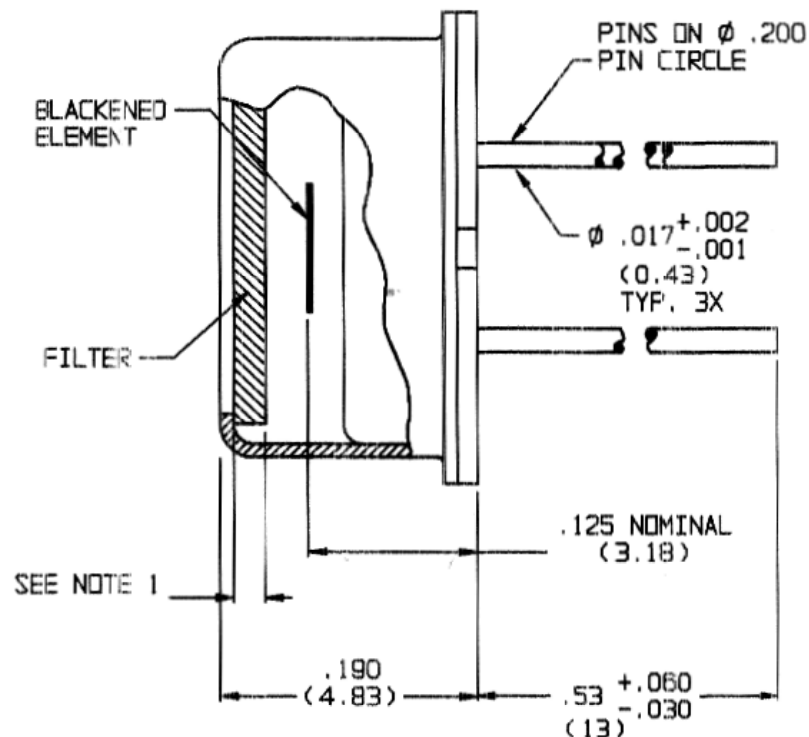
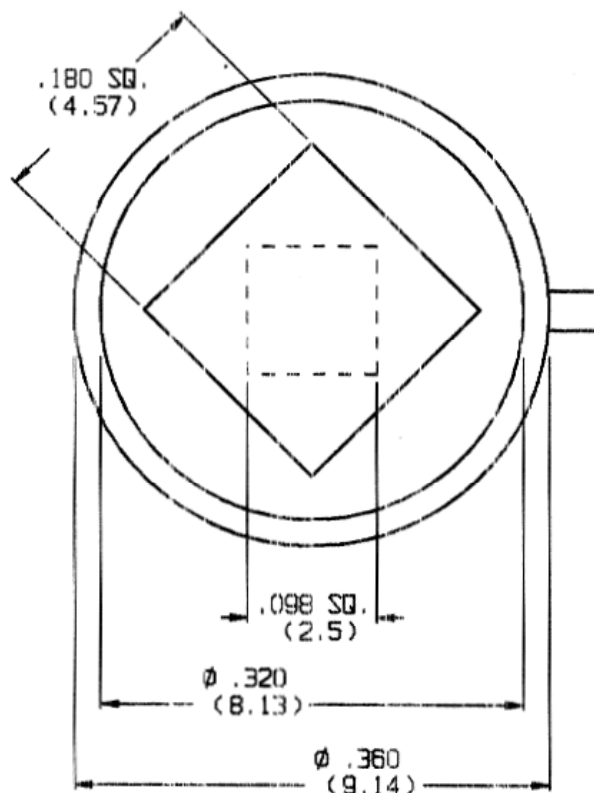
FUNCTIONAL
Delta T < 50 °C/minute

OUTPUT PROTECTION: DO NOT EXCEED A MAXIMUM Drain current of 50 microamps.

Each detector to be printed with Model number and Date code.
Each shipment to be supplied with scan of optical filter.
Each shipment to be supplied with non traceable noise, offset, and sensitivity data.



BOTTOM VIEW
(NO SCALE)



NOTES:

1. FILTER THICKNESS DEPENDENT ON TYPE. THIS MODEL ACCOMMODATES FILTERS .010 MIN. TO .045 MAX. THICK.
2. OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

PIN	DESIGNATION
1	V+
2	OUTPUT
3	CASE/GROUND

E	1752	8-30-06	SHOW NEW TAB LENGTH, UPDATE TO NEW FORMAT (21.5eX)	BLW	DD
A	1422	5-25-01	RL WAS 1X10E10	BLW	DD
REV	ECN	DATE	DESCRIPTION	BY	CHK

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UNLESS OTHERWISE SPECIFIED	
DIMENSIONS ARE IN INCHES (MM)	
TOLERANCES:	
DECIMAL	FRACTIONAL
.XX = +/- .010	+/- 1/64
.XXX = +/- .005	ANGULAR
	+/- 1°
BREAK SHARP CORNERS	

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MATERIAL		
FINISH		
DRAWN BY	RD	2-9-00
CHECKED BY	DD	2-10-00
APPROVED BY	LC	2-10-00

TITLE:
MODEL 406MBK
SINGLE ELEMENT
PYROELECTRIC IR DETECTOR
WITH JFET AMPLIFIER

SIZE	OWG. NO.	REV.
A	7800787	B