

## 1.1.2.2 High Sensitivity Thermal Sensors

### 8μW to 3W

#### Features

- Very low noise and drift to measure very low powers and energies
- Broadband and P absorbers for CW and short pulses
- Up to 3W
- Version for Terahertz



Model	3A-P-THz	3A-FS	3A-P-FS-12
<b>Use</b>	<b>Calibrated for Terahertz radiation</b>	<b>With removable window</b>	<b>For divergent beams, window blocks infrared</b>
Absorber Type	P type	Broadband + F.S. window	P type + F.S. window
Spectral Range μm	0.1THz - 30THz <sup>(c)</sup>	0.19 - 20 <sup>(b)</sup>	0.22 - 2.1
Aperture mm	Ø12mm	Ø9.5mm	Ø12mm
Maximum Beam Divergence	NA	NA	±40 degrees
<b>Power Mode</b>			
Power Range <sup>(f)</sup>	15μW - 3W	8μW - 3W	15μW - 3W
Power Scales	3W to 300μW	3W to 300μW	3W to 300μW
Power Noise Level	4μW <sup>(d)</sup>	2μW	6μW
Thermal Drift (30min) <sup>(a)</sup>	5 - 30μW	2 - 10μW	20 - 40μW
Maximum Average Power Density kW/cm <sup>2</sup>	0.05	1	0.05
Response Time with Meter (0-95%) typ. s	2.5	1.8	2.5
Power Accuracy +/- %	8 <sup>(c)</sup>	3	3
Linearity with Power +/- %	1	1	1
<b>Energy Mode</b>			
Energy Range	20μJ - 2J	15μJ - 2J	20μJ - 2J
Energy Scales	2J to 200μJ	2J to 200μJ	2J to 200μJ
Minimum Energy	20μJ	15μJ	20μJ
Maximum Energy Density J/cm <sup>2</sup> <sup>(e)</sup>			
<100ns	1	0.3	1
0.5ms	1	1	1
2ms	1	2	1
10ms	1	4	1
Cooling	convection	convection	convection
Weight kg	0.2	0.2	0.15
Fiber Adapters Available (see page 88)	ST, FC, SMA, SC	ST, FC, SMA, SC	NA
Compliance	CE, China RoHS	CE, China RoHS	CE, China RoHS
Version			
<b>Part number</b>	<b>7Z02742</b>	<b>7Z02628</b>	<b>7Z02687</b>
Note: (a)	Depending on room airflow and temperature variations		
Note: (b)	Remove window for measurement beyond 2.2μm		
Note: (c)	2 sigma standard lab traceable calibration for 0.6THz - 10THz. For 0.3 - 0.5THz add 4% to error. Outside this region the sensor will measure but is not calibrated.		
Note: (d)	Back reflections from meter can sometimes cause interference effects with source. Unit should be tilted -10° in this case		
Note: (e)	For P type and shorter wavelengths derate maximum energy density as follows:		
	Wavelength	Derate to value	
	1064nm	Not derated	
	532nm	Not derated	
	355nm	40% of stated value	
	266nm	5% of stated value	
	193nm	10% of stated value	
Note: (f)	Lowest measurable powers are achieved by thermally quiet room conditions, using removable snout, averaging and offset subtraction		

