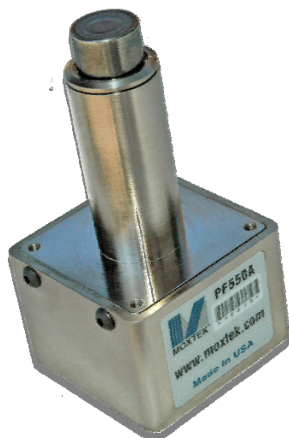


# X-RAY Detectors

## PF550a™ Si-PIN Diode X-ray Detector



### Applications

#### Portable/Benchtop XRF

- RoHS/WEEE
- Light element analysis
- Metallurgy
- Alloy sorting
- Scientific research
- Nuclear monitoring
- Quality control
- Brand protection
- Coating analysis
- Plastic additive analysis
- Soil analysis
- OSHA compliance
- Contamination sampling
- Archeology
- Art authentication
- Forensics - Mobile crime labs

The PF550a™ detector is a compact, low-cost EDXRF detector. The PF550a combines a silicon PIN diode, a MOXTEK ultra-low-noise JFET, and a high performance two-stage thermoelectric cooler to achieve a stable output signal over high count rates. The PF550a preamp provides a low-noise signal output to a customer supplied analog or digital pulse shaping amplifier. This detector does not require any external cooling.

### Features

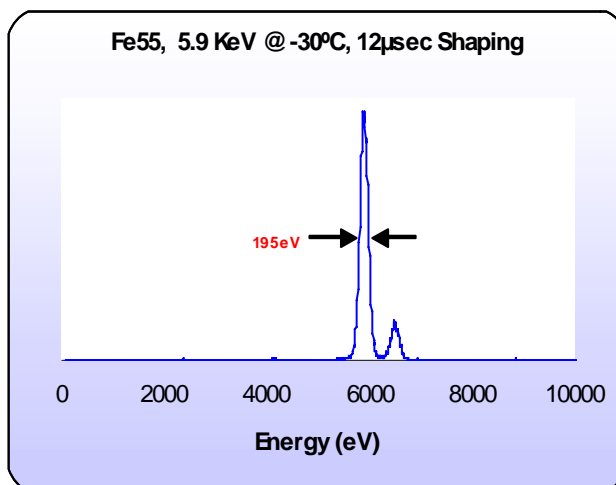
Si-PIN Diode  
Small, compact design  
Two-stage thermoelectric cooler  
Integrated temperature controller  
High count rates  
Stable resolution  
Low energy detection  
Wide ambient temperature range  
Portable

### Benefits

Low cost  
Close coupling of detector to source  
No liquid nitrogen, fast cooling  
No external electronics required  
Minimal peak shift  
Low calibration maintenance  
Light element identification  
Industrial applications  
Field use

### Standard Package Includes:

- PF550a detector
  - Si-PIN diode
  - Two stage thermoelectric cooler
  - MOXTEK ultra-low-noise JFET
  - DuraBe™ beryllium window
  - Preamp with input/output connector
  - Integrated temperature controller



PF550a Resolution



452 West 1260 North  
Orem, UT 84057  
P 801.225.0930  
F 801.221.1121

MOXTEK® [www.moxtek.com](http://www.moxtek.com)

## PF550a

### Detector Specifications

- Diode Active Area: 5 mm<sup>2</sup>
- Diode Thickness: 500µm
- Detector Window: 8µm, 25µm, or 100µm thick DuraBeryllium
- Collimator Material: Ag, W, Al
- Energy Resolution: < 210eV (Fe<sup>55</sup>, 5.9 KeV @ -30°C, 12µsec shaping)
- Peak to background: > 800 (1 KeV, 12µsec shaping)
- Weight: 2.63 kg (5.8 lbs)
- Standard Warranty: One year.

### Preamp Specifications

#### Inputs

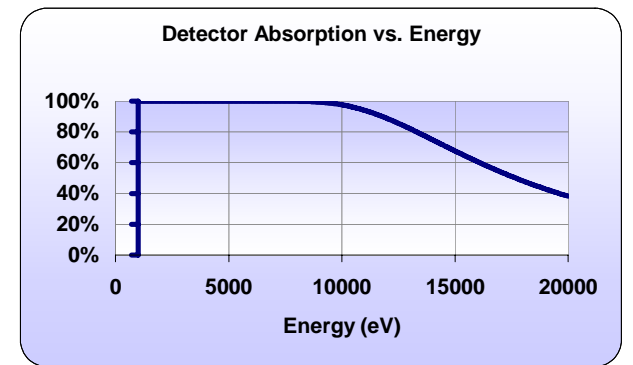
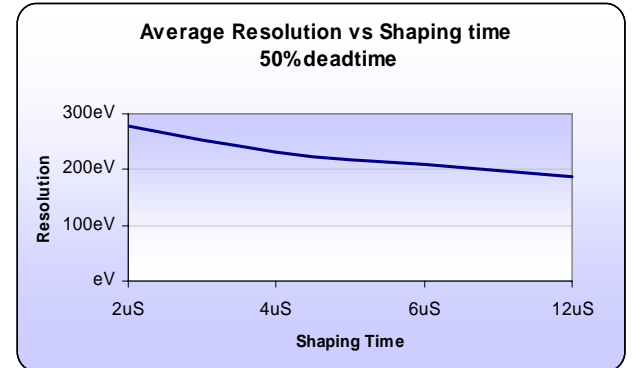
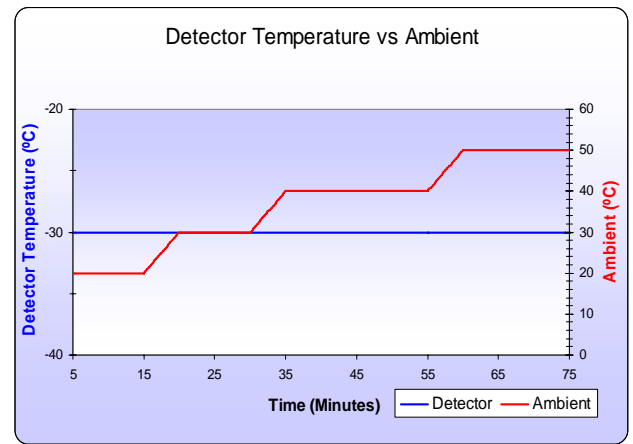
- Preamp Power: ±15V to ±24V
- Cooler Power: +4.7 to +5.5V at 0.5 Amps
- High Voltage Bias: 120 VDC typical, 130 VDC maximum

#### Outputs

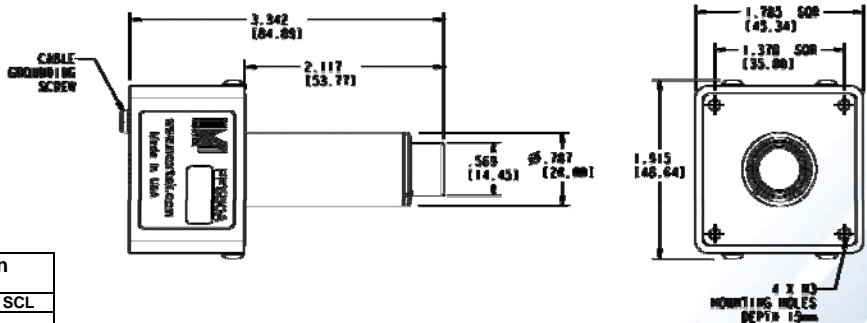
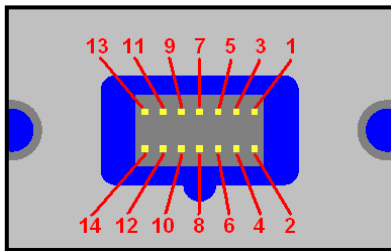
- Preamp power swing: -2V to 2 V
- Change conversion gain: 1 mV/KeV minimum, 10 mV/KeV maximum

## PF550a Ordering Information

Please contact MOXTEK for price and delivery information.



## Preamp Pin-out & Mechanical Drawing



Pin ID	Description	Pin ID	Description
1	HV Bias	8	RS232 RX or I2C SCL
2	HV Bias Ground	9	Ground
3	Temperature	10	Inhibit
4	+5V	11	+15V
5	+ TE Cooler	12	-15V
6	RS232 TX or I2C SDA	13	Signal
7	- TE Cooler	14	Signal Ground



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