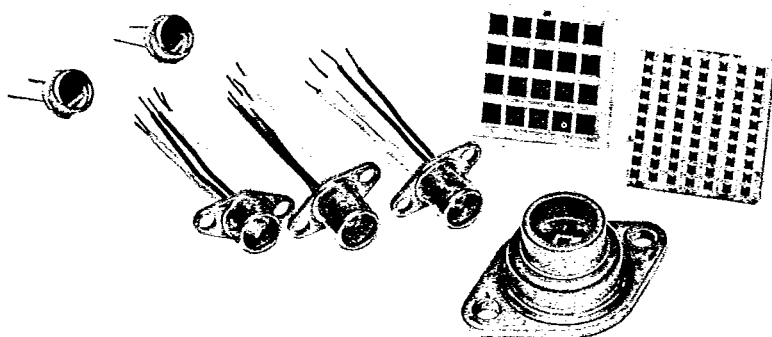


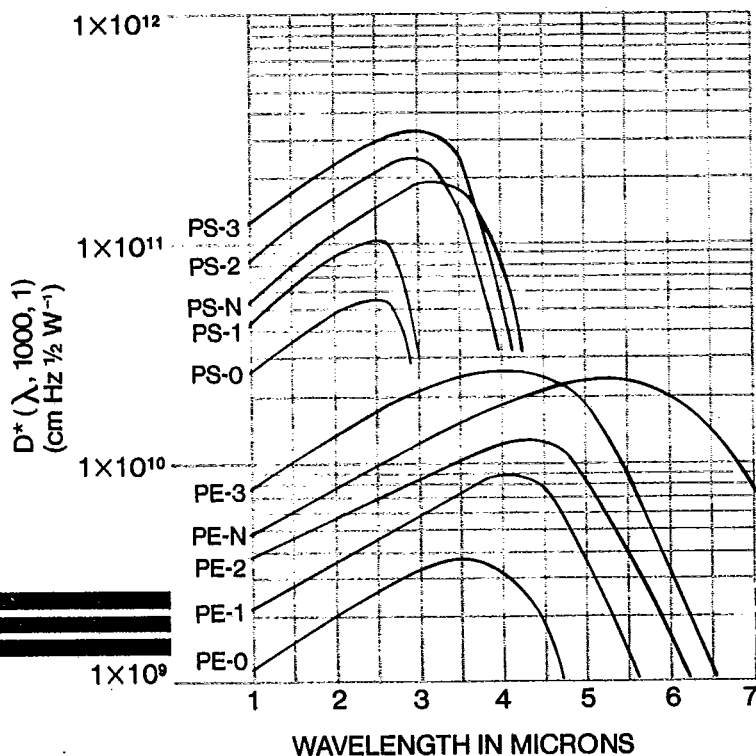
T-41-41

LEAD SELENIDE, LEAD SULFIDE DETECTORS



InfraRed Associates photoconductive lead salt detectors, Lead Selenide and Lead Sulfide are chemically deposited to form a polycrystalline layer. This method produces detectors of superior performance over other processes. The sensors convert incident infrared energy into an electrical signal which can then be utilized for many functions. These devices are particularly suited for applications covering the 1 micrometer to 7 micrometer spectral region. They offer an economical means of obtaining high performance in a rugged and compact package. These detectors are available in flat plate cell, semiconductor package, or dewar. The option of cooling is available with thermoelectric coolers or liquid nitrogen cooled dewars.

TYPICAL DETECTIVITY AT TEMPERATURE



TYPICAL APPLICATIONS:

- Medical Instruments
- Exhaust Gas Analyzers
- Thermal Imaging
- Fire Control
- Process Control
- Pollution Control
- Military Sensors
- Radiometers
- Spectroscopy

TYPICAL SPECIFICATIONS

LEAD SELENIDE Performance and Package Specifications

Characteristic	Operating Conditions	Typical Performance					Units
Series Number		PE-0	PE-1	PE-2	PE-3	PE-N	
Ambient Temperature	Package @ 298 K	298	298	298	298	298	K
Element Temperature	Package @ 298 K	298	253	243	203	77	K
D* (Detectivity)	500°K, 750Hz, 1Hz	2.8×10^8	1.0×10^9	1.8×10^9	4.0×10^9	4×10^9	$\text{cmHz}^{1/2}\text{W}^{-1}$
D* (Detectivity)	λ_{pk} , 750Hz, 1Hz	2.5×10^9	7.5×10^9	1.3×10^{10}	2.0×10^{10}	1.8×10^{10}	$\text{cmHz}^{1/2}\text{W}^{-1}$
Spectral Response		1 to 4.8	1 to 5	1 to 5.2	1 to 5.8	1 to 7	Micron
Resistance (Dark)		.05 - 2.0	0.2 - 5.0	.04 - 10	0.5 - 35	1 - 100	Megohms/ $\square$
Time Constant		0.5 - 1.5	3 - 10	5 - 25	10 - 50	20 - 80	u Sec
Responsivity	λ_{pk} , 750Hz, 1Hz						Volts/Watt
	1mm X 1mm	6000	9000	13000	50000	50000	
	2mm X 2mm	3000	5000	8000	25000	25000	
	3mm X 3mm	2000	3000	5000	15000	15000	
Stock Package Available		TO-5 Flat Plate	TO-37 TO-8	TO-37 TO-8	TO-3	Dewar	

LEAD SULFIDE Performance and Package Specifications

Characteristic	Operating Conditions	Typical Performance					Units
Series Number		PS-0	PS-1	PS-2	PS-3	PS-N	
Ambient Temperature	Package @ 298 K	298	298	298	298	298	K
Element Temperature	Package @ 298 K	298	253	243	203	77	K
D* (Detectivity)	500°K, 750Hz, 1Hz	6.5×10^8	1.5×10^9	2.7×10^9	8×10^9	8.5×10^9	$\text{cmHz}^{1/2}\text{W}^{-1}$
D* (Detectivity)	λ_{pk} , 750Hz, 1Hz	6.5×10^{10}	1.5×10^{11}	2.5×10^{11}	3×10^{11}	1.5×10^{11}	$\text{cmHz}^{1/2}\text{W}^{-1}$
Spectral Response		1 to 3	1 to 3	1 to 3.2	1 to 3.5	1 to 4	Micron
Resistance (Dark)		0.2 - 2	0.8 - 8	1 - 10	1 - 50	1 - 50	Megohms/ $\square$
Time Constant		200	500	700	3000	5000	u Sec
Responsivity	λ_{pk} , 750Hz, 1Hz						Volts/Watt
	1mm X 1mm	3×10^5	6.0×10^5	9.0×10^5	1.3×10^6	1.3×10^6	
	2mm X 2mm	1.5×10^5	3.0×10^5	4.5×10^5	6.5×10^5	6.5×10^5	
	3mm X 3mm	1.0×10^5	2.5×10^5	3.5×10^5	4.5×10^5	4.5×10^5	
Stock Package Available		TO-5 Flat Plate	TO-37 TO-8	TO-37 TO-8	TO-3	Dewar	