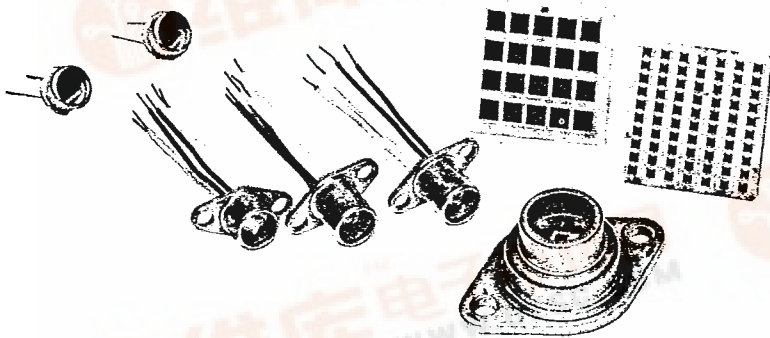


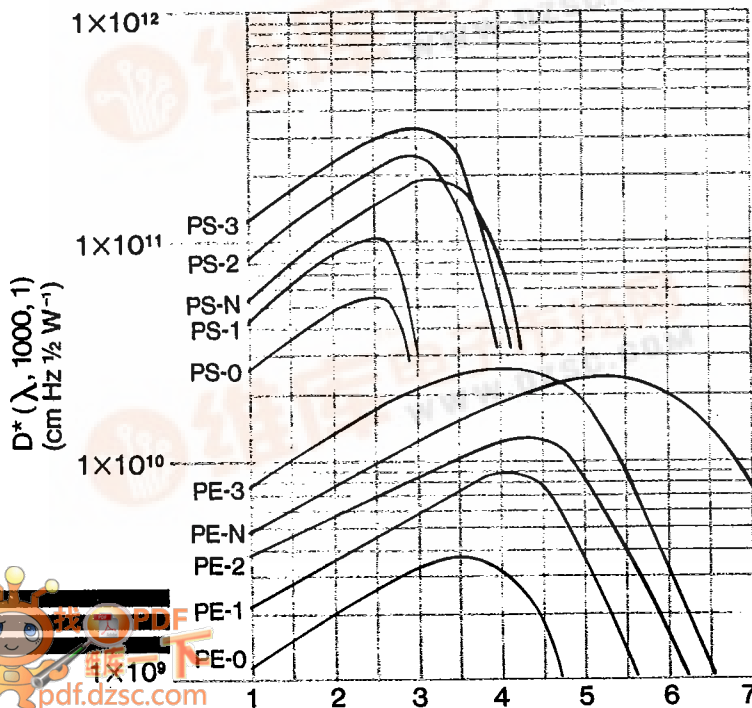
T-41-41

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 |
|-------------------------|------------------------------|---------------------|---------------------|----------------------|----------------------|----------------------|-------------------------------------|
| | | PE-0 | PE-1 | PE-2 | PE-3 | PE-N | |
| 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 | cmHz ^{1/2} 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 | cmHz ^{1/2} 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/□ |
| Time Constant | | 0.5 - 1.5 | 3 - 10 | 5 - 25 | 10 - 50 | 20 - 80 | u Sec |
| Responsivity | λ _{pk} , 750Hz, 1Hz | | | | | | Volts/Watt |
| | 1mm × 1mm | 6000 | 9000 | 13000 | 50000 | 50000 | |
| | 2mm × 2mm | 3000 | 5000 | 8000 | 25000 | 25000 | |
| | 3mm × 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 |
|-------------------------|------------------------------|----------------------|----------------------|----------------------|---------------------|----------------------|-------------------------------------|
| | | PS-0 | PS-1 | PS-2 | PS-3 | PS-N | |
| 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 | cmHz ^{1/2} 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 | cmHz ^{1/2} 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/□ |
| Time Constant | | 200 | 500 | 700 | 3000 | 5000 | u Sec |
| Responsivity | λ _{pk} , 750Hz, 1Hz | | | | | | Volts/Watt |
| | 1mm × 1mm | 3×10 ⁵ | 6.0×10 ⁵ | 9.0×10 ⁵ | 1.3×10 ⁶ | 1.3×10 ⁶ | |
| | 2mm × 2mm | 1.5×10 ⁵ | 3.0×10 ⁵ | 4.5×10 ⁵ | 6.5×10 ⁵ | 6.5×10 ⁵ | |
| | 3mm × 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 | |