

GR-TLD Thermoluminescent Detector



Overview

The GR-TLD series lithium fluoride thermoluminescent detectors are passive, solid-state integrating-type detectors. Their key features include small size (high spatial resolution), effective atomic number close to that of air and human tissue, immunity to electromagnetic interference, a wide measurement range, low lower detection limit, good reproducibility, and the capability to measure high-dose-rate pulsed

radiation fields. They are applicable to personal monitoring of ionizing radiation, environmental monitoring, and measurement in specific radiation fields (including differential measurement in mixed neutron-gamma fields). They can also be applied in fields such as radiological medicine, radiobiology, reactor engineering, and archaeology.

Specifications

Parameter	Specification
Detected Radiation	X-rays, γ -rays; Material: LiF:Mg,Cu,P or LiF:Mg,Ti optional
Detected Radiation	Neutrons; Material: 6 LiF:Mg,Cu,P or 6 LiF:Mg,Ti optional
Shape	Disc (square, powder, and square rod options available)
Dimensions	$\varnothing 4.5 \times 0.80$ mm (other specifications customizable)
Energy Response	<20%
Relative Sensitivity	≥ 62 times
Linearity Range	100 nGy to 12 Gy
Detection Threshold	0.1 μ Gy
Non-uniformity	$\leq 5\%$
Dispersion	$\leq \pm 5\%$, 3%, 2%, 1% (optional)
Repeatability	<2%

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Parameter	Specification
Neutron Response	LET-dependent response to absorbed dose from heavy particles, facilitating discrimination of the γ component in mixed n- γ fields
Stability	No significant fading after one month storage at room temperature; fading approximately 3% after one month storage at 50 °C
Light Effect	No significant response to indoor scattered sunlight, incandescent light, or fluorescent light; responsive to direct sunlight (UV)
Operating Environment	T < 50%, RH < 90%

Model Selection

No.	Model	Type	Specification	Unit
1	GR-200A	LiF(Mg,Cu,P)	$\phi 4.5 \times 0.80$ mm (1%)	chip
2	GR-200A	LiF(Mg,Cu,P)	$\phi 4.5 \times 0.80$ mm (2%)	chip
3	GR-200A	LiF(Mg,Cu,P)	$\phi 4.5 \times 0.80$ mm (3%)	chip
4	GR-200A	LiF(Mg,Cu,P)	$\phi 4.5 \times 0.80$ mm (5%)	chip
5	GR-200A	LiF(Mg,Cu,P)	$\phi 3.6 \times 0.40$ mm (2%)	chip
6	GR-200A	LiF(Mg,Cu,P)	$\phi 3.6 \times 0.60$ mm (2%)	chip
7	GR-200A	LiF(Mg,Cu,P)	$\phi 3.6 \times 0.80$ mm (2%)	chip
8	GR-200	LiF(Mg,Cu,P)	4.0 × 4.0 × 0.89 mm	chip
9	GR-200	LiF(Mg,Cu,P)	3.2 × 3.2 × 0.89	chip

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No.	Model	Type	Specification	Unit
			mm	
10	GR-200	LiF(Mg,Cu,P)	3.0 × 3.0 × 0.89 mm	chip
11	GR-207A	⁷ LiF(Mg,Cu,P)	φ4.5 × 0.80 mm	chip
12	GR-207	⁷ LiF(Mg,Cu,P)	4.0 × 4.0 × 0.80 mm	chip
13	GR-207	⁷ LiF(Mg,Cu,P)	3.2 × 3.2 × 0.20 mm	chip
14	GR-207	⁷ LiF(Mg,Cu,P)	3.2 × 3.2 × 0.40 mm	chip
15	GR-207	⁷ LiF(Mg,Cu,P)	3.2 × 3.2 × 0.60 mm	chip
16	GR-207	⁷ LiF(Mg,Cu,P)	3.2 × 3.2 × 0.80 mm	chip
17	GR-206A	⁶ LiF(Mg,Cu,P)	φ4.5 × 0.80 mm	chip
18	GR-200F	LiF(Mg,Cu,P)	film 4.0 × 4.0 mm	chip
19	GR-200F	⁷ LiF(Mg,Cu,P)	film 5.0 × 5.0 mm	chip
20	GR-200F	LiF(Mg,Cu,P)	film φ4.5 × 0.20 mm	chip
21	GR-200R	LiF(Mg,Cu,P)	0.1 × 0.1 × 0.6 mm	rod
22	GR-200R	LiF(Mg,Cu,P)	1.0 × 1.0 × 1.0 mm	rod
23	GR-200R	⁷ LiF(Mg,Cu,P)	1.0 × 1.0 × 6.0 mm	rod
24	GR-100M	LiF(Mg,Ti)	5.0 × 5.0 × 0.80 mm	chip

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No.	Model	Type	Specification	Unit
25	GR-100M	LiF(Mg,Ti)	4.0 × 4.0 × 0.80 mm	chip
26	GR-100	LiF(Mg,Ti)	φ4.5 × 0.80 mm	chip
27	GR-100M	LiF(Mg,Ti)	φ4.5 × 0.80 mm	chip
28	Chemically pure powder	80-200 mesh	g	
29	Analytically pure powder	80-200 mesh	g	
30	Lead Chamber	100 × 100 × 100 mm	unit	

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