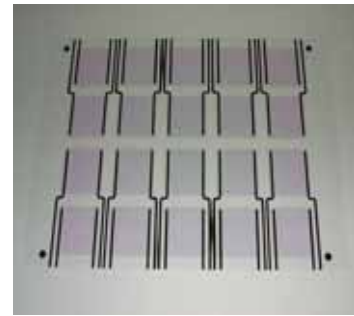


Radiation Detector



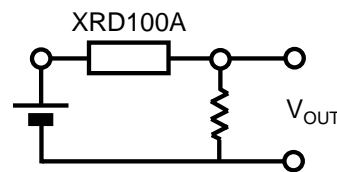
Description

The radiation detector, KRD100A is a newly developed solid state device. XRD100A has an efficient conversion efficiency for X-ray, α , β , and γ -rays over a wide radiation intensity. The robust design enables to use under harsh environments and at high temperature. XRD100A can be used with the bias of a few volts and does not require a high voltage supply. A standard type is hermetically shielded with the TO-8 can. Various packages and/or window types are also available as options.

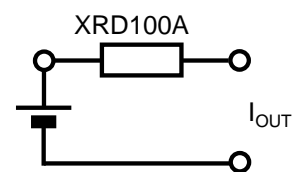
Applications

- Real-time and on-site dosimeters for
- patient exposure in interventional radiology
 - patient exposure in X-ray radiography
 - radiotherapy
 - beam loss monitoring
 - nuclear core and waste etc.

Circuits



Voltage Output



Current Output

Specifications

Maximum Rating

Item	Symbol	Value	Unit
Bias Voltage	V_B	500	V
Maximum Radiation Intensity Input	D_{max}	10	kSv/min
Forward Current	I_F	10	mA
Operating Ambient Temperature*	T_{OP}	-40 to +175	°C
Storage Temperature*	T_{STG}	-50 to +175	°C

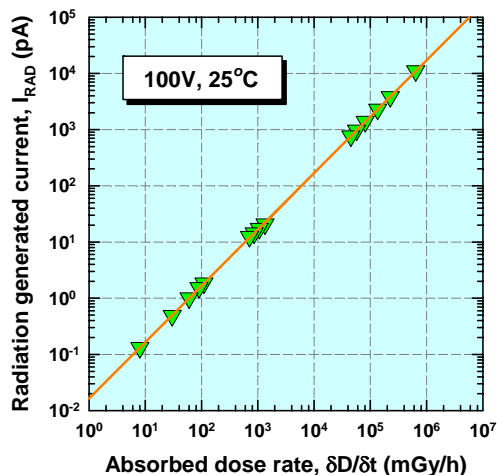
*NOTE: higher operating and storage temperature available as option.

Characteristics ($V_B=100V$, $T_a=25^\circ C$ unless otherwise noted)

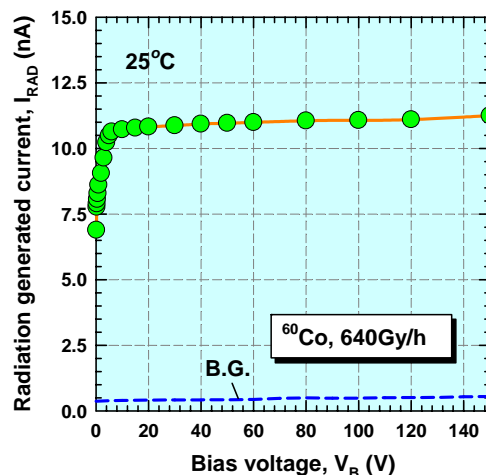
Parameter	Symbol	Value	Unit	Test Conditions
Active Area	S	5x5	mm	
Responsivity	R_{50keV}	2.8	$\mu A/(kSv/min)$	50keV X-Ray
	R_{Co60}	1.6	$\mu A/(kSv/min)$	^{60}Co γ -Ray
	R_{Y90}	1.2	$\mu A/(kSv/min)$	^{90}Sr - ^{90}Y β -Ray
Dark Current	I_D	2	pA	
Total Capacitance	C	1.5	pF	f=1MHz

Specifications are subjected to change without notice.

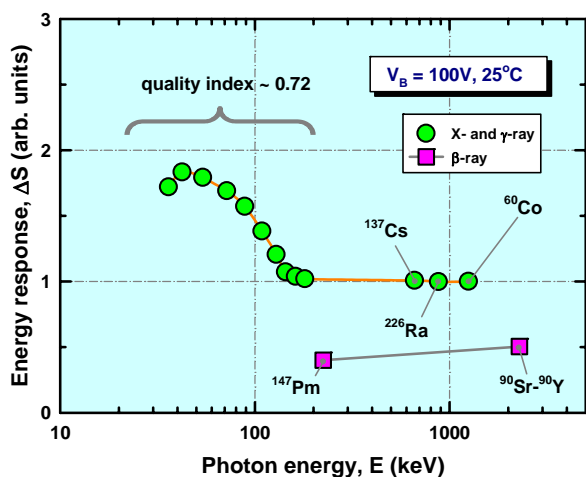
Bias Voltage vs. Output Signal



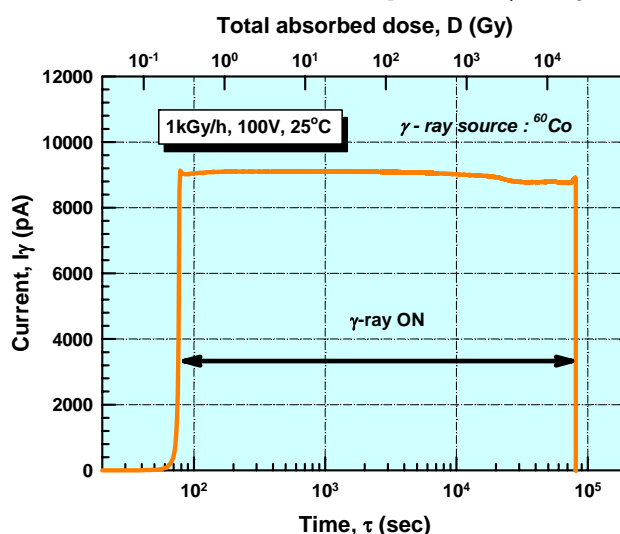
Radiation Intensity vs. Output Signal



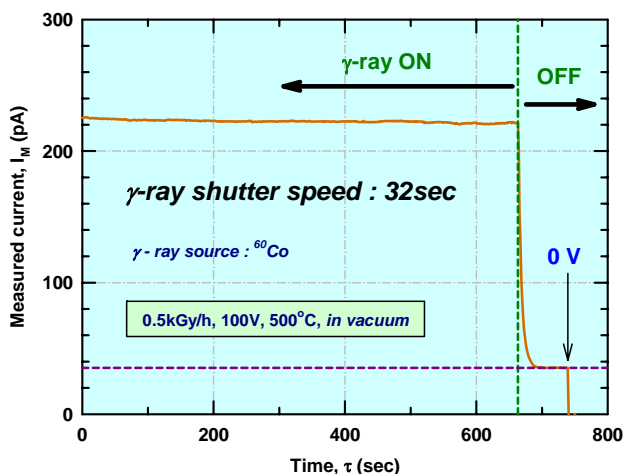
Radiation Energy Responsivity



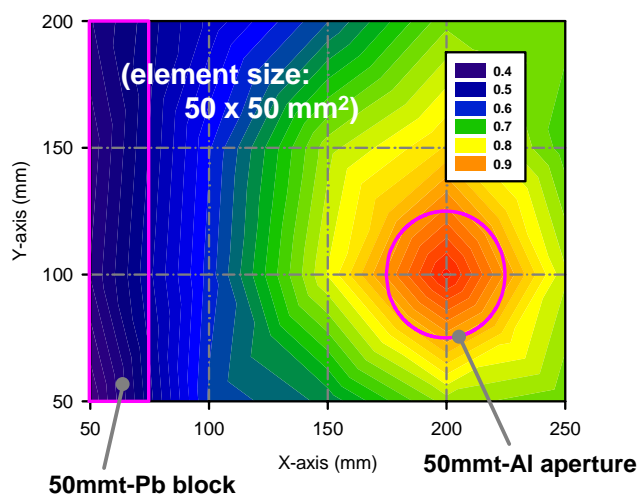
Time Fluctuation of Output for γ-Ray



Time Response at High Temperature



2D Exposure Dose Mapping in X-Ray Radiography



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