

ABSTRACT OF THE DISCLOSURE

PYROELECTRIC-TYPE IR RECEIVING ELEMENT AND IR SENSOR USING THE SAME

A pyroelectric-type IR receiving element comprises a pyroelectric substrate which is fixed to a supporting body at its support ends, and at
5 least one rectangular patch formed in the substrate. The patch is formed on its opposite surfaces with first and second electrodes which are overlapped to each other. The substrate has a U-shaped slit composed of a pair of side slits and a base slit connecting the side slits. The U-shaped slit surrounds continuously three sides of the patch, so
10 that the patch is supported by the substrate in a cantilever fashion at a cantilever end which is opposed to one of the support ends of the substrate. Since a thermal stress applied to the substrate when the substrate is exposed to a temperature change is absorbed by the U-shaped slit, a stress concentration to be considered is not developed in
15 the patch. As a result, it is possible to reduce the occurrence of popcorn noise, while maintaining good IR sensitivity.

(Figure 1)

LIST OF REFERENCE NUMERALS

1	pyroelectric-type IR receiving element	71	condenser
2	three-dimensional circuit block	72	current amplifying circuit
3	base plate	73	band-pass amplifier
5 4	cover	40 74	window comparator
5	IR transmittable window	75	timer
6	IC chip	76	output circuit
7	electronic components	90	supporting body
8	conductive patterns	100	IR receiving element
10 10	rectangular substrate	45 101	substrate
11	patch	102	IR receiving portion
12	patch	102a	first electrode
13	patch	102b	third electrode
14	patch	103	IR receiving portion
15 15	cantilever end	50 103a	second electrode
16	support end	103b	fourth electrode
20	first electrode	104	positive output terminal
21	second electrode	105	negative output terminal
23	positive output terminal	106	conductive patterns
20 24	negative output terminal	55 107	conductive patterns
25	conductive patterns	120	circuit board
26	conductive patterns	121	stand
30	U-shaped slit	123	field-effect transistor
31	side slit	124	high-resistance element
25 32	base slit	60 130	base
40	projecting pin	131	output pin
41	projecting pin	140	package cover
42	projecting pin	141	transmittable window
50	stand	150	conductive bond
30 51	front wall	65	
52	IC chip supporting portion	1A	pyroelectric-type IR receiving element
53	groove	10A	pyroelectric substrate
54	stabilizer	11A	patch
55	notch	70 12A	patch
35 56	rear wall		
60	wire		

LIST OF REFERENCE NUMERALS

	1C	pyroelectric-type IR receiving element
	11C	patch
	12C	patch
5	13C	patch
	14C	patch
	31C	common side slit
	32C	common base slit
10	1D	pyroelectric-type IR receiving element
	10D	pyroelectric substrate
	11D	patch
	13D	patch
15	15D	cantilever end
	20D	electrode
	30D	U-shaped slit
	34	neck portion
20	1E	pyroelectric-type IR receiving element
	10E	pyroelectric substrate
	15E	cantilever end
	30E	U-shaped slit
25	34E	neck portion
	35	rounded hole
	1H	comparative IR receiving element