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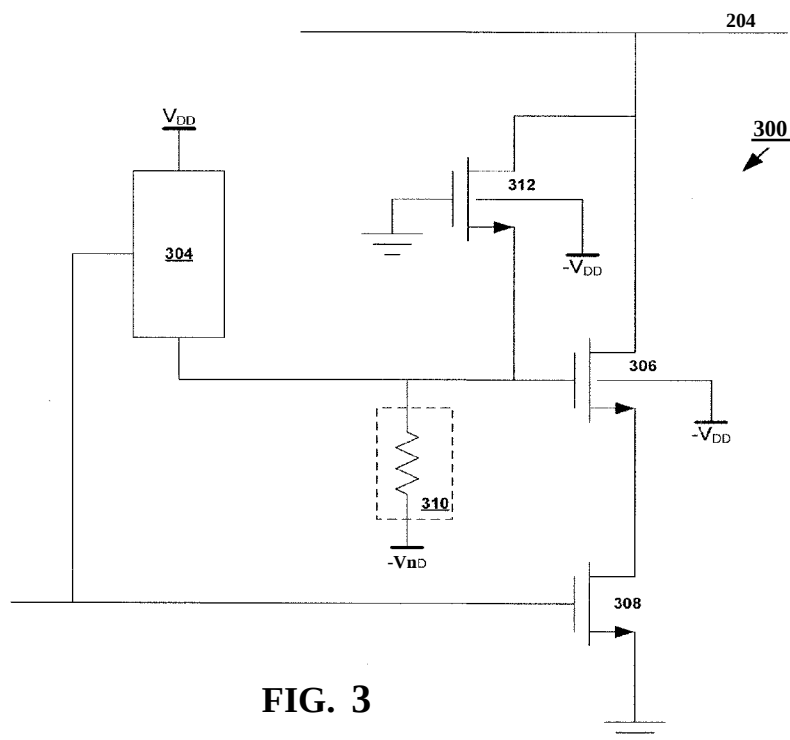
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[Continued on nextpage]

(54) Title: GROUNDING SWITCH METHOD AND APPARATUS



(57) Abstract: A grounding switch is described which operates properly even in the presence of negative voltages on a signal line. The grounding switch uses isolated field effect transistors that have their substrates tied to different voltages. The isolated field effect transistor has a gate voltage and substrate voltage which can be pulled down to a negative voltage when the signal line has a negative voltage allowing the switch to remain open even with a negative voltage.



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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
A	US 2007/009110 AI (KAKUMOTO YASUNOBU [JP] ET AL) 11 January 2007 (2007-01-11) paragraphs [0002] - [0017] , [0047] ; figure 5 -----	1-23	
A	EP 0 091 119 A2 (NEC CORP [JP]) 12 October 1983 (1983-10-12) page 1, line 3 - page 6, line 19 page 7, line 3 - page 20, line 15; figures 1-3 -----	1-23	
A	JP 2006 238285 A (MATSUSHITA ELECTRIC IND CO LTD) 7 September 2006 (2006-09-07) abstract; figures 1,2 -----	1-23	
A	JP 7 240632 A (SONY CORP) 12 September 1995 (1995-09-12) abstract; figures 1-3 -----	1-23	
-/--			
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.			
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001 244749 A (ROHM CO LTD) 7 September 2001 (2001-09-07) abstract; figure 1 -----	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/US2011/041239

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007009110	A1	JP 2007019948 A	25-01-2007
EP 0091119	A2	DE 3373962 D1	05-11-1987
		JP 1640339 C	18-02-1992
		JP 3005688 B	28-01-1991
		JP 58172019 A	08-10-1983
		US 4633095 A	30-12-1986
JP 2006238285	A	JP 4622582 B2	02-02-2011
JP 7240632	A	NONE	
JP 2001244749	A	JP 3814118 B2	23-08-2006