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12/025,526 4 February 2008 (04.02.2008) US(71) Applicant (for all designated States except US): **NATIONAL SEMICONDUCTOR CORPORATION** [US/US]; 2900 Semiconductor Drive, Santa Clara, CA 95051-8090 (US).

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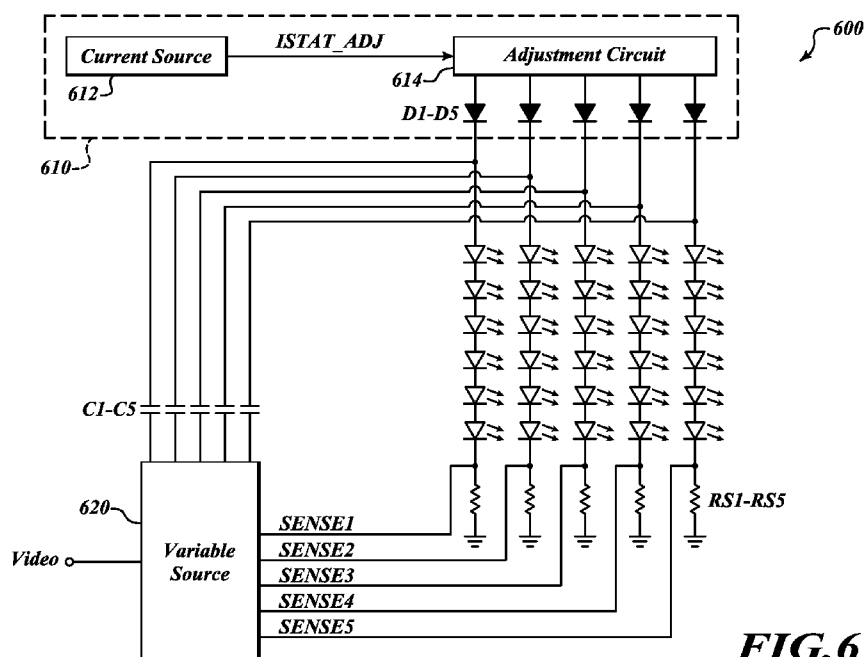
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[Continued on next page]

(54) Title: LASER DIODE / LED DRIVE CIRCUIT

**FIG. 6**

(57) Abstract: The invention relates to an apparatus for controlling the output of an LD or LED. The apparatus includes a substantially static bias source and a variable source. The substantially static bias source provides a bias current to the LD/LED. The variable source is capacitively coupled to the LD/LED. The bias current may be provided such that it is higher than a threshold current at which, when provided to an LD, lasing occurs.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/033094**A. CLASSIFICATION OF SUBJECT MATTER****G05F 3/02(2006.01)i, G05F 3/08(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G05F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility Models and applications for Utility Models since 1975
Japanese Utility Models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & keywords: laser, diode, current, LED

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2003-317978 A (STANLEY ELECTRIC CO., LTD.) 7 November 2003 See Paragraph [0011] - Paragraph [0024]; Abstract and Figures 1-7.	1-20
A	JP 2005-160178 A (SHARP CORP.) 16 June 2005 See Abstract and Figures 1-11.	1-20
A	JP 2005-310997 A (SONY CORP.) 4 November 2005 See Abstract and Figures 1-14.	1-20

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2003-317978 A	07.11.2003	NONE	
JP 2005-160178 A	16.06.2005	CN 1622438 C0	01.06.2005
		CN 1622438 A	01.06.2005
		CN 100379135 C	02.04.2008
		JP 04-052998 B2	14.12.2007
		US 07129679 B2	31.10.2006
		US 2005-0110469 A1	26.05.2005
JP 2005-310997 A	04.11.2005	NONE	