

US Patents Co-assigned by SanDisk & Toshiba

#	Pat. #	Patent Title	Filed
1	9,543,516	Method for forming a doped metal oxide for use in resistive switching memory elements	6/27/2014
2	9,508,422	Non-volatile semiconductor memory adapted to store a multi-valued data in a single memory cell	12/30/2015
3	9,425,394	Doped oxide dielectrics for resistive random access memory cells	12/10/2014
4	9,343,673	Method for forming metal oxides and silicides in a memory device	1/16/2015
5	9,299,928	Nonvolatile memory device having a current limiting element	2/19/2015
6	9,299,926	Nonvolatile memory device using a tunnel oxide layer and oxygen blocking layer as a current limiter element	2/17/2012
7	9,276,210	Conductive barriers for ternary nitride thin-film resistors	12/04/2014
8	9,276,203	Resistive switching layers including Hf-Al-O	12/20/2012
9	9,275,727	Multi-level memory array having resistive elements for multi-bit data storage	2/20/2015
10	9,269,902	Embedded resistors for resistive random access memory cells	12/26/2013
11	9,269,896	Confined defect profiling within resistive random memory access cells	10/21/2014
12	9,257,189	Non-volatile semiconductor memory adapted to store a multi-valued data in a single memory cell	12/03/2014
13	9,246,096	Atomic layer deposition of metal oxides for memory applications	2/17/2015
14	9,246,091	ReRAM cells with diffusion-resistant metal silicon oxide layers	7/23/2014
15	9,246,085	Shaping ReRAM conductive filaments by controlling grain-boundary density	7/23/2014
16	9,224,951	Current-limiting electrodes	7/21/2014
17	9,184,383	Nonvolatile memory device having an electrode interface coupling region	1/16/2014
18	9,184,379	Capping thin-film resistors to control interface oxidation	7/18/2014
19	9,178,151	Work function tailoring for nonvolatile memory applications	11/13/2013
20	9,178,148	Resistive random access memory cell having three or more resistive states	3/03/2015
21	9,178,140	Morphology control of ultra-thin MeOx layer	2/17/2015
22	9,178,000	Resistive random access memory cells having shared electrodes with transistor devices	4/29/2014
23	9,130,165	Atomic layer deposition of metal oxide materials for memory applications	10/03/2014
24	9,117,516	Resistance change memory	9/05/2013
25	9,087,978	Transition metal oxide bilayers	2/10/2015
26	9,065,040	Controlling composition of multiple oxides in resistive switching layers using atomic layer deposition	10/09/2014
27	9,054,307	Resistive random access memory cells having metal alloy current limiting layers	7/27/2014
28	9,048,425	Bipolar multistate nonvolatile memory	10/20/2014
29	9,047,940	Resistive random access memory cells having variable switching characteristics	1/10/2013
30	9,040,413	Using saturated and unsaturated ALD processes to deposit oxides as ReRAM switching layer	12/13/2012
31	9,012,879	Morphology control of ultra-thin MeOx layer	9/22/2014
32	9,006,696	Metal aluminum nitride embedded resistors for resistive random memory access cells	9/08/2014
33	9,006,026	Atomic layer deposition of metal oxides for memory applications	8/22/2014
34	9,001,554	Resistive random access memory cell having three or more resistive states	1/10/2013
35	9,000,407	ReRAM materials stack for low-operating-power and high-density applications	5/28/2013
36	8,995,172	Nonvolatile memory device having a current limiting element	2/21/2014
37	8,995,166	Multi-level memory array having resistive elements for multi-bit data storage	12/20/2012
38	8,987,865	Memory device having an integrated two-terminal current limiting resistor	5/27/2014
39	8,987,697	Transition metal oxide bilayers	4/14/2014
40	8,981,329	Method of forming anneal-resistant embedded resistor for non-volatile memory application	11/20/2014
41	8,980,766	Sequential atomic layer deposition of electrodes and resistive switching components	7/10/2014

42	8,975,727	Memory cell having an integrated two-terminal current limiting resistor	12/20/2012
43	8,975,114	Method for forming metal oxides and silicides in a memory device	3/14/2013
44	8,929,135	Non-volatile semiconductor memory device adapted to store a multi-valued data in a single memory cell	11/12/2013
45	8,921,154	Method of forming anneal-resistant embedded resistor for non-volatile memory application	8/26/2014
46	8,913,418	Confined defect profiling within resistive random memory access cells	5/10/2013
47	8,912,524	Defect gradient to boost nonvolatile memory performance	11/08/2013
48	8,906,736	Multifunctional electrode	9/08/2014
49	8,901,530	Nonvolatile memory device using a tunnel oxide as a passive current steering element	2/19/2014
50	8,895,949	Nonvolatile memory device using a varistor as a current limiter element	2/10/2014
51	8,890,109	Resistive random access memory access cells having thermally isolating structures	12/20/2012
52	8,889,492	Bipolar multistate nonvolatile memory	4/23/2014
53	8,883,655	Atomic layer deposition of metal oxide materials for memory applications	5/17/2013
54	8,883,557	Controlling composition of multiple oxides in resistive switching layers using atomic layer deposition	9/03/2013
55	8,878,152	Nonvolatile resistive memory element with an integrated oxygen isolation structure	2/29/2012
56	8,872,152	IL-free MIM stack for clean RRAM devices	12/13/2012
57	8,866,121	Current-limiting layer and a current-reducing layer in a memory device	2/17/2012
58	8,866,118	Morphology control of ultra-thin MeOx layer	12/21/2012
59	8,860,002	Limited maximum fields of electrode-switching layer interfaces in Re-RAM cells	12/20/2012
60	8,859,328	Multifunctional electrode	4/16/2014
61	8,853,661	Metal aluminum nitride embedded resistors for resistive random memory access cells	3/15/2013
62	8,853,099	Nonvolatile resistive memory element with a metal nitride containing switching layer	12/16/2011
63	8,852,996	Carbon doped resistive switching layers	12/20/2012
64	8,847,187	Method of forming anneal-resistant embedded resistor for non-volatile memory application	12/03/2012
65	8,846,484	ReRAM stacks preparation by using single ALD or PVD chamber	2/15/2012
66	8,846,443	Atomic layer deposition of metal oxides for memory applications	4/05/2011
67	8,817,524	Resistive random access memory cells having metal alloy current limiting layers	12/20/2012
68	8,809,205	Sequential atomic layer deposition of electrodes and resistive switching components	12/20/2012
69	8,809,159	Radiation enhanced resistive switching layers	12/20/2012
70	8,802,492	Method for forming resistive switching memory elements	8/29/2011
71	8,796,103	Forming nonvolatile memory elements by diffusing oxygen into electrodes	12/20/2012
72	8,787,066	Method for forming resistive switching memory elements with improved switching behavior	10/26/2011
73	8,779,407	Multifunctional electrode	2/07/2012
74	8,748,237	Memory device having an integrated two-terminal current limiting resistor	10/28/2013
75	8,742,392	Bipolar multistate nonvolatile memory	7/29/2013
76	8,741,772	In-situ nitride initiation layer for RRAM metal oxide switching material	2/16/2012
77	8,741,698	Atomic layer deposition of zirconium oxide for forming resistive-switching materials	11/29/2011
78	8,735,864	Nonvolatile memory device using a tunnel nitride as a current limiter element	8/20/2013
79	8,735,217	Multifunctional electrode	9/04/2013
80	8,704,203	Transition metal oxide bilayers	8/20/2013
81	8,698,119	Nonvolatile memory device using a tunnel oxide as a current limiter element	1/19/2012
82	8,686,386	Nonvolatile memory device using a varistor as a current limiter element	2/17/2012
83	8,681,530	Nonvolatile memory device having a current limiting element	1/18/2012
84	8,659,001	Defect gradient to boost nonvolatile memory performance	9/01/2011
85	8,658,997	Bipolar multistate nonvolatile memory	2/14/2012
86	8,652,923	Nonvolatile memory device having an electrode interface coupling region	3/14/2013

87	8,637,413	Nonvolatile resistive memory element with a passivated switching layer	12/02/2011
88	8,618,525	Work function tailoring for nonvolatile memory applications	6/09/2011
89	8,605,511	Non-volatile semiconductor memory device adapted to store a multi-valued data in a single memory cell	3/29/2012
90	8,598,682	Memory device having an integrated two-terminal current limiting resistor	11/13/2012
91	8,569,104	Transition metal oxide bilayers	2/07/2012
92	8,563,366	Memory device having an integrated two-terminal current limiting resistor	2/28/2012
93	8,552,413	Nonvolatile memory device using a tunnel nitride as a current limiter element	2/07/2012
94	8,546,275	Atomic layer deposition of hafnium and zirconium oxides for memory applications	9/19/2011
95	8,208,311	Non-volatile semiconductor memory device adapted to store a multi-valued data in a single memory cell	12/14/2010
96	8,111,551	Nonvolatile semiconductor memory device having protection function for each memory block	5/02/2011
97	7,952,925	Nonvolatile semiconductor memory device having protection function for each memory block	7/29/2010
98	7,787,296	Nonvolatile semiconductor memory device having protection function for each memory block	4/23/2008
99	7,394,704	Non-volatile semiconductor memory device, electronic card using the same and electronic apparatus	11/30/2005
100	7,394,692	Non-volatile semiconductor memory with large erase blocks storing cycle counts	5/22/2006
101	7,376,010	Nonvolatile semiconductor memory device having protection function for each memory block	3/24/2006
102	7,286,404	Non-volatile semiconductor memory adapted to store a multi-valued data in a single memory cell	5/04/2006
103	7,224,613	Operating techniques for reducing effects of coupling between storage elements of a non-volatile memory operated in multiple data states	8/16/2005
104	7,088,616	Nonvolatile semiconductor memory adapted to store a multi-valued data in a single memory cell	2/03/2005
105	7,085,161	Non-volatile semiconductor memory with large erase blocks storing cycle counts	12/02/2004
106	7,061,798	Operating techniques for reducing effects of coupling between storage elements of a non-volatile memory operated in multiple data states	10/15/2004
107	7,046,555	Methods for identifying non-volatile memory elements with poor subthreshold slope or weak transconductance	9/17/2003
108	D517,072	IC memory card	10/15/2002
109	6,990,019	Nonvolatile semiconductor memory adapted to store a multi-valued data in a single memory cell	9/08/2003
110	6,990,018	Non-volatile semiconductor memory device, electronic card using the same and electronic apparatus	4/14/2004
111	D510,935	IC memory card	6/24/2004
112	D510,579	IC memory card	6/24/2004
113	6,944,063	Non-volatile semiconductor memory with large erase blocks storing cycle counts	1/28/2003
114	D507,795	IC memory card	6/24/2004
115	D505,959	IC memory card	10/15/2002
116	6,807,095	Multi-state nonvolatile memory capable of reducing effects of coupling between storage elements	12/18/2002
117	6,643,188	Non-volatile semiconductor memory device adapted to store a multi-valued data in a single memory cell	1/22/2002
118	D467,586	IC memory card	9/17/2001
119	D460,456	IC memory card	9/17/2001
120	D459,355	IC memory card	9/17/2001
121	D446,525	IC memory card	2/23/2000
122	D445,111	IC memory card	2/23/2000
123	D444,473	IC memory card	2/23/2000