

**UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.**

**Before The Honorable Charles E. Bullock
Chief Administrative Law Judge**

In the Matter of

**CERTAIN WAFER-LEVEL PACKAGING
SEMICONDUCTOR DEVICES AND
PRODUCTS CONTAINING SAME
(INCLUDING CELLULAR PHONES,
TABLETS, LAPTOPS, AND NOTEBOOKS)
AND COMPONENTS THEREOF**

Investigation No. 337-TA-1080

COMPLAINANT’S PROPOSED CONSTRUCTIONS OF DISPUTED TERMS

Pursuant to Order No. 5, Complainant Tessera Advanced Technologies, Inc. (“Tessera”) provides below preliminary claim constructions for the claim terms identified by the parties on January 12, 2018. The citations provided are exemplary, and Tessera reserves all rights to rely on additional intrinsic and extrinsic evidence to support its proposed constructions, including, but not limited to, expert testimony and evidence identified by Respondents Samsung Electronics America, Inc., Samsung Electronics Co., Ltd., and Samsung Semiconductor, Inc. (collectively, “Samsung”). Tessera further reserves the right to amend, modify or supplement this list as necessary in response to the proposed constructions of these patent claim terms by Samsung or based on further discovery, analysis, investigation, review of newly or yet-to-be produced documents, and the disclosures of witnesses.

/s/ Bert C. Reiser

Matthew J. Moore

Maximilian A. Grant

Bert C. Reiser

LATHAM & WATKINS LLP

555 Eleventh Street, NW, Suite 1000

Washington, DC 20004
Telephone: (202) 637-2200
Facsimile: (202) 637-2201

Charles H. Sanders
LATHAM & WATKINS LLP
200 Clarendon Street
Boston, MA 02116
Telephone: (617) 948-6000
Facsimile: (617) 948-6000

Michael A. David
LATHAM & WATKINS LLP
885 Third Avenue
New York, NY 10022
Telephone: (212) 906-1200
Facsimile: (212) 751-4864

*Counsel for Complainant Tessera Advanced
Technologies, Inc.*

I. Terms for Construction

A. '001 Patent

<u>Term</u>	<u>Tessera's Proposed Construction</u>	<u>Intrinsic Evidence</u>	<u>Extrinsic Evidence</u>
"first electrode portion"	"external electrode portion"	<p>File History</p> <p>'001 File History, 2/14/2005 Office Action at 7-9.</p> <p>'557 File History, 2/25/2004 Office Action at 8-10.</p> <p>'001 Patent</p> <p>'001 Patent at 5:20-26 ("Note that, when the exposed surface of the external electrode portion (i.e., the surface of the metal-material embedded portion) is higher than the surface of the insulating film, the external electrode portion may be bonded to the wiring electrode of the substrate by solder without using the ball electrode.") <i>See also</i> 3:61-65; 6:55-60; 13:58-62; 16:67-52; 19:21-51; 22:41-46; 25:38-43¹</p> <p>'001 Patent at 3:30-42 ("An exposed</p>	<p>IPR2017-01486, Petition, at pp. 7, 8, 14, 63-64²</p> <p>IPR2018-00466, Petition, at pp. 5, 9, 10, 11, 12, 32, 34-35, 37, 52, 54, 55</p>

¹ The citations proved throughout this chart are exemplary, and include the figures discussed or referenced in the cited passages.

² Any citation to an *inter partes* review petition is exemplary and includes any declarations cited in the petition.

		<p>surface of the external electrode portion is preferably flush with or higher than a surface of the insulating film. This prevents a wiring or electrode of a substrate on which the semiconductor device is mounted from contacting the non-electrode portion of the metal wiring of the semiconductor device... Therefore, the ball electrode can be mounted to the external electrode portion without producing a gap therebetween. As a result, sufficient junction between the ball electrode and the external electrode portion can be ensured.”) <i>See also</i> 4:61-5:1; 6:28-35; 10:22-35.</p> <p>‘001 Patent at 10:22-33 (“It is preferable that the exposed surface of the external electrode portion is flush with or higher than the surface of the insulating film.... In other words, it is preferable that the thickness of the external electrode portion is equal to or greater than that of the insulating film.”) <i>See also</i> 12:46-49; 17:29-33; 19:24-26; 22:8-12; 25:16-18.</p> <p>‘001 Patent at 11:1-8 (“The modification of the first embodiment is different from the first embodiment in that each external electrode portion has</p>	
--	--	--	--

		<p>a mushroom-like projection over a corresponding one of the openings of the insulating film. The mushroom-like projection is larger than the opening of the insulating film. Therefore, the exposed surface of the external electrode portion is higher than the surface of the insulating film.”) <i>See also</i> 13:28-32.</p> <p>‘001 Patent at 18:44-53 (“As shown in FIG. 10A, metal-material embedded portions are formed in the openings of the insulating film so as to be connected to the metal wirings, respectively. The thickness of the metal-material embedded portions is greater than that of the insulating film.... As a result, the top portions of the metal-material portions projecting from the surface of the insulating film serve as projecting electrodes.”)</p> <p>‘001 Patent at 23:15-21 (“In the fifth embodiment, the metal-material embedded portion having its top portion larger than the opening of the insulating film may be formed by a screen printing method or the like so that the top portion of the metal-material embedded portion projecting from the surface of the insulating film serves as a</p>	
--	--	--	--

		<p>mushroom-like projecting electrode.”)</p> <p>‘001 Patent at 2:35-41 (“In view of the above problems, it is an object of the present invention to provide a semiconductor device having a metal wiring electrically connected to an electrode of a semiconductor element, and having improved junction reliability between the metal wiring and a ball electrode mounted on an external electrode portion of the metal wiring.”)</p> <p>‘001 Patent at 3:38-42 (“Therefore, the ball electrode can be mounted to the external electrode portion without producing a gap therebetween. As a result, sufficient junction between the ball electrode and the external electrode portion can be ensured.”) <i>See also</i> 4:34-54; 4:65-5:1; 10:29-35; 12:48-55; 16:29-34.</p> <p>‘001 Patent at 3:19-22 (“the thickness of the non-electrode portion of the metal wiring is smaller than that of the external electrode portion to which the ball electrode is mounted.”)</p> <p>‘001 Patent at 2:59-64 (“Sn contained in the solder of the ball electrode diffuses</p>	
--	--	---	--

		<p>into Cu contained in the metal wiring, whereby a Sn-Cu alloy layer having low strength grows in the thickness direction of the external electrode portion.”) <i>See also</i> 3:45-49; 5:5-9; 6:39-43; 8:63-9:1; 11:11-19; 13:35-43; 15:53-59; 16:40-45.</p> <p>‘001 Patent at 4:14-17 (“As a result, the stresses are reduced, whereby the external electrode portion of the metal wiring to which the ball electrode is connected can be prevented from being broken by the stresses.”) <i>See also</i> 5:40-43; 7:7-10; 12:31-35.</p> <p>‘001 Patent at 15:18-24 (“[I]n order to electrically connect the electrodes formed on the surface of the semiconductor element to respective wiring electrodes of a substrate ... on which the semiconductor element is mounted, a ball electrode is mounted on each metal-material embedded portion (<i>i.e.</i>, the external electrode portion of each metal wiring).</p> <p>‘001 Patent at 2:46-51 (“The metal wiring has an external electrode portion functioning as an external electrode. A thickness of the external electrode portion is greater than that of a non-electrode portion of the metal wiring, <i>i.e.</i>, a portion of the metal wiring other than the external</p>	
--	--	---	--

		<p>electrode portion.”)</p> <p>‘001 Patent at 3:19-26 (“According to the above semiconductor device, the thickness of the non-electrode portion of the metal wiring is smaller than that of the external electrode portion to which the ball electrode is mounted.”)</p> <p>‘001 Patent at 4:19-20 (“Preferably, the thickness of the external electrode portion is in a range of 10 μm to 20 μm.”)</p> <p>‘001 Patent at 4:46-52 (“As a result, the thickness of the external electrode portion (i.e., the total thickness of the metal-material embedded portion embedded in the opening and the metal wiring located under the metal-material embedded portion) is greater than the thickness of a non-electrode portion of the metal wiring, that is, the portion of the metal wiring other than the external electrode portion.”)</p> <p>‘001 Patent at 6:14-19 (“As a result, the thickness of the external electrode portion (i.e., the total thickness of the projecting electrode and the metal wiring located thereunder) is greater than the thickness of a non-electrode portion of the metal wiring, that is, the portion of the metal</p>	
--	--	---	--

		<p>wiring other than the external electrode portion.”)</p> <p>‘001 Patent at 8:39-43 (“The present embodiment is characterized in that the thickness (e.g., 14 μm) of the external electrode portion of the metal wiring is greater than that of the other portion of the metal wiring (hereinafter, referred to as “nonelectrode portion”).</p> <p>‘001 Patent at 8:56-59 (“According to the first embodiment, in each metal wiring electrically connected to a corresponding one of the electrodes, the thickness of the external electrode portion is greater than that of the non-electrode portion.”)</p> <p>‘001 Patent at 9:1-6 (“However, since the thickness of the external electrode portion of the metal wiring 14 is greater than that of the non-electrode portion of the metal wiring, this Sn—Cu alloy layer can be prevented from growing through the entire thickness of the external electrode portion.”)</p> <p>‘001 Patent at 9:36-40 (“In the first embodiment, the thickness of the external electrode portion of the metal wiring (e.g., the total thickness of the non-electrode</p>	
--	--	---	--

		<p>portion of the metal wiring and the metal-material embedded portion) is preferably in the range of 10 μm to 20 μm.”)</p> <p>‘001 Patent at 10:5-14 (“More specifically, the metal wiring is less likely to be disconnected when the thickness of the external electrode portion is about 10 μm or more. Note that the external electrode portion having a greater thickness than the non-electrode portion of the metal wiring is herein formed using the metal-material embedded portion. In this case, if the thickness of the external electrode portion exceeds 20 μm, greater pattern deformation would be generated in the process of forming the metal-material filling portion by a wet etching method.”)</p> <p>‘001 Patent at 12:11-15 (“A first characteristic of the second embodiment is that, like the first embodiment, the thickness of the external electrode portion of the metal wiring is greater than that of the other portion of the metal wiring (i.e., the non-electrode portion).”)</p> <p>‘001 Patent at 15:4-9 (“As a result, the total thickness of the metal-material embedded portion and the metal wiring located thereunder is greater than the thickness of the portion of the metal</p>	
--	--	---	--

		<p>wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring).”)</p> <p>‘001 Patent at 15:40-46 (“Accordingly, the thickness of the external electrode portion of the metal wiring (i.e., the total thickness of the metal-material embedded portion embedded in the opening of the insulating film and the metal wiring located under the metal-material embedded portion) is greater than the thickness of the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring).”)</p> <p>‘001 Patent at 18:53-58 (“The thickness of the external electrode portion (the total thickness of the metal-material embedded portion and the metal wiring located thereunder) is larger than that of the portion of the metal wiring other than the external electrode portion (the non-electrode portion of the metal wiring).”) <i>See also</i> 4:46-52; 15:4-9; 15:39-46.</p> <p>‘001 Patent at 21:34-36 (“As a result, the thickness of the external electrode portion is greater than the thickness of the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode</p>	
--	--	--	--

		<p>portion of the metal wiring).”)</p> <p>’001 Patent at 24:65-25:4 (“Accordingly, the thickness of the external electrode portion (i.e., the total thickness of the projecting electrode and the metal wiring located thereunder) is greater than the thickness of the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring).”)</p> <p>’001 Patent cls. 1-18; ’557 patent cls. 1-8</p>	
“second electrode portion”	“ball electrode”	<p>File History</p> <p>’001 File History, 2/14/2005 Office Action at 7-9.</p> <p>’557 File History, 2/25/2004 Office Action at 8-10.</p> <p>’001 Patent</p> <p>’001 Patent at 2:59-64 (“Sn contained in the solder of the ball electrode diffuses into Cu contained in the metal wiring, whereby a Sn-Cu alloy layer having low strength grows in the thickness direction of the external electrode portion.”) <i>See also</i> 3:45-49; 5:5-9; 6:39-43; 8:63-9:1; 11:11-19; 13:35-43; 15:53-59; 16:40-45.</p> <p>’001 Patent at 2:35-41 (“In view of the</p>	<p>IPR2018-00466, Petition, at pp. 6, 8, 9, 11</p>

		<p>above problems, it is an object of the present invention to provide a semiconductor device having a metal wiring electrically connected to an electrode of a semiconductor element, and having improved junction reliability between the metal wiring and a ball electrode mounted on an external electrode portion of the metal wiring.”)</p> <p>‘001 Patent at 3:19-22 (“the thickness of the non-electrode portion of the metal wiring is smaller than that of the external electrode portion to which the ball electrode is mounted.”)</p> <p>‘001 Patent at 3:38-42 (“Therefore, the ball electrode can be mounted to the external electrode portion without producing a gap therebetween. As a result, sufficient junction between the ball electrode and the external electrode portion can be ensured.”) <i>See also</i> 4:34-54; 4:65-5:1; 10:29-35; 12:48-55; 16:29-34.</p> <p>‘001 Patent at 4:14-17 (“As a result, the stresses are reduced, whereby the external electrode portion of the metal wiring to which the ball electrode is connected can be prevented from being broken by the stresses.”) <i>See also</i> 5:40-43; 7:7-10; 12:31-35</p>	
--	--	---	--

		<p>'001 Patent at 15:18-24 (“[I]n order to electrically connect the electrodes formed on the surface of the semiconductor element to respective wiring electrodes of a substrate ... on which the semiconductor element is mounted, a ball electrode is mounted on each metal-material embedded portion (<i>i.e.</i>, the external electrode portion of each metal wiring).</p> <p>'001 Patent cls. 1-18; '557 patent cls. 1-8</p>	
“third electrode portion”	“contact electrode of the semiconductor element”	<p style="text-align: center;">File History</p> <p>'001 File History, 2/14/2005 Office Action at 7-9.</p> <p>'557 File History, 2/25/2004 Office Action at 8-10.</p> <p style="text-align: center;">'001 Patent</p> <p>'001 Patent at 2:35-41 (“In view of the above problems, it is an object of the present invention to provide a semiconductor device having a metal wiring electrically connected to an electrode of a semiconductor element, and having improved junction reliability between the metal wiring and a ball electrode mounted on an external electrode portion of the metal wiring.”) <i>see also</i> 2:52-54; 4:26-37; 5:66-6:8; 6:9-11; 8:20-21</p>	IPR2018-00466, Petition, at pp. 5, 6, 9, 10, 12, 32, 52

		'001 Patent cls. 1-18; '557 patent cls. 1-8	
"metal wiring"	"non-electrode portion of the metal wiring"	<p style="text-align: center;">File History</p> <p>'001 File History, 2/14/2005 Office Action at 7-9.</p> <p>'557 File History, 2/25/2004 Office Action at 8-10.</p> <p style="text-align: center;">'001 patent</p> <p>'001 Patent at 1:8-12 ("The present invention generally relates to a semiconductor device in which a metal wiring is formed so as to be electrically connected to an electrode of a semiconductor element and a part of the metal wiring is used as an external electrode, and a manufacturing method of the same.") <i>See also</i> 1:34-39</p> <p>'001 Patent at 9:25-35 ("More specifically, in the first embodiment, the thickness of the non-electrode portion of the metal wiring is preferably in the range of 0.01 μm to 8 μm, and more preferably in the range of 0.01 μm to 4 μm. The reason for this is as follows: if the thickness of the metal wiring is less than 0.01 μm, the strength of the metal wiring is reduced, causing disconnection and the like. If the thickness of the metal wiring is greater than 8 μm, it is difficult to etch the metal film for forming the metal wirings.</p>	IPR2018-00466, Petition, at pp. 5, 8, 9, 10, 12, 32, 35, 37, 52, 54, 55

		<p>This makes it difficult to reduce the size of the wiring pattern of the metal wirings.”)</p> <p>‘001 Patent at 1:54-56 (“Each metal wiring is formed from Copper (Cu) and electrically connected to a corresponding one of the electrodes.”) <i>See also</i> 8:20-21; 10:61-62; 11:59-60; 12:16-22; 13:18-19; 14:25-27; 15:29-32</p> <p>‘001 Patent at 2: 35-41 (“In view of the above problems, it is an object of the present invention to provide a semiconductor device having a metal wiring electrically connected to an electrode of a semiconductor element, and having improved junction reliability between the metal wiring and a ball electrode mounted on an external electrode portion of the metal wiring.”)</p> <p>‘001 Patent at 2:46-51 (“The metal wiring has an external electrode portion functioning as an external electrode. A thickness of the external electrode portion is greater than that of a non-electrode portion of the metal wiring, i.e., a portion of the metal wiring other than the external electrode portion.”)</p> <p>‘001 Patent at 3:19-26 (“According to the above semiconductor device, the thickness of the non-electrode portion of the metal</p>	
--	--	--	--

		<p>wiring is smaller than that of the external electrode portion to which the ball electrode is mounted.”)</p> <p>‘001 Patent at 4:26-37 (“According to another aspect of the present invention, a method for manufacturing a semiconductor device includes: a first step of forming, on a surface of a semiconductor element having an electrode formed thereon, a metal wiring electrically connected to the electrode; a second step of forming, on the surface of the semiconductor element and the metal wiring, an insulating film having an opening which exposes a region of the metal wiring layer where an external electrode is to be formed; and a third step of forming a metal-material embedded portion in the opening so that a surface of the metal-material embedded portion is flush with or higher than a surface of the insulating film.”)</p> <p>‘001 Patent at 4:40-46 (“The insulating film is then formed so as to have an opening which exposes the region of the metal wiring where an external electrode is to be formed. Thereafter, the metal material embedded portion is embedded in the opening so that the surface of the metal-material embedded portion is flush with or higher than the surface of the insulating film”) <i>See also</i></p>	
--	--	---	--

		<p>15:32-39.</p> <p>‘001 Patent at 4:46-52 (“As a result, the thickness of the external electrode portion (i.e., the total thickness of the metal-material embedded portion embedded in the opening and the metal wiring located under the metal-material embedded portion) is greater than the thickness of a non-electrode portion of the metal wiring, that is, the portion of the metal wiring other than the external electrode portion.”)</p> <p>‘001 Patent at 4:55-61 (“According to the above manufacturing method, the metal wiring is formed so as to be electrically connected to the electrode of the semiconductor element. The insulating film is then formed so as to have an opening which exposes the region of the metal wiring where an external electrode is to be formed. Thereafter, the metal-material embedded portion is embedded in the opening so that the surface of the metal-material embedded portion is flush with or higher than the surface of the insulating film. As a result, the thickness of the external electrode portion (i.e., the total thickness of the metal-material embedded portion embedded in the opening and the metal wiring located under the metal-material embedded portion) is greater than the thickness of a</p>	
--	--	--	--

		<p>non-electrode portion of the metal wiring, that is, the portion of the metal wiring other than the external electrode portion. Accordingly, the same effects as those of the semiconductor device of the present invention can be obtained.”)</p> <p>‘001 Patent at 4:55-61 (“According to the above manufacturing method, the non-electrode portion of the metal wiring (i.e., the portion of the metal wiring other than the external electrode portion) is covered with the insulating film. This prevents a wiring or electrode of a substrate on which the semiconductor device is mounted from contacting the non-electrode portion of the metal wiring of the semiconductor device.”)</p> <p>‘001 Patent at 5:66-6:8 (“According to still another aspect of the present invention, a method for manufacturing a semiconductor device includes: a first step of forming, on a surface of a semiconductor element having an electrode formed thereon, a metal wiring electrically connected to the electrode; a second step of forming a projecting electrode on a region of the metal wiring where an external electrode is to be formed; and a third step of forming an insulating film on the surface of the semiconductor element and the metal wiring so as to expose at least a top</p>	
--	--	---	--

		<p>portion of the projecting electrode.”)</p> <p>‘001 Patent at 6:9-22 (“According to the above manufacturing method, the metal wiring is formed so as to be electrically connected to the electrode of the semiconductor element. The projecting electrode is then formed on the region of the metal wiring where an external electrode is to be formed. As a result, the thickness of the external electrode portion (i.e., the total thickness of the projecting electrode and the metal wiring located thereunder) is greater than the thickness of a non-electrode portion of the metal wiring, that is, the portion of the metal wiring other than the external electrode portion.”) <i>See also</i> 15:40-46; 18:53-58; 24:65-25:4</p> <p>‘001 Patent at 8:39-43 (“The present embodiment is characterized in that the thickness (e.g., 14 μm) of the external electrode portion of the metal wiring is greater than that of the other portion of the metal wiring (hereinafter, referred to as “nonelectrode portion”).”)</p> <p>‘001 Patent at 8:56-59 (“According to the first embodiment, in each metal wiring electrically connected to a corresponding one of the electrodes, the thickness of the external electrode portion is greater than</p>	
--	--	--	--

		<p>that of the non-electrode portion.”)</p> <p>‘001 Patent at 9:1-6 (“However, since the thickness of the external electrode portion of the metal wiring is greater than that of the non-electrode portion of the metal wiring, this Sn—Cu alloy layer can be prevented from growing through the entire thickness of the external electrode portion.”)</p> <p>‘001 Patent at 10:8-11 (“Note that the external electrode portion having a greater thickness than the non-electrode portion of the metal wiring is herein formed using the metal-material embedded portion.”)</p> <p>‘001 Patent at 10:15-21 (“According to the first embodiment, the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring) is covered with the insulating film. This prevents wirings or electrodes of the substrate on which the semiconductor device is mounted from contacting the non-electrode portions of the metal wirings of the semiconductor device.”) <i>See also</i> 19:15-21; 21:66-22:5; 25:7-13</p> <p>‘001 Patent at 12:11-15 (“A first characteristic of the second embodiment is that, like the first embodiment, the thickness of the external electrode portion</p>	
--	--	--	--

		<p>of the metal wiring is greater than that of the other portion of the metal wiring (i.e., the non-electrode portion).”)</p> <p>‘001 Patent at 12:36-39 (“According to the second embodiment, the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring) is covered with the insulating film.”)</p> <p>‘001 Patent at 14:37-43 (“As shown in FIG. 7C, an insulating film is formed on the passivation film and the metal wirings. Openings are then formed in the insulating film so as to expose a predetermined region of each metal wiring (a region where an external electrode is to be formed; hereinafter, referred to as “external-electrode formation region”) by an etching method using a resist material (not shown).”)</p> <p>‘001 Patent at 15:4-9 (“As a result, the total thickness of the metal-material embedded portion and the metal wiring located thereunder is greater than the thickness of the portion of the metal wiring other than the external electrode portion (i.e., the non-electrode portion of the metal wiring).”) <i>See also</i> 21:34-36</p>	
--	--	---	--

		<p>‘001 Patent at 16:15-21 (“As shown in FIG. 7C, an insulating film is formed on the passivation film and the metal wirings. Openings are then formed in the insulating film so as to expose a predetermined region of each metal wiring (a region where an external electrode is to be formed; hereinafter, referred to as “external-electrode formation region”) by an etching method using a resist material (not shown).”)</p> <p>‘001 Patent at 18:36-40 (“As shown in FIG. 9D, an insulating film is formed on the passivation film, the insulating resin layer and the metal wirings. Openings are then formed in the insulating film so as to expose a predetermined region (external-electrode formation region) of each metal wiring.”)</p> <p>‘001 Patent at 20:60-65 (“As shown in FIG. 11C, an insulating film is formed on the passivation film and the metal wirings. Openings are then formed in the insulating film so as to expose a predetermined region of each metal wiring (a region where an external electrode is to be formed, i.e., an external-electrode formation region).”)</p> <p>‘001 Patent at 21:46-54 (“As has been</p>	
--	--	--	--

		<p>described above, according to the fifth embodiment, the metal wirings are formed so as to be electrically connected to the electrodes of the semiconductor element, respectively. The insulating film is then formed, and openings are formed in the insulating film so as to expose the external-electrode formation regions of the metal wirings.”)</p> <p>’001 Patent at 24:58-65 (“As has been described above, according to the sixth embodiment, the metal wirings are formed so as to be electrically connected to the electrodes of the semiconductor element, respectively. Thereafter, the projecting electrodes are respectively formed on the external-electrode formation regions of the metal wirings, and the insulating film is then formed so as to expose the top portions of the projecting electrodes.”)</p> <p>’001 Patent cls. 1-18; ’557 patent cls. 1-8</p>	
“flush with or higher than a surface of the insulating film”	“the same height as or greater height than an exposed surface of the insulating film”	<p>File History</p> <p>’001 File History, 2/14/2005 Office Action at 7-9.</p> <p>’557 File History, 2/25/2004 Office Action at 8-10.</p> <p>’001 Patent</p>	<p>IPR2018-00466, Petition, at pp. 10, 11, 12, 32, 52</p> <p><u>Webster’s New World College Dictionary (4th ed., 1999):</u></p> <p>“Flush: <i>adj</i> 6a) making an even or unbroken line or</p>

		<p>'001 Patent at 5:20-26 ("Note that, when the exposed surface of the external electrode portion (i.e., the surface of the metal-material embedded portion) is higher than the surface of the insulating film, the external electrode portion may be bonded to the wiring electrode of the substrate by solder without using the ball electrode.") <i>See also</i> 3:61-65; 6:55-60; 13:58-62; 16:67-52; 19:21-51; 22:41-46; 25:38-43.</p> <p>'001 Patent at 24:42-49 ("Note that, in the present embodiment, the top portions of the projecting electrodes may be cleaned by etching the surface of the semiconductor wafer by a dry etching method using oxygen gas after the insulating film is formed. This improves conductivity between the projecting electrodes of the semiconductor device and the wiring electrodes of a substrate on which the semiconductor device is mounted.")</p> <p>'001 Patent at 3:30-42 (An exposed surface of the external electrode portion is preferably flush with or higher than a surface of the insulating film. This prevents a wiring or electrode of a substrate on which the semiconductor device is mounted from contacting the non-electrode portion of the metal wiring of the semiconductor device...</p>	<p>surface; being even or on the same line or plane ... b) even with a margin or edge"</p> <p><u>The Oxford American Dictionary of Current English (1999):</u></p> <p>"Flush: 1) <i>adj</i> (often foll. by <i>with</i>) in the same plane; level"</p> <p><u>The New Oxford American Dictionary (2d ed., 2005):</u></p> <p>"Flush: <i>adj</i> 1) completely level or even with another surface"</p>
--	--	--	---

		<p>Therefore, the ball electrode can be mounted to the external electrode portion without producing a gap therebetween. As a result, sufficient junction between the ball electrode and the external electrode portion can be ensured.) <i>See also</i> 4:34-54; 4:61-5:1; 6:28-35; 10:22-35.</p> <p>‘001 Patent at 4:40-46 (“The insulating film is then formed so as to have an opening which exposes the region of the metal wiring where an external electrode is to be formed. Thereafter, the metal material embedded portion is embedded in the opening so that the surface of the metal-material embedded portion is flush with or higher than the surface of the insulating film”). <i>See also</i> 15:32-39</p> <p>‘001 Patent at 10:22-33 (“It is preferable that the exposed surface of the external electrode portion is flush with or higher than the surface of the insulating film (in the specification, the term “flush” also includes “approximately flush”). In other words, it is preferable that the thickness of the external electrode portion is equal to or greater than that of the insulating film.”) <i>See also</i> 12:46-49; 17:29-33; 19:24-26; col. 22:8-12; 25:14-18.</p>	
--	--	---	--

		<p>‘001 Patent at 11:1-8 (“The modification of the first embodiment is different from the first embodiment in that each external electrode portion has a mushroom-like projection over a corresponding one of the openings of the insulating film. The mushroom-like projection is larger than the opening of the insulating film. Therefore, the exposed surface of the external electrode portion is higher than the surface of the insulating film.”) <i>See also</i> 13:28-32.</p> <p>‘001 Patent at 18:44 (“As shown in FIG. 10A, metal-material embedded portions are formed in the openings of the insulating film so as to be connected to the metal wirings, respectively. The thickness of the metal-material embedded portions is greater than that of the insulating film....As a result, the top portions of the metal-material portions projecting from the surface of the insulating film serve as projecting electrodes.”)</p> <p>‘001 Patent at 23:15-21 (“In the fifth embodiment, the metal-material embedded portion having its top portion larger than the opening of the insulating film may be formed by a screen printing method or the like so that the top portion of the metal-material embedded</p>	
--	--	---	--

		<p>portion projecting from the surface of the insulating film serves as a mushroom-like projecting electrode.”)</p> <p>’001 Patent cls. 1-18; ’557 patent cls. 1-8</p>	
<p>“diffusion layer formed between said first electrode portion and said second electrode portion”/ “diffusion layer”</p>	<p>“alloy layer formed into part of the first electrode portion, and under the second electrode portion”</p>	<p>File History</p> <p>’001 File History, 2/14/2005 Office Action at 7-9.</p> <p>’557 File History, 2/25/2004 Office Action at 8-10.</p> <p>’001 Patent</p> <p>’001 patent at 2:59-64 (“Sn contained in the solder of the ball electrode diffuses into Cu contained in the metal wiring, whereby a Sn-Cu alloy layer having low strength grows in the thickness direction of the external electrode portion.”); <i>see also</i> 3:45-49; 5:5-9; 6:39-43; 8:63-9:1; 11:11-19; 13:35-43; 15:53-59; 16:40-45.</p> <p>’001 patent at 2:29-31 (“the Cu-Sn alloy layer formed in the portion of metal wiring[] to which ball electrode[] is mounted is likely to be broken by the stresses.”)</p> <p>’001 patent at 3:49-54 (“it is ensured that a greater part of the external electrode portion is left unchanged into the Sn-Cu alloy in the thickness direction of the</p>	<p>IPR2017-01486, Petition, at p. 13</p> <p>IPR2018-00466, Petition, at pp. 8, 11</p>

		<p>external electrode portion.”) <i>see also</i> 5:9-14; 6:43-48; 11:17-25; 13:41-50; 16:45-50.</p> <p>’001 patent at 2:59-64 (“In this case, when the metal wiring contain, e.g., Cu (which is a commonly used metal wiring material), Sn contained in solder of the ball electrode diffuses into Cu contained in the metal wiring, whereby a Sn-Cu alloy layer having low strength grows in the thickness direction of the external electrode portion.”) <i>See also</i> 3:45-49; 5:5-9; 6:39-43; 8:63-9:1; 11:11-19; 13:35-43; 15:53-59; 16:40-45.</p> <p>’001 Patent cls. 1-18; ’557 patent cls. 1-8</p>	
“metal component”	Plain and ordinary meaning or “metal”	<p>File History</p> <p>’001 File History, 2/14/2005 Office Action at 7-9.</p> <p>’557 File History, 2/25/2004 Office Action at 8-10.</p> <p>’001 Patent</p> <p>’001 patent at 1:54-56 (“Each metal wiring is formed from copper (Cu)”) <i>see also</i> 2:4-9; 4:1-2</p> <p>’001 Patent at 8:17-19 (“Metal wirings containing, e.g., Cu are formed on the</p>	<p>IPR2018-00466, Petition, at pp. 8, 12-13, 35, 47</p> <p><u>The American Heritage Science Dictionary (1st ed., 2005):</u></p> <p>“Metal: 2. An alloy, such as steel or bronze, made of two or more metals”</p> <p><u>Academic Press Dictionary of Science and Technology (1992):</u></p> <p>“Metal: <i>Materials science,</i></p>

		<p>passivation film.”)</p> <p>‘001 Patent at 2:59-64 (“In this case, when the metal wiring contain, e.g., Cu (which is a commonly used metal wiring material), Sn contained in solder of the ball electrode diffuses into Cu contained in the metal wiring, whereby a Sn-Cu alloy layer having low strength grows in the thickness direction of the external electrode portion.”) <i>See also</i> 3:45-49; 5:5-9; 6:39-43; 8:63-9:1; 11:11-19; 15:53-56; 16:40-45.</p> <p>‘001 Patent at 10:36-43 (“For example, a material mainly containing Cu, titanium (Ti), tungsten (W), chromium (Cr), aluminum (Al) or the like may be used. Alternatively, another conductive metal material may be used.”) <i>See also</i> 12:56-62; 16:64-7:3.</p> <p>‘001 Patent at 17:19-26 (“However, the metal film, that is, the metal-material embedded portions, may alternative be formed from a material mainly containing TiW, Cr, nickel (Ni), gold (Au), or the like. If the metal film is formed by an electroplating method, the metal film, that is, the metal-material embedded portions, may be formed from a material mainly containing Au, silver (Ag), palladium (Pd), lead (Pb), Ni or the like.”) <i>See also</i></p>	<p>an alloy or mixture that is composed of metals”</p> <p><u>Webster’s New World College Dictionary (4th ed., 1999):</u></p> <p>“Metal: a) any of a class of chemical elements, as iron gold, or aluminum ... b) an alloy of such elements, as brass or bronze”</p> <p><u>The New Oxford American Dictionary (2d ed., 2005):</u></p> <p>“Metal: a solid material that is typically hard, shiny, malleable, fusible, and ductile, with good electrical and thermal conductivity (e.g., iron, gold, silver, copper, and aluminum, and alloys such as brass and steel)”</p>
--	--	--	--

		<p>23:11-14; 26:58-61.</p> <p>'001 Patent at 14:28-31 ("More specifically, the metal wirings are formed as follows: a titanium tungsten (TiW) layer and a Cu layer are sequentially formed on the passivation film by a sputtering method.")</p> <p>'001 Patent at 8:48-50 ("Thereafter, the openings are filled with a metal material (more specifically, Cu).")</p> <p>'001 Patent cls. 1-18; '557 patent cls. 1-8</p>	
"said diffusion layer and said first electrode portion having a combined thickness in the range of 10 μm to 20 μm "	"said alloy layer and said external electrode portion having a combined thickness in the range of 10 μm to 20 μm "	<i>See</i> "diffusion layer formed between said first electrode portion and said second electrode portion" and "first electrode portion"	<i>See</i> "diffusion layer formed between said first electrode portion and said second electrode portion" and "first electrode portion"
"the metal wiring has a thickness in the range of 0.01 μm to 8 μm "	"the non-electrode portion of the metal wiring has a thickness in the range of 0.01 μm to 8 μm "	<i>See</i> "metal wiring"	<i>See</i> "metal wiring"

B. '557 Patent³

<u>Term</u>	<u>Tessera's Proposed Construction</u>	<u>Intrinsic Evidence</u>	<u>Extrinsic Evidence</u>
“first electrode portion”	“external electrode portion”	<i>See</i> '001 Patent construction for “first electrode portion”	<i>See</i> '001 Patent construction for “first electrode portion”
“second electrode portion”	“contact electrode of the semiconductor element”	<i>See</i> '001 Patent construction for “third electrode portion”	<i>See</i> '001 Patent construction for “third electrode portion”
“metal wiring”	“non-electrode portion of the metal wiring”	<i>See</i> '001 Patent construction for “metal wiring”	<i>See</i> '001 Patent construction for “metal wiring”
“flush with or higher than a surface of the insulating film”	“the same height as or greater height than an exposed surface of the insulating film”	<i>See</i> '001 Patent construction for “flush with or higher than a surface of the insulating film”	<i>See</i> '001 Patent construction for “flush with or higher than a surface of the insulating film”
“said first electrode portion has a thickness in the range of 10 μm to 20 μm”	“said external electrode portion has a thickness in the range of 10 μm to 20 μm”	<i>See</i> “first electrode portion”	<i>See</i> “first electrode portion”
“the metal wiring has a thickness in	“the non-electrode portion of the metal	<i>See</i> “metal wiring”	<i>See</i> “metal wiring”

³ The '001 and '557 patent share a specification.

the range of 0.01 μm to 8 μm ”	wiring has a thickness in the range of 0.01 μm to 8 μm ”		
---	--	--	--

CERTIFICATE OF SERVICE

It is hereby certified that copies of **COMPLAINANT'S PROPOSED CONSTRUCTIONS OF DISPUTED TERMS** were served on January 26, 2018 as follows:

<p>D. Sean Trainor O'MELVENY & MYERS LLP 1625 Eye Street, NW Washington, DC 20006</p> <p><i>Counsel for Respondents Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. and Samsung Semiconductor, Inc.</i></p>	<p>By Email TesseraSamsungOMM@omm.com</p>
--	--

/s/ Erika J. Weinstein
Erika J. Weinstein
Litigation Analyst
LATHAM & WATKINS LLP