**PATENT ASSIGNMENT**

Electronic Version v1.1  
Stylesheet Version v1.1

**SUBMISSION TYPE:**  NEW ASSIGNMENT  
**NATURE OF CONVEYANCE:**  ASSIGNMENT

### CONVEYING PARTY DATA

<table>
<thead>
<tr>
<th>Name</th>
<th>Execution Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masahiro MORINO</td>
<td>08/10/2011</td>
</tr>
<tr>
<td>Yasuji TAKETSUNA</td>
<td>08/10/2011</td>
</tr>
<tr>
<td>Eisaku KAKIUCHI</td>
<td>08/10/2011</td>
</tr>
<tr>
<td>Yuya TAKANO</td>
<td>08/10/2011</td>
</tr>
</tbody>
</table>

### RECEIVING PARTY DATA

<table>
<thead>
<tr>
<th>Name</th>
<th>TOYOTA JIDOSHA KABUSHIKI KAISHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Address</td>
<td>1, Toyota-cho</td>
</tr>
<tr>
<td>City</td>
<td>Toyota-shi, Aichi</td>
</tr>
<tr>
<td>State/Country</td>
<td>JAPAN</td>
</tr>
<tr>
<td>Postal Code</td>
<td>471-8571</td>
</tr>
</tbody>
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**PROPERTY NUMBERS Total: 1**

<table>
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<tr>
<th>Property Type</th>
<th>Number</th>
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<tbody>
<tr>
<td>Application Number</td>
<td>13259370</td>
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</tbody>
</table>

### CORRESPONDENCE DATA

- **Fax Number:** (202)220-4201  
- **Phone:** 202-220-4200  
- **Email:** mkuspa@kenyon.com  

*Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.*

- **Correspondent Name:** KENYON & KENYON LLP  
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- **Address Line 2:** SUITE 700  
- **Address Line 4:** WASHINGTON, DISTRICT OF COLUMBIA 20005

**ATTORNEY DOCKET NUMBER:** 13596/70

**NAME OF SUBMITTER:** Matthew G. Kuspa

Total Attachments: 3  
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**PATENT**  
**REEL:** 027149  **FRAME:** 0462
ASSIGNMENT

WHEREAS, we, (1) Masahiro MORINO, (2) Yasuji TAKETSUNA, (3) Eisaku KAKIUCHI and (4) Yuya TAKANO, citizens of Japan, residing at (1) Okazaki-shi, Aichi, Japan, (2) Okazaki-shi, Aichi, Japan, (3) Toyota-shi, Aichi, Japan and (4) Nishio-shi, Aichi, Japan (hereinafter referred to as "the Assignor"); have made new and useful improvements in an invention entitled Heat Exchanger, Semiconductor Device, Method for Manufacturing the Heat Exchanger, and Method for Manufacturing the Semiconductor Device, for which we are about to make application for Letters Patent in the United States, said application having been executed on even date hereof; and

WHEREAS, (1) TOYOTA JIDOSHA KABUSHIKI KAISHA, corporations organized and existing under and by virtue of the laws of Japan, having their principal place of business at (1) 1, Toyota-cho, Toyota-shi, Aichi, 471-8571 Japan, who, together with their successors and assigns, (hereinafter called "Assignee(s)",) are desirous of acquiring the title, rights, benefits, and privileges hereinafter recited.

NOW, THEREFORE, in consideration of the equivalent of One U.S. Dollar (U.S. $1.00) and other valuable consideration furnished by Assignee(s) to us, receipt and sufficiency of which we hereby acknowledge, we hereby, without reservations:

1. Assign, transfer, and convey to Assignee(s) the Entire right, title, and interest in and to said inventions and discoveries, said application for Letters Patent of the United States of America, including all divisional, renewal, substitute, and continuation applications based in whole or in part upon said inventions or discoveries, or upon said applications, and any and all Letters Patent, reissues, and extensions of letters Patent granted for said inventions and discoveries or upon said applications.

2. Authorize and request the Assistant Commissioner for Patents of the United States of America to issue or transfer all said Letters Patent to Assignee(s), as Assignee(s) of the entire right, title, and interest therein or otherwise as Assignee(s) may direct.

3. Warrant that we have not knowingly conveyed to others any right in said inventions, discoveries, applications, or patents or any license to use the same or to make, use, or sell anything embodying or utilizing any of said inventions or discoveries; and that we have good right to assign the same to Assignee(s) without encumbrance.
4. Bind our heirs, legal representatives, and assigns, as well as ourselves, to do, upon Assignee(s)'s request and at Assignee(s)'s expense, but without additional consideration to us or them, all acts reasonably serving to assure that the said inventions and discoveries, the said patent applications, and the said Letters Patent shall be held and enjoyed by Assignee(s) as fully and entirely as the same could have been held and enjoyed by us, our heirs, legal representatives, and assigns if this assignment had not been made; and particularly to execute and deliver to Assignee(s) all lawful application documents including petitions, specifications, and oaths, and all assignments, disclaimers, and lawful affidavits in form and substance as may be requested by Assignee(s); to communicate to Assignee(s) all facts known to us relating to said inventions and discoveries or the history thereof; and to furnish Assignee(s) with any and all documents, photographs, models, samples, and other physical exhibits in our control or in the control of our heirs, legal representatives, or assigns which may be useful for establishing the facts of our conceptions, disclosures, and reduction to practice of said inventions and discoveries.
IN TESTIMONY WHEREOF, I have hereunto set my hand and seal this

10th day of August, 2011.

Masahiro Morino
Masahiro MORINO

Yasuji Taketsuna
Yasuji TAKETSUNA

Eisaku Kakiuchi
Eisaku KAKIUCHI

Yuya Takano
Yuya TAKANO