TESLA INC: Portfolio Report

Introduction

Tesla Inc. (formerly Tesla Motors) designs and manufactures fully electric vehicles (EVs) and battery-based energy storage systems. More recently it has forayed into solar energy generation and storage products. Tesla was incorporated in 2003. The company and its charismatic founder and CEO, Elon Musk, are never too far away from the business headlines. [1]

Most recently, Tesla surpassed incumbents like Ford and General Motors in market capitalization, briefly capturing the #1 slot as the most valuable auto company. Its stock value has since decreased, dropping it to #2 behind GM. [2]

In 2014, Elon Musk announced that Tesla would not initiate lawsuits against other EV manufacturers, if they chose to utilize its technology. Earlier in 2006 Tesla captured the public’s imagination by introducing the Roadster - a plug-in electric sports car, powered by Li-ion batteries, with a range of over 200 miles per charge and an acceleration of 0-60 miles per hour in under 4 seconds. This spurred the large automakers to reboot their EV programs. [1]

Currently, the large automakers are hedging their bets between plug-in EVs and electric or fuel cell hybrids. In contrast, Tesla’s focus is on plug-in EVs alone, with an emphasis on a range of technologies related to batteries and charging. Despite a smaller portfolio in comparison to the larger players, Tesla has significant IP related to battery technology (Li-ion), and charging (fast charging). [3]

The results reported here are after grouping Tesla’s published patent documents by patent equivalents. Such a grouping typically gives one document per unique invention or design.

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Sources

1. Tesla Inc – Company Overview (Reuters)
3. EV Tech Patents: Tesla vs. The Rest - Batteries and Charging (Relecura IP Intelligence Report)
Analysis of Key Technologies

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<th>Technologies</th>
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<td>electric equipment for vehicles</td>
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<td>6</td>
<td>electric propulsion with power supplied within the vehicle (111), emission reduction in roadways (113), control parameters of input or output for electrically-propelled vehicles (66), electric vehicle charging, fuel cell and hydrogen energy in transportation (65), safety devices on electrically-propelled vehicles, monitoring operating variables (66)</td>
<td>US (89), EP (21), CN (17), WO (45), CA (15)</td>
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<td>greenhouse - transportation</td>
<td>120</td>
<td>7</td>
<td>emission reduction in roadways (123), electric propulsion with power supplied within the vehicle (129), control parameters of input or output for electrically-propelled vehicles (66), electric vehicle charging, fuel cell and hydrogen energy in transportation (65), charging, depolarizing batteries and supplying loads from batteries (65)</td>
<td>US (89), EP (21), CN (17), WO (45), CA (15)</td>
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<tr>
<td>electric elements - batteries</td>
<td>127</td>
<td>16</td>
<td>secondary cells (120), batteries constructional details and manufacturing process (70), emission reduction in roadways (121), electric propulsion with power supplied within the vehicle (64), charging, depolarizing batteries and supplying loads from batteries (46)</td>
<td>US (92), EP (16), JP (13), CN (18), WO (3)</td>
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<td>power supply &amp; distribution circuits</td>
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<td>charging, depolarizing batteries and supplying loads from batteries (66), emission reduction in roadways (55), electric propulsion with power supplied within the vehicle (61), electric vehicle charging, fuel cell and hydrogen energy in transportation (49), secondary cells (30)</td>
<td>US (56), EP (12), CN (17), JP (5), WO (6)</td>
</tr>
<tr>
<td>miscellaneous technologies</td>
<td>47</td>
<td></td>
<td>metal working (52), batteries constructional details and manufacturing process (18), secondary cells (16), asynchronous induction motors or generators (5), electric propulsion with power supplied within the vehicle (39)</td>
<td>US (32), ON (6), EP (5), CA (2), WO (5)</td>
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</tbody>
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Key Sub-Technologies

- Emission reduction in roadways (112)
- Electric propulsion with power supplied within the vehicle (111)
- Secondary cells (110)
- Batteries constructional details and manufacturing process (70)
- Charging, depolarizing batteries and supplying loads from batteries (69)
- Control parameters of input or output for electrically-propelled vehicles (65)
- Electric vehicle charging, fuel cell and hydrogen energy in transportation (60)
- Others (1020)

Key Patents in portfolio

<table>
<thead>
<tr>
<th>Publication No.</th>
<th>Title</th>
<th>Inventor</th>
<th>Filing Date</th>
<th>Star Rating</th>
<th>Affed Citations</th>
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<tbody>
<tr>
<td>US7006078B2</td>
<td>Electric vehicle communication interface</td>
<td>Kurt Kelly, Marc Tapenning, Scott Kohn</td>
<td>2007-07-18</td>
<td>4.0</td>
<td>115</td>
</tr>
<tr>
<td>US2004012782A1</td>
<td>Electric vehicle communication interface</td>
<td>Gene Breidh, Kurt Kelly, Jeffrey Brian Straubel, Marc Tapenning, Colin Keisworth, Campbell</td>
<td>2007-06-15</td>
<td>4.0</td>
<td>96</td>
</tr>
<tr>
<td>US8054030B2</td>
<td>System for optimizing battery pack cut-off voltage</td>
<td>Kurt Russell Kelly, Scott O, Kohn</td>
<td>2009-01-29</td>
<td>4.0</td>
<td>65</td>
</tr>
<tr>
<td>US5679458B2</td>
<td>Morphing vehicle user interface</td>
<td>EVEN SMALL, VINCENZ GEORGE JOHNSTON</td>
<td>2005-03-16</td>
<td>4.0</td>
<td>49</td>
</tr>
<tr>
<td>US20090201215A1</td>
<td>Electric vehicle thermal management system</td>
<td>Peng Zhou</td>
<td>2007-04-11</td>
<td>3.5</td>
<td>72</td>
</tr>
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Assignee | Number of documents
--- | ---
FORD | 51
BOSCH | 48
GM | 43
TOYOTA | 39
SAMSUNG | 34
ATIEVA INC | 31
BMW | 25
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