## REVISIONS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>APPROVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>Initial Release</td>
<td>07/31/12</td>
<td>JS</td>
</tr>
</tbody>
</table>

## SHEET REVISION STATUS

<table>
<thead>
<tr>
<th>SH</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>REV</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SH</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
<th>31</th>
<th>32</th>
<th>33</th>
<th>34</th>
<th>35</th>
<th>36</th>
<th>37</th>
<th>38</th>
<th>39</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>REV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ORIGINATOR:**
T.J. Perry/MEI Technologies

**DATE:**
7/30/12

**FSC:** 5930

**APPROVED:**
T.J. Perry/MEI Technologies

**CODE 562 APPROVAL:**
B. Meinhold/GSFC

**DATE:**
7/30/12

Switch, Thermostatic,
(Bimetallic), Subminiature
Sealed, Single Pole, Single
Throw (SPST), 1 Ampere
and Low Level, Detail
Specification for

**CODE 562 SUPERVISORY APPROVAL:**
K. Sahu/GSFC

**DATE:**
7/30/2012

**ADDITIONAL APPROVAL:**
S-311-641/06

---

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771

**CAGE CODE:** 25306

Page 1 of 8
GSFC DETAIL SPECIFICATION

SWITCHES, THERMOSTATIC, (BIMETALLIC), SUBMINIATURE, HERMETICALLY SEALED, SINGLE POLE, SINGLE THROW (SPST), 1 AMPERE AND LOW LEVEL

The requirements for procuring the thermostatic switches described herein shall consist of this specification, the current revision of GSFC S-311-641 and QPL-24236.

PART NUMBER:

G311P641/06  A  B  C  D  (S)
(a)  (b)  (c)  (d)  (e)  (f)

(a) GSFC Prefix
(b) Configuration (See Figure 1)
(c) Contact Action
   A  Open on rise, silver contacts
   B  Close on rise, silver contacts
   C  Open on rise, gold contacts (low level)
   D  Close on rise, gold contacts (low level)
(d) High Temperature from Coarse Table 1
(e) High Temperature from Fine Table 2
(f) Special
   Special lead attach. Consult factory for available wire types, sizes, and lengths. Omit if leads not required.

REQUIREMENTS:

Dimensions and configuration:  See Figure 1
Storage temperature range:  -80°F to 380°F (-62.2°C to +193.3°C)
Operating temperature range:  -30°F to 365°F (-34.4°C to +185°C)
High temperature setting tolerance:  ± 8°F
Low temperature setting (differential):  30°F ± 8°F below specified high temperature setting
Contact ratings (resistive):  1.0 ampere at 115 VAC/30 VDC, 10,000 cycles
                                 10 milliamperes at 30 mVAC/30 mVDC, 10,000 cycles (low level)
Contact resistance:  0.050 ohms maximum (0.100 ohms maximum for close on rise devices greater than +175°F) per MIL-STD-202, Method 307
Dielectric Withstanding Voltage: (Sea Level)

500 VAC, rms, 60 Hz for 5 seconds or 400 VAC rms 60Hz for 1 minute, across open contacts, per MIL-STD-202, Method 301

(70,000 ft altitude)

250 VAC, rms, 60 Hz for 5 seconds, across open contacts, per MIL-STD-202, Method 301

Vibration: 10-2000 Hz, 30 G, per MIL-STD-202, Method 204

Note: Does not apply to devices that open on temperature rise while at temperatures of 75°F or more below the specified opening temperature or to devices that close on temperature rise while at temperatures 75°F or more above the closing temperature.

Shock: 100G, 6 milliseconds, per MIL-STD-202, Method 213

Hermeticity: $1 \times 10^{-8}$ atm cc/sec maximum, per MIL-STD-202, Method 112, Condition C

Salt Spray Resistance: Per MIL-STD-202, Method 101, Condition B, 5% solution except switches shall be subjected to and pass the seal test after undergoing salt spray.

Note: Destructive corrosion shall be construed as any type of corrosion which in any way interferes with the mechanical or electrical performance of the switch, or corrosion which causes seal failure.

Moisture Resistance: Per MIL-STD-202, Method 106

Weight (max): 0.3 grams basic unit

Finish: 0.0001-0.0002” gold plate over 0.0002-0.0004” silver plate

Wire Leads: Standard 22AWG, stranded 12” wire leads are available in white Teflon© insulation, in accordance with SAE AS22759/11. Other wires are available upon request.

Qualification: Qualification listing to MIL-PRF-24236/13 is required for each configuration.

Screening: Switches shall be subjected to 100% Group A screening inspection per S-311-641, Table I, Test Nos. 1-12, with the following details and exceptions:

a. PIND per manufacturer’s GSFC approved internal test procedures.

b. Creepage testing shall be performed in accordance with MIL-PRF-24236, para. 4.6.4 for three (3) consecutive cycles.

c. Switches shall be heated or cooled as required to cause thermal actuation. The rate of temperature change of the switch shall be the minimum practical to provide reliable creepage detection.

d. Tested units shall meet the requirements in MIL-PRF-24236, para. 3.9, except contact transfer time shall not exceed five (5) milliseconds.
Table 1  Course High Temperature Setting to Within 20°F

<table>
<thead>
<tr>
<th>Code</th>
<th>Temperature (°F)</th>
<th>Code</th>
<th>Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-30</td>
<td>M</td>
<td>+190</td>
</tr>
<tr>
<td>B</td>
<td>-10</td>
<td>N</td>
<td>+210</td>
</tr>
<tr>
<td>C</td>
<td>+10</td>
<td>P</td>
<td>+230</td>
</tr>
<tr>
<td>D</td>
<td>+30</td>
<td>Q</td>
<td>+250</td>
</tr>
<tr>
<td>E</td>
<td>+50</td>
<td>R</td>
<td>+270</td>
</tr>
<tr>
<td>F</td>
<td>+70</td>
<td>S</td>
<td>+290</td>
</tr>
<tr>
<td>G</td>
<td>+90</td>
<td>T</td>
<td>+310</td>
</tr>
<tr>
<td>H</td>
<td>+110</td>
<td>U</td>
<td>+330</td>
</tr>
<tr>
<td>J</td>
<td>+130</td>
<td>V</td>
<td>+350</td>
</tr>
<tr>
<td>K</td>
<td>+150</td>
<td>W</td>
<td>+365</td>
</tr>
<tr>
<td>L</td>
<td>+170</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2  Fine High Temperature Setting to Within 5°F

<table>
<thead>
<tr>
<th>Code</th>
<th>Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>+5</td>
</tr>
<tr>
<td>C</td>
<td>+10</td>
</tr>
<tr>
<td>D</td>
<td>+15</td>
</tr>
</tbody>
</table>
Figure 1. Dimensions.
Figure 1. Dimensions (continued).
NOTES:
1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is ± .015.
3. Exact shape of switch and terminals are optional provided dimensions specified are not exceeded.

Figure 1. Dimensions (continued).
Approved source(s):

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Cage Code</th>
<th>Vendor Similar Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensata Technologies</td>
<td>82647</td>
<td>4BT</td>
</tr>
</tbody>
</table>

Custodian: QPLD Administrator
Parts, Packaging & Assembly Technologies Office, Code 562
Goddard Space Flight Center
Greenbelt, MD 20771