MG3700A-002 Mechanical Attenuator

- In order to change the RF output level widely, the step attenuator controls the output level.
- There are two types of step attenuators. An electronic attenuator is provided as standard. Please determine needs according to usage, since there are trade-off relationships regarding advantages.

  - » Electronic step attenuator Standard
    - – Switches the attenuation elements using a semiconductor switch
    - – 5 dB step, 135 dB range
    - – Advantage: high-speed, long life, no wear

    Better for ATE

  - » Mechanical step attenuator Option
    - – Switches the contacts of a multi-fixed attenuator of different values and through paths using a mechanical switch
    - – 2 dB step, 142 dB range, Switching useful life ≥ 5 million times
    - – Advantage: low loss, no variation of temperature

    Better for high power output, high C/N, field site use

Different Attenuator Specifications

<table>
<tr><th colspan="2"></th><th>Electronic attenuator</th><th>Mechanical attenuator</th><th>MG3681A Mechanical attenuator for reference</th></tr>
<tr><td>Frequency</td><td>Switching time</td><td>* Frequency switching = Normal:
≤ 15 ms (3 GHz non-cross, Δf < 1 GHz)
≤ 20 ms (3 GHz non-cross, Δf ≥ 1 GHz)
≤ 40 ms (3 GHz cross)
* Frequency switching = Fast:
≤ 10 ms (3 GHz non-cross)
≤ 40 ms (3 GHz cross)</td><td>≤ 80 ms (3 GHz non-cross)
≤ 100 ms (3 GHz cross)</td><td>≤ 20 ms</td></tr>
<tr><td rowspan="4">Output level</td><td>Settable range</td><td>-140 ~ +13 dBm</td><td>-140 ~ +19 dBm</td><td>-143 ~ +17 dBm</td></tr>
<tr><td>Accuracy</td><td>CW, 23 ±5 °C
<table>
<tr><th>Level (p) [dBm]</th><th colspan="3">Frequency (f) [Hz]</th></tr>
<tr><th></th><th>250 k ≤f < 25 M</th><th>25 M ≤f ≤3 G</th><th>3 G < f ≤6 G*</th></tr>
<tr><td>+3 < p ≤+6</td><td></td><td>±0.5 dB</td><td></td></tr>
<tr><td>−1 < p ≤+3</td><td></td><td>±0.5 dB</td><td>±0.8 dB</td></tr>
<tr><td>−120 ≤p ≤−1</td><td>±0.5 dB typical</td><td>±0.5 dB</td><td>±0.8 dB</td></tr>
<tr><td>−127 ≤p <−120</td><td></td><td>±0.7 dB</td><td>±2.5 dB typical</td></tr>
<tr><td>−136 ≤p <−127</td><td></td><td>±1.5 dB typical</td><td></td></tr>
</table></td><td>CW, 23 ±5 °C
<table>
<tr><th>Level (p) [dBm]</th><th colspan="3">Frequency (f) [Hz]</th></tr>
<tr><th></th><th>250 k ≤f < 25 M</th><th>25 M ≤f ≤3 G</th><th>3 G < f ≤6 G*</th></tr>
<tr><td>+7 < p ≤+10</td><td>±0.5 dB typical</td><td>±0.5 dB</td><td></td></tr>
<tr><td>−100 ≤p ≤+7</td><td>±0.5 dB typical</td><td>±0.5 dB</td><td>±0.8 dB</td></tr>
<tr><td>−120 ≤p <−100</td><td>±0.5 dB typical</td><td>±0.5 dB</td><td>±1.0 dB</td></tr>
<tr><td>−127 ≤p <−120</td><td></td><td>±0.7 dB</td><td>±2.5 dB typical</td></tr>
<tr><td>−136 ≤p <−127</td><td></td><td>±1.5 dB typical</td><td></td></tr>
</table></td><td>CW (0 ~ 50 °C)
<table>
<tr><th>Level \ Frequency</th><th>≤1 GHz</th><th>>1 GHz</th></tr>
<tr><td>≤+13 dBm, ≥−127 dBm</td><td>±1 dB</td><td>±2 dB</td></tr>
<tr><td><−127 dBm</td><td>±2 dB</td><td>±3 dB</td></tr>
</table></td></tr>
<tr><td>Switching time</td><td>≤ 10 ms (≥ 25 MHz)
≤ 15 ms (< 25 MHz)</td><td>≤ 80 ms</td><td>≤ 50 ms</td></tr>
<tr><td>VSWR</td><td>1.3 (≤ 3 GHz)
1.55 (> 3 GHz)</td><td>1.25 (≤ 3 GHz)
1.35 (> 3 GHz)</td><td></td></tr>
<tr><td rowspan="3">Vector mod.
I/Q mod.</td><td>W-CDMA</td><td colspan="3">Test Model 1 64DPCH</td></tr>
<tr><td>ACLR 5 MHz Offset</td><td>-61 dBc/3.84 MHz
-63 dBc/3.84 MHz typ.</td><td>-62 dBc/3.84 MHz
-64 dBc/3.84 MHz typ.</td><td>-66 dBc/3.84 MHz typ.</td></tr>
<tr><td>ACLR 10 MHz Offset</td><td>-66 dBc/3.84 MHz typ.</td><td>-67 dBc/3.84 MHz typ.</td><td>-67 dBc/3.84 MHz typ.</td></tr>
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