PMI MODEL: PLA-14D65G15G35G-20DB-SFF-250W IS AN INTEGRATED LIMITER AND ATTENUATOR THAT OPERATES AT 14.65 TO 15.35 GHz. THE INSERTION LOSS IS 3.5 dB MAXIMUM AND OFFERS 20 dB OF ATTENUATION CONTROL VIA A SINGLE LINE TTL SIGNAL. THIS MODEL IS DESIGNED TO HANDLE 250 WATTS PEAK HAVING A PULSE WIDTH OF 40 µs AND AN AVERAGE POWER OF 25 WATTS.

January 30, 2018

Designed By: PMI Engineering

Tested & Reported By: Sebastian Palacio
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TYPICAL CHARACTERISTICS ON PLA-14D65G15G35G-20DB-SFF-250W

DESCRIPTION
PMI MODEL: PLA-14D65G15G35G-20DB-SFF-250W IS AN INTEGRATED LIMITER AND ATTENUATOR THAT OPERATES AT 14.65 TO 15.35 GHz. THE INSERTION LOSS IS 3.5 dB MAXIMUM AND OFFERS 20 dB OF ATTENUATION CONTROL VIA A SINGLE LINE TTL SIGNAL. THIS MODEL IS DESIGNED TO HANDLE 250 WATTS PEAK HAVING A PULSE WIDTH OF 40 µS AND AN AVERAGE POWER OF 25 WATTS.

SPECIFICATIONS
- FREQUENCY RANGE: 14.65 TO 15.35 GHz
- INSERTION LOSS: 3.5 dB MAX
- PEAK POWER HANDLING: 250 W MAX
- PULSE WIDTH: 40 µS Typ
- AVERAGE POWER: 26 W MAX
- ATTENUATION: LOGIC TTL "0" - 0 dB ATTENUATION
  LOGIC TTL "1" - 20 dB ATTENUATION
- ATTENUATION FLATNESS: ±1 dB MAX
- ATTENUATION ACCURACY: ±1 dB MAX
- PHASING LIMITING THRESHOLD: ±5 dBm MIN
- FLAT LEAKAGE: ±12 dBm MAX
- SWITCHING SPEED: 90 ns @ 50% TTL TO 10% RF VOLTAGE MAX
  90 ns @ 50% TTL TO 90% RF VOLTAGE MAX
- CONTROL LOGIC: TTL COMPATIBLE
- PHASE MATCH: 15° MAX (UNIT TO UNIT)
- DC CONSUMPTION: 150 mA MAX EACH FOR +5 V & -15 V
- VSWR: 2.0:1 MAX @ -10 dBm INPUT
- RF CONNECTORS: REMOVABLE SMA FEMALE
  (J1 - RF INPUT & J7 - RF OUTPUT)
- FINISH: 9003 SILVER PLATE OVER COPPER FLASH
  JAW QG-S-365 TYPE 1, GRADE A

1. @ -0 dBm INPUT AND 0 dB ATTENUATION
2. @ 0 dB AND 20 dB ATTENUATION @ 10% DUTY CYCLE
3. @ 0 dB ATTENUATION & 0 TO 160 W POWER

ENVIRONMENTAL RATINGS
- TEMPERATURE: -65°C TO +85° C (OPERATING)
  -55°C TO +125° C (STORAGE)
- HUMIDITY: MIL-STD-810F
- SHOCK: MIL-STD-810F METHOD 516.5, PROCEDURE 1
- VIBRATION: MIL-STD-810F METHOD 514.5
- ALTITUDE: MIL-STD-810F METHOD 520.2, PROCEDURE 3
- TEMPERATURE CYCLE: MIL-STD-810F METHOD 501.4, 502.4

NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE ON REVISION

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ISO 9001 CERTIFIED

PRODUCT FEATURE
PLA-14D65G15G35G-20DB-SFF-250W
LIMITER ATTENUATOR

Page 3 of 32
## TYPICAL CHARACTERISTICS ON PLA-14D65G15G35G-20DB-SFF-250W

<table>
<thead>
<tr>
<th>TEST ITEM NO</th>
<th>PARAMETERS</th>
<th>SPECIFIED VALUE</th>
<th>TEST MEASUREMENT</th>
<th>TEST RESULT</th>
<th>QA QC</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Frequency Range</td>
<td>14.65 To 15.35 GHz</td>
<td>14.65 To 15.35 GHz</td>
<td>Pass</td>
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<tr>
<td>2</td>
<td>Insertion Loss</td>
<td>3.5 dB Max¹</td>
<td>3.5 dB</td>
<td>Pass</td>
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<tr>
<td>3</td>
<td>Power Handling</td>
<td>250 W Max²</td>
<td>Pass</td>
<td>Pass</td>
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<tr>
<td>4</td>
<td>Pulse Width</td>
<td>40 µs Typ²</td>
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<td>Average Power</td>
<td>25 W Max²</td>
<td>25 W</td>
<td>Pas</td>
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<tr>
<td>6</td>
<td>Attenuation</td>
<td>Logic TTL “0” = 0 dB</td>
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<td></td>
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<tr>
<td>7</td>
<td>Attenuation Flatness</td>
<td>±1 dB Max</td>
<td>±0.223 dB</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Attenuation Accuracy</td>
<td>±1 dB Max</td>
<td>±0.18 dB</td>
<td>Pass</td>
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<tr>
<td>9</td>
<td>P1dB Limiting Threshold</td>
<td>+5 dBm Min</td>
<td>6.3dBm</td>
<td>Pass</td>
<td></td>
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<tr>
<td>10</td>
<td>Flat Leakage</td>
<td>+12 dBm Max³</td>
<td>+13dBm</td>
<td>FAIL</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Switching Speed</td>
<td>90 ns, 50% TTL To 10% RF Max</td>
<td>20 ns</td>
<td>Pass</td>
<td></td>
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<tr>
<td>12</td>
<td>Phase Matching</td>
<td>15° Max Between Units @ 0 dB</td>
<td>-2.54° / +1.41°</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15° Max Between Units @ 20 dB</td>
<td>-3.16° / +2.5°</td>
<td>Pass</td>
<td></td>
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<td>13</td>
<td>DC Consumption</td>
<td>+5 V @ 150 mA Max</td>
<td>32 mA</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>DC Consumption</td>
<td>-15 V @ 150 mA Max</td>
<td>26 mA</td>
<td>Pass</td>
<td></td>
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<tr>
<td>15</td>
<td>VSWR</td>
<td>2.0:1 Max @ -10 dB Input</td>
<td>1.942:1</td>
<td>Pass</td>
<td></td>
</tr>
</tbody>
</table>

1. @ -10 dBm Input & 0 dB Attenuation
2. @ 0 dB & 20 dB Attenuation with 10% Duty Cycle
3. @ 0 dB Attenuation & 0 W to 150 W Power

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7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com
TYPICAL CHARACTERISTICS ON
PLA-14D65G15G35G-20DB-SFF-250W

PL21778/1744 (Reference Unit)

Insertion Loss, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

@ +85 Degrees C
TYPICAL CHARACTERISTICS ON PLA-14D65G15G35G-20DB-SFF-250W

@ -55 Degrees C
**TYPICAL CHARACTERISTICS**
**ON**
**PLA-14D65G15G35G-20DB-SFF-250W**

**Attenuation, Attenuation Flatness, Attenuation Accuracy, Return Loss (IN/OUT) & Phase Matching**

@ +25 Degrees C
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

@ +85 Degrees C

[Graph showing typical characteristics at 85 Degrees C]
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

@ -55 Degrees C
Switching Speed

Green Trace – TTL Signal
Blue Trace – RF Signal
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

CW TEST

P1dB = 8.1dBm

FLAT LEAKAGE AT 250W
PL21779/1744 (Temperature Performance Against Reference Unit)

Insertion Loss, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

@ +85 Degrees C
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

@ -55 Degrees C
TYPICAL CHARACTERISTICS ON PLA-14D65G15G35G-20DB-SFF-250W

Attenuation, Attenuation Flatness, Attenuation Accuracy, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
@ +85 Degrees C
Switching Speed

Green Trace – TTL Signal
Blue Trace – RF Signal
**CW TEST**

**Input Power vs Output Power**

- P1dB = 8.3dBm

**FLAT LEAKAGE AT 250W**

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PL21780/1744

Insertion Loss, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
### Typical Characteristics

**On**

**PLA-14D65G15G35G-20DB-SFF-250W**

**Attenuation, Attenuation Flatness, Attenuation Accuracy, Return Loss (IN/OUT) & Phase Matching**

@ +25 Degrees C

<table>
<thead>
<tr>
<th>Stimulus</th>
<th>Channel</th>
<th>View</th>
<th>Scale</th>
<th>Marker System</th>
<th>Window</th>
<th>Help</th>
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<td>S11</td>
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<td>S21</td>
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<td>S22</td>
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</tbody>
</table>

**Graphs and Data Tables**

*Graphs showing attenuation, flatness, and phase matching.*

**Contact Information**

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Switching Speed

Green Trace – TTL Signal
Blue Trace – RF Signal
CW TEST

**Input Power vs Output Power**

- **P1dB = 6.3dBm**

**FLAT LEAKAGE AT 250W**
PL21781/1744
Insertion Loss, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
TYPICAL CHARACTERISTICS ON
PLA-14D65G15G35G-20DB-SFF-250W

Attenuation, Attenuation Flatness, Attenuation Accuracy, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
Switching Speed

Green Trace – TTL Signal
Blue Trace – RF Signal
CW TEST

**TYPICAL CHARACTERISTICS ON**
PLA-14D65G15G35G-20DB-SFF-250W

**Input Power vs Output Power**

![](image)

- **P1dB = 7.15dBm**

**FLAT LEAKAGE AT 250W**

![](image)
PL21782/1744
Insertion Loss, Return Loss (IN/OUT) & Phase Matching
@ +25 Degrees C
TYPICAL CHARACTERISTICS ON
PLA-14D65G15G35G-20DB-SFF-250W

Attenuation, Attenuation Flatness, Attenuation Accuracy, Return Loss (IN/OUT) & Phase Matching

@ +25 Degrees C
TYPICAL CHARACTERISTICS
ON
PLA-14D65G15G35G-20DB-SFF-250W

Switching Speed

Green Trace – TTL Signal
Blue Trace – RF Signal
CW TEST

**TYPICAL CHARACTERISTICS ON**
PLA-14D65G15G35G-20DB-SFF-250W

**Input Power vs Output Power**

-25 -20 -15 -10 -5 0 5 10 15 20

Output Power (dBm) vs Input Power (dBm)

-30 -20 -10 0 10 20 30

P1dB = 10.85dBm

**FLAT LEAKAGE AT 250W**

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