# ADRF5025 Datasheet Changes from Rev C to Rev D

Rev C

**FEATURES**

- Ultrawideband frequency range: 9 kHz to 44 GHz
- Reflective design
- Low insertion loss with impedance match
  - 0.9 dB typical to 18 GHz
  - 1.4 dB typical to 40 GHz
  - 1.6 dB typical to 44 GHz
- Low insertion loss without impedance match
  - 0.9 dB typical to 18 GHz
  - 1.7 dB typical to 40 GHz
  - 2.2 dB typical to 44 GHz
- High input linearity
  - P1dB: 27.5 dBm typical
  - IP3: 50 dBm typical
- High RF input power handling
  - Through path: 27 dBm
  - Hot switching: 27 dBm
- No low frequency spurious
- RF settling time (50% $V_{CTRL}$ to 0.1 dB final RF output): 3.4 µs
- 12-terminal, 2.25 mm × 2.25 mm LGA package
- Pin compatible with the ADRF5024 fast switching version

Rev D

**FEATURES**

- Ultrawideband frequency range: 9 kHz to 44 GHz
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  - Through path: 27 dBm
  - Hot switching (RFC): 27 dBm
- No low frequency spurious
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- 12-terminal, 2.25 mm × 2.25 mm LGA package
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## GENERAL DESCRIPTION

The ADRF5025 is a reflective single-pole double-throw (SPDT) switch, manufactured in silicon process.

This switch operates from 9 kHz to 44 GHz with better than 1.6 dB of insertion loss and 35 dB of isolation. The ADRF5025 has a radio frequency (RF) input power handling capability of 27 dBm for both the through path and hot switching.

Rev D

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This switch operates from 9 kHz to 44 GHz with better than 1.6 dB of insertion loss and 35 dB of isolation. The ADRF5025 has a radio frequency (RF) input power handling capability of 27 dBm for both the through path and hot switching at RFC pin.

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Rev C

## SPECIFICATIONS

### ELECTRICAL SPECIFICATIONS

VDD = 3.3 V, VSS = −3.3 V, $V_{CTRL}$ = 0 V or 3.3 V, and case temperature ($T_{CASE}$) = 25°C for a 50 Ω system, unless otherwise noted.

| | | | | | |
|---|---|---|---|---|---|
| RECOMMENDED OPERATING CONDITIONS | | | | | |
| Supply Voltage | | | | | |
| Positive | $V_{DD}$ | | 3.15 | 3.45 | V |
| Negative | $V_{SS}$ | | −3.45 | −3.15 | V |
| Digital Control Voltage | $V_{CTRL}$ | | 0 | $V_{DD}$ | V |
| RF Input Power[2] | $P_{IN}$ | f = 10 MHz to 40 GHz, $T_{CASE}$ = 85°C[3] | | | |
| Input at RFC | | | | | |
| Through Path | | RF signal is applied to RFC | | 27 | dBm |
| Hot Switching | | RF signal is present at RFC while switching between RF1 and RF2 | | 27 | dBm |
| Input at RFx | | | | | |
| Through Path | | RF signal is applied through connected RFx | | 26 | dBm |
| Hot Switching | | RF signal is present at RFx while switching between RF1 and RF2 | | 26 | dBm |
| Case Temperature | $T_{CASE}$ | | −40 | +105 | °C |

Rev D

## SPECIFICATIONS

### ELECTRICAL SPECIFICATIONS

VDD = 3.3 V, VSS = −3.3 V, $V_{CTRL}$ = 0 V or 3.3 V, and $T_{CASE}$ = 25°C on a 50 Ω system, unless otherwise noted. RFx refers to RF1 and RF2.

| | | | | | |
|---|---|---|---|---|---|
| RECOMMENDED OPERATING CONDITIONS | | | | | |
| Supply Voltage | | | | | |
| Positive | $V_{DD}$ | | 3.15 | 3.45 | V |
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| Input at RFC | | | | | |
| Through Path | | RF signal is applied to RFC | | 27 | dBm |
| Hot Switching | | RF signal is present at RFC while switching between RF1 and RF2 | | 27 | dBm |
| Input at RFx | | | | | |
| Through Path | | RF signal is applied through connected RFx | | 26 | dBm |
| Hot Switching | | RF signal is present at RFx while switching between RF1 and RF2 | | 23 | dBm |
| Case Temperature | $T_{CASE}$ | | −40 | +105 | °C |

# ADRF5025 Datasheet Changes from Rev C to Rev D

Rev C

## ABSOLUTE MAXIMUM RATINGS

For the recommended operating conditions, see Table 1.

*Table 2.*

| Parameter | Rating |
|---|---|
| Positive Supply Voltage | −0.3 V to +3.6 V |
| Negative Supply Voltage | −3.6 V to +0.3 V |
| Digital Control Input Voltage | |
| Voltage | −0.3 V to VDD + 0.3 V |
| Current | 3 mA |
| RF Input Power[1] (f = 10 MHz to 40 GHz, $T_{CASE}$ = 85°C[2]) | |
| Input at RFC | |
| Through Path | 27.5 dBm |
| Hot Switching | 27.5 dBm |
| Input at RFx | |
| Through Path | 26.5 dBm |
| Hot Switching | 26.5 dBm |
| RF Input Power Under Unbiased Condition[1] ($V_{DD}$, $V_{SS}$ = 0 V) | 21 dBm |

## POWER DERATING CURVES

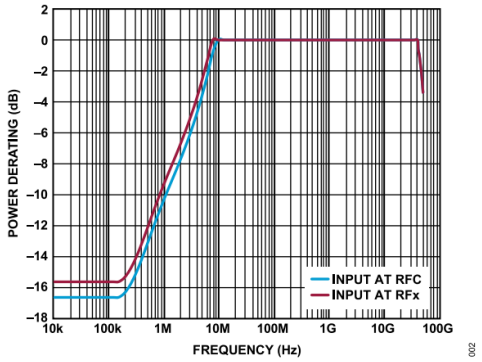


*Figure 2. Power Derating vs. Frequency, Low Frequency Detail, $T_{CASE}$ = 85°C*


Rev D

## ABSOLUTE MAXIMUM RATINGS

For the recommended operating conditions, see Table 1.

*Table 2.*

| Parameter | Rating |
|---|---|
| Positive Supply Voltage | −0.3 V to +3.6 V |
| Negative Supply Voltage | −3.6 V to +0.3 V |
| Digital Control Input Voltage | |
| Voltage | −0.3 V to VDD + 0.3 V |
| Current | 3 mA |
| RF Input Power[1] (f = 10 MHz to 40 GHz, $T_{CASE}$ = 85°C[2]) | |
| Input at RFC | |
| Through Path | 27.5 dBm |
| Hot Switching | 27.5 dBm |
| Input at RFx | |
| Through Path | 26.5 dBm |
| Hot Switching | 23.5 dBm |
| RF Input Power Under Unbiased Condition[1] ($V_{DD}$, $V_{SS}$ = 0 V) | 21 dBm |

## POWER DERATING CURVES

Power derating data shown in Figure 2 and Figure 3 applies to both RFC and RFx pins.

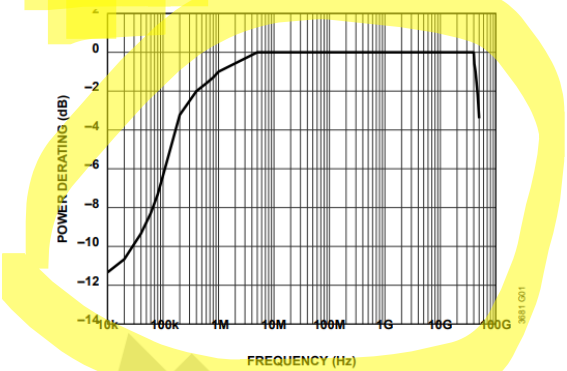


*Figure 2. Power Derating vs. Frequency, Low Frequency Detail, $T_{CASE}$ = 85°C*

- Plot data is from RevB