**Pin Configuration**

**ABSOLUTE MAXIMUM RATINGS**

| Symbol | Parameter | Min | Max | Unit |
|--------|-----------|-----|-----|------|
| $V_{CC}$ $V_{CNTRL}$ | Supply / Control Voltage | −0.5 | 4.3 | V |

# FSA553

**DC ELECTRICAL CHARACTERISTICS** (Typical values are for $T_A$ = 25°C unless otherwise specified.)

| Symbol | Parameter | Condition | $V_{CC}$ (V) | $T_A$ = −40°C to +85°C Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{CC(HYS)}$ | Supply Voltage Hysteresis | | | | 450 | | mV |
| $I_{ON}$ | Switch ON Leakage Current | nA = −0.5 V, 0.5 V, 1.5 V, −1.5 V, nB = Float, #1S = #2S = Float | 0 | | 0.1 | | μA |
| $I_{OFF}$ | Switch OFF Leakage Current | nA = −0.5 V, 0.5 V, 1.5 V, −1.5 V, nB = GND, #1S = #2S = $V_{CC}$ | 1.8 | | 0.5 | | μA |
| $I_{CCT}$ | Increase in $I_{CC}$ for each Select Pin | #1S = $V_{CC}$, #2S = 1.2 V, #1S = 1.2 V, #2S = $V_{CC}$ | 3.0 | | 7 | | μA |
| $R_{ON}$ | Switch On Resistance | $I_{SW}$ = 100 mA, $V_{SW}$ = −1.5 V to +1.5 V | 0 | | 0.40 | 0.80 | Ω |
| $\Delta R_{ON}$ | Switch On Resistance Difference, Channel to Channel | $I_{SW}$ = 100 mA, $V_{SW}$ = −1.5 V to +1.5 V | 0 | | 0.01 | | Ω |
| $R_{FLAT(ON)}$ | On Resistance Flatness | $I_{SW}$ = 100 mA, $V_{SW}$ = −1.5 V to +1.5 V | 0 | | 0.01 | | Ω |
| $R_{PD}$ | $V_{CC}$ Pull−Down Resistance | | <0.2 | | 5.0 | | MΩ |
| $R_{PU}$ | Select Pull−Up Resistance | | <0.2 | | 3.0 | | MΩ |
| $I_{CC}$ | Quiescent Supply Current | Switch Isolated, #1S = #2S = $V_{CC}$ | 1.5 to 3.0 | | 80 | | μA |
| | | Switch On | 0.2 | | 0.5 | | |
| $V_{IH}$ | Select Pin Input High Voltage | | 1.5 to 3.0 | 1.2 | | | V |
| $V_{IL}$ | Select Pin Input Low Voltage | | 1.5 to 3.0 | | | 0.55 | V |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

**AC ELECTRICAL CHARACTERISTICS** (Typical values are for $T_A$ = 25°C unless otherwise specified.)

| Symbol | Parameter | Condition | | $V_{CC}$ (V) | $T_A$ = −40°C to +85°C | | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Typ | Max | |
| $t_{ON}$ | Turn−On Time $V_{CC}$ to Output | $R_L$ = 32 Ω, $C_L$ = 10 pF, #nS = Float, Figure 4 | $W_{SW}$ = 1.5 V | 1.8→0 | | 450 | | μs |
| | | | $W_{SW}$ = −1.5 V | 1.8→0 | | 350 | | |
| $t_{OFF}$ | Turn−Off Time $V_{CC}$ to Output | $R_L$ = 32 Ω, $C_L$ = 10 pF, #nS = Float, Figure 4 | $W_{SW}$ = 1.5 V | 0→1.8 | | 250 | | μs |
| | | | $W_{SW}$ = −1.5 V | 0→1.8 | | 150 | | |
| $t_{ONS}$ | Turn−On Time Select Pin | $R_L$ = 32 Ω, $C_L$ = 10 pF, #nS = $V_{CC}$→0, Figure 5 | $W_{SW}$ = 1.5 V | 1.8 | | 350 | | μs |
| | | | $W_{SW}$ = −1.5 V | 1.8 | | 300 | | |
| $t_{OFFS}$ | Turn−Off Time Select Pin | $R_L$ = 32 Ω, $C_L$ = 10 pF, #nS = 0→$V_{CC}$, Figure 5 | $W_{SW}$ = 1.5 V | 1.8 | | 150 | | μs |
| | | | $W_{SW}$ = −1.5 V | 1.8 | | 50 | | |
| BW | −3 dB Bandwidth | $V_{SW}$ = 600 m$V_{p-p}$, $R_L$ = 50 Ω; $C_L$ = 5 pF, | | 0 | | 200 | | MHz |
| THD+N | Total Harmonic Distortion + Noise | $V_{SW}$ = 1 $V_{RMS}$, $R_L$ = 32 Ω, f = 1 kHz | Non A−weighted | 0 | | −104 | | dB |
| | | | A−weighted | | | −107 | | dB |
| $O_{IRR}$ | Port Off Isolation | $V_{SW}$ = 0.707 $V_{RMS}$, $R_L$ = 32 Ω, f = 20 Hz to 100 kHz, Figure 6 | | 1.8 | −70 | −82 | | dB |
| $X_{TALK}$ | Cross Talk | $V_{SW}$ = 1 $V_{RMS}$, f = 100 kHz, $R_L$ = 32 Ω | | 1.8 | | −75 | | dB |
| | | $V_{SW}$ = 1 $V_{RMS}$, f = 20 kHz, $R_L$ = 32 Ω | | | | −100 | | |
| PSRR | Power Supply Rejection Ratio | Switch Isolating, $V_{Ripple}$ = $V_{CC}$ + 300 m$V_{p-p}$, $R_L$ = 32 Ω | 217 Hz | 1.8 | | −80 | | dBR |

## TIMING DIAGRAMS

nA (nB)

nB (nA) = +1.5 V
#nS = Float

nB (nA) = −1.5 V
#nS = Float

**Figure 4. t**

#nS

**WLCSP9 1.385x1.215x0.581**
CASE 567SV
ISSUE O

DATE 30 NOV 2016

BALL
INDEX A

NOTES