

Product Features

- Excellent Insertion Loss and Isolation performance
- GPIO Control Interface
- Support up to WiFi 6/6E
- Compatible with WiFi 5/4
- Broadband frequency range: 0.5 to 7.2 GHz
- Small package: QFN-6-pin, 1.0mm x 1.0mm x 0.45mm
- No DC blocking capacitors required
- 1kV HBM ESD Protection on all pins

Product Applications

- WiFi 6/6E AP & Router
- WiFi 6/5/4 wireless application

Product Description

The FM3585 is a Silicon On Insulator (SOI) Single Pole, Double-Throw (SPDT) antenna switch which require very low insertion loss, high isolation and high linearity performance.

The high linearity performance and low insertion loss for WiFi 6/6E applications.

The FM3585 is manufactured in a compact 1.0mm x 1.0mm x 0.45mm 6-lead QFN package. 6-pin surface mount Quad Flat No-Lead (QFN) package.

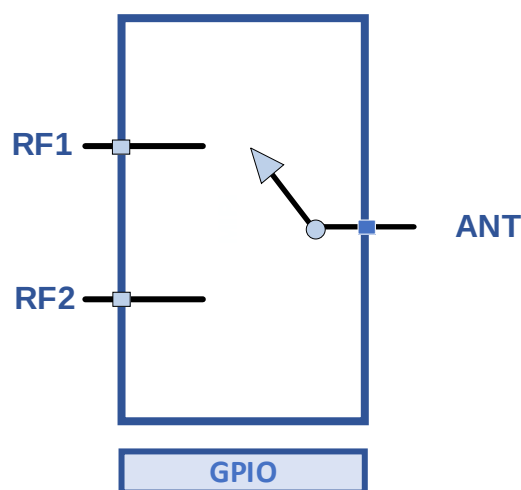


Figure 1 Functional Block Diagram



Absolute Maximum Conditions

Parameters	Symbol	Minimum	Maximum	Units
Supply voltage	V _{DD}	2.5	4.2	V
Control voltage	V _{CTL}	-0.3	3.6	V
RF input power	P _{in}		33	dBm
Storage temperature	T _{STG}	-55	+150	°C
Operating temperature	T _{OP}	-40	+90	°C
Human Body Model, Class 1C	ESD	1000		V

1: Test condition 50% duty cycle, VSWR=1:1, +25 °C

Note: Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

General Electrical Specifications

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Supply voltage	V _{DD}		1.6	1.8~3.3	4.2	V
Supply current, active mode	I _{DD}			100	150	μA
Control signal: High Low			1.5	1.8	3.6 0.3	V
Control current:	I _{CTL}				5	μA
Turn-on time (PIN = +27 dBm)	T _{ON}	Measured from 50% of final VDD supply voltage to 90% of RF power			10	μs
Switching time (PIN = +27 dBm)	T _{SW}	Measured from 50% of final VDD supply voltage to 90% of RF power		0.055	0.15	μs

(VDD = 2.85 V, VCT = 1.8 V, TOP = +25 °C, Characteristic Impedance [ZO] = 50 Ω, Unless Otherwise Noted)



RF Specifications

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Operating frequency	f		0.5		7.125	GHz
Insertion loss	IL	Up to 0.9 GHz Up to 2.1 GHz Up to 2.7 GHz Up to 3.8 GHz Up to 5.0 GHz Up to 6.0 GHz Up to 7.2 GHz		0.29 0.35 0.40 0.45 0.47 0.55 0.65	0.35 0.42 0.50 0.55 0.57 0.65 0.75	dB
Isolation (ANT port to any receive port)	Iso	Up to 0.9 GHz Up to 2.1 GHz Up to 2.7 GHz Up to 3.8 GHz Up to 5.0 GHz Up to 6.0 GHz Up to 7.2 GHz	50 40 35 30 28 25 20	55 50 40 36 30 28 25		dB
2nd Order harmonics	2fo	+24 dBm, 0.9~2.7 GHz +24 dBm, 4.8~6.0 GHz	-63	-65		dBm
3rd Order harmonics	3fo	+24 dBm, 0.9~2.7 GHz +24 dBm, 4.8~6.0 GHz	-56	-58		dBm
0.1 dB Compression Point 50% duty cycle, VSWR=1:1	P0.1dB	900M, 50Ω		+33		dBm
EVM	EVM	802.11a, 54Mbps, Pin≤27dBm 802.11g, 54Mbps, Pin≤27dBm	2.5			%



Truth Table

VC	RF Channel Operating Mode
1	ANT to RF1 On
0	ANT to RF2 On



Pin-out Information

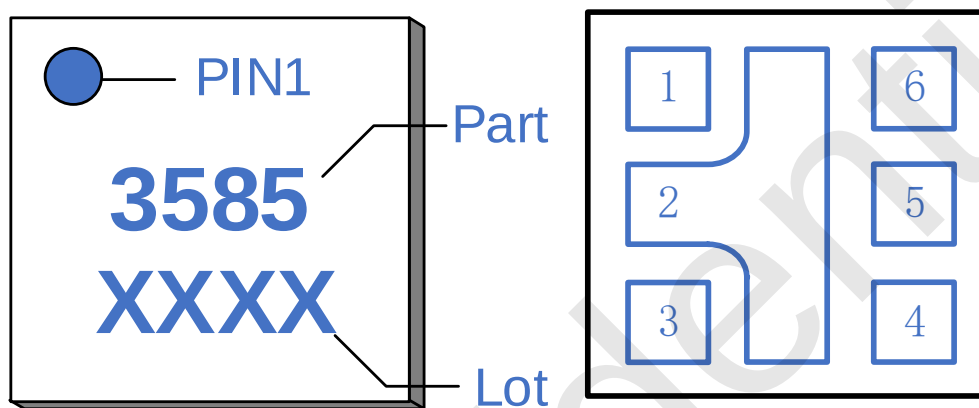


Figure 2 Pin-out Information

Table 1. Pin Description

Pin #	Name	Description	Pin #	Name	Description
1	RF1	RF Port 1	4	VC	Logic Control Voltage
2	GND	Ground	5	ANT	Antenna Port
3	RF2	RF port 2	6	VDD	Power Supply Voltage



Application circuit

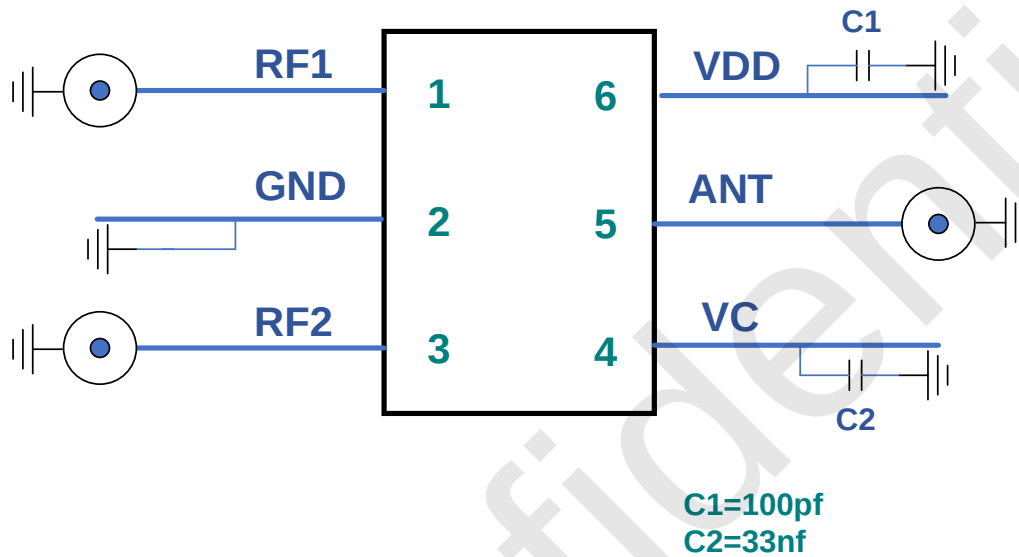


Figure 3 Application circuit



Evaluation Board

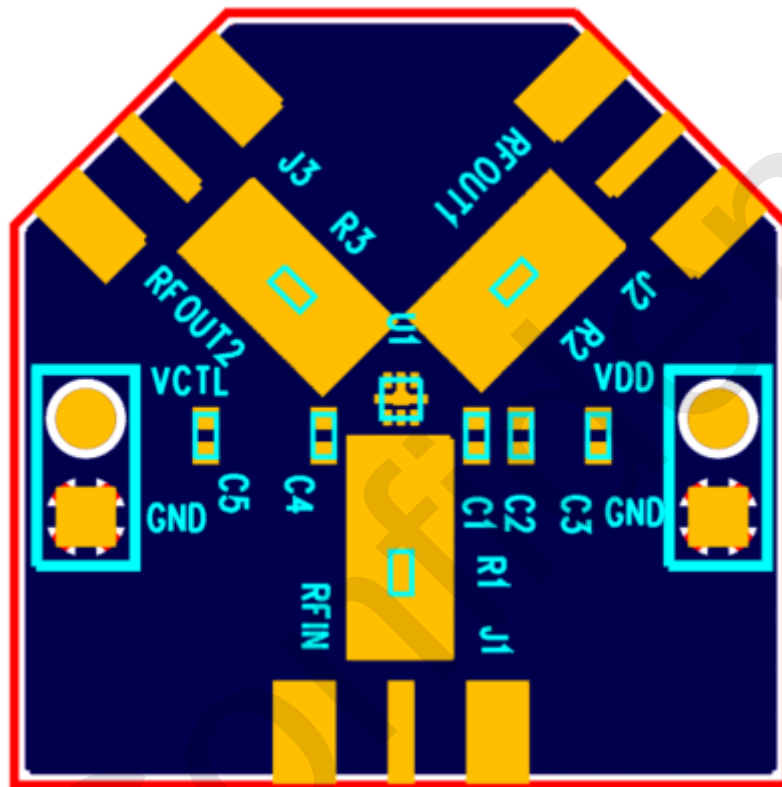


Figure 4 Evaluation Board Assembly Diagram



Package Dimensions (5000pcs)

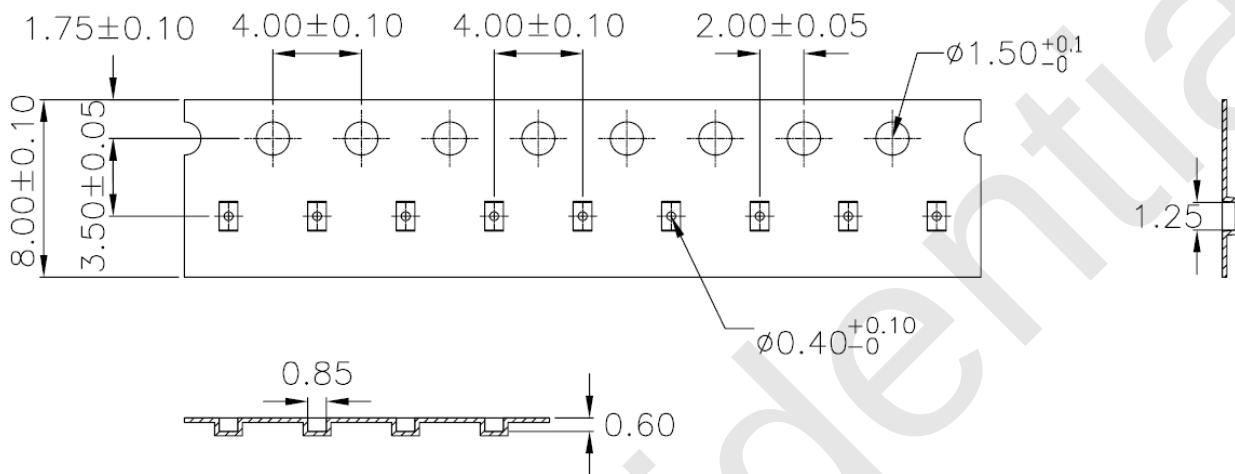


Figure 6 Tape and Reel Dimensions

Declaration of No Harmful Substances

This part is compliant with 2005/20/EC packaging directive, 1907/2006/EC REACH directive and the 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as amended by Directive 2015/863/EU.

This product also has the following attributes:

- Lead free
- Halogen Free (Chlorine, Bromine)
- SVHC Free

Version Information

Version	Description	Data	Reviser
V1.3			



Reflow Chart

