

AMT1816
6 – 18GHz Switch Filter Group



Key Features :

- Pass band frequency : 6 – 8GHz, 8 - 10GHz, 10 – 12GHz, 12 – 14GHz, 14 – 16GHz, 16 – 18GHz;
- Pass band insertion loss : ≤10dB
- Pass band isolation : ≥55dB
- Chip dimensions : 5mm x 5mm x 0.1mm
- Applications : 5G mobile communication, wireless communication, radio telecommunication etc.

Description :

AMT1816 is a high performance FET switching filter chipset. It is designed by Gallium Arsenide (GaAs) process. This chip is designed with ground through metal vias on the back technology. Supply voltage VEE is -5V, logic control level is TTL.

Absolute Maximum Ratings (Ta = 25°C)

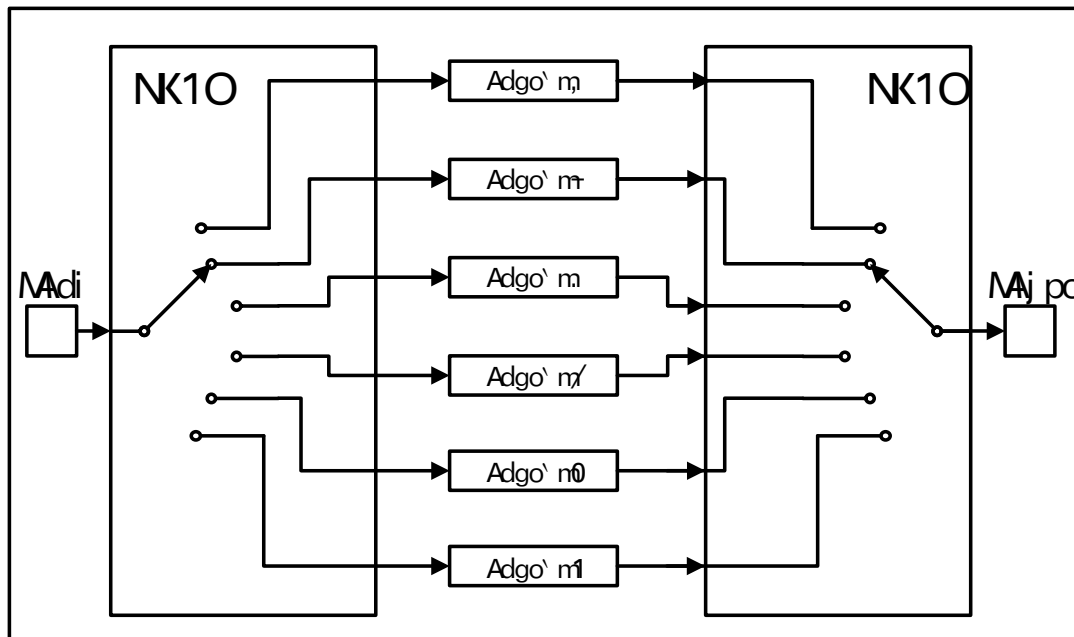
Symbol	Parameter	Value	Remark
V1 \ V2 \ V3	Control voltage range	Low level : 0 ~ +0.4V; High level : +3 ~ +5V	
VEE	Operation voltage	-6V	
Pin	Input signal power	25dBm	
Ta	Operation Temperature	-55°C ~ +125°C	
Tstg	Storage Temperature	-65°C ~ +150°C	

[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

Symbol	Parameter Name	Pass Band 1	Pass Band 2	Pass Band 3	Unit
F	Pass band frequency	6 ~ 8	8 ~ 10	10 ~ 12	GHz
IL	Pass band loss	10	10	10	dB
SS	Out-band rejection	≥30@4.4GHz	≥30@6.4GHz	≥30@8.4GHz	dBc
		≥30@9.6GHz	≥30@11.6GHz	≥30@13.6GHz	
VSWR	In-band standing wave	≤2	≤2	≤2	-
F	Pass band frequency	12 ~ 14	14 ~ 16	16 ~ 18	GHz
IL	Pass band loss	10	10	10	dB
SS	Out-band rejection	≥30@10.4GHz	≥30@12.4GHz	≥30@14.4GHz	dBc
		≥30@15.6GHz	≥30@17.6GHz	≥30@19.6GHz	
VSWR	In-band standing wave	≤2	≤2	≤2	-

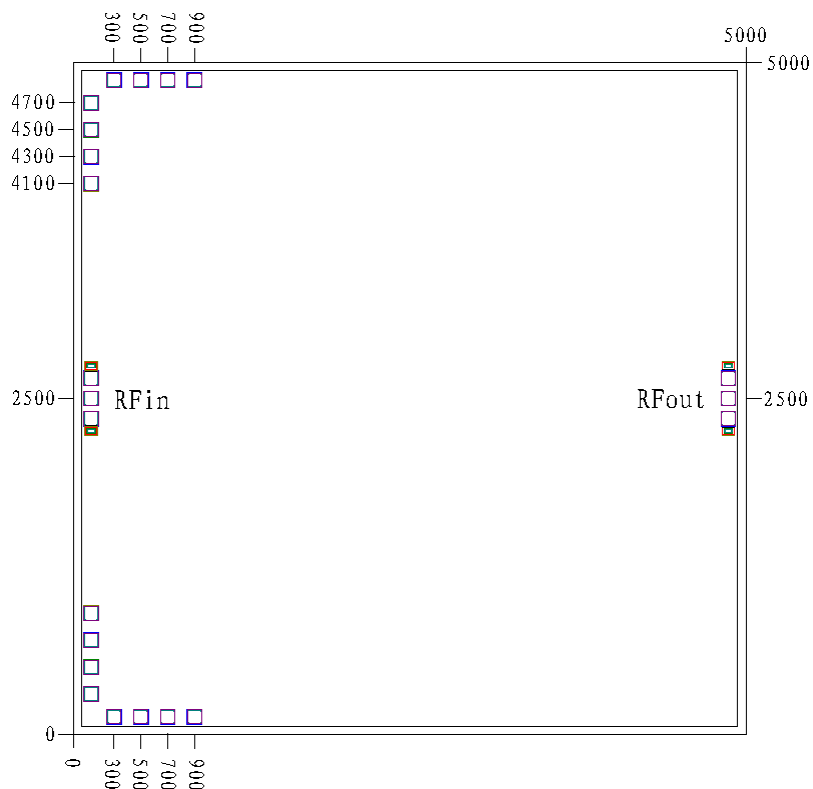
Functional Block Diagram



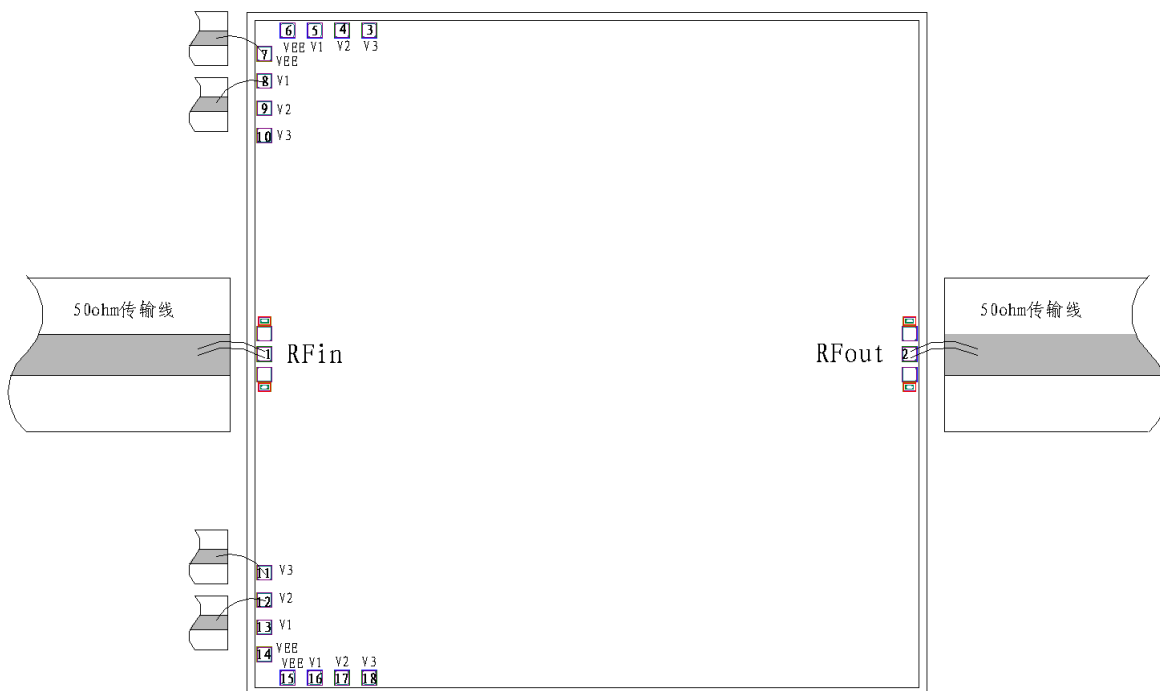
Truth Table

Pass band	Control Driver Voltage (VEE = -5V)		
	+5/0V Control		
	V1	V2	V3
6 ~ 8 GHz	0V	0V	0V
8 ~10 GHz	0V	0V	5V
10 ~ 12 GHz	5V	0V	0V
12 ~ 14 GHz	0V	5V	5V
14 ~ 16 GHz	5V	0V	5V
16 ~ 18 GHz	5V	5V	5V

Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

No.	Symbol	Function Description	Dimension
1, 2	RFin, RFout	RF signal input, output port, external connect to 50Ω system; if direct current is applied, need DC blocking capacitor.	100μm*100μm
6, 7, 14, 15	VEE	Supply Voltage -5V (either one)	100μm*100μm
5, 8, 13, 16	V1	+5V/0V control (either one)	100μm*100μm
4, 9, 12, 17	V2	+5V/0V control (either one)	100μm*100μm
3, 10, 11, 18	V3	+5V/0V control (either one)	100μm*100μm

Please see Appendix A for details.