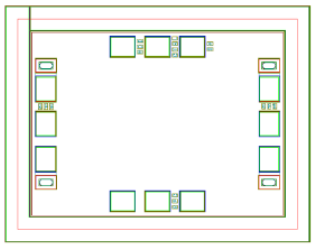
AMT1706A
1 - 30GHz SPDT Switch Chip



Key Features :

- Frequency range : 1 – 30GHz
- Insertion loss : 1.8dB
- Isolation : 50dB
- Input standing wave : 1.2
- Switch ON input/output standing wave : 1.2
- Switch over time : 20ns
- Switch OFF output standing wave : 1.3
- Control method : TTL
- Supply : +5V/1mA
- Chip dimensions : 1.2mm x 0.9mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1706A is a high performance FET SPDT switch chip, it is designed by Gallium Arsenide (GaAs) pHEMT process. This chip is designed with ground through metal vias on the back technology. All chip products p are 100% RF tested. The chip uses +5V supply, TTL level control, typical insertion loss is 1.8dB, isolation is 50dB, input/output standing wave is 1.2.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Parameter	Value	Remark
V1, 2	Control voltage	+6V	
Pin	Input Power	25dBm	
Tm	Sintering Temperature	310°C	30s, N_2 protection
Tstg	Storage Temperature	-65 ~ +150°C	

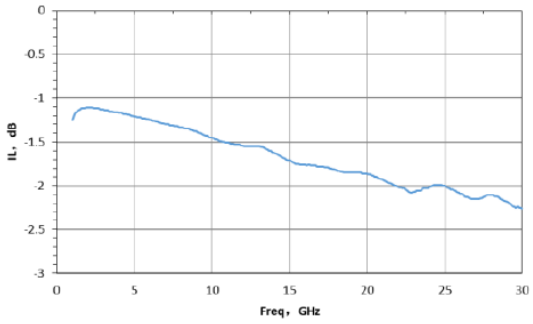
[1] Operation outside any of the Absolute Maximum Ratings may cause permanent device damage.

Electrical Characteristics (Ta = 25°C)

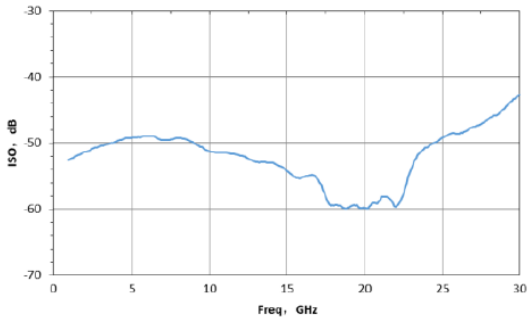
Symbol	Parameter	Test Conditions	Value			Unit
			Min	Typical	Max	
VSWRin	Input standing wave	F : 1 ~ 30GHz	-	1.2	-	-
VSWRout(On)	ON state output standing wave		-	1.2	-	-
VSWRout(Off)	OFF state output standing wave		-	1.3	-	-
IL	Insertion Loss		-	1.8	2.3	dB
ISO	Isolation		42	50	-	dB

Typical Performance

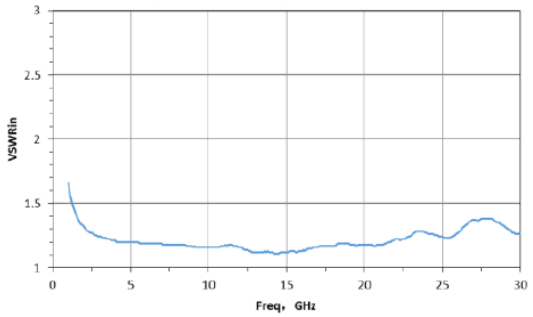
Insertion Loss Curve



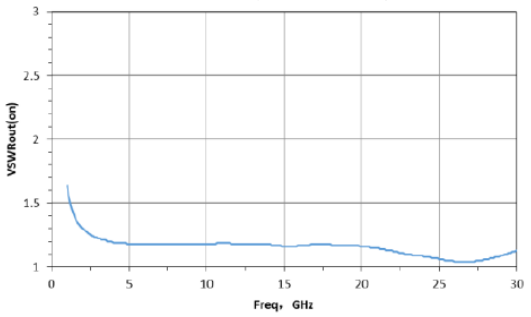
Isolation Curve



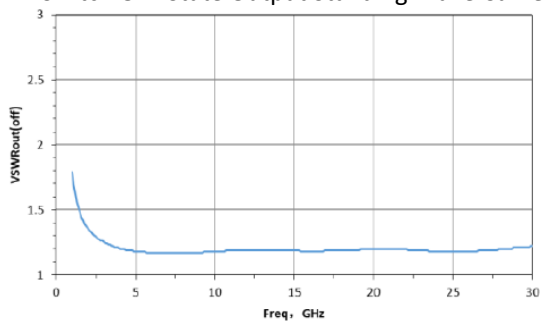
Input Standing Wave Curve



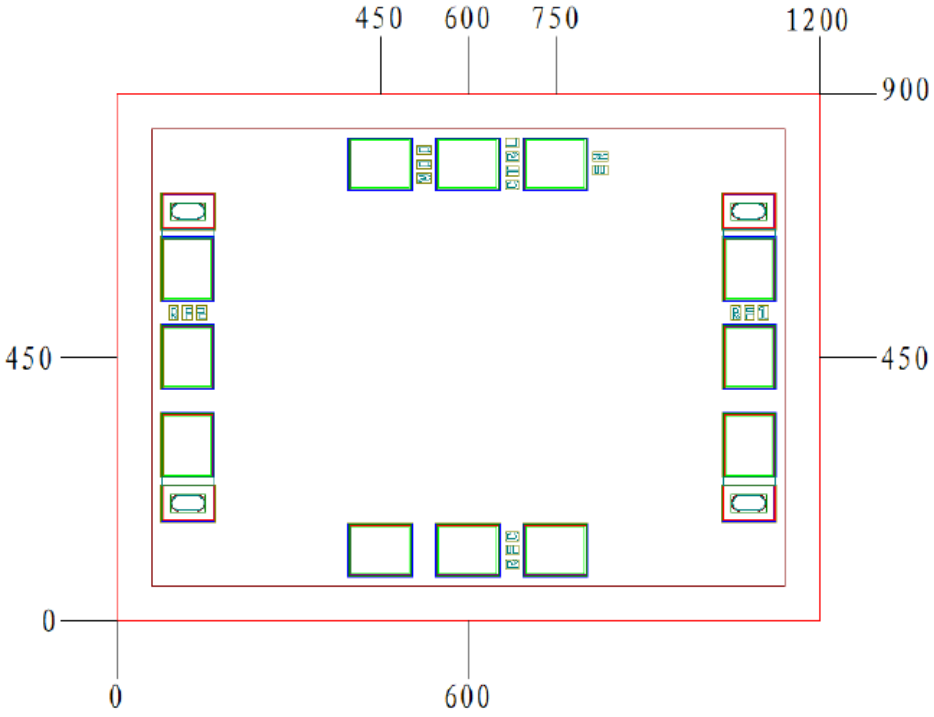
Switch ON State Output Standing Wave Curve



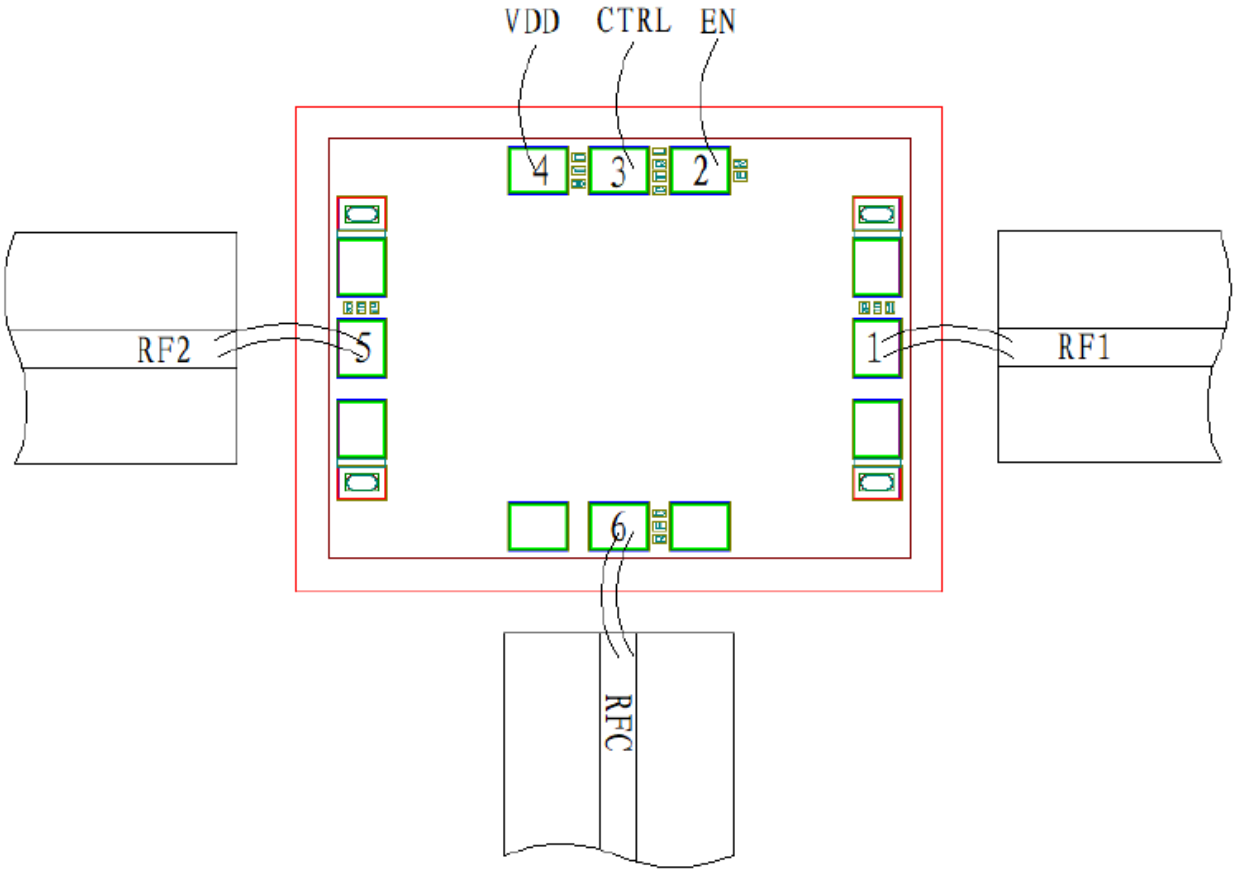
Switch OFF State Output Standing Wave Curve



Chip Dimensions (Unit : µm)



Chip Layout Diagram



Pad Definition

No.	Symbol	Function Description	Dimension
1, 5	RF1, RF2	RF signal input port, external connect to 50Ω system, internal built in DC blocking capacitor	100μm*80μm
2, 3	CTRL, EN	Supply voltage control port, see Truth Table for control logic	100μm*80μm
4	VDD	Digital circuit supply port, connect to +5V supply voltage	100μm*80μm
6	RFC	RF signal output port, external connect to 50Ω system, internal built in DC blocking capacitor	100μm*80μm

Truth Table

	EN	CTRL
RFC – RF1	0	0
RFC – RF2	0	+5V
OFF	+5V	-

Please see Appendix A for details.