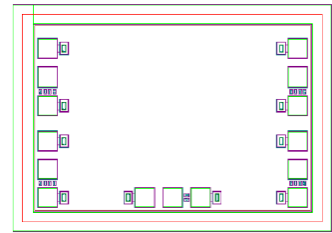


AMT1712-03
0 - 40GHz SP4T Switch Chip



Key Features :

- Frequency range : 0 – 40GHz
- Insertion loss : 1dB@20GHz, 1.2dB@40GHz
- Isolation : 40dB@20GHz, 35dB@40GHz
- Input/output voltage standing wave : 1.5
- Switching time : 20ns
- Control method : +5V/-5V
- Chip Dimensions : 1.6mm x 1.1mm x 0.1mm
- Applications : wireless communication, transceiver module, radio telecommunication etc.

Description :

AMT1712-03 is a SP4T switch chip, it is designed by PIN Diode MMIC process. This chip is designed with ground through metal vias on the back technology. All chip products p are 100% RF tested. It uses +5V, -5V level control, typical insertion loss is 1dB@20GHz, 1.2dB@40GHz, isolation is 40dB@20GHz, 35dB@40GHz, switching time is 20ns.

Absolute Maximum Ratings (Ta = 25°C)

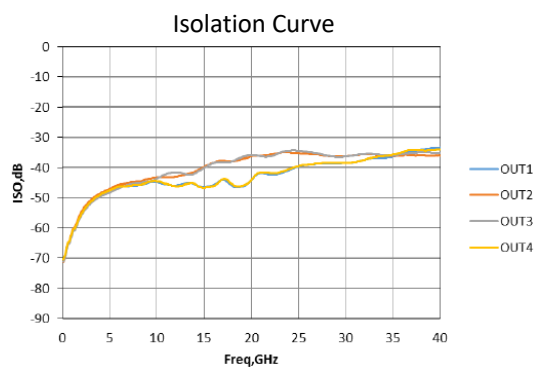
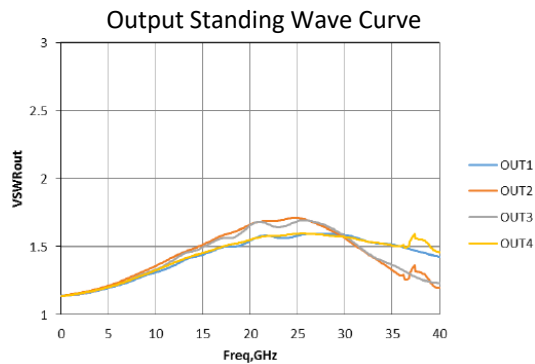
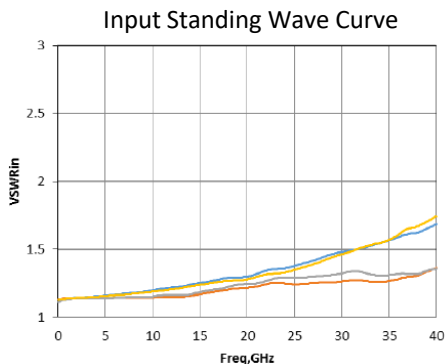
Symbol	Parameter	Value	Remark
Vin	Control voltage	25V	
Pin	Input Power	30dBm	
Tm	Sintering Temperature	310°C	30s, N ₂ protection
Tstg	Storage Temperature	-65 ~ +150°C	

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

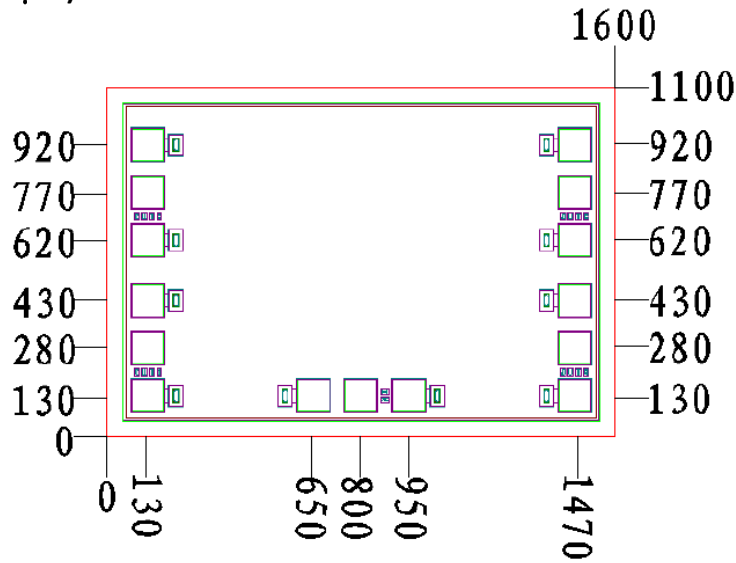
Electrical Characteristics (Ta = 25°C)-

Symbol	-Parameter	Value			Unit
		Min	Typical	Max	
VSWRin	Input standing wave	-	1.3	1.8	-
VSWRout	Output standing wave	-	1.3	1.8	-
IL	Insertion Loss	-	<u>1dB@20GHz</u> , 1.2dB@40GHz	-	dB
ISO	Isolation	-	40dB@20GHz, 35dB@40GHz	-	dB

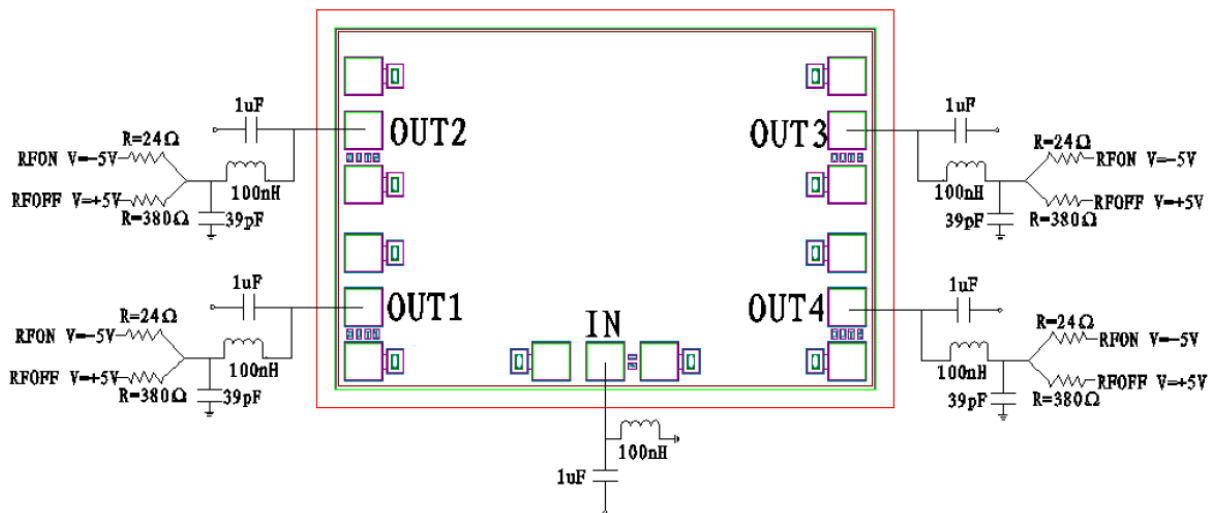
Typical Performance



Chip Dimensions (Unit : μm)



Chip Layout Diagram



Pad Definition

Symbol	Function Description	Dimension
IN	RF signal input port	100 μm *100 μm
OUT1, OUT2, OUT3, OUT4	RF signal output port	100 μm *100 μm

Truth Table

Control Port (mA)				Output Conducting Status			
OUT1	OUT2	OUT3	OUT4	OUT1 – IN	OUT2 – IN	OUT3 – IN	OUT4 – IN
-40	10	10	10	Conduct	Isolate	Isolate	Isolate
10	-40	10	10	Isolate	Conduct	Conduct	Isolate
10	10	-40	10	Isolate	Isolate	Isolate	Isolate
10	10	10	-40	Isolate	Isolate	Isolate	Conduct

Different resistor is needed in serial with +5V and -5V. +5V is serial with 380 Ω resistor; -5V is serial with 24 Ω resistor;

Please see Appendix A for details.