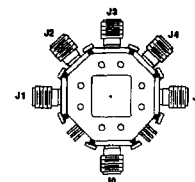


FEATURES

- Full Band 2 to 18 GHz Performance
- Reflective and Non-reflective Versions
- Reliable Thin-Film Construction
- Removable SMA Connectors
- Low Insertion Loss
- Low VSWR
- High Isolation
- High Speed

APPLICATIONS

- Receiver Selection
- Antenna Selection
- Signal Sampling
- Active Protection Circuits
- Local Oscillator Selection
- Channelized Receivers



SPMT, p. 16-39

DESCRIPTION

The AHT-0, AHQ-0 and AHF-0 Series (reflective) and AHT-1, AHQ-1 and AHF-1 Series (non-reflective) are designed to operate over the full 2 to 18 GHz band while providing excellent insertion loss, VSWR and isolation performance. They are available with high speed hybrid TTL driver assemblies and have maximum switching times under 75 nsec. The RF circuitry is fabricated using thin-film hybrid construction on

ceramic substrates for high reliability. The reflective versions have two shunt diodes and one series diode per arm. Each arm of the non-reflective versions has three series diodes and a shunt diode-resistor combination, providing a 50-ohm impedance to the system in both insertion loss and isolation states.

AVANPAK™ THIN-FILM PIN-DIODE SWITCHES (Guaranteed Specifications at +25°C Case Temperature)

Frequency	2.0 to 4.0 GHz			4.0 to 8.0 GHz			8.0 to 12.0 GHz			12.0 to 18.0 GHz		
Type and Model	Insertion Loss (dB) Max.	VSWR Max.	Isolation (dB) Min.	Insertion Loss (dB) Max.	VSWR Max.	Isolation (dB) Min.	Insertion Loss (dB) Max.	VSWR Max.	Isolation (dB) Min.	Insertion Loss (dB) Max.	VSWR Max.	Isolation (dB) Min.
Single Pole Triple Throw (SPMT), Reflective — Speed < 75 nsec.												
AHT0402-0XX	1.4	2.0	50	—	—	—	—	—	—	—	—	—
AHT0802-0XX	1.4	2.0	50	2.0	2.0	50	—	—	—	—	—	—
AHT1202-0XX	1.4	2.0	50	2.0	2.0	50	2.5	2.0	50	—	—	—
AHT1802-0XX	1.4	2.0	50	2.0	2.0	50	2.5	2.0	50	3.1	2.0	50
Single Pole Triple Throw (SPMT), Non-Reflective — Speed < 75 nsec.												
AHT0402-1XX	1.8	2.0	50	—	—	—	—	—	—	—	—	—
AHT0802-1XX	1.8	2.0	50	2.3	2.0	50	—	—	—	—	—	—
AHT1202-1XX	1.8	2.0	50	2.3	2.0	50	2.7	2.0	50	—	—	—
AHT1802-1XX	1.8	2.0	50	2.3	2.0	50	2.7	2.0	50	3.1	2.0	50
Single Pole Four Throw (SPMT), Reflective — Speed < 75 nsec.												
AHQ0402-0XX	1.6	2.0	50	—	—	—	—	—	—	—	—	—
AHQ0802-0XX	1.6	2.0	50	2.2	2.0	50	—	—	—	—	—	—
AHQ1202-0XX	1.6	2.0	50	2.2	2.0	50	2.7	2.0	50	—	—	—
AHQ1802-0XX	1.6	2.0	50	2.2	2.0	50	2.7	2.0	50	3.4	2.0	50
Single Pole Four Throw (SPMT), Non-Reflective — Speed < 75 nsec.												
AHQ0402-1XX	2.0	2.0	50	—	—	—	—	—	—	—	—	—
AHQ0802-1XX	2.0	2.0	50	2.5	2.0	50	—	—	—	—	—	—
AHQ1202-1XX	2.0	2.0	50	2.5	2.0	50	2.9	2.0	50	—	—	—
AHQ1802-1XX	2.0	2.0	50	2.5	2.0	50	2.9	2.0	50	3.4	2.0	50
Single Pole Five Throw (SPMT), Reflective — Speed < 75 nsec.												
AHF0402-0XX	1.7	2.0	50	—	—	—	—	—	—	—	—	—
AHF0802-0XX	1.7	2.0	50	2.2	2.0	50	—	—	—	—	—	—
AHF1202-0XX	1.7	2.0	50	2.2	2.0	50	2.7	2.0	50	—	—	—
AHF1802-0XX	1.7	2.0	50	2.2	2.0	50	2.7	2.0	50	3.5	2.0	50
Single Pole Five Throw (SPMT), Non-Reflective — Speed < 75 nsec.												
AHF0402-1XX	2.1	2.0	50	—	—	—	—	—	—	—	—	—
AHF0802-1XX	2.1	2.0	50	2.5	2.0	50	—	—	—	—	—	—
AHF1202-1XX	2.1	2.0	50	2.5	2.0	50	2.9	2.0	50	—	—	—
AHF1802-1XX	2.1	2.0	50	2.5	2.0	50	2.9	2.0	50	3.5	2.0	50

NOTES: 1. See next page for Model Number descriptions.

2. Speed is defined as 50% input trigger to 90% RF change including driver delay. Rise and fall times < 15 nanoseconds typical.

3. Switching speed measurements are made using detected video with RF input power of +10 dBm at a frequency of 10 GHz.

4. Isolation is measured at +10 dBm input power. All other specifications are measured at 0 dBm input power.

5. Operating temperature: -55° to +100 °C.

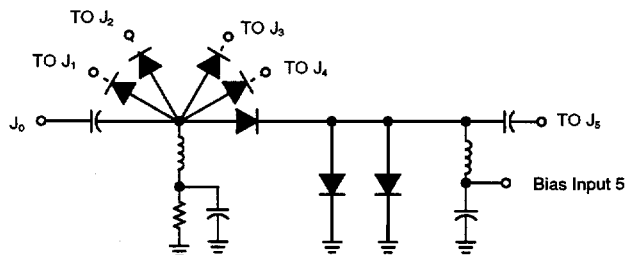
AHT/AHQ/AHF Series Thin-Film Switches

MAXIMUM RATINGS

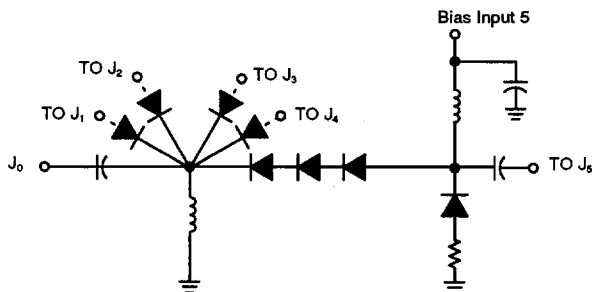
DC Voltage	+5.5 V/-16.5V
RF Input Power (CW/Pulse)	1 W CW/10 W 1 μ sec Pulse Width
into "ON" PATH	1 W CW/10 W 1 μ sec Pulse Width
into "OFF" PATH	1 W CW/10 W 1 μ sec Pulse Width
Operating Case Temperature	125°C
Storage Temperature	150°C
"R" Series Burn-In Temperature	125°C

SCHEMATICS

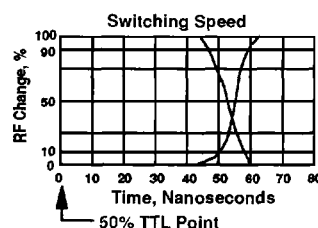
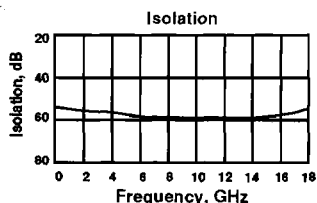
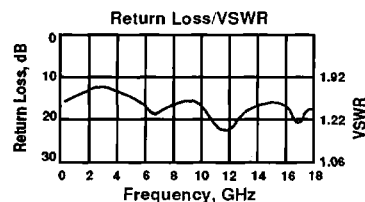
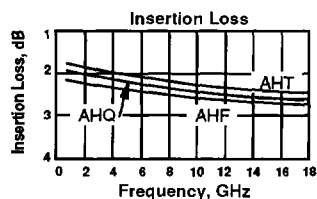
Reflective -0



Non-Reflective -1



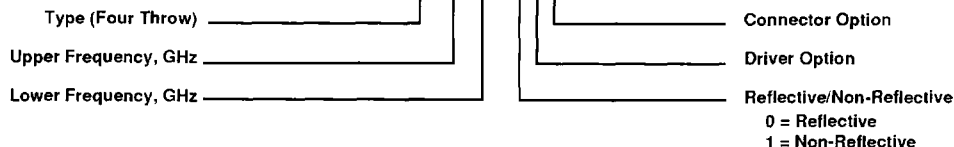
TYPICAL PERFORMANCE AT 25°C



MODEL NUMBERING DESCRIPTION

TYPICAL PART NUMBER

AHQ1202-024



CONNECTOR OPTION TABLE		
Dash No.	J0	J1-J5
XX1	FEM	FEM
XX2	NONE	NONE
XX3	MALE	MALE
XX4	MALE	FEM
XX5	FEM	MALE

DRIVER OPTION			
Dash No.	Type	ON	OFF
X0X	No Driver	+40 mA	-40 mA
X1X	No Driver	-40 mA	+40 mA
X2X	Decoded Driver	See truth table	
X3X	Standard Driver	TTL LO	TTL HI
X4X	Inverted Driver	TTL HI	TTL LO

Driver Bias: +5.0 $\pm$ 0.5V at 75 mA maximum
-5.0 to -15.0V at 150 mA maximum
TTL LO = 0 to 0.8V at 1.6 mA maximum sink
TTL HI = 2.0 to 5.0 V at 40 μ A maximum source

Driverless Operation (-X0X and -X1X): External current limiting resistance required. Using the -01X (reflective) with +5 V and -5 V supplies, the positive supply (for isolation) requires a 100 Ω resistor. Due to an internal 175 Ω resistor (see schematic for reflective version), the negative supply does not require an external resistor at -5 V. If a -12V supply is used, the external resistance required would be 100 Ω . For the non-reflective version (-11X), use a 50 Ω resistor on the +5 V supply and a 100 Ω resistor on the -5V supply. For the -X0X models (positive voltage for insertion loss, negative voltage for isolation), switch resistors. Different resistor values can be calculated to accommodate other supply voltages.

NOTE: X3X and X4X dash numbers not available on SP5T models.

Truth Table of X2X Decoded Driver				
Low Loss ON Port	TTL Input Level			
	A0	A1	A2	E
J1	1	0	0	1
J2	0	1	0	1
J3	1	1	0	1
J4	0	0	1	1
J5	1	0	1	1
ALL OFF	X	X	X	0