

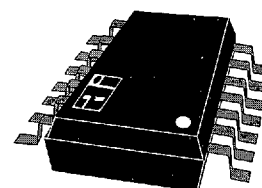
GaAs MMIC FET 10 Watt Diversity Switch In 14 Lead SOIC DC–1.6 GHz

Alpha

ADHD1D2–24

Features

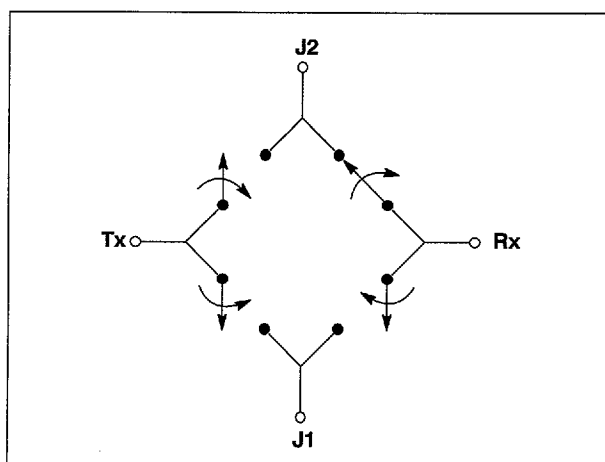
- High Power Handling Capability ($P - 1\text{dB} \geq 10\text{W}$)
- Two Line Voltage Control
- Independent Four Port Switching
- Portable Radio TR Switching



Description

The ADHD1D2–24 is a 4 port switch with two line DC voltage control. This device is designed for portable radio TR switching with up to a 10 watt capability.

In transmit or receive applications, the asymmetric design allows for good isolation between transmit and receive path while maintaining high power handling in transmit port.



Electrical Specifications at 25°C

Insertion Loss	DC–500 MHz	0.8	dB	Max
Receiver	DC–1000 MHz	1.0	dB	Max
(Rx–J1, J2)	DC–1600 MHz	1.2	dB	Max
Insertion Loss	DC–500 MHz	0.6	dB	Max
Transmit	DC–1000 MHz	0.8	dB	Max
(Tx–J1, J2))	DC–1600 MHz	1.0	dB	Max
Isolation	DC–500 MHz	34	dB	Min
(Rx – J1, J2)	DC–1000 MHz	28	dB	Min
	DC–1600 MHz	23	dB	Min
Isolation	DC–500 MHz	28	dB	Min
(Tx – J1, J2)	DC–1000 MHz	22	dB	Min
	DC–1600 MHz	17	dB	Min
Isolation	DC–500 MHz	31	dB	Min
(Tx – Rx)	DC–1000 MHz	25	dB	Min
	DC–1600 MHz	23	dB	Min
VSWR ¹	DC–500 MHz	1.5:1		Max
	DC–1000 MHz	1.8:1		Max

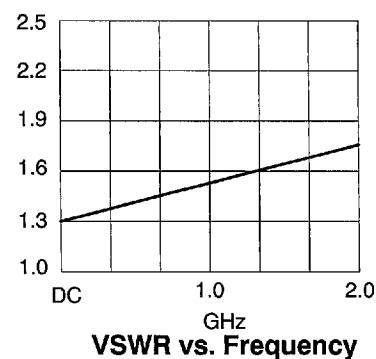
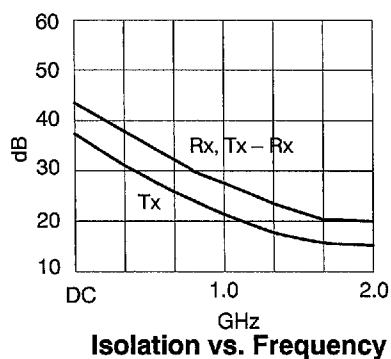
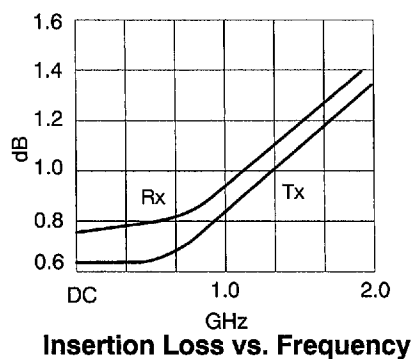
1. Insertion loss state.

Operating Characteristics at 25°C

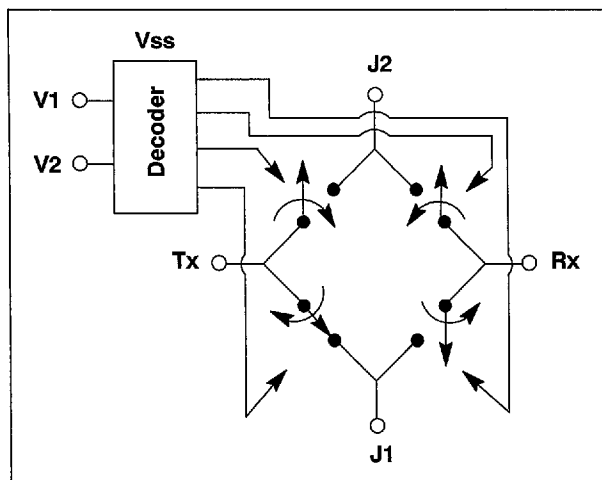
Impedance	50 Ohms Nominal		
Switching Characteristics			
RISE, FALL (10/90% or 90/10% RF)	10	ns	Typ
ON, OFF (50% CTL to 90/10% RF)	100	ns	Typ
Video Feedthru	30	mV	Typ
Input Power for 1 dB Compression			
Control Voltages (Vdc)	0/−5	0/−10	
850 MHz	33	40	dBm Typ
450 MHz	30	36	dBm Typ
Intermodulation Intercept Point at −10V (for two−tone input power up to +13 dBm)			
Intercept Points	IP2	IP3	
850 MHz	72	53	dBm Typ
450 MHz	68	49	dBm Typ
Bias Voltage − VSS −5V @ 50 μA Max			
−10V @ 200 μA Max			

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Typical Performance Data



Functional Diagram

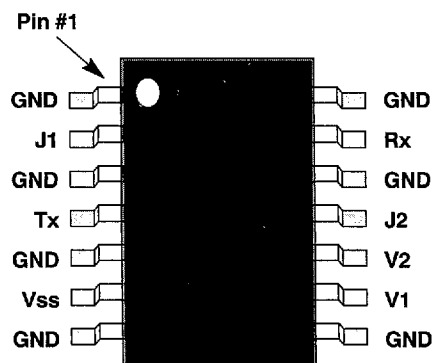


Truth Table

V1	V2	"On" Path
–10 (–5)	0	Tx – J1
–10 (–5)	–10 (–5)	Tx – J2
0	0	Rx – J1
0	–10 (–5)	Rx – J2

May be operated at –5V with reduced power handling capability.

Pin Out



Absolute Maximum Ratings

RF Input Power:	12W > 450 MHz, 0/–12V
Control Voltage:	+0.2, –10V (Never allow control voltage to exceed bias voltage.)
Operating Temperature:	–40°C to +85°C
Storage Temperature:	–65°C to +150°C
Thermal Resistance:	18°C/W

RF GaAs MMIC Products in Metal Packages

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