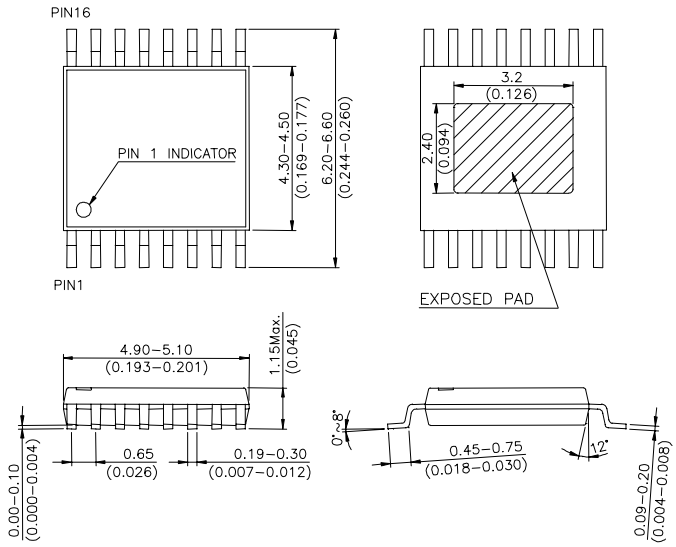
Features

- **Two Inputs, Two Outputs Switch Matrix**
- **High Isolation**
- **Low DC Power Consumption**
- **Small TSSOP-16 Using Lead (Pb) free materials with RoHS compliant**
- **PHEMT process**

Description

The HWS433 is a GaAs PHEMT 2x2 switch matrix operating at 0.95 to 2.15 GHz in a low cost TSSOP-16 plastic lead (Pb) free package. Any of the two inputs can be directed to any of the two outputs. The HWS433 is suitable for use in Direct Broadcast Satellite (DBS) switching system or CATV applications.

TSSOP-16



Electrical Specifications at 25°C with 0V/+5V Control Voltages and 0 dBm Pin

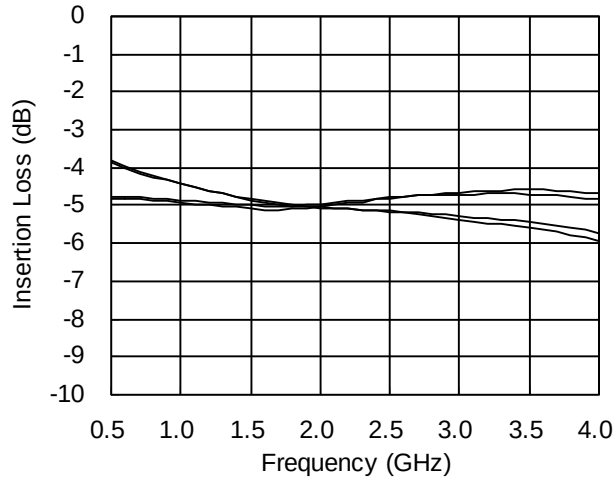
Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.95-2.15 GHz		5.0	7.0	dB
Insertion Loss Flatness	0.95-1.70 GHz 0.95-2.15 GHz		0.5 0.8		dB dB
Isolation (Above Insertion Loss)	0.95-1.70 GHz 1.70-2.15 GHz	33 30	39 36		dB dB
Output Return Loss	0.95-2.15 GHz		13		dB
Control Current				200	uA

Note: 1. All measurements made in a 50 ohm system with 0/+5.0V control voltages, unless otherwise specified.

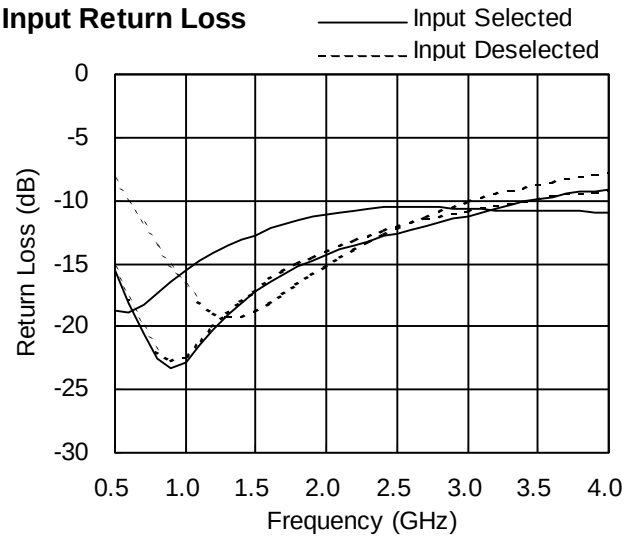
2. 'Isolation (Above Insertion Loss)' = ｜'isolation (off-state)' – 'insertion loss (on-state)'｜

Typical Performance Data of Various States @ +25°C

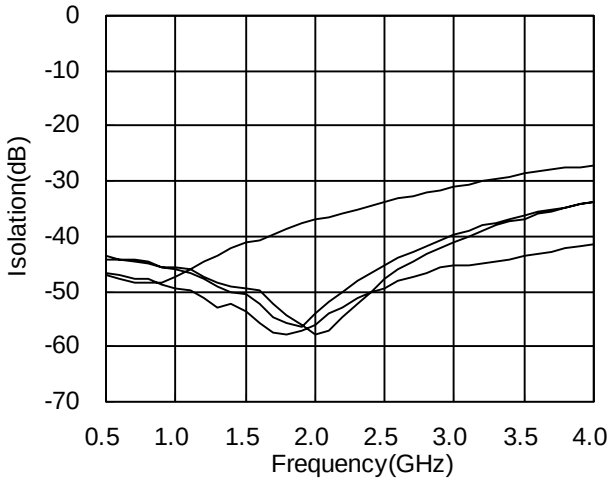
Insertion Loss vs Frequency



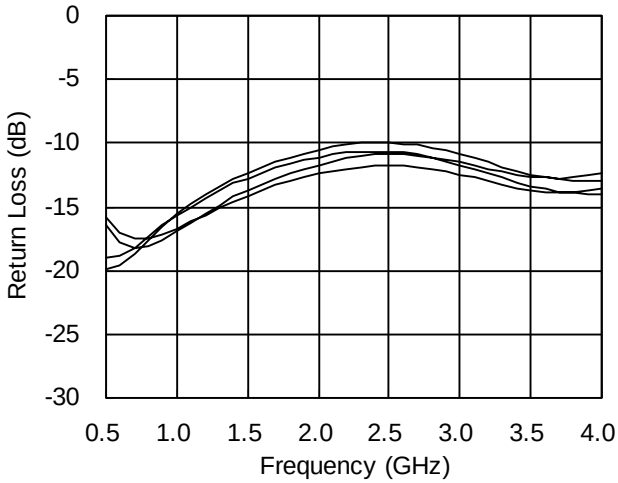
Input Return Loss



Isolation* vs Frequency

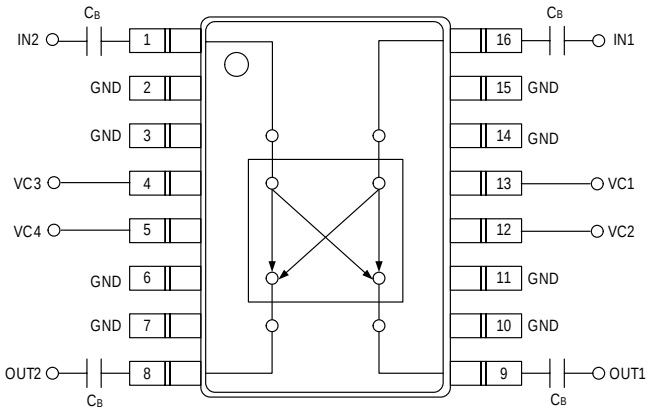


Output Return Loss



* Isolation is recorded above insertion loss.

Pin Out (Top View)



Note:
1. DC blocking capacitors C_B=51pF are required on all RF ports.
2. Exposed pad in the bottom must be connected to ground by via holes.

Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+15 dBm @ +6V
Control Voltage	+6V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Junction Temperature	150°C

Junction-to-air thermal resistance (θ_{ja}) =28.9 (°C /W)

Junction-to-case (bottom of package) (θ_{jc}) =2.1 (°C /W)

Logic Table for Switch On-Path

On Path		Control Pins			
OUT1	OUT2	VC1	VC2	VC3	VC4
IN1	-	0	1	-	-
IN2	-	1	0	-	-
-	IN1	-	-	1	0
-	IN2	-	-	0	1

'1' = +5V
'0' = 0V

Recommended Operating Conditions (T_A=+25°C)

Parameter	Min.	Typ.	Max.	Unit
Control Voltage (1)	+4.5	+5.0	+5.5	V
Control Voltage (0)	-0.5	0	+0.5	V