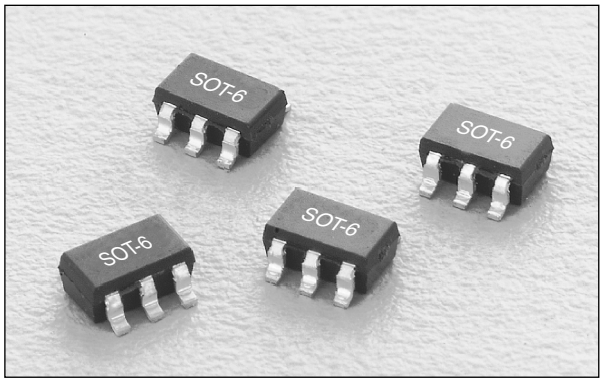
Directional Detector

Alpha

DD01-73

Features

- Low Cost
- Low Profile
- Small SOT-6 Package
- Tape & Reel



Description

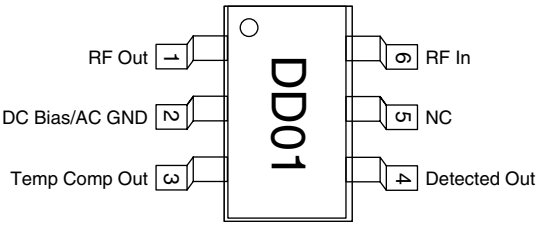
The DD01-73 is a 50 Ω, directional coupler/Schottky diode combination. The integrated directional coupler is fabricated with passive components and is nearly identical to the chip inside Alpha's DC16-73. The two integrated GaAs Schottky diodes may be biased and arranged to compensate for bias drift with temperature. It is available in the SOT-6 leaded surface mount package.

Electrical Specifications at 25°C (50 Ω System)

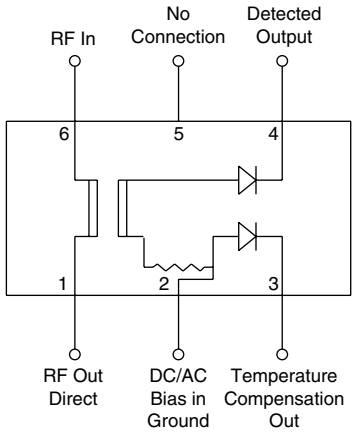
Parameter	Min.	Typ.	Max.	Unit
Frequency	0.5		2.3	GHz
Insertion Loss[1]	0.2	0.25	1	dB
Sensitivity (DC Volts Out/RF Peak Voltage In)	0.1		0.25	
Input VSWR		1.2:1	1.5:1	
Output VSWR		1.2:1	1.5:1	
Output Noise Voltage Peak (Diodes Biased at 10 μA, 1 MHz BW, 25°C Ambient)			200	μV

1. Specifications like "Insertion Loss" and "Sensitivity" have a very broad Min. to Max. range. While this may give the impression of an out of control process, the actual cause of this is the extremely broad frequency range being considered and the ever increasing coupling strength as frequency increases. For any given frequency, the DD01 performs very consistently from part to part.

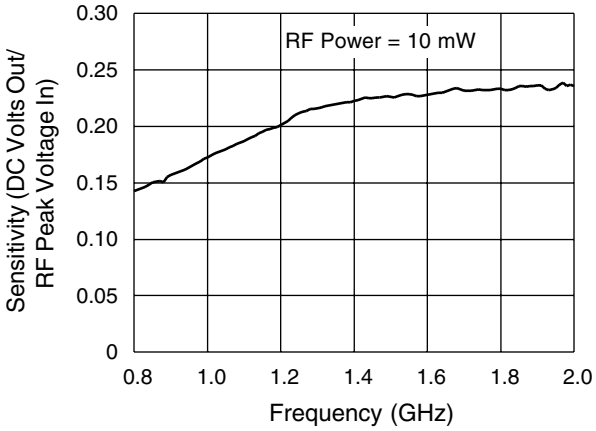
Pin Out



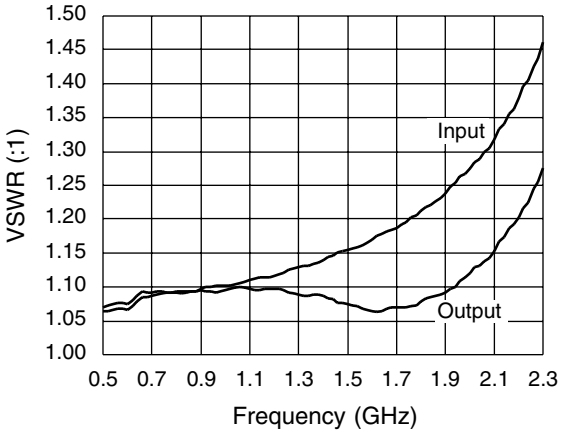
Block Diagram



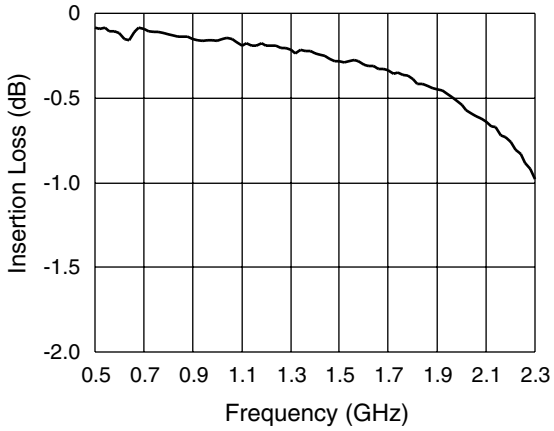
Typical Performance Data



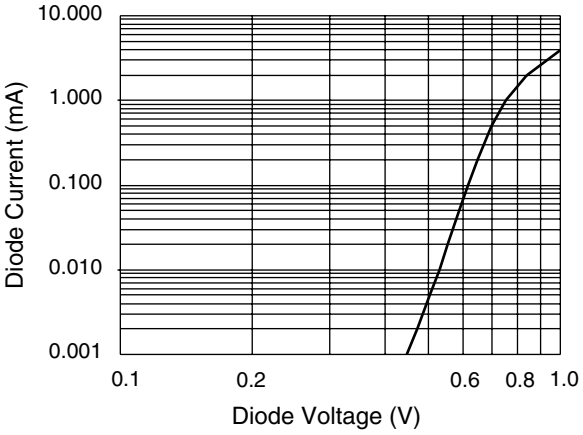
Sensitivity (DC Out/RF Peak Voltage In) vs. Frequency



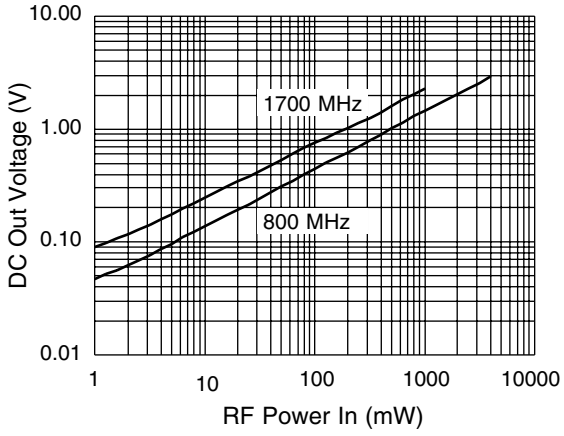
VSWR vs. Frequency



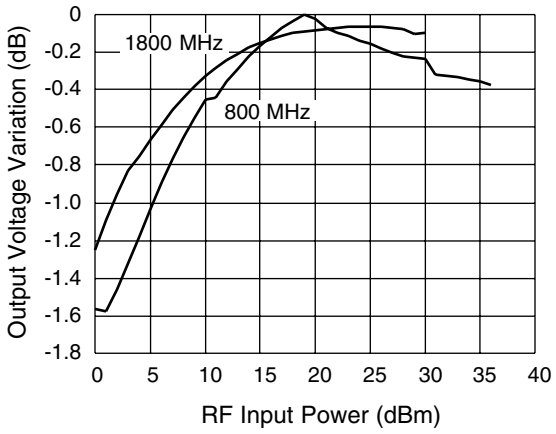
Insertion Loss vs. Frequency



Directional Detector Diode Current vs. Diode Voltage at Room Temperature



DC Out vs. RF Power In

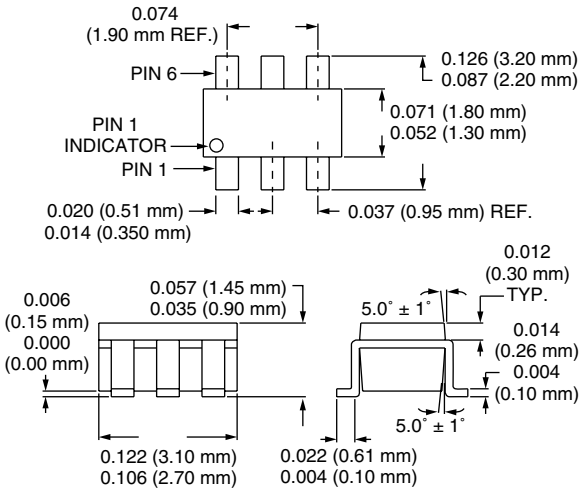


Temperature Performance

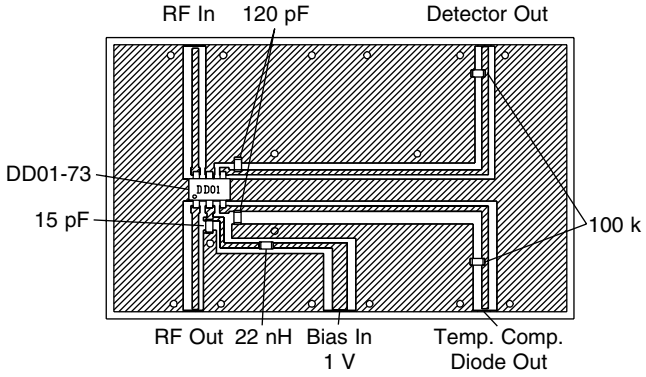
Comparison of output voltage at 25˚ and 85˚ ambient temperature. Plotted vs. RF input power.

Note: Detected output voltage measurements are made with a voltmeter measuring the difference voltage between “Detected out” and “Temp. Comp. Out” on the evaluation board assembled as shown on page 3. Bias Current is 10 μA per diode.

SOT-6



Evaluation Board Layout



Absolute Maximum Ratings

Characteristic	Value
Input Power[1]	4.0 W CW
DC Bias Current	50 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

1. With a 2.0:1 maximum VSWR on both RF ports.