SDC-C Series Microwave Downconverter

Datasheet

Saluki Technology Inc.

The document applies to the microwave downconverter of the following models:

- SDC0204C microwave downconverter (RF input 2GHz - 4GHz)
- SDC0408C microwave downconverter (RF input 4GHz - 8GHz)
- SDC0818C microwave downconverter (RF input 8GHz - 18GHz)
- SDC1826C microwave downconverter (RF input 18GHz - 26.5GHz)
- SDC2640C microwave downconverter (RF input 26.5GHz - 40GHz)
- SDC1840C microwave downconverter (RF input 18GHz - 40GHz)

Standard Package of the SDC-C series microwave downconverter:

No.	Item	Qty.
1	Microwave Downconverter	1
2	Power Cord	1
3	Certificate of Calibration	1

Options of the SDC-C series microwave downconverter:

Model No.	Item	Description
SDC-MA	IF/BW IF/Bandwidth	IF Output: 70±20MHz
SDC-MB	IF/BW IF/Bandwidth	IF Output: 140±40MHz
SDC-MC	IF/BW IF/Bandwidth	IF Output: 0.72±0.25GHz
SDC-MD	IF/BW IF/Bandwidth	IF Output: 1.2±0.25GHz
SDC-ME	IF/BW IF/Bandwidth	IF Output: 1.2±0.5GHz
SDC-MF	IF/BW IF/Bandwidth	IF Output: 1.8±1GHz
SDC-ATT35	ATT35	Maximum input of signal power increased from -30dBm to +5dBm
SDC-ST	Self-Testing and Combination Alarm	/

Preface

Thank you for choosing SDC-C series microwave downconverter produced by Saluki Technology Inc.

We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

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Document Authorization

The information contained in this document is subject to change without notice. The power to interpret the contents of and terms used in this document rests with Saluki.

Product Quality Assurance

The warranty period of the product is three years from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period.

Product Quality Certificate

The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

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Content

1. Overview

Saluki SDC-C Series Microwave downconverter is a broadband frequency converter that is dedicated for satellite communication. It has a high performance, high reliability and an octave covered by RF signal. Its frequency step is precise and accurate to 1Hz with a variety of IF and signal bandwidth choices. SDC-C series is equipped with functions like self-testing and combination alarm which is suitable for long-time uninterrupted use, guaranteed safety and reliability.

SDC-C series microwave downconverter is mainly designed for satellite communication system, signal monitoring system, and electronic countermeasure system with an excellent phase noise, clutter suppression, and in-band flatness data. It is able to provide a transparent RF transmission channel to all videos or data communications. All programming commands can be set through a local panel or through network remotely. SDC-C series microwave downconverter has a standard 2U size.

Applications: T&M Systems / Satellite Communications / MIMO

2. Main Characteristics

- Octave RF coverage (S, C, X, Ku, and Ka)
- 2GHz or above instantaneous signal bandwidth
- Amplitude Equalization and Group Delay
- Variety of commonly used IF and bandwidth combinations
- Excellent phase noise specification (40GHz): ≤-100dBc/Hz@10KHz
- Internal and external reference switching
- Remote programming
- Self-testing and combination alarm

3. Technical Specifications

3. 1. Input Characteristics

Model No.	SDC0204C	SDC0408C	SDC0818C	SDC1826C	SDC2640C	SDC1840C
Frequency Range	2-4GHz	4-8GHz	8-18GHz	18-26.5GHz	26.5-40GHz	18-40GHz
Frequency Tuning Step Size	1Hz					
Maximum Power Input	-30dBm(Operating), +10dBm(Damaged) (+5dBm operating, ATT35 support)					
Input LO Leakage	≤-80dBm					
Input VSWR	≤1.4	≤1.4	≤1.5	≤1.5	≤1.5	≤2.2
Input Impedance	50Ω					

3. 2. Output Characteristics

Model No.	SDC0204C	SDC0408C	SDC0818C	SDC1826C	SDC2640C	SDC1840C
Output Frequency	70±20MHz,140±40MHz,0.72±0.25GHz,1.2±0.25GHz, 1.2±0.5GHz,1.8±1GHz (select between single or multiple IF inputs)					
P-1 Output Power	≥ +13dBm					
IM3 Output	⩽-60dBc (△5MHz, Maximum Gain, Power Output: 2*-10dBm)					
Output VSWR	≤1.4					
Output Impedance	50Ω					
IF Signal Monitoring	-20dBc (typ.)					

3. 3. Transfer Characteristics

Model No.	SDC0204C	SDC0408C	SDC0818C	SDC1826C	SDC2640C	SDC1840C
Gain	10 - 45dB					
Tuning Step Size	0.1dB					
Gain Resolution	≤±1dB					
Level Stability	≤±0.5dB/day at room temperature					
Gain Flatness	≤±0.3dB/40MHz, ≤±0.5dB/80MHz, ≤±1dB/500MHz, ≤±1.5dB/1000MHz, ≤±2dB/2000MHz, ≤±2dB/Full band					
IF Inband Frequency Clutter	Signal Related	≤-60dBc(Δf ≤ 1MHz) , ≤-70dBc (Δf>1MHz) (0dBm output, excluding output harmonics)				
	Signal Non-related	≤-70dBm				
Group Delay (80% Signal Bandwidth)	Linear: ≤0.03ns/MHz. Parabola: ≤0.01ns/MHz^2, Jitter: ≤1ns					
AM/PM Conversion	≤0.1°/dB (Maximum gain, 0dBm output)					
Spectral Characteristics	Non-inverted					
RF Shutdown Feature	≥ 80dB					
Noise Figure (Maximum Gain)	≤12dB	≤12dB	≤15dB	≤12dB	≤15dB	≤15dB
Image Rejection	≤-70dBc					

Phase Noise (dBc/Hz)	≤-50@10Hz	≤-50@10Hz	≤-50@10Hz	≤-50@10Hz	≤-50@10Hz	≤-50@10Hz
	≤-80@100Hz	≤-80@100Hz	≤-80@100Hz	≤-75@100Hz	≤-75@100Hz	≤-75@100Hz
	≤-105@1kHz	≤-100@1kHz	≤-95@1kHz	≤-95@1kHz	≤-95@1kHz	≤-95@1kHz
	≤-110@10kHz	≤-105@10kHz	≤-102@10kHz	≤-100@10kHz	≤-100@10kHz	≤-100@10kHz
	≤-110@100kHz	≤-105@100kHz	≤-102@100kHz	≤-100@100kHz	≤-100@100kHz	≤-100@100kHz
	≤-115@1MHz	≤-115@1MHz	≤-108@1MHz	≤-108@1MHz	≤-105@1MHz	≤-105@1MHz

3. 4. Reference Characteristics

Model No.	**SDC0204C**	**SDC0408C**	**SDC0818C**	**SDC1826C**	**SDC2640C**	**SDC1840C**
Internal Reference Frequency Stability	±2e-8 (0℃ to +50℃, after 30min power on)					
Internal Reference Frequency Accuracy	0.05ppm					
Internal Reference Power Output	5±2dBm, 50Ω, 10MHz, Sine wave					
External Reference Power Input	5±2dBm, 50Ω, 10MHz, Sine wave					
Reference Phase Noise	≤-125dBc/Hz@10Hz, ≤-140dBc/Hz@100Hz, ≤-150dBc/Hz@1kHz, ≤-155dBc/Hz@10kHz, ≤-155dBc/Hz@100kHz					

3. 5. Physical Characteristics

Model No.	**SDC0204C**	**SDC0408C**	**SDC0818C**	**SDC1826C**	**SDC2640C**	**SDC1840C**
RF Input Port	2.92mm-K					
IF Output Port	SMA-K					
External Reference Input Port	BNC female					
Internal Reference Output Port	BNC female					
Control Interface	RJ-45 (TCP/IP over Ethernet) / RS422					
Power Supply	AC,176-264VAC, 45Hz-65Hz, Power consumption 60W					
Dimension	483mm*90mm *550mm (2U)					
Weight	15kg					

3. 6. Environment

Operating	Temperature: 0℃ to +50℃, Humidify: up to 95% @30°C, Noncondensing, Height: 3000 meters
Storage	Temperature: -30℃ to +70℃, Humidify: up to 95% @40°C, Noncondensing, Height: 12000 meters, Shock and Vibration: Regular road transport/air transport

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