CSAT-5060 & CSAT-6070 C-Band Transceivers

Transceivers

5 to 25 W P1db
(6 to 32 W Psat)

50 W P1db
(63 W Psat)

100 & 125 W P1db
(125 & 150 W Psat)

Introduction

The CSAT-5060 and CSAT-6070 C-Band Transceivers provide superior performance, long-term reliability, and ease of installation. A very price-competitive product, these transceivers embody the best design efforts of our highly experienced RF engineering team.

Typical Users

- Cellular Providers
- Maritime
- Oil & Gas

Full Rated Power

The CSAT-5060 and CSAT-6070 deliver the full rated power, or more, measured at the 1 dB compression point and at the output flange. You will know the useable output power you are paying for, and receive full value for your investment.

Common Applications

- VSAT point-to-point applications – TDMA, DAMA, SCPC/MCPC

Phase Noise

The dual synthesizers in this family of transceivers deliver superior phase noise performance, exceeding Intelsat specifications by a substantial margin. Your applications will benefit from outstanding spectral purity and the ability to operate in multi-carrier environments with less worry.

Third Order Intercept (TOI)

The design provides a high TOI that allows multi-carrier applications without the issues normally encountered in low power environments. The CSAT-5060 and CSAT-6070 deliver performance usually found only in split converter SSPA systems.

Small, Compact Design

The transceivers are enclosed in a single unit chassis. This design allows quick, easy installation for all models in this family of transceivers.

Full Monitor and Control (M&C)

A variety of full monitor and control methods are designed into the CSAT-5060 and CSAT-6070:

- Convenient connection using an optional small, hand-held terminal
- Easy access via EIA-232 or EIA-485 connections with optional Ethernet support (HTML, Telnet, SNMP)
- Remote management via the CDM modem family or the PC-based SatMac proprietary M&C software

Redundancy

The CSAT-5060 and CSAT-6070 are available in 1:1 redundant configurations.

10 dBm Option

This transceiver is designed to mate with an external high power SSPA (Example: Comtech EF Data HPODs) or TWTA to provide even higher output power.

COMTECH EF DATA

Specifications

Transmit

Frequency RF			
CSAT-5060	5845 to 6425 MHz Standard 6425 to 6725 MHz (Optional Extended) 5850 to 6650 MHz (Optional Wide) 5845 to 6725 MHz (Optional Super Wide)		
CSAT-6070	6725 to 7025 MHz		
Frequency IF	70 MHz ± 18 MHz 140 MHz ± 36 MHz (Optional)		
Output Power	CSAT-5060	CSAT-6070	
	P_{1dB}	P_{1dB}	P_{sat} Typical
10 dBm	10 dBm		
5 W	5 W (37dBm)	5 W (37dBm)	38 dBm (6 W)
10 W	10 W (40 dBm)	10 W (40 dBm)	41 dBm (12 W)
20 W	20 W (43 dBm)	20 W (43 dBm)	43.8 dBm (24 W)
25 W	25 W (44 dBm)	25 W (44 dBm)	45 dBm (32 W)
50 W	50 W (47 dBm)	50 W (47 dBm)	48 dBm (63 W)
100 W	100 W (50 dBm)	100 W (50 dBm)	51 dBm (125 W)
125 W	125 W (51 dBm)		51.8 dBm (150 W)

Gain	
10 dBm	25 dB
5 W	65 dB
10 W	68 dB
20 W	71 dB
25 W	71 dB
50 W	74 dB
100 & 125 W	77 dB
Attenuator Range	25 dB in 0.25 dB steps
Gain Flatness	± 0.75 dB full RF band ± 0.75 dB per 36 MHz
Gain Stability	± 0.25 dB at constant C ± 1.00 dB from -40º to +55ºC (-40º to 131ºF)
Carrier Mute	-70 dBc
Inter-Modulation	-28 dBc typical for two carriers each at 6 dB OPBO from rated power (3 dB total OPBO)
Second Harmonic	-55 dBc
Spurious	AC line harmonics -45 dBc Carrier related, <500 kHz -60 dBc All other in-band -65 dBc
AM to PM Conversion	3.0 Degrees at 6 dB OPBO from rated power
RF Output VSWR	1.25:1
RF Output Connector 10 dBm, 5 W, 10 W, 20 W, 25 W, 50 W, 100 W & 125 W	Type N female CPR-137G
IF Input Impedance	50 Ω
IF Input VSWR	1.25:1
IF Input Connector	Type N female

Receive

Frequency RF		
CSAT-5060	Converter	3400 to 4200 MHz
	LNA	3400 to 4200 MHz(std.) 3625 to 4200 MHz (Optional)
CSAT-6070		4500 to 4800 MHz
Frequency IF		70 MHz ±18 MHz 140 MHz ± 36 MHz (Optional)
Gain, without LNA		45 dB
Gain Flatness, without LNA		± 0.75 dB full RF band ± 0.75 dB per 36 MHz
Gain Stability, without LNA		± 0.25 dB constant temperature ± 1.00 dB -40º to +55ºC (-40º to 131ºF)
Output Power, P1dB		+13 dBm
Two Tone Inter-Modulation		-50 dBc for two tones at 0 dBm each, 1 MHz apart
Image Rejection		-60 dBc
RF Input VSWR		1.25:1
RF Input Connector		Type N female
IF Output Impedance		50 Ω
IF Output VSWR		1.25:1
IF Output Connector		Type N female

Common

Conversion	Dual, no spectral inversion
Frequency Step Size	1.0 and 2.5 MHz automatic
Frequency Stability	$1x10^{-9}$/day $1x10^{-7}$/year 40º to +55ºC $1x10^{-8}$/Temperature
Attenuation Steps	TX: 0 to 25 dB in 0.25 dB steps RX: 0 to 20 dB in 0.25 dB steps
Phase Noise	100 Hz -66 dBc/Hz 1 kHz -76 dBc/Hz 10 kHz -86 dBc/Hz 100 kHz -96 dBc/Hz
Group Delay	Linear 0.1 ns/MHz Parabolic 0.02 ns/MHz^2 Ripple 1 ns p-p

Monitor & Control

Methods	Both RS-485 and RS-232 Serial Interface Optional Ethernet support (HTML, Telnet, SNMP) Handheld controller, optional
Commands	Set TX frequency Set RX frequency Set TX attenuation Set RX attenuation Report TX output power Mute TX Report internal temperature Report power supply voltages Set time Set date
Faults	Up converter functions Down converter functions Up converter synthesizers Down converter synthesizers Internal reference oscillator LNA current fault Over temperature condition

Environmental

Operating Temperature	-40º to +55ºC (-40º to 131ºF) Operating
Storage Temperature	-50º to +75ºC (-58º to 167ºF) Storage
Altitude	15,000 ft, mean sea level
Humidity	0 to 100 Percent, Relative
Ingress Protection	Designed for IP-66 (Dust tight, strong water jets)
Prime Power	90 to 260 VAC standard 47 to 63 Hz standard 48 VDC optional
Dimensions (nominal) 10 dBm	(height x width x depth) 8” x 8” x 11” (20 x 20 x 28 cm)
10 W to 25 W	10.75” x 8” x 11” (27.3 x 20 x 28 cm)
50 W	9.75” x 10” x 23” (24.77 x 25.4 x 58.42 cm)
100 W & 125 W	10” x 12.5” x 26” (25.4 x 31.75 x 66.04 cm)
Weight 5 W to 25 W 50 W 100 & 125 W	 36 lbs (16 kg) 65 lbs (29 kg) 80 lbs (40 kg)
Low Noise Amplifier	Customer defined

RF Power	
CSAT-5060	10 dBm, 5 W, 10 W, 20 W, 25 W, 50 W, 100 W, 125 W
CSAT-6070	5 W, 10 W, 25 W, 50 W, 100 W
AC Power	
CSAT-5060	120 W, 150 W, 200 W, 220 W, 250 W, 410 W, 759 W, 850 W
CSAT-6070	150 W, 200 W, 250 W, 410 W, 759 W
	Steady-State True AC Power Requirement (110 VAC)

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