

CSAT-5060 & CSAT-6070 C-Band Transceivers



Transceivers



5 to 25 W P_{1dB}
(6 to 32 W P_{sat})



50 W P_{1dB}
(63 W P_{sat})



100 & 125 W P_{1dB}
(125 & 150 W P_{sat})

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 Comtech EF Data's highly experienced RF engineering team.

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.

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
- 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 a 1:1 redundant configuration.

10 dBm Option

This transceiver is designed to mate with an external high power SSPA (Example: CEFD HPODS) or TWTA to provide even higher output power.

Typical Users

- Cellular Providers
- Maritime
- Oil & Gas

Common Applications

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

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)
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CSAT-6070	6725 to 7025 MHz
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Frequency IF	70 MHz $\pm$ 18 MHz 140 MHz $\pm$ 36 MHz (Optional)
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Output Power	CSAT 5060	CSAT-6070
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	<u>P_{1dB}</u>	<u>P_{1dB}</u>	<u>P_{sat} Typical</u>
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	$\pm$ 0.75 dB full RF band $\pm$ 0.75 dB per 36 MHz
Gain Stability	$\pm$ 0.25 dB at constant C $\pm$ 1.00 dB from -40° to +55°C (-40° to 131°F)
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
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RF Output VSWR	1.25:1
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RF Output Connector	10 dBm, 5 W, 10 W, 20, & 25 W 50 W, 100 W & 125 W	Type N female CPR-137G
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IF Input Impedance	50 Ω
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IF Input VSWR	1.25:1
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IF Input Connector	Type N female
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Receive

Frequency RF

CSAT-5060	3625 to 4200 MHz 3400 to 4200 MHz (Optional)
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CSAT-6070	4500 to 4800 MHz
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Frequency IF	70 MHz $\pm$ 18 MHz 140 MHz $\pm$ 36 MHz (Optional)
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Gain, without LNA	45 dB
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Gain Flatness, without LNA	$\pm$ 0.75 dB full RF band $\pm$ 0.75 dB per 36 MHz
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Gain Stability, without LNA	$\pm$ 0.25 dB constant temperature $\pm$ 1.00 dB -40° to +55°C (-40° to 131°F)
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Output Power, P1dB	+13 dBm
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Two Tone Inter-Modulation	-50 dBc for two tones at 0 dBm each, 1 MHz apart
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Image Rejection	-60 dBc
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RF Input VSWR	1.25:1
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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
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Frequency Step Size	1.0 and 2.5 MHz automatic
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Frequency Stability	1x10 ⁻⁹ /day 1x10 ⁻⁷ /year 40° to +55°C 1x10 ⁻⁸ /Temperature
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Attenuation Steps	TX: 0 to 25 dB in 0.25 dB steps RX: 0 to 20 dB in 0.25 dB steps
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Phase Noise	100 Hz -66 dBc/Hz 1 kHz -76 dBc/Hz 10 kHz -86 dBc/Hz 100 kHz -96 dBc/Hz
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Group Delay	Linear 0.1 ns/MHz Parabolic 0.02 ns/MHz ² Ripple 1 ns p-p
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Monitor & Control

Methods	Both RS-485 and RS-232 Serial Interface Handheld controller, optional
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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
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Faults	Up converter functions Down converter functions Up converter synthesizers Down converter synthesizers Internal reference oscillator LNA current fault Over temperature condition
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Environmental

Operating Temperature	-40° to +55°C (-40° to 131°F) Operating
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Storage Temperature	-50° to +75°C (-58° to 167°F) Storage
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Altitude	15,000 ft, mean sea level
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Humidity	0 to 100 Percent, Relative
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Prime Power	90 to 260 VAC standard 47 to 63 Hz standard 48 VDC optional
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Dimensions	(height x width x depth)
10 dBm to 25 W	8" x 8" x 11" (20 x 20 x 28 cm)

50 W	9.75" x 10" x 23" (24.77 x 25.4 x 58.42 cm)
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100 & 125 W	10" x 12.5" x 26" (25.4 x 31.75 x 66.04 cm)
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Weight	
5 W to 25 W	36 lbs (16 kg)
50 W	65 lbs (29 kg)
100 & 125 W	80 lbs (40 kg)

Low Noise Amplifier	Customer defined
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RF Power	
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CSAT-5060	10 dBm, 5 W, 10 W, 20 W, 25 W, 50 W, 100 W, 125 W
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CSAT-6070	5 W, 10 W, 25 W, 50 W, 100 W
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AC Power	
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CSAT-5060	120 W, 150 W, 200 W, 220 W, 250 W, 410 W, 759 W, 850 W
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CSAT-6070	150 W, 200 W, 220 W, 240 W, 250 W, 410 W, 759 W
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	Steady-State True AC Power Requirement (110 VAC)
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