

CONSERT Orbiter

Declared Component List

Reference : RO-OCN-LI-3001

Issue : 5

Date : 06/10/98

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DECLARED COMPONENT LIST

Nota Bene :Selected components are presented for each function, according to Consert design (with the quantity q which is required to achieve the given function). Where several different candidates are still under investigation, they are all listed, and the alternative part is **between brackets**.

Prepared by L.Bemmann

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ref	function	q	part number	remark	manuf	qual.level
1	MASTER CLOCK Shaping and Distribution					
1,1	M.O.	1	OCXO EW 0513	Master oscillator at 10MHz	Sorep	CNES Tested
1,2	M.O.Buffer	1	2N4416 (TBC)	Field Effect Transistor	Motorola	Space Doc.
		or	(CLC505)	low power program. Op.amp	Comlinear	Space doc.
1,4	M.O.Shaper	1	54AC02	as an Hysteresis Comparator	SGS THOMSON	ESA/QPL
1,5	MO sinus outputs	2	2N2222A	NPN transistor	SGS-THOMSON	ESA/QPL
1,6	Local DC regulator	1	UC1834	Serial Regulator	Unitrode	Mil Std
1,7	Ballast transistor	1	2N2905A	Regulation ballast	SGS-Thomson	Space Qual

ref	function	q	part number	remark	manuf	qual.level
2	MULTIPLIER SECTION					
2,0	Multiplier Biasing	2	OP482AY	¼ operational amp per trans.	Analog Devices	STD883
2,1	Multiplier Stages	4	2N3960	Transistor	Motorola	
		or	(BFY193)	Transistor (can replace 2N3960)	Siemens	ESA/QPL
		or	BFY18	Old reference NE32708 (Rosetta CPPA list)	NEC	Rosetta CPPA
		or	NE73412	Transistor (can replace 2N3960)	NEC	Space Qual.
		or	(2N918)	Transistor (can replace 2N3960)	Motorola	Space doc.
2,2	Filter stages	4	Same as 2.1	Transistor		
2,6	Clock Input amplifier	2	CLC505	low power program. Op.amp	Comlinear	Space doc.
2,7	7 and 10 dBm Output buffer	3	UTO 103	G24dB/ OP11dBm/DP13dBm/N2.4dB/TO8	HP /Pselect	STD 883
		or	(MSA0670)		HP	Space Doc.
2,8	Quartz Filter	2	FTF1665	30 MHz narrow band pass filter	Tekelec	Space Doc.

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3	HFRX					
3,1	TR2 Limiter diodes	2	(TBC)	TBD/ Schottky or Pin Diodes	Tekelec	can fly
			HSMS-2828	Double Schottky diodes	HP	
3,2	BPF		passive	See miscellaneous parts section 11		
3,3	FEA and HF2	2	MSA0670	MMIC/G20dB/DP13dBm/OP3dBm/N2.7	HP Avantek	SpQUA
		or	(UTO 103)	Hybrid/G24dB/OP11dBm/DP13dBm/N2.4dB	HP /Pselect	883
		or	(AC583)	LNA/Hybrid/G30dB/DP6dBm/OP 0dBm/N1.8	Cougar Cts	SpQUA
3,4	AT1 Digital version	1	AT-102	Dig/AT31dB/Step1dB/5bitsCMOS/IP18dBm	MACOM	SpQUA
	(AT1 Analog Version)	or	(AT-637)	Analog/AT 35dB/DP21dBm	MaCom	
3,5	HFMIX	1	SAM3	LO 7dBm (3dBm)/ ConvLoss 5dB	MiniC	ESA doc
		or	(MDE113)	LO 7dBm/ ConvLoss 7dB	Macom	SpQUA
3,6	IF1	3	Same as FEA			
3,7	AT2 (same as AT1)	1	AT-102	Same as AT1	MACOM	SpQUA
	(same replacement list)		(AT-637)		MACOM	
3,8	Splitter	1	MSC21	2 way splitter	Minicircuits	
3,8	IF2	1	Same as FEA			
3,9	IF3	1	Same as FEA			
3,10	IQ Demod	1	C56010	only for IF version	TEKELEC	can Fly
			(IQF4E30B)		Merrimac	can Fly
3,11	LP Filters	2	Lumped elements	See section 11		
3,12	BBA1/amplifier	2	CLC425	LN Op AMP/ RL 100/ A=10 to 1000	Comlinear	SpQUA
3,13	BBA2	2	CLC420	LN Op AMP/ RL 100/ A=10 to 1000	Comlinear	SpQUA

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4	CLOCK SYNCHRO MODULE					
4,5	NBPF Filter	1	FTF1665	30 MHz narrow band pass filter	Tekelec	Space Doc.
4,6	XIF1, XIF2 Amplifiers	2	Same as FEA			
4,8	Phi Comparator		C56010	IQ Demod	TEKELEC	Can Fly
		or	(SAM3)			ESA Qualif
4,9	Integrator	1	OP282		Analog Devices	Sp Qua
		or	OP297		Comlinear	
4,10	PLL Filter	1	OP 282			SpQUA
4,11	Sy ADC	1	AD571SD/883B	8 (or 10) bits ADC, Dip18	Analog Devices	Sp Qua
		or	(AD7874(not RH))		AD	
4,12	Analog Multiplexer	1	CD4051	Dip16	TI / SGS	Mil883b
4,12	Sy DAC	1	DAC08AQ/883C	8 bits DAC, Dip16	AD	Sp Qua
		or	(AD7243 (not RH))		Analog Devices	
4,13	Buffer Ampli Op	1	OP282	Double operational amplifier /Dip8	Analog Devices	Sp Qua

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5	DIGITAL SECTION					
5,1	10MHz ADC	2	HS1-9008-RH-Q	CMOS/ DIL case	Harris	QML 5
		Or 2	(HS9-9008-RH-Q)	other package : Flat pack	Harris	QML 5
5,11	Voltage reference	2	AD589UH		Analog Devices	mil
5,3	FPGA sequencer and processor	2	A1280A PG176-B	Different package	Actel	Mil-STD883
		or	(A1280A CQ172-B)	PPL Dornier (Esa Investigated)	Actel	Mil-STD883
5,4	Canaccu FIFO	2	IDT 72225LB35GB	synchronous FIFO/1k x 18/ PGA	IDT	STD883B
		Or 1	(HX6136)	synchronous FIFO/1k x 36/ Flat Pack	Honeywell	QML class 5
5,6	Calendar prescaler	1	54HC4020	for time Counters/ package LCC	(ST)	ESA QPL
5,7	Micro-controller	1	MJ-80C32EP883	8bits/RAM256/JLCC/30kRAD	TEMIC	P883
5,8	EEPROM	1	28128	EEPROM 16kx8 (Rosetta CPPA)	?	?
5,9	RAM	1	M65608	CMOS/128kX8 , Rosetta CPPA, Dip32	TEMIC	SCC9000
		1 or 2	(MMDP-65656FV-45P883)	CMOS/32k X 8/FP28/30kRAD	TEMIC	SCC9000
5,10	Decoder	1	PAL16L8	PAL	AMD	(Mil-STD883)
		Or 1	(22V10)	PAL	AMD	Mil-STD883
5,11	RS422 Interface	1	26C31RH	Rosetta CPPA	HARRIS	QML 5
		2	26C32RH	Rosetta CPPA	HARRIS	QML 5
5,12	Interface control	1	RH1020A	small FPGA for smart interface control	Actel	Esa Test
		Or 1	(A1020B)		Actel	Mil-STD883
5,13	FIFO Interface	2	MMCP67202FV-50	CMOS 1K x 9 ROSETTA CPPA	MHS	SCC9000

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5,14	DIGITAL SECTION MISCELLANEOUS IC					
	Integrated circuits	1	54HC14	Digital IC	TI / SGS	Mil883b
		1	54HC574			
		2	54HC245			
		1	54HC373			
		2	54HC32			
		2	54HC08			
		1	54HC00			
		1	LM139	Quad Comparator	PMI	Mil883b

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6	HFTX					
6,1	TRa Switch orbiter	1	SH90101	PIN diodes, complete TR to be designed	Tekelec	mil
6,11	TRb	1	SW-226	GaAs SPDT/P<26dBm/I>70dB	Macom	883
		or	(SW-238)	Ga-As SPDT/P<26dBm/I>60dB	Macom	883
6,12	TR Switch Lander	1	DS0492	integrated TR/30dBm	DAICO	
		Or	SW-226	GaAs SPDT/P<26dBm/I>70dB	Macom	883
		Or	SW-238	Ga-As SPDT/P<26dBm/I>60dB	Macom	883
		Or	SW-580	SPDT/P<13dBm/I=40dB/IL=1.3dB	Macom	SpQUA
		Or	AE002M2-29	SPDT/P<24(5V)28(7V)dBm/I=55dB/IL=0.9dB	AI alpha	SpQUA
		or	SW-237	GaAs SPDT/P<26dBm/ I >60dB	Macom	883
6,21	Orb HF Power Ampli	1	PT 9701B	Bipolar RF power transistor	RF Gain	industrial
			(CLY32)?		siemens	ESA QPL
6,22	Lander HF, orb driver	1	BFQ68	Bipolar transistor	philips	industrial
6,23	HF preamp	1	BFY193	Bipolar Transistor	siemens	ESA QPL
6,3	Phase Modulator	1	PM101	IL=3dB/RF<=-3dBm/DP17dBm	Macom-Anzac	Mil
		or	(SAM3)	LO 7dBm (3dBm)/ ConvLoss 5dB	MiniCircuits	ESA ?/883B
6,4	BP Filter		passive	See section 11		

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10	POWER SUPPLY-SWITCH-BOARD					
10,0	SOLID STATE RELAY	9	C60-10	replaces components 10-1 to 10-6 !!	TELEDYNE	Industrial
				ESA INFO REQ. on this Product		
	the Other solution:					
(10,1)	N Channel Switching	9	IRHG7110	x4 N Channel RadHard Hexfet	IR	
(10,2)	P & N Channel	9	IRHG6110	x2N + x2P RadHard Hexfet	IR	
(10,3)	Low Resistance	9	IRHF7130	N-Channel RadHard Hexfet	IR	
	other choice	9	2N7272	same	HARRIS	
			2N6849			SpQUA
	other polarity (TBC)		2N7308	P-CHANNEL RadHard	HARRIS	
(10,4)	drivers	9	2N2222A		TI/SGS	SpQUA
(10,5)	drivers	9	2N2907		TI/SGS	SpQUA
(10,6)	opto coupler	9	3C91	opto coupler	Hafo	Sp QUA

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11	MISCELLANEOUS PASSIVE					
11,20	diode	nn	1N4148	Diode	Unitrode	jantx
11,30	Chip Capacitors Type 1	150	A112C/A120C	High Q, capacitance for RF and IF	THOMSON LCC	ESA/QPL
11,31	Chip Capacitors Type II	100	3009/023	Decoupling Capacitors (22 to 47nF)	VITRAMON	ESA/QPL
11,32	Chip Capacitor Tantalum	50	SCC3012	Power line filters	AVX	ESA/QPL
11,33	Capacitor Trimmer	20	SCC3010/008	RF trimmers	TEKELEC	ESA/QPL
11,34			CKR05 22nF	Ceramic capacitor	AVX	ESA/QPL
11,35			CKR05 100nF	Ceramic capacitor	AVX	
11,36			CSR13 1uF	Tantalum capacitor	Sprague	
11,37			CSR13 15uF		Sprague	
11,40	SMD resistor	200	SCC4001/021	Surface Mounted fixed resistor	Sfernice	ESA/QPL
11,41	resistors		RLR05	Resistor	Dale	
11,42	resistors		RLR07	Resistor	Dale	
11,43	resistors		RW81	Resistor (higher power)	Sfernice	
11,50	Chip Inductance (RF)	50	MPCI 10000	Surface mounted inductors	Microspire	ESA/QPL
			ACL3225S	SMD	TDK	Industrial
11,80			3C91	opto coupler	Hafo	

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12	CONNECTORS AND PCB					
12,10	Sub_D connector Interface		DCJ37SM-NM		Souriau	ESA QPL
			DCMM37S	Not filtered	CANNON	MIL-C24308
12,20	SubD Connector Power		DEJ9SM-NM		Souriau	ESA- QPL
			DEMM9S	not filtered version	CANNON	MIL-C24308
				Printed circuit board	Systronic	
12,50	Coaxial SMA Connectors	2			Radiall, Suhner	

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ref	function	q	part number	Remarks	manufacturer	qual.level
13	ANTENNA					
13,1	RF Transformer	2	0101 HB	Ratio = 1,5:1, symmetrical:unsymmetrical	North Hills	
13,2	Coax. Connector Lepra/Con	3	142-0010-0003	Ultraminiature Conn.w.Locking Interface, Straight plug	Malco, South Pasadena, CA (USA)(MIL-STD 202 M106,107,2 04,213
13,3	Coax. Connector Lepra/Con	3	141-0023-0001	Right Angle Printed Circuit Receptacle	Malco	s.13,2
13,4	Power Combiner 2 way 90°	1	PSCQ-2-120	1 W (CW)	Mini Circuits, Brooklyn, NY (USA)	
13,5	Coaxial Cable 50 Ohm	7	RG 178 M17/93- KX21A	Inner : Copper-clad steel wire, silver plated Dia = 0.3 mm; Shield : Silver-plated copper braiding; 8 g/m	Axon Cable SA Montmirail (F)	MIL-C-17 NF C93550
13,6	Coax. Connector Lepra/Con	1	141-0014-0001	Bulkhead Jack	Malco	s. 13,2
13,7	Connector	1	951 06 E 8-2 S 50 A499		Companie DEUTSCH gmbh, Martinsried (D)	
13,8	SubD Connector	1	AMP 9350	9 pin, male	Cannon	
13,9	Wire	5	14/93	AWG-26; 7 x 0,16 Ø, copper wire, silver plated, PTFE Insulation	Telemeter Electronic GmbH, Donauwoerth (D)	MIL-W- 16878
13,10	Switch	2		See DML 2.1	MPAe	
13,11	Cable Cutter	1	7CCD15PWXB		Dassault Aviation, Velizy-Villacoublay (F)	HERO, MIL.I.23659