

5 Description of Circuitry and Devices (FCC Rules 2.1033)

5.1 Function of Each Semiconductor or Active Device

TX Board: 24P0032

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
CR 0001	DIODE(PIN)	1SV268-TD	RF switch
CR 0002	DIODE(BANDSW)	1SS268-TE85L	Protection for RF voltage
CR 0003	DIODE(Z)	02CZ2.7Z-TE85L	Regulator
CR 0004	DIODE(PIN)	1SV268-TD	RF switch
CR 0005	DIODE(Z)	02CZ4.7Z-TE85L	Protection for voltage
CR 0006	DIODE(LED)	PG1101W-TR	LED
CR 0007	DIODE(SB)	MA2J728	Detection for RF voltage
CR 0008	DIODE(SB)	MA2J728	For DC bias
CR 0009	DIODE(SB)	MA2J728	Detection for revers voltage
CR 0010	DIODE(SB)	MA2J728	Detection for RF voltage
CR 0011	DIODE(VC)	1SV229-TPH2	Varactor for VCO
CR 0012	DIODE(VC)	1SV229-TPH2	Varactor for VCO
FL 0001	FILTER(XTAL)	MF45SBD 45.0MHZ	Crystal
Q 0001	MOS FET(RF)	2SK3074-TE12L	RF amp
Q 0002	TR(POWER)	2SA1213-Y-TE12L	DC switch
Q 0003	TR(DIGI)	DTC114EKAT146	DC switch
Q 0004	TR(DIGI)	DTC114EKAT146	DC switch
Q 0005	TR(DIGI)	DTA114EKAT146	DC switch
Q 0006	TR(AF)	2SC2712-Y-TE85L	DC switch
Q 0007	TR(RF)	2SC3356(M)-T1B	RF amp
Q 0008	TR(RF)	2SC3356(M)-T1B	Buffer amp
Q 0009	TR(RF)	2SC3356(M)-T1B	VCO
Q 0010	FET(RF)	PMBFJ310	DC amp
Q 0011	TR(RF)	2SA1037AKT146R	DC switch
Q 0012	TR(RF)	2SC3123	Buffer amp
Q 0013	TR(RF)	2SC3123	Buffer amp
Q 0014	TR(RF)	2SC3123	Buffer amp
Q 0015	TR(RF)	2SC3123	Buffer amp
Q 0016	TR(DIGI)	DTA114EKAT146	DC switch
Q 0017	TR(DIGI)	DTC114EKAT146	DC switch
Q 0021	TR(RF)	2SA1037AKT146R	DC switch

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
Q 0022	TR(RF)	2SA1037AKT146R	DC switch
Q 0023	TR(DIGI)	DTC114EKAT146	DC switch
U 0001	IC(P AMP)	RA35H1516M-01	RF power amp
U 0002	CM COUPLER	DCS3D20-0157	
U 0003	IC(OPAMP)	NJM2904M-T1	DC amp
U 0004	IC(OPAMP)	NJM2904M-T1	DC amp
U 0005	IC(RF AMP)	UPC2745TB-E3	RF amp
U 0006	IC(RF AMP)	UPC2745TB-E3	RF amp
U 0007	IC(REG)	TA7809F-TE16L	Regulator
U 0008	IC(REG)	TA48L033F-TE12L	Regulator
U 0009	IC(MIX)	NJM2594M-TE1	Mixer
U 0010	IC(PLL)	LMX2353TMX	PLL
U 0011	MOS LOG(7SH)	TC7SHU04F-TE85L	Buffer amp
Y 0001	XTAL OSCILLATOR	TTS14NSB-A5 19.2MHZ	Reference OSC

DSC Board: 24P0034

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
CR 1	DIODE(SW)	1SS272-TE85L	Detection for reverse voltage
CR 2	DIODE(PIN)	MA555-TX	AGC
CR 3	DIODE(SB)	MA716-TX	Detection for RF voltage
CR 4	DIODE(PIN)	MA555-TX	AGC
FL 1	XTAL FILTER	MF38.3SB 38.364MHZ	
FL 2	XTAL FILTER	MF38.3SB 38.364MHZ	
Q 1	TR(AF)	2SC2712-Y-TE85L	AGC amp
Q 3	TR(RF)	2SC5336-T1	RF amp
Q 5	TR(RF)	2SC4703-T1	RF amp
Q 6	TR(RF)	2SC3123	Buffer amp
Q 7	TR(AF)	2SC2712-Y-TE85L	IF amp
Q 8	TR(RF)	2SC3356(M)-T1B	Buffer amp
Q 9	TR(RF)	2SC3123	Buffer amp
Q 10	TR(RF)	2SC3123	IF amp
Q 11	TR(RF)	2SC3123	IF amp
Q 14	MOS FET(RF)	2SK882-GR-TE85L	IF amp
U 1	IC(REG)	AN7712SP-E1	Regulator
U 2	IC(REG)	TA48L033F-TE12L	Regulator
U 4	IC(OPAMP)	M5218AFP-600C	IF amp

	<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
U	5	IC(OPAMP)	NJM2904M-T1	DC amp
U	6	IC(MIX)	NJM2594M-TE1	Mixer
U	7	MOS LOG(7SH)	TC7SHU04F-TE85L	Buffer amp
U	8	IC(MIX)	CMY210GEGE6327-PBF	Mixer
Y	1	XTAL OSCILLATOR	TTS14NSB-A5	29.54025 MHz 1st local OSC

DSC RX1 & RX2 Boards: 24P0033A & 24P0033B

	<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
CR	2	DIODE(VC)	1SV229-TPH2	Varactor for VCO
CR	3	DIODE(VC)	1SV229-TPH2	Varactor for VCO
CR	4	DIODE(SB)	MA716-TX	Detection for RF voltage
CR	5	DIODE(PIN)	MA555-TX	AGC
CR	6	DIODE(SW)	1SS272-TE85L	Detection for reverse voltage
FL	1	XTAL FILTER	MF51.1NB	51.1375MHZ
FL	1	XTAL FILTER	MF51.2NB	51.2375MHZ
FL	2	XTAL FILTER	MF51.1SB	51.1375MHZ
FL	2	XTAL FILTER	MF51.2SB	51.2375MHZ
Q	2	TR(RF)	2SC3356(M)-T1B	Buffer amp
Q	3	TR(RF)	2SC3356(M)-T1B	VCO
Q	4	TR(AF)	2SC2712-Y-TE85L	DC switch
Q	5	FET(RF)	PMBFJ310	DC amp
Q	6	TR(RF)	2SC3123	IF amp
Q	7	TR(RF)	2SA1037AKT146R	DC switch
Q	8	TR(RF)	2SC3123	IF amp
Q	9	TR(RF)	2SC3123	Buffer amp
Q	10	TR(AF)	2SC2712-Y-TE85L	IF amp
Q	11	TR(AF)	2SC2712-Y-TE85L	AGC amp
Q	12	TR(RF)	2SC2412KT146R	DC switch
Q	13	TR(RF)	2SA1037AKT146R	DC switch
U	1	IC(MIX)	AD831AP	Mixer
U	2	IC(RF AMP)	UPC2745TB-E3	RF amp
U	3	IC(RF AMP)	UPC2745TB-E3	RF amp
U	4	IC(PLL)	LMX2353TMX	PLL
U	5	MOS LOG(7SH)	TC7SHU04F-TE85L	Buffer amp
U	6	MOS LOG(7SH)	TC7SHU04F-TE85L	Buffer amp

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
U 8	IC(OPAMP)	M5218AFP-600C	IF amp
U 9	IC(REG)	TA48L033F-TE12L	Regulator
U 10	IC(OPAMP)	NJM2904M-T1	DC amp
U 11	IC(MIX)	NJM2594M-TE1	Mixer
U 12	IC(REG)	TA7809F-TE16L	Regulator
Y 1	XTAL OSCILLATOR	TTS14NSB-A5	25.55075MHz 2nd local OSC
Y 1	XTAL OSCILLATOR	TTS14NSB-A5	25.60075MHz 2nd local OSC

MAIN Board: 24P0035

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
CR 0001	DIODE(LED)	PG1101W-TR	LED
CR 0002	DIODE(LED)	PG1101W-TR	LED
CR 0003	DIODE(LED)	PG1101W-TR	LED
CR 0004	DIODE(LED)	PG1101W-TR	LED
CR 0005	DIODE(SW)	1SS226-TE85L	
CR 0006	DIODE(SW)	1SS226-TE85L	
CR 0007	DIODE(SW)	1SS226-TE85L	
CR 0008	DIODE(SW)	1SS226-TE85L	Switching
CR 0009	DIODE(SW)	1SS226-TE85L	Switching
CR 0010	DIODE(SB)	MA2J728	
CR 0011	DIODE(LED)	PG1101W-TR	LED
CR 0012	DIODE(LED)	PG1101W-TR	LED
CR 0013	DIODE(LED)	PG1101W-TR	LED
CR 0014	DIODE(LED)	PG1101W-TR	LED
U 0001	IC(RF AMP)	UPC2745TB-E3	Buffer amp
U 0002	MOS SDRAM	IC42S16100-7T	SDRAM
U 0003	IC(OPAMP)	NJM5532M-TE1	Buffer amp for DSC
U 0004	IC(OPAMP)	NJM5532M-TE1	Buffer amp for RX1
U 0005	IC(OPAMP)	NJM5532M-TE1	Buffer amp for RX2
U 0006	MOS MPU	HD6417750RF240	Sub CPU
U 0007	MOS	AD9834BRU-REEL7	DDS
U 0008	MOS SDRAM	IC42S16100-7T	SDRAM
U 0011	IC(RESET)	RN5VD28A-TR	Reset
U 0012	MOS LGC(7W)	TC7W14FU-TE12L	Schmitt inverter

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
U 0013	IC(AD/DA)	AK4528VF	AD/DA converter
U 0014	IC(AD/DA)	AK4528VF	AD/DA converter
U 0015	IC(D/A)	MAX5385EUT-T	D/A converter
U 0016	MOS LGC(ALVC)	74ALVC32PW	OR gate
U 0017	MOS LGC(7W)	TC7WU04FU-TE12L	
U 0018	IC(FPGA)	XC2S200E-6PQ208C	
U 0019	IC(A/D)	MAX1117EKA-T	
U 0020	IC(REG)	L78M05T-TL	Regulator
U 0021	MOS LGC(LVC)	SN74LVC1G08DBVR	AND gate
U 0022	IC(REG)	LMS1585AISX-3.3	Regulator
U 0023	MOS MPU	HD6417750RF240	Main CPU
U 0024	MOS SDRAM	EDS1232AATA-75-E	SDRAM
U 0025	FLA(24S01240)	MBM29DL640E90TN	Flash
U 0025	PROGRAM	2450018-01.01	
U 0026	IC(REG)	LT1963AEQ-1.8 #TR	Regulator
U 0027	MOS LGC(LVC)	SN74LVC2G04DBVR	
U 0028	IC(REG)	LT1963AEQ-1.5 #TR	Regulator
U 0029	MOS(LINE D/R)	DS14C232CMX	Line driver and receiver
U 0031	MOS LGC(LVC)	SN74LVC1G08DBVR	AND gate
U 0032	MOS LGC(LVC)	SN74LVC1G08DBVR	AND gate
U 0033	MOS LGC(LVC)	SN74LVC1G08DBVR	AND gate
Y 0001	XTAL OSCILLATOR	TTS14NSB-A5 18.432M	CPU clock OSC

PWR Board: 24P0037

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
CR 1	DIODE(RECTI)	FML-22S	Detection for reverse voltage
CR 2	DIODE(SW)	1SS184-TE85L	Detection for reverse voltage
CR 3	DIODE(SW)	1SS184-TE85L	Detection for reverse voltage
CR 12	DIODE(Z)	02CZ10Y-TE85L	Regulator
CR 51	DIODE(RECTI)	FML-32S	Rectifier
CR 52	DIODE(Z)	02CZ10Y-TE85L	Low voltage detector
CR 53	DIODE(SB)	MA3D750	Rectifier
Q 1	TR(RF)	2SA1037AKT146R	DC switching
Q 2	TR(RF)	2SA1037AKT146R	DC switching
Q 12	TR(RF)	2SA1037AKT146R	DC switch
Q 21	TR(RF)	2SA1037AKT146R	DC switch

<u>Symbol</u>	<u>Component</u>	<u>Type</u>	<u>Function</u>
Q 51	TR(AF)	2SC2712-Y-TE85L	DC switch
Q 52	TR(RF)	2SC2412KT146R	DC switch
Q 53	MOS FET(P.SW)	FS50SMJ-3	DC switching
Q 54	MOS FET(P.SW)	FS50SMJ-3	DC switching
Q 55	TR(AF)	2SD1272-P	voltage monitor
U 11	IC(HYB)	RC-9528-1	
U 21	IC(HYB)	RC-9501	Reg control
U 52	IC(PHOT.C)	TLP181-Y-TPL	output voltage control
U 53	IC(REG)	μPC1093T-E1	output voltage control
U 54	IC(REG)	LM2679T-5.0	Regulator