

slc_npart	descrip	rev	Qty.	reference	smt
12D-1420-004A	CRYSTAL FILTERS 21.3MHz(ft21.3)3dB BANDWIDTH +/-3.75KHz	P0	2	FL2,FL3	
111-6103-002A	IC_MEM 24LC02 (SOIC-8)	P0	1	IC3	Y
112-2213-001B	TR_RF POWER Bfq540(SOT-89)	P0	1	Q16	Y
128-1213-090A	CAP_C_CHIP 9PF/D(CH)(0603) A:COG150L	P0	1	C154	Y
128-22A9-104A	CAP_C_C.H.D. F0.1uF/Z(0603) Y:YF153L	P0	30	C1,C4,C5,C13,C16,C22,C25,C26,C36,C41,C44,C51,C54,C69,C81	Y
128-22A9-104A	CAP_C_C.H.D. F0.1uF/Z(0603) Y:YF153L	P0	0	C64,C65,C71,C78,C80,C86,C96,C99,C106,C125,C126,C135,C150	Y
128-1216-101A	CAP_C_CHIP 100PF/J(CH)(0603) A:COG150L	P0	4	C28,C107,C127,C130	Y
128-2297-103A	CAP_C_C.H.D. B0.01uF/K(0603) X:X7R282L	P0	17	C2,C21,C46,C70,C74,C82,C89,C91,C98,C103,C104,C110	Y
128-2297-103A	CAP_C_C.H.D. B0.01uF/K(0603) X:X7R282L	P0	0	R103,C113,C141,C151,C161	Y
128-1213-100A	CAP_C CHIP 10PF/D/(CH)/(0603) A:COG150L	P0	4	C48,C49,C84,C143	Y
128-1216-120A	CAP_C_CHIP 12PF/J(CH)(0603) A:COG150L	P0	2	C31,C114	Y
128-2297-102A	CAP_C_C.H.D. B0.001uF/K(0603) X:X7R282L	P0	10	C24,C33,C53,C62,C102,C119,C140,C145,C147,C148	Y
128-1211-010A	CAP_C CHIP 1PF/B/(CH)/(0603) A:COG150L	P0	2	C123,C161	Y
128-23A9-105A	CAP_C_C.H.D. F 1uF/Z(0805) Y:YF153L	P0	10	C6,C9,C14,C23,C27,C90,C136,C138,C146,C165	Y
128-2297-222A	CAP_C_C.H.D. B0.0022uF/K(0603) X:X7R282L	P0	1	C12	Y
128-1211-2R2A	CAP_C CHIP 2.2PF/B/(CH)/(0603) A:COG150L	P0	1	C139	Y
128-1216-200A	CAP_C_CHIP 20PF/J(CH)(0603) A:COG150L	P0	3	C83,C95,C131	Y
128-23A9-224A	CAP_C_C.H.D.F0.22uF/Z(0805) Y:YF153L	P0	2	C37,C152	Y
128-1216-221A	CAP_C_CHIP 220PF/J(CH)(0603) A:COG150L	P0	8	C8,C10,C58,C60,C85,C129,C134,C137	Y
128-2297-223A	CAP_C_C.H.D. B0.022uF/K(0603) X:X7R282L	P0	9	C45,C47,C50,C52,C55,C61,C63,C68,C105	Y
128-1216-220A	CAP_C_CHIP 22PF/J(CH)(0603) A:COG150L	P0	1	C117	Y
128-1211-020A	CAP_C CHIP 2PF/B(+/-0.15PF)/(CH)/(0603) A:COG150L	P0	3	C87,C168,R236	Y
128-1211-3R3A	CAP_C CHIP 3.3PF/B/(CH)/(0603) A:COG150L	P0	3	C118,C120,C122	Y
128-1216-300A	CAP_C_CHIP 30PF/J(CH)(0603) A:COG150L	P0	2	C38,C39	Y
128-1216-331A	CAP_C_CHIP 330PF/J(CH)(0603) A:COG150L	P0	2	C72,C73	Y
128-23A9-474A	CAP_C_C.H.D.F0.47uF/Z(0805) Y:YF153L	P0	3	C18,C20,C35	Y
128-1216-471A	CAP_C_CHIP 470PF/J(CH)(0603) A:COG150L	P0	3	C19,C88,C144	Y
128-22A8-473A	CAP_C_C.H.D. F0.047uF/M(0603) Y:YF153L	P0	5	C40,C66,C75,C76,C79	Y
128-1216-561A	CAP_C_CHIP 560PF/J(CH)(0603) A:COG150L	P0	3	C3,C7,C43	Y
128-1213-050A	CAP_C_CHIP 5PF/D(CH)(0603) A:COG150L	P0	3	C30,C93,C124	Y
128-1213-060A	CAP_C_CHIP 6PF/D(CH)(0603) A:COG150L	P0	2	C109,C155	Y
128-1213-070A	CAP_C_CHIP 7PF/D(CH)(0603) A:COG150L	P0	2	C115,C158	Y
128-1216-820A	CAP_C_CHIP 82PF/J(CH)(0603) A:COG150L	P0	2	C128,C133	Y
128-1213-080A	CAP_C_CHIP 8PF/D(CH)(0603) A:COG150L	P0	2	C92,C121	Y
125-0255-003A	CHIP SPRING COIL D1.2X0.32X3T	P0	2	L3,L8	Y
125-0122-S12A	CHIP COIL SQUARE 12nH/J(0603)	P0	3	L5,L10,L12	Y
125-0133-2R2A	CHIP COIL SQUARE 2.2uH/K(0805)	P0	1	L7	Y

114-1207-001A	DIODE_SW LL4148/MM4148 MELF	P0	3	D4,D13,D14	Y
114-1109-001A	DIODE_SW KDS114(URP)	P0	4	D2,D3,D5,R39	Y
125-0255-004A	CHIP SPRING COIL D1.2X0.32X4T	P0	4	L2,L4,L9,L17	Y
111-2103-008A	IC_LI KA386/LM386(SOP)	P0	1	IC1	Y
114-4008-001A	DIODE_VAR KDV154B(SOT-23)	P0	1	D8	Y
111-2103-005A	IC_LI KA324/KIA324/LM324(SOP)	P0	3	U1,U2,U3	Y
112-1306-001C	TR_SS MMBT3904LT1(SOT-23)	P0	6	Q3,Q4,Q9,Q15,Q21,Q23	Y
112-2306-001A	TR_RF KTC3880Y SOT23	P0	1	Q14	Y
112-2306-003A	TR_RF 2SC4901 (SOT-23) HFE:120-250	P0	6	Q2,Q11,Q17,Q18,Q19,Q20	Y
112-1106-001A	TR_SS KST2907TF/KTN2907S/AS /MMBT2907LT1(SOT-23)	P0	6	Q1,Q5,Q6,Q7,Q12,Q13	Y
122-0224-122A	RES_(0603)-10 1.2 KOHM	P0	1	R81	Y
122-0224-182A	RES_(0603)-10 1.8 KOHM	P0	1	R71	Y
122-0224-100A	RES_(0603)-10 10 OHM	P0	10	R10,R18,R22,R53,R69,R89,R94,R126,R151,R152	Y
122-0224-101A	RES_(0603)-10 100 OHM	P0	3	R38,R43,R135	Y
122-0224-104A	RES_(0603)-10 100 KOHM	P0	18	R11,R21,R52,R56,R62,R68,R73,R84,R85,R86,R97,R144	Y
122-0224-104A	RES_(0603)-10 100 KOHM	P0	0	R61,R204,R205,R231,R232,R233	Y
122-0224-103A	RES_(0603)-10 10 KOHM	P0	9	R13,R20,R54,R83,R101,R134,R139,R145,R230	Y
122-0224-124A	RES_(0603)-10 120 KOHM	P0	3	R3,R5,R67	Y
122-0224-154A	RES_(0603)-10 150 KOHM	P0	2	R58,R66	Y
122-0224-153A	RES_(0603)-10 15 KOHM	P0	2	R4,R9	Y
122-0224-183A	RES_(0603)-10 18 KOHM	P0	3	R26,R200,R203	Y
122-0224-222A	RES_(0603)-10 2.2 KOHM	P0	7	R42,R76,R116,R117,R122,R131,R153	Y
122-0224-272A	RES_(0603)-10 2.7 KOHM	P0	3	R29,R65,R93	Y
122-0224-224A	RES_(0603)-10 220 KOHM	P0	10	R209,R210,R211,R212,R213,R214,R215,R216,R217,R218	Y
122-0224-223A	RES_(0603)-10 22 KOHM	P0	15	R23,R30,R40,R44,R46,R47,R48,R49,R50,R51,R115,R127,R150	Y
122-0224-273A	RES_(0603)-10 27 KOHM	P0	1	R206	Y
122-0224-392A	RES_(0603)-10 3.9 KOHM	P0	1	R57	Y
122-0224-330A	RES_(0603)-10 33 OHM	P0	5	R77,R80,R123,R136,R143	Y
122-0224-331A	RES_(0603)-10 330 OHM	P0	2	R79,R91	Y
122-0224-334A	RES_(0603)-10 330 KOHM	P0	3	R1,R95,C178	Y
122-0224-333A	RES_(0603)-10 33 KOHM	P0	3	R24,R41,R82	Y
122-0224-393A	RES_(0603)-10 39 KOHM	P0	1	R25	Y
122-0224-4R7A	RES_(0603)-10 4.7 OHM	P0	1	R15	Y
122-0224-472A	RES_(0603)-10 4.7 KOHM	P0	11	R33,R34,R35,R45,R92,R114,R120,R121,R124,R125,R148	Y
122-0224-474A	RES_(0603)-10 470 KOHM	P0	4	R6,R55,R59,R229	Y
122-0224-473A	RES_(0603)-10 47 KOHM	P0	8	R8,R16,R17,R31,R32,R36,R113,R119	Y
122-0224-562A	RES_(0603)-10 5.6 KOHM	P0	4	R28,R60,R70,R72	Y
122-0224-513A	RES_(0603)-10 51 KOHM	P0	1	R207	Y

122-0224-560A	RES_(0603)-10 56 OHM	P0	2	R129,R146	Y
122-0224-682A	RES_(0603)-10 6.8 KOHM	P0	3	R130,R133,R202	Y
122-0224-683A	RES_(0603)-10 68 KOHM	P0	3	R64,R90,R100	Y
122-0224-822A	RES_(0603)-10 8.2 KOHM	P0	4	R74,R78,R99,R118	Y
122-0224-820A	RES_(0603)-10 82 OHM	P0	1	R132	Y
122-0224-823A	RES_(0603)-10 82 KOHM	P0	1	R106	Y
127-7500-060A	CAP_C_TRIMMER 6PF (SMT)	P0	1	C132	Y
123-3224-503A	CHIP SVR 50 KOHM	P0	2	VR1,VR3	Y
111-3103-007A	IC_COM TA31180FN (SSOP-24)	P0	1	IC2	Y
12C-1420-004A	XTAL_21.250MHz (18PF) HC-49S(3.6mm) +/-3PPM(-10~+65°C)	P0	1	X2	
111-2103-006A	IC_LI TB31202FN(SOP)	P0	1	IC5	Y
12C-1170-001A	XTAL_32.768KHz D3X8	P0	1	X1	
128-1211-0R5A	CAP_C CHIP 0.5PF/B/(CH)/(0603) A:COG150L	P0	1	C101	Y
128-1216-150A	CAP_C_CHIP 15PF/J(CH)(0603) A:COG150L	P0	3	C100,C112,C116	Y
122-0224-203A	RES_(0603)-10 20 KOHM	P0	1	R104	Y
122-0224-512A	RES_(0603)-10 5.1 KOHM	P0	1	R102	Y
122-0224-274A	RES_(0603)-10 270 KOHM	P0	1	R88	Y
125-0123-S22A	CHIP COIL SQUARE 22nH/K(0603)	P0	4	L15,L16,L18,L19	Y
125-0122-D82A	CHIP COIL SQUARE 8.2nH/J(0603)	P0	1	L11	Y
125-0122-S15A	CHIP COIL SQUARE 15nH/J(0603)	P0	2	L1,L14	Y
122-0224-123A	RES_(0603)-10 12 KOHM	P0	1	R27	Y
12B-1123-100A	CAP_T_CHIP 10uF/M/6.3V (3.2X1.6mm)	P0	2	C77,C108	Y
12B-1223-220A	CAP_T_CHIP 22uF/M/6.3V(3.5X2.8mm)	P0	1	C17	Y
122-0224-000A	RES_(0603)-10 0 OHM	P0	2	R137,C170	Y
115-0207-8R2A	DIODE_ZEN. TZMC8V2 (8.2V/0.5W) MELF	P0	1	Z1	Y
122-0324-100A	RES_(0805)-10 10 OHM	P0	1	R19	Y
352-1400-011A	LCD BRACKET(METALIC) FRS-9917	P0	1		
314-1401-081A	LCD BRACKET(TRANSPARENT) FRS-9917	P0	1		
113-4000-008A	LCD XKS1999-TO FOR FRS-9917	P0	1		
340-0600-131A	ZEBRA BAR 17X4.4X1.2mm	P0	1		
146-2121-001B	SWITCH_SEND TSD-063712-160/TACT	P0	2	SW1,SW2	
113-3025-002A	LED CHIP GREEN ELT-0805GC	P0	1	LED1	Y
134-5300-001A	EARPHONE JACK(BLACK) ID2.5mm&ID3.5mm	P0	1	JK1	
111-1210-051A	IC_uP U8567-LD010H 6124H(M.O.T.P) DICE FOR 2150	P0	1	IC6	Y
352-0500-181A	SHIELD COVER FRS99150 (TINNING)	P0	1		
12B-1123-220A	CAP_T_CHIP 22uF/M/6.3V (3.2X1.6mm)	P0	1	C111	Y
294-72B1-121A	PCB_FRS DS+GOLD 2252 REV:01	P0	1	PCB_FRS	Y
596-2094-131S	SMT_FRS 9917 REV:01	P0	1	SMT_FRS	

332-0700-051A	SPONGE_PLATE 5X10X1mm (WHITE)	P0	1		
113-3022-001A	LED CHIP RED ELT-1206SC	P0	1	LED2	Y
12B-1223-470A	CAP_T_CHIP 47uF/M/6.3V(3.5X2.8)	P0	4	C11,C15,C32,C163	Y
111-4113-001A	IC_MOS VOLTAGE REGULATOR XC6204B402(SOT-25)	P0	1	IC7	Y
128-1211-020A	CAP_C CHIP 2PF/B(+/-0.15PF)/(CH)/(0603) A:COG150L	P0	1	C97	Y
122-0224-912A	RES_(0603)-10 9.1 KOHM	P0	1	R201	Y
352-0500-091A	COPPER PLATE 9X10X0.2t (SINGLE TAPE) FOR FRS1022	P0	1		
122-0224-102A	RES_(0603)-10 1 KOHM	P0	10	R2,R14,R75,R105,R138,R140,R141,R142,R147,R234	Y
122-0224-821A	RES_(0603)-10 820 OHM	P0	1	R118	Y
122-0224-563A	RES_(0603)-10 56 KOHM	P0	1	R96	Y
128-29A9-106A	CAP_C_C.H.D. F 10uF/Z(1206)/10V (FUKUI)	P0	1	C164	Y
122-0224-471A	RES_(0603)-10 470 OHM	A	1	R12	Y
122-0224-223A	RES_(0603)-10 22 KOHM	P0	0	R63,R235	Y
125-0123-S27A	CHIP COIL SQUARE 27nH/K(0603)	P0	1	L20	Y
128-1216-180A	CAP_C_CHIP 18PF/J(CH)(0603) A:COG150L	P0	1	C159	Y

TUNE-UP PROCEDURE

2252

1. TRANSMITTING

1.1 TX VCO ADJUSTMENT

- a) Connect the DC voltmeter to the test point 1 (TP1).
- b) Press the PTT Button.
- c) Adjust L18.
- d) Specification: 0.9Vdc +/- 0.3 V @ CH 1

1.2 FREQUENCY ADJUSTMENT

- a) Connect the frequency counter to ANT point.
- b) Adjust CV1.
- c) Specification: Tx Frequency +/- 200Hz

1.3 TX POWER CHECK

- a) Connect the RF level meter to the ANT point (RF impedance: 50Ω)
- b) Press the PTT button.
- c) Check the TX Power
- d) Specification: FRS: < 0.5W GMRS: < 1 W

1.4 MAX. DEVIATION ADJUSTMENT

- a) Connect the deviation meter to the ANT point.
- b) Apply the audio signal 1KHz, 4mVrms to the test point 7 (TP7 - MIC input)
- c) Observe the clipped signal on the scope.
- d) Adjust SVR1.
- e) Specification: 2.5KHz Dev +/- 0.15KHz

1.5 MODULATION SENSITIVITY ADJUSTMENT

- a) Connect the deviation meter to the ANT point.
- b) Apply the audio signal 1KHz, 8mVrms to the test point (TP7 - MIC input).
- c) Adjust SVR1.
- d) Specification: 0.9-1.0KHz Dev

1.6 CALL DATA MODULATION SENSITIVITY CHECK

- a) Press the Call Button and observe the deviation meter to check the deviation.
- b) Specification: 1.8KHz +/- 0.5KHz

2. RECEIVING

2.1 RX VCO CHECK

- a) Connect the DC voltmeter to test point 1 (TP1).
- b) Check the DC voltage.
- c) Specification: 0.9Vdc +/- 0.6V @ CH 1

TUNE-UP PROCEDURE

2252

2.2 QUAD COIL ADJUSTMENT

- a) Connect the DC voltmeter to the test point 3 (TP3).
- b) Adjust the IFT1.
- c) Specification: 1.5Vdc +/- 0.2V

2.3 SENSITIVITY CHECK

- a) Connect the Sinnader meter to test point 5 (TP5).
- b) Reduce the RF output level of signal generator to get the 12dB of Sinnader.
- c) Specification: <-116dBm

2.4 SQUELCH THRESHOLD POINT ADJUSTMENT

- a) Connect the DC voltmeter to test point 16.
- b) Same setup as the Sensitivity Check.
- c) Adjust the SVR1 to get the DC changing point.
- d) Specification: 7dB +/- 1dB

2.5 SPEAKER OUTPUT LEVEL CHECK

- a) Connect the Audio level meter to test point 5 (TP5).
- b) Connect the 8Ω load to test point 5 (TP5).
- c) Press the volume button till its maximum level.
- d) Adjust the modulation deviation of RF signal generator.
- e) Check the clipping start deviation & level.
- f) Specification: Clipping start deviation = >0.6KHz
Level = -2 +/- 4 dBm

NOTE:

- 1. Press PTT button continuously when checking TRANSMITTING parameters.
- 2. Press the Monitor button to disable the RX power saving when the RX is not stable.

3. OTHER PARAMETER CHECKING

3.1 LOW BATTERY DETECT VOLTAGE CHECK

- a) Change the voltage until the Battery icon is flashing on the LCD.
- b) Check the voltage.
- c) Specification: 4.2Vdc +/- 0.3V