RELIABILITY PREDICTION

of the

SOM i_MX6

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Prepared by RAM CRAFT Ltd.

for Solid-Run

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CONTENTS

1. GENERAL 5
   1.1. Scope 5
   1.2. Abbreviations and Acronyms 5
2. APPLICABLE DOCUMENTS 5
3. SYSTEM DESCRIPTION 6
4. Reliability Prediction Technique 6
   4.1. Reliability Prediction Method and Data Sources 6
   4.2. Environment & Temperature 6
   4.3. General Assumptions 7
   4.4. Calculations Methods 7
   4.5. Component's Quality Levels 7
   4.6. Component electrical stresses 7
5. SUMMARY OF RESULTS and recommendations 8
6. APPENDICES CONTENTS 9
   6.1. Appendix A – Assembly Composite Report 9
   6.2. Appendix B – Pareto Analysis 9
   6.3. Appendix C – Applied Values 9

APPENDIX A - Assembly Composite Report 10

APPENDIX B – Pareto Analysis 12

APPENDIX C – Apllied values 13

FIGURES

Figure 1: SOM View 6

Figure 2: SOM MTBF vs. Ambient Temperature 8

1. GENERAL

1.1. Scope

This document presents the reliability prediction of the SOM (System On Module) based on i_MX6 card

The reliability prediction was performed according to TELCORDIA SR-332, Issue 3, Reliability Prediction Procedure for Electronic Equipment [Ref. 1], using dedicated software – RAM Commander™, Version 8.5.

1.2. Abbreviations and Acronyms

SOM	-	System On Module
FIT	-	Failures In Time (failures/10^9 operating hours)
FR	-	Failure Rate
GB	-	Ground, Benign
HT	-	High Temperature
MTBF	-	Mean Time Between Failures
λ	-	Failure rate in FIT

2. APPLICABLE DOCUMENTS

[Ref. 1]	TELCORDIA SR332, Issue 3	Reliability Prediction Procedure for Electronic Equipment
[Ref. 2]	RIAC-CPE	Reliability Toolkit: Commercial Practices Edition
[Ref. 3]	NPRD2011	Nonelectronic Parts Reliability Data

3. SYSTEM DESCRIPTION

SolidRun's Micro-System on a Module (MicroSoM™) family.

NXP-Freescale i.MX6 SoC (System-on-Chip), memory subsystem, power management subsystem, networking and system interconnectivity packed into a single ultra-compact system on module ARM board.

The iMX6 series of energy-efficient processors is a scalable multicore platform that includes single, dual and quad-core families based on the ARM® Cortex® architecture. The Family targets consumer, industrial and automotive applications.

Figure 1: SOM View

4. RELIABILITY PREDICTION TECHNIQUE

4.1. Reliability Prediction Method and Data Sources

The reliability prediction was performed in accordance with:

- SR-332 [Ref. 1]. Reliability Prediction Procedure for Electronic Equipment
- NPRD2011 [Ref. 3] for nonelectronic components
- Manufacturer data

4.2. Environment & Temperature

The reliability prediction of the SOM was performed for following environment and temperatures:

- Environmental condition: GB (Ground, Benign).
- Ambient temperature: 40°C.

- Temperature rise above ambient temperature of 25°C was assumed for all components.

4.3. General Assumptions

The following are the general assumptions for the reliability prediction:

- Components failure rate is constant during equipment life period.
- The failures of different components are considered statistically independent.
- The assembly reliability model is a series one - failure in any component causes an assembly failure.
- The analysis does not take in account software failures

4.4. Calculations Methods

The formula for module/card MTBF calculation is:

$$MTBF = \frac{1}{\sum_{i=1}^{n} \lambda(i)}$$

where:

$\lambda(i)$ = Failure rate of i^{th} item

n = Number of items

4.5. Component's Quality Levels

The assumed quality level for electronic components is Quality Level II according to the definitions of SR-332 [Ref. 1]:

4.6. Component electrical stresses

The following default values for electrical stresses were applied for reliability prediction:

- For active components the power stress was defined as 50% of rated value IAW related component specification.
- For resistor Film Chip the PSR=20%
- For resistor Power Chip the PSR=50%
- For Ceramic Chip capacitor the VSR=20%
- For Tantalum Chip capacitor the VSR=50%
- For Aluminium capacitor the VSR=70%

5. SUMMARY OF RESULTS AND RECOMMENDATIONS

The following are the results of the reliability prediction for the SOM at 40°C Ambient temperature and GB Environmental condition.

λ = 399 FIT

MTBF = 2,503,348 hours

Figure 2 presents the SOM MTBF change vs. ambient temperature.

T [°C]	MTBF [hrs]
15	7,966,480
20	6,328,917
25	5,017,667
30	3,975,820
35	3,152,304
40	2,503,348
45	1,992,637
50	1,590,717
55	1,274,079
60	1,024,160

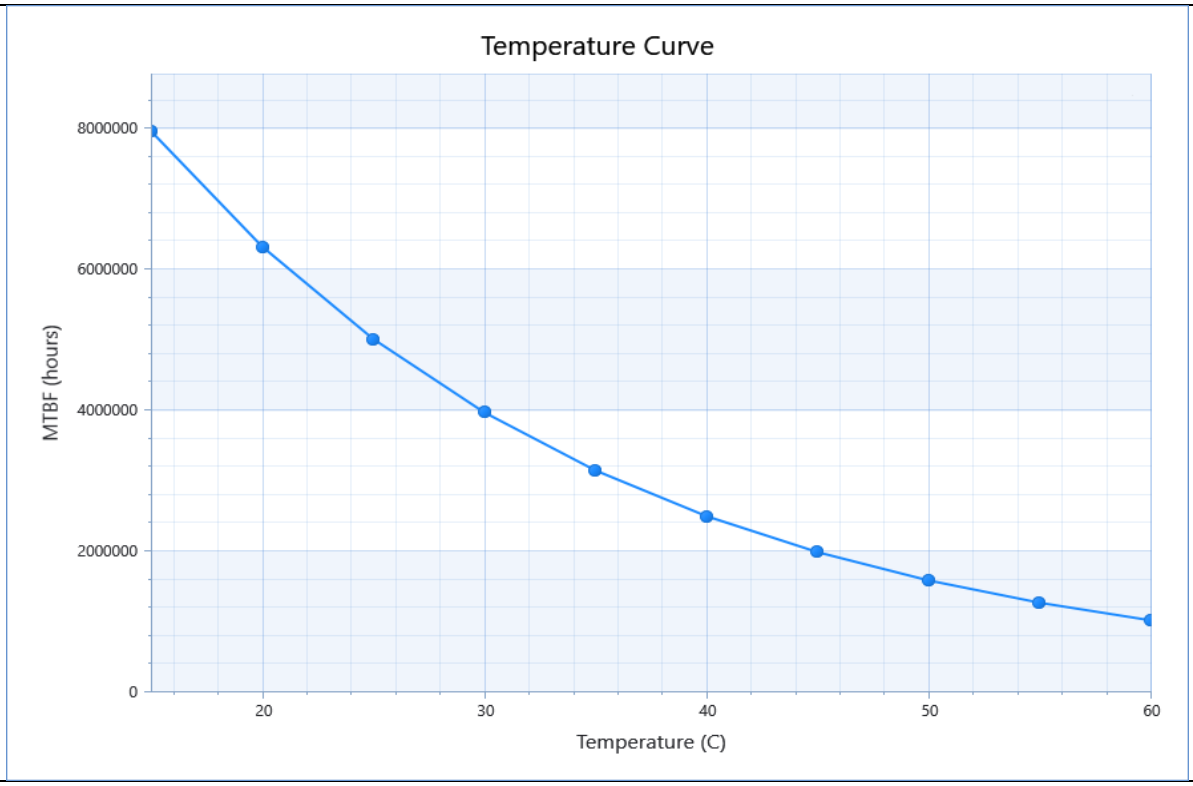

Figure 2: SOM MTBF vs. Ambient Temperature

6. APPENDICES CONTENTS

6.1. Appendix A – Assembly Composite Report

This Appendix describes in detail the results of the reliability prediction at operating state. It provides also the contribution of each component failure rate to the next higher level.

6.2. Appendix B – Pareto Analysis

This appendix provides the list of components sorted by their contribution to total failure rate.

6.3. Appendix C – Applied Values

This appendix provides the list of components parameters that were used for reliability prediction

APPENDIX A - ASSEMBLY COMPOSITE REPORT

Project name: SOM_I
Operating conditions: Environment: GB, Temperature: 40.00 °C
Current mode: Operating
FR Units: FIT
Default prediction Method: Telcordia Issue 3
Assembly Ref.Des.: SOM_I, ID: 1, Description: System on Module.
Environment: GB, Temperature: 40.00 °C,F.R.(FIT): 399.46 , MTBF(hours): 2503348.26

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K,Qty) FIT	Contrib. to NHA[%]
1.1	i_MX6	i_MX6	1	399.46	399.46	399.46	100.00

Assembly Ref.Des.: i_MX6, ID: 1.1, Description: .
Environment: GB, Temperature: 65.00 °C,F.R.(FIT): 399.46 , MTBF(hours): 2503348.26

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K, Qty) FIT	Contrib. to NHA[%]
1.1.1	GNM214R61A105M	CN605,CN606,CN607,CN608,CN6004	5	0.1147	0.1147	0.5735	0.14
1.1.2	CL05B333KP5NNNC	C4	1	0.1147	0.1147	0.1147	0.03
1.1.3	CL05B104KP5NNNC	C49,C52,C57	3	0.1147	0.1147	0.3441	0.09
1.1.4	CL05B333KP5NNNC	C51,C54	2	0.1147	0.1147	0.2294	0.06
1.1.5	CL05B333KP5NNNC	C426	1	0.1147	0.1147	0.1147	0.03
1.1.6	AMK107BJ226MA-T	C2000,C2019,C2029,C2030,C2042,C2063,C2084	7	0.1147	0.1147	0.8028	0.20
1.1.7	LLL185R70J224MA16F	C2001,C2002,C2003,C2005,C2008,C2009,C2010,C2011,C2	24	0.1147	0.1147	2.75	0.69
1.1.8	LLL185R70J224MA16F	C2004,C2006,C2007,C2017	4	0.1147	0.1147	0.4588	0.11
1.1.9	AMK107BJ226MA-T	C2014	1	0.1147	0.1147	0.1147	0.03
1.1.10	CL10A475KQ8NNNC	C2031	1	0.1147	0.1147	0.1147	0.03
1.1.11	CL10A226MQ8NRNE	C2049,C2057	2	0.1147	0.1147	0.2294	0.06
1.1.12	JMK063BJ224MP-F	C2051,C2060,C2064,C3016	4	0.1147	0.1147	0.4588	0.11
1.1.13	JMK063BJ224MP-F	C2052,C2053	2	0.1147	0.1147	0.2294	0.06
1.1.14	CL10A475KQ8NNNC	C3005	1	0.1147	0.1147	0.1147	0.03
1.1.15	0402G180F500SNT	C3009,C3010,C3011,C3012	4	0.1147	0.1147	0.4588	0.11
1.1.16	CL05A224KQ5NNNC	C4000,C4002	2	0.1147	0.1147	0.2294	0.06
1.1.17	C0402C104K4RAC	C4001,C4004,C7001,C7003,C7006,C7008,C7009,C7010,C7	11	0.1147	0.1147	1.26	0.32
1.1.18	CL05A224KQ5NNNC	C4005,C4007	2	0.1147	0.1147	0.2294	0.06
1.1.19	CL05B333KP5NNNC	C7000,C7002,C7004	3	0.1147	0.1147	0.3441	0.09
1.1.20	C1608X5R0J106KT	C7005,C7007,C10088	3	0.1147	0.1147	0.3441	0.09
1.1.21	GRM155R71H471KA01D	C7012,C7013	2	2.99	2.99	5.99	1.50
1.1.22	C1608X5R0J106KT	C10000	1	0.1147	0.1147	0.1147	0.03
1.1.23	GRM21BR60J226ME39L	C10001	1	0.1147	0.1147	0.1147	0.03
1.1.24	GRM21BR60J226ME39L	C10002,C10009	2	0.1147	0.1147	0.2294	0.06
1.1.25	GRM155R71H561KA01D	C10003	1	0.1147	0.1147	0.1147	0.03
1.1.26	GRM033R70J103KA01D	C10004	1	0.1147	0.1147	0.1147	0.03
1.1.27	C1608X5R0J106KT	C10005,C10006,C10008	3	0.1147	0.1147	0.3441	0.09
1.1.28	C0402C104K4RAC	C10007	1	0.1147	0.1147	0.1147	0.03
1.1.29	GRM21BR60J226ME39L	C10010,C10011	2	0.1147	0.1147	0.2294	0.06
1.1.30	GRM155R71H681KA01D	C10012	1	0.1147	0.1147	0.1147	0.03
1.1.31	GRM033R70J103KA01D	C10013	1	0.1147	0.1147	0.1147	0.03
1.1.32	CL05B333KP5NNNC	C10014	1	0.1147	0.1147	0.1147	0.03
1.1.33	LLL185R70J224MA16F	C10021,C10022,C10033,C10040,C10041,C10043,C10046,C	8	0.1147	0.1147	0.9175	0.23
1.1.34	JMK063BJ103MP-F	C10076	1	0.1147	0.1147	0.1147	0.03
1.1.35	7DF40C-0DP-0.4V(51)	J5001	1	6.29	6.29	6.29	1.57

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K, Qty) FIT	Contrib. to NHA[%]
1.1.36	DF40C-80DP-0.4V(51)	J5002,J8004	2	7.19	7.19	14.37	3.60
1.1.37	20314-001 E- 01	J8002	1	0.5688	0.5688	0.5688	0.14
1.1.38	20314-001 E- 01	J8003	1	0.5688	0.5688	0.5688	0.14
1.1.39	BLM18PG121SH1	L3000,L7000,L7002	3	0.1509	0.1509	0.4526	0.11
1.1.40	LQM2MPN4R7NG0L	L7003	1	1.36	1.36	1.36	0.34
1.1.41	SDB0420MT1R5	L10000	1	1.36	1.36	1.36	0.34
1.1.42	SDB0420MTR22	L10001	1	1.36	1.36	1.36	0.34
1.1.43	NX3215SA32.768K-STD-MUA-4	QZ3000	1	3.20	3.20	3.20	0.80
1.1.44	CAY10-000J2LF	RN2	1	0.2088	0.2088	0.2088	0.05
1.1.45	CAY16-000J4LF	RN5,RN3002	2	0.4177	0.4177	0.8353	0.21
1.1.46	YC124-JR-074K7L	RN3000,RN3001	2	0.4177	0.4177	0.8353	0.21
1.1.47	CAY10-000J2LF	RN3003	1	0.2088	0.2088	0.2088	0.05
1.1.48	CAY16-000J4LF	RN3004,RN3005	2	0.4177	0.4177	0.8353	0.21
1.1.49	RC0402JR-070RL	R2001	1	0.1207	0.1207	0.1207	0.03
1.1.50	RK73H1ETTP1601F	R3000,R3013	2	0.1207	0.1207	0.2414	0.06
1.1.51	RC0402FR-076K04L	R3001,R10026	2	0.1207	0.1207	0.2414	0.06
1.1.52	RK73H1ETTP1910F	R3009	1	0.1207	0.1207	0.1207	0.03
1.1.53	CRCW040210K0FKED	R3011,R4004,R4005,R7006,R7010,R10030,R10031,R10033	8	0.1207	0.1207	0.9655	0.24
1.1.54	CR02FL6--10M	R3012,R3014	2	0.1207	0.1207	0.2414	0.06
1.1.55	RK73H1ETTP2204F	R3015	1	0.3621	0.3621	0.3621	0.09
1.1.56	CR02FL6--200R	R3016,R4001,R4002,R4003	4	0.1207	0.1207	0.4828	0.12
1.1.57	CR02FL6--200R	R4000	1	0.1207	0.1207	0.1207	0.03
1.1.58	RK73H1ETTP2400F	R4006,R4007,R4008	3	0.1207	0.1207	0.3621	0.09
1.1.59	RK73H1ETTP2400F	R4009,R4010	2	0.1207	0.1207	0.2414	0.06
1.1.60	ERJ-2GE0R00X	R5000	1	0.1207	0.1207	0.1207	0.03
1.1.61	RC0402JR-070RL	R5001,R10029,R10040,R10041,R10042	5	0.1207	0.1207	0.6035	0.15
1.1.62	RC0402FR-072K37L	R7002	1	0.1207	0.1207	0.1207	0.03
1.1.63	ERJ-2GE0R00X	R7003	1	0.1207	0.1207	0.1207	0.03
1.1.64	RC0402FR-0721KL	R10001	1	0.1207	0.1207	0.1207	0.03
1.1.65	CRCW040213K0FKED	R10003	1	0.1207	0.1207	0.1207	0.03
1.1.66	CRCW040224K0FKED	R10004	1	0.1207	0.1207	0.1207	0.03
1.1.67	ERJ-2GE0R00X	R10007	1	0.1207	0.1207	0.1207	0.03
1.1.68	CRCW040221K0FKED	R10010	1	0.1207	0.1207	0.1207	0.03
1.1.69	CRCW040221K0FKED	R10011	1	0.1207	0.1207	0.1207	0.03
1.1.70	CRCW040215K0FKED	R10012	1	0.1207	0.1207	0.1207	0.03
1.1.71	CRCW040228K7FKED	R10013	1	0.1207	0.1207	0.1207	0.03
1.1.72	CRCW040224K0FKED	R10014	1	0.1207	0.1207	0.1207	0.03
1.1.73	RC0402FR-07499RL	R10024,R10027,R10028	3	0.1207	0.1207	0.3621	0.09
1.1.74	RC0402JR-0722RL	R10025	1	0.1207	0.1207	0.1207	0.03
1.1.75	RC0402JR-070RL	R10032	1	0.1207	0.1207	0.1207	0.03
1.1.76	CRCW040210K0FKED	R10034,R10035,R10036,R10037,R10038,R10039,R10043,R	8	0.1207	0.1207	0.9655	0.24
1.1.77	RC0402JR-070RL	R10045	1	0.1207	0.1207	0.1207	0.03
1.1.78	MCIMX6Q5EYM10AD	U1	1	84.48	84.48	84.48	21.15
1.1.79	N25Q00AA13G1240E	U17	1	76.89	76.89	76.89	19.25
1.1.80	NTB0102GD	U31	1	7.16	7.16	7.16	1.79
1.1.81	TS9011KCX	U2001	1	14.68	14.68	14.68	3.67
1.1.82	DMN65D8LDW-7	U3000	1	6.29	6.29	6.29	1.57
1.1.83	M74VHC1GT08DFT1G	U3003	1	7.16	7.16	7.16	1.79
1.1.84	K4B4G1646B-HYK0T00	U4001	1	8.90	8.90	8.90	2.23
1.1.85	K4B4G1646B-HYK0T00	U4002	1	8.90	8.90	8.90	2.23

ID	PN	RefDes	Qty	F.R. FIT	F.R.(K) FIT	F.R.(K, Qty) FIT	Contrib. to NHA[%]
1.1.86	K4B4G1646B-HYK0T00	U4003	1	8.90	8.90	8.90	2.23
1.1.87	K4B4G1646B-HYK0T00	U4004	1	8.90	8.90	8.90	2.23
1.1.88	AR8035-AL1A	U7000	1	29.95	29.95	29.95	7.50
1.1.89	RT8070ZQW	U10000	1	25.38	25.38	25.38	6.35
1.1.90	RT8073GQW	U10001	1	25.38	25.38	25.38	6.35
1.1.91	WL1837MODGIMOCT	U10002	1	5.85	5.85	5.85	1.46
1.1.92	KLM4G1FEPD-B031000	U10003	1	19.50	19.50	19.50	4.88
1.1.93	S3225A024000-F10CCCA	Y3000	1	3.20	3.20	3.20	0.80

APPENDIX B – PARETO ANALYSIS

Project name: SOM_I
Operating conditions: Environment: GB, Temperature: 40.00 °C
Current mode: Operating
FR Units: FIT
Default prediction Method: Telcordia Issue 3
Start from: SOM
Limited by: 95.000

PN	Qty	Total Failure rate	Item Failure rate contribution	Cumulative contribution
MCIMX6Q5EYM10AD	1	84.484	21.149%	21.149%
N25Q00AA13G1240E	1	76.892	19.249%	40.398%
K4B4G1646B-HYK0T00	4	35.613	8.915%	49.313%
AR8035-AL1A	1	29.951	7.498%	56.811%
RT8070ZQW	1	25.375	6.352%	63.163%
RT8073GQW	1	25.375	6.352%	69.516%
KLM4G1FEPD-B031000	1	19.496	4.881%	74.396%
TS9011KCX	1	14.677	3.674%	78.070%
DF40C-80DP-0.4V(51)	2	14.370	3.597%	81.668%
M74VHC1GT08DFT1G	1	7.160	1.792%	83.460%
NTB0102GD	1	7.160	1.792%	85.252%
DMN65D8LDW-7	1	6.288	1.574%	86.826%
7DF40C-0DP-0.4V(51)	1	6.287	1.574%	88.400%
GRM155R71H471KA01D	2	5.988	1.499%	89.899%
WL1837MODGIMOCT	1	5.849	1.464%	91.363%
LLL185R70J224MA16F	36	4.129	1.034%	92.397%
NX3215SA32.768K-STD-MUA-4	1	3.200	0.801%	93.198%
S3225A024000-F10CCCA	1	3.200	0.801%	93.999%
CRCW040210K0FKED	16	1.931	0.483%	94.482%
CAY16-000J4LF	4	1.671	0.418%	94.901%
C0402C104K4RAC	12	1.376	0.345%	95.245%

APPENDIX C – APLLIED VALUES

Project name: SOM_I
Operating conditions: Environment: GB, Temperature: 40.00 °C
Current mode: Operating
FR Units: FIT
Default prediction Method: Telcordia Issue 3
Project name: SOM_I <Telcordia Issue 3>
Assembly Ref.Des.: i_MX6, IC-Memory

ID	Ref.des.	PN	Device type	Technology	Number of bits or bits range	Qual
1.1.79	U17	N25Q00AA13G1240E	SRAM	CMOS	25600000	2
1.1.84	U4001	K4B4G1646B-HYK0T00	DRAM	CMOS	1024	2
1.1.85	U4002	K4B4G1646B-HYK0T00	DRAM	CMOS	1024	2
1.1.86	U4003	K4B4G1646B-HYK0T00	DRAM	CMOS	1024	2
1.1.87	U4004	K4B4G1646B-HYK0T00	DRAM	CMOS	1024	2
1.1.92	U10003	KLM4G1FEPD-B031000	SRAM	CMOS	1024	2

Assembly Ref.Des.: i_MX6, IC-Analog

ID	Ref.des.	PN	# of transistors or range	Qual
1.1.81	U2001	TS9011KCX	170	2
1.1.88	U7000	AR8035-AL1A	860	2
1.1.89	U10000	RT8070ZQW	590	2
1.1.90	U10001	RT8073GQW	590	2

Assembly Ref.Des.: i_MX6, IC-Digital

ID	Ref.des.	PN	Device type	Technology	# of gates or range	Qual	# of trans. (for PAL)	bus width (for Mkproc)
1.1.78	U1	MCIMX6Q5EYM10AD	Mkproc	CMOS	1000	2	---	32
1.1.80	U31	NTB0102GD	Logic	CMOS	20	2	---	---
1.1.83	U3003	M74VHC1GT08DFT1G	Logic	CMOS	20	2	---	---

Assembly Ref.Des.: i_MX6, Resistor

ID	Ref.des.	PN	Device type	# of resist.	Resistance	PSR	P.oper.	P.rated	Qual
1.1.44	RN2	CAY10-000J2LF	Thick/Thin Film Network	2	--- --	---	---	---	2
1.1.45	RN5,RN3002	CAY16-000J4LF	Thick/Thin Film Network	4	--- --	---	---	---	2
1.1.46	RN3000,RN3001	YC124-JR-074K7L	Thick/Thin Film Network	4	--- --	---	---	---	2

ID	Ref.des.	PN	Device type	# of resist.	Resistance	PSR	P.oper.	P.rated	Qual
1.1.47	RN3003	CAY10-000J2LF	Thick/Thin Film Network	2	--- --	---	---	---	2
1.1.48	RN3004,RN3005	CAY16-000J4LF	Thick/Thin Film Network	4	--- --	---	---	---	2
1.1.49	R2001	RC0402JR-070RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.50	R3000,R3013	RK73H1ETTP1601F	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.51	R3001,R10026	RC0402FR-076K04L	Discrete Fixed Film	---	6.04 KOhm	0.50	50.00	100.00	2
1.1.52	R3009	RK73H1ETTP1910F	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.53	R3011,R4004,R4005,R700	CRCW040210K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.54	R3012,R3014	CR02FL6--10M	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.55	R3015	RK73H1ETTP2204F	Discrete Fixed Film	---	2.20 MOhm	0.50	50.00	100.00	2
1.1.56	R3016,R4001,R4002,R400	CR02FL6--200R	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.57	R4000	CR02FL6--200R	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.58	R4006,R4007,R4008	RK73H1ETTP2400F	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.59	R4009,R4010	RK73H1ETTP2400F	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.60	R5000	ERJ-2GE0R00X	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.61	R5001,R10029,R10040,R1	RC0402JR-070RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.62	R7002	RC0402FR-072K37L	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.63	R7003	ERJ-2GE0R00X	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.64	R10001	RC0402FR-0721KL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.65	R10003	CRCW040213K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.66	R10004	CRCW040224K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.67	R10007	ERJ-2GE0R00X	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.68	R10010	CRCW040221K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.69	R10011	CRCW040221K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.70	R10012	CRCW040215K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.71	R10013	CRCW040228K7FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.72	R10014	CRCW040224K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.73	R10024,R10027,R10028	RC0402FR-07499RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.74	R10025	RC0402JR-0722RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.75	R10032	RC0402JR-070RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.76	R10034,R10035,R10036,R	CRCW040210K0FKED	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2
1.1.77	R10045	RC0402JR-070RL	Discrete Fixed Film	---	1.00 KOhm	0.50	50.00	100.00	2

Assembly Ref.Des.: i_MX6, Capacitor

ID	Ref.des.	PN	Capacitor type	Capacitance	VSR	V.appl.DC	V.peak AC	V.rated	Qual
1.1.1	CN605,CN606,CN607,CN60	GNM214R61A105M	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.2	C4	CL05B333KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.3	C49,C52,C57	CL05B104KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2

ID	Ref.des.	PN	Capacitor type	Capacitance	VSR	V.appl.DC	V.peak AC	V.rated	Qual
1.1.4	C51,C54	CL05B333KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.5	C426	CL05B333KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.6	C2000,C2019,C2029,C203	AMK107BJ226MA-T	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.7	C2001,C2002,C2003,C200	LLL185R70J224MA16F	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.8	C2004,C2006,C2007,C201	LLL185R70J224MA16F	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.9	C2014	AMK107BJ226MA-T	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.10	C2031	CL10A475KQ8NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.11	C2049,C2057	CL10A226MQ8NRNE	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.12	C2051,C2060,C2064,C301	JMK063BJ224MP-F	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.13	C2052,C2053	JMK063BJ224MP-F	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.14	C3005	CL10A475KQ8NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.15	C3009,C3010,C3011,C301	0402G180F500SNT	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.16	C4000,C4002	CL05A224KQ5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.17	C4001,C4004,C7001,C700	C0402C104K4RAC	Ceramic	100.00 nF	0.50	50.00	0.00	16.00	2
1.1.18	C4005,C4007	CL05A224KQ5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.19	C7000,C7002,C7004	CL05B333KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.20	C7005,C7007,C10088	C1608X5R0J106KT	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.21	C7012,C7013	GRM155R71H471KA01D	Silicon Chip	470.00 pF	0.50	50.00	0.00	50.00	2
1.1.22	C10000	C1608X5R0J106KT	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.23	C10001	GRM21BR60J226ME39L	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.24	C10002,C10009	GRM21BR60J226ME39L	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.25	C10003	GRM155R71H561KA01D	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.26	C10004	GRM033R70J103KA01D	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.27	C10005,C10006,C10008	C1608X5R0J106KT	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.28	C10007	C0402C104K4RAC	Ceramic	100.00 nF	0.50	50.00	0.00	16.00	2
1.1.29	C10010,C10011	GRM21BR60J226ME39L	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.30	C10012	GRM155R71H681KA01D	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.31	C10013	GRM033R70J103KA01D	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.32	C10014	CL05B333KP5NNNC	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.33	C10021,C10022,C10033,C	LLL185R70J224MA16F	Ceramic	--- --	0.50	50.00	0.00	100.00	2
1.1.34	C10076	JMK063BJ103MP-F	Ceramic	--- --	0.50	50.00	0.00	100.00	2

Assembly Ref.Des.: i_MX6, Connector

ID	Ref.des.	PN	Configuration	# active contacts	Quality
1.1.35	J5001	7DF40C-0DP-0.4V(51)	Multi-Pin	70	2
1.1.36	J5002,J8004	DF40C-80DP-0.4V(51)	Multi-Pin	80	2
1.1.37	J8002	20314-001 E- 01	Coaxial, Electric	---	2

ID	Ref.des.	PN	Configuration	# active contacts	Quality
1.1.38	J8003	20314-001 E- 01	Coaxial, Electric	---	2

Assembly Ref.Des.: i_MX6, LF Transistor

ID	Ref.des.	PN	Type	Application	PSR	VSR	P oper.	P rat.	V oper.	V rat.	Qual
1.1.82	U3000	DMN65D8LDW-7	FIELD EFFECT	Switch	0.50	--	1.000	2.000	---	---	2

Assembly Ref.Des.: i_MX6, HF Transistor

ID	Ref.des.	PN	Type	Application	PSR	P oper.	P rat.	Qual
1.1.91	U10002	WL1837MODGIMOCT	AMPLIFIER,Power,RF-InGaP/GaAS/SiGs HBT	Pulse Ampif	0.500	1.000	2.000	2

Assembly Ref.Des.: i_MX6, Inductive

ID	Ref.des.	PN	Device type	Quality
1.1.39	L3000,L7000,L7002	BLM18PG121SH1	Ferrite Beads	2
1.1.40	L7003	LQM2MPN4R7NG0L	Coil - Load	2
1.1.41	L10000	SDB0420MT1R5	Coil - Load	2
1.1.42	L10001	SDB0420MTR22	Coil - Load	2

Assembly Ref.Des.: i_MX6, Crystal

ID	Ref.des.	PN	Device type	Quality
1.1.43	QZ3000	NX3215SA32.768K-STD-MUA-4	Quartz Crystal	2
1.1.93	Y3000	S3225A024000-F10CCCA	Quartz Crystal	2