

# PER-C37L

## Reliability Prediction Report (MTBF)

Summary	Failure Rate: 2.708894 ppm MTBF: 369,154 Hours
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Issue date	Approval	Test Engineer
2014/02/27	Tom Lin	Max Chang

# Reliability Prediction (MTBF)

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**I . Model Name:** PER-C37L

**II . Prediction Date:** February, 27, 2014

**III . Prediction Site:** AAEON Q.E. Dept.

**IV . Predicted by:** Max Chang

**V . Equipment:** Windchill Quality Solutions 10.1

## **VI. Simulation Environment:**

- Temperature: 30 degrees C
- Standard: Telcordia (Bellcore) Standard

## **VII. Term and Definition:**

- Unit : An assembly of device.
- Duty Cycle : Used to specify the percentage of time that the element is in an on state, and it is equal to the percentage of total time the item is in the active environment.
- Quantity : The quantity of the selected item.
- Failure Rate : Used to specify that the failure rate is to be calculated based the selected Calculation models. The Failure rate multiplier is 1000000000.
- MTBF : MTBF is always specified in hours.

**VIII. Prediction Result:**

PER-C37L (9697C37L01-D):

- Failure Rate: 2.708894 ppm
- MTBF: 369,154 Hours

**Reliability Prediction  
Summary**

**File Name:** PER-C37L.rfp  
**System:** 9697C37L01  
**Ref Des:**  
**Description:**

**Failure Rate:** 2708.894000  
**MTBF (hrs):** 369,154  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
PER-C37L	9697C37L01		1	2708.894000	369,154

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Part Number	Category	Ref Des	Unit Failure Rate	Quantity	Total Failure Rate
1050510034	Resistor	R345,R346,R8	2.547039	3	9.343982
1050516004	Resistor	R101,R102,R104, R107,R109,R129, R130,R133,R134, R136,R138,R139, R142,R250,R251, R253,R254,R257, R258,R261,R262, R280,R283,R284, R285,R288,R289, R294,R295,R350, R351,R96, R97,R99	2.547039	34	92.197308
105A500139	Resistor	R159,R21, R22,R312, R337	2.547039	5	14.923560
105A501039	Resistor	R152,R154,R155, R156,R157,R158, R160,R306,R307, R308,R309,R310, R311,R313,R332, R341,R342	2.547039	17	47.258036
105A501529	Resistor	R221,R67	2.547039	2	6.490186
105A501539	Resistor	R347	2.547039	1	3.541821
105A503973	Resistor	R229,R231,R232, R233,R234,R235, R237,R75, R77,R78, R79,R80,R81,R82	2.547039	14	39.250711
105A523713	Resistor	R214,R60	2.547039	2	6.490186
105A530113	Resistor	R215,R61	2.547039	2	6.490186

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105A700009	Resistor	R1,R10,R100,R103,R105,R106,R108,R101,R110,R111,R113,R114,R115,R116,R117,R118,R119,R120,R121,R122,R123,R124,R125,R126,R127,R128,R131,R132,R135,R137,R14,R140,R141,R143,R144,R145,R146,R147,R148,R149,R15,R150,R	2.547039	140	367.944861
105A70000A	Resistor	R112	2.547039	1	3.541821
105A700239	Resistor	R343,R344	2.547039	2	6.490186

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105A701039	Resistor	R178,R180,R181, R182,R183,R184, R185,R186,R187, R190,R191,R192, R193,R194,R195, R196,R218,R220,R24, R26,R27,R28,R29,R30, R31,R32,R33, R339,R356,R357, R358,R359,R36,R360, R361,R362,R363, R364,R365,R366, R367,R368,R369, R177,R23	2.547039	54	144.594972
105A703309	Resistor	R177,R23	2.547039	2	6.490186
105A703329	Resistor	R201,R202,R205, R206,R208,R209, R211,R212,R213, R223,R224,R225, R228,R47,R48,R51, R52,R54,R55,R57, R58,R59,R69,R70, R72,R74	2.547039	26	71.118309
1121610060	Capacitor	C224,C225,C229, C230	1.128806	4	5.079407
1124427090	Capacitor	C147,C149,C39,C41	1.128806	4	5.079407
1129522790	Capacitor	C111,C112,C219, C220	1.128806	4	5.079407

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1129601080	Capacitor	C153,C159,C165,C171,C174,C180,C185,C192,C197,C45,C51,C57,C63,C66,C72,C77,C84,C89	1.128806	18	21.515320
1129610260	Capacitor	C125,C131,C136,C145,C18,C23,C28,C35	1.128806	8	9.828323
1129710090	Capacitor	C148,C40	1.128806	2	2.664608
1129710390	Capacitor	C155,C156,C161,C162,C163,C164,C167,C168,C169,C176,C177,C178,C187,C188,C189,C190,C199,C200,C47,C48,C53,C54,C55,C56,C59,C60,C61,C68,C69,C70,C79,C80,C81,C82,C91,C92	1.128806	36	42.329563
1149522180	Capacitor	C240	1.128806	1	1.418485
1181627194	Capacitor	C568	1.128806	1	1.418485
118961018A	Capacitor	C239	1.128806	1	1.418485
1189656196	Capacitor	C4,C6	1.128806	2	2.664608
11C2510480	Capacitor	C226,C228,C569,C570,C571	1.128806	5	6.274805



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11C4501790	Capacitor	C154,C160,C166,C170,C175,C179,C186,C191,C198,C227,C232,C234,C237,C46,C52,C58,C62,C67,C71,C78,C83,C90	1.128806	22	26.156857
11C9510490	Capacitor	C10,C100,C101,C102,C103,C104,C105,C106,C107,C108,C109,C11,C110,C113,C115,C116,C117,C118,C119,C12,C120,C121,C122,C123,C124,C126,C128,C129,C13,C130,C132,C134,C135,C137,C138,C139,C14,C141,C142,C143,C144,C15,C16,C17,C19,C20	1.128806	86	99.693320
11E1547650	Capacitor	C223,C238,C241	1.128806	3	3.883281
11E2501690	Capacitor	C231,C235	1.128806	2	2.664608

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11E9501091	Capacitor	C127,C133,C140,C146,C20,C26,C32,C37	1.128806	8	9.828323
11E9610080	Capacitor	C114,C152,C158,C172,C181,C184,C193,C196,C222,C44,C50,C64,C73,C76,C85,C88	1.128806	16	19.189261
11EA647010	Capacitor	C151,C157,C173,C182,C183,C194,C195,C43,C49,C65,C74,C75,C86,C87	1.128806	14	16.858773
121110336L	Inductor	L33,L34	6.014149	2	14.619912
1212306030	Inductor	FB1,FB10,FB11,FB12,FB13,FB14,FB2,FB3,FB4,FB5,FB6,FB7,FB8,FB9	4.944252	14	74.727516
123132505D	Miscellaneous	Y1,Y2	19.200000	2	112.942642
1301005442	Semiconductor	D1	7.793411	1	10.775013
1304100250	Optical Device	LED1	79.003355	1	153.913100
1315230511	Semiconductor	Q12,Q13,Q2,Q3	22.463360	4	107.867794
1315700211	Semiconductor	Q1,Q10,Q11,Q14,Q15,Q16,Q17,Q18,Q19,Q20,Q4,Q5,Q6,Q7,Q8,Q9	22.463360	16	394.664315
1315733410	Semiconductor	Q21,Q22	30.882608	2	79.398881
1315970211	Semiconductor	U4,U6	22.463360	2	57.753076
1440038080	Semiconductor	U1	22.463360	1	31.602965
1440350AM0	Integrated Circuit	U11,U12	43.803003	2	146.310248

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14S3003700	Semiconductor	TF1,TF2,T F3,TF4, TF5,TF6,T F7,TF8	22.463360	8	205.039971
14S4622700	Integrated Circuit	U13	43.803003	1	85.184662
14S5A12509	Integrated Circuit	U2	26.018600	1	39.136734
14S6325600	Integrated Circuit	U14,U15	11.063278	2	30.705841
1540775082	Resistor	RP1,RP2,R P3,RP4, RP5,RP6,R P7,RP8	9.971436	8	106.111062
1652824200	Connection	CN10,CN1 1,CN12, CN13	16.184835	4	88.145664
1751300005	Relay	RELAY1,R ELAY10, RELAY11, RELAY12, RELAY13, RELAY14, RELAY15, RELAY16, RELAY2,R ELAY3, RELAY4,R ELAY5, RELAY6,R ELAY7, RELAY8,R ELAY9	9.488968	16	202.042640
2057C37L00	Integrated Circuit	U14,U15	19.913656	2	55.269838
M197160000		U11,U12	0.000000	2	0.000000