

# TKS-G21-QM77B

## Reliability Prediction Report (MTBF)

Summary	Failure Rate: 12269.557900 ppm MTBF: 81,503 Hours
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Issue date	Approval	Test Engineer
2013/04/26	Tom Lin	Louie Lee

# Reliability Prediction (MTBF)

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**I . Model Name:** TKS-G21-QM77B

**II . Prediction Date:** April. 26, 2013

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

**IV . Predicted by:** Louie Lee

**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:**

TKS-G21-QM77B (9697QM7758-D):

- Failure Rate: 12269.557900 ppm
- MTBF: 81,503 Hours

**AAEON Reliability Prediction  
Summary**

**File Name:** TKS-G21-QM77B.rfp  
**Duty Cycle:** 100  
**Calculation Model:** Telcordia Issue 2  
**Method:** Method I Case 3

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Assembly Name	Part Number	Ref Des	Quantity	Failure Rate	MTBF
TKS-G21-QM77B	9697QM7758-D		1	12269.557900	81,503

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050500334	Resistor	R387		2.547039	1	282340674.079668
1050501004	Resistor	R442,R452,R552, R578,R583,R597		2.547039	6	56573956.677649
1050501234	Resistor	R532,R616		2.547039	2	154078778.388085
1050502234	Resistor	R295		2.547039	1	282340674.079668
1050502734	Resistor	R298		2.547039	1	282340674.079668
1050504724	Resistor	R178,R231,R245, R246,R247,R254, R275,R276,R283, R287,R292,R293, R294,R301,R302, R306,R333,R334, R380,R385,R666, R680,R714		2.547039	23	15826261.230290
1050505124	Resistor	R319,R339		2.547039	2	154078778.388085
1050505134	Resistor	R345,R384,R44,R5, R691,R692,R693, R694,R695,R696, R705,R706		2.547039	12	29507083.749401
1050505633	Resistor	R190		2.547039	1	282340674.079668
1050507530	Resistor	R14,R310,R348,R685		2.547039	4	82309758.689546
1050514324	Resistor	R607		2.547039	1	282340674.079668
1050518714	Resistor	R377		2.547039	1	282340674.079668
1050519114	Resistor	R554,R679		2.547039	2	154078778.388085
1050520004	Resistor	R119,R140,R141		2.547039	3	107020754.986850
1050520034	Resistor	R389,R687		2.547039	2	154078778.388085
1050524904	Resistor	R549,R575		2.547039	2	154078778.388085
1050524924	Resistor	R454		2.547039	1	282340674.079668
1050524934	Resistor	R41,R649,R654		2.547039	3	107020754.986850
1050526124	Resistor	R621		2.547039	1	282340674.079668
1050527424	Resistor	R357,R469		2.547039	2	154078778.388085
1050533034	Resistor	R535,R539		2.547039	2	154078778.388085
1050536514	Resistor	R396,R478,R479		2.547039	3	107020754.986850
1050538314	Resistor	R381,R475		2.547039	2	154078778.388085

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
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**Description:**

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**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1050540224	Resistor	R184		2.547039	1	282340674.079668
1050542204	Resistor	R378		2.547039	1	282340674.079668
1050549904	Resistor	R470		2.547039	1	282340674.079668
1050560414	Resistor	R474		2.547039	1	282340674.079668
1050564904	Resistor	R465		2.547039	1	282340674.079668
1050580614	Resistor	R373,R468		2.547039	2	154078778.388085
1050584514	Resistor	R51,R643,R644		2.547039	3	107020754.986850
1050586604	Resistor	R400,R467		2.547039	2	154078778.388085
1050590964	Resistor	R483		2.547039	1	282340674.079668
1050700002	Resistor	R413,R519		2.547039	2	154078778.388085
1050704304	Resistor	R117,R424,R434		2.547039	3	107020754.986850
1054700289	Resistor	R102,R512,R529		2.547039	3	107020754.986850
1059520001	Resistor	R281		2.547039	1	282340674.079668
1059700001	Resistor	FB37,R191		2.547039	2	154078778.388085
1059710001	Resistor	R286		2.547039	1	282340674.079668
105A500139	Resistor	R183,R437,R441,R477,R497,R566,R567,R568,R59,R669,R675,R676		2.547039	12	29507083.749401
105A501039	Resistor	R173,R311,R322,R329,R347,R66,R69, R75		2.547039	8	43225424.698300
105A501139	Resistor	R370,R466,R47,R636		2.547039	4	82309758.689546
105A501539	Resistor	R220,R533,R61,R634,R64,R641		2.547039	6	56573956.677649
105A502039	Resistor	R118,R174,R181,R252,R332,R366,R403,R699,R713,R722,R723		2.547039	11	32049696.385471
105A503039	Resistor	R175,R256,R684,R698,R707		2.547039	5	67008142.102588
105A505109	Resistor	R444,R450,R78,R80, R81		2.547039	5	67008142.102588
105A507509	Resistor	R109,R433,R701,R702,R703		2.547039	5	67008142.102588

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A510009	Resistor	R226,R299,R432, R458,R464		2.547039	5	67008142.102588
105A513009	Resistor	R120,R121,R128		2.547039	3	107020754.986850
105A514009	Resistor	R135		2.547039	1	282340674.079668
105A515009	Resistor	R137,R138,R139, R263,R264,R265, R266		2.547039	7	48991237.965885
105A518229	Resistor	R438,R453		2.547039	2	154078778.388085
105A522663	Resistor	R511		2.547039	1	282340674.079668
105A523713	Resistor	R494		2.547039	1	282340674.079668
105A524913	Resistor	R272		2.547039	1	282340674.079668
105A525563	Resistor	R144		2.547039	1	282340674.079668
105A526114	Resistor	R369,R481		2.547039	2	154078778.388085
105A536513	Resistor	R690		2.547039	1	282340674.079668
105A537463	Resistor	R582		2.547039	1	282340674.079668
105A549919	Resistor	R146		2.547039	1	282340674.079668
105A549969	Resistor	R167,R569		2.547039	2	154078778.388085
105A551119	Resistor	R611		2.547039	1	282340674.079668
105A554969	Resistor	R136		2.547039	1	282340674.079668
105A562034	Resistor	R309		2.547039	1	282340674.079668
105A566519	Resistor	R394,R638,R639,R68		2.547039	4	82309758.689546
105A575009	Resistor	R170,R620		2.547039	2	154078778.388085
105A580623	Resistor	R133		2.547039	1	282340674.079668
105A700003	Resistor	FB14,FB17,FB18, R204,R208,R217, R242,R270,R289, R290,R308,R342, R363,R374,R38, R498, R500,R505,R52, R543, R551,R570,R633, R658,R670,R83		2.547039	26	14061076.827148

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**Description:**

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**MTBF (hrs):** 81,503  
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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A700009	Resistor	R110,R126,R130, R142,R148,R156, R158,R159,R187, R188,R193,R195, R197,R200,R202, R203,R212,R214, R219,R221,R223, R225,R228,R238, R239,R241,R243, R248,R259,R261, R267,R269,R273, R277,R279,R282, R303,R326,R327,		2.547039	109	3476442.064216
105A700109	Resistor	R361,R406,R471, R486		2.547039	4	82309758.689546



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105A700139	Resistor	R12,R150,R151,R18,R196,R201,R229,R235,R236,R253,R257,R280,R317,R32,R320,R324,R341,R349,R356,R364,R37,R407,R423,R425,R426,R427,R428,R429,R430,R440,R564,R565,R585,R608,R613,R617,R62,R627,R630,R642,R651,R663,R671,R476		2.547039	50	7454870.155519
105A700239	Resistor	R476		2.547039	1	282340674.079668
105A701003	Resistor	R492,R523		2.547039	2	154078778.388085

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105A701039	Resistor	R147,R149,R152, R161,R162,R164, R168,R192,R199, R207,R210,R227, R244,R25,R251,R285, R321,R330,R34,R352, R360,R371,R376,R39, R395,R40,R405,R420, R421,R422,R43,R439, R45,R46,R461,R473, R482,R485,R488, R490,R513,R514, R515,R516,R517,		2.547039	93	4062844.618986
105A701059	Resistor	R129,R313,R323, R399,R419,R431, R536,R664,R9		2.547039	9	38754445.632391
105A701069	Resistor	R180		2.547039	1	282340674.079668
105A702209	Resistor	R123,R131,R132		2.547039	3	107020754.986850
105A702229	Resistor	R103,R104,R105, R106,R107,R108, R111,R112,R113, R114,R115,R116,R19, R20,R215,R218,R222, R284,R288,R493, R495,R557,R573, R602,R604,R609, R648,R717,R718		2.547039	29	12652760.276502

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Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
105A702263	Resistor	R449,R480		2.547039	2	154078778.388085
105A703309	Resistor	R122,R124,R125, R157,R206,R213,R23, R31,R484,R49,R55, R60,R645,R715,R719		2.547039	15	23852782.943395
105A705609	Resistor	R101		2.547039	1	282340674.079668
105A706209	Resistor	R99		2.547039	1	282340674.079668
105A708229	Resistor	R143,R145,R154, R160,R163,R165, R166,R182,R185, R189,R194,R390, R397,R404,R534, R540,R547,R555, R623,R624,R625, R650		2.547039	22	16518584.576317
105A710039	Resistor	R10,R11,R13,R134, R153,R155,R179, R198,R2,R205,R21, R22,R233,R237,R24, R26,R27,R28,R29,R3, R30,R307,R312,R314, R315,R316,R318, R325,R335,R343, R344,R35,R355,R375, R393,R4,R401,R408, R409,R410,R411, R412,R418,R50,R501, R504,R507,R54,R		2.547039	59	6343183.296372
105A730009	Resistor	R48		2.547039	1	282340674.079668
105A730039	Resistor	R463		2.547039	1	282340674.079668

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105A733009	Resistor	R250,R255,R258, R260,R268,R297, R300,R561,R677, R712		2.547039	10	35079934.879747
105A747009	Resistor	R372,R455,R77,R84		2.547039	4	82309758.689546
105A747039	Resistor	R177,R379		2.547039	2	154078778.388085
106B501032	Resistor	RT2,RT4		2.547039	2	154078778.388085
106B747030	Resistor	RT1,RT3		2.547039	2	154078778.388085
1121501691	Capacitor	C1,C101,C103,C104, C106,C107,C113, C114,C117,C119, C121,C123,C124, C127,C130,C131, C132,C134,C139,C14, C143,C144,C153, C156,C157,C159,C16, C160,C162,C163, C166,C167,C169,C17, C171,C173,C174, C175,C178,C179, C180,C181,C182,		1.128806	232	3756860.935890
1122522890	Capacitor	C192,C664,C666		1.128806	3	257514172.353070
1124410191	Capacitor	C10,C12,C151,C158, C18,C218,C219,C220, C235,C35,C39,C43, C712,C713		1.128806	14	59316298.011235
1124418090	Capacitor	C128,C133,C256, C270,C74,C80		1.128806	6	133979725.056342

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1124427091	Capacitor	C155,C176,C187, C188,C189,C191, C210		1.128806	7	115633865.771428
1124533191	Capacitor	C320,C322,C434		1.128806	3	257514172.353070
1124547190	Capacitor	C194,C195,C201, C205,C206,C214, C230,C234,C236, C237,C238,C239, C240,C243,C244, C245,C246,C248, C254,C338,C439, C667,C678,C699		1.128806	24	35120617.936543
1129522790	Capacitor	C152,C323,C353, C354,C369,C394, C400,C401,C402, C479,C71		1.128806	11	74892583.279796
1129622690	Capacitor	C421,C422,C423, C424,C427,C442, C443,C444,C445, C446,C447,C456, C457,C459,C460, C461,C462,C474, C475,C477,C478, C480,C481,C502, C503,C504,C505, C507,C508,C525, C526,C527,C529, C530,C537		1.128806	35	24285352.591796

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1129710090	Capacitor	C196,C202,C203,C204,C40		1.128806	5	159367490.199266
1129710390	Capacitor	C135,C136,C251,C252,C3,C327,C426,C49,C650,C655,C656,C660,C674		1.128806	13	63728475.410842
1174510180	Capacitor	CP1		1.128806	1	704977644.692287
1181610192	Capacitor	EC1		4.744484	1	159663026.715137
1189615151	Capacitor	TC10,TC11,TC13,TC14,TC15,TC28		4.744484	6	31179134.677521
1189622150	Capacitor	TC26,TC3,TC4		4.744484	3	59399119.141203
1189633151	Capacitor	TC16,TC17,TC18,TC19,TC2,TC21,TC24,TC25,TC27,TC5,TC7,TC8,TC9		4.744484	13	14928509.131803
1189633193	Capacitor	TC1,TC12,TC6		4.744484	3	59399119.141203
1189633194	Capacitor	EC2,EC3		4.744484	2	86049450.747498
1189656180	Capacitor	TC20,TC22,TC23		4.744484	3	59399119.141203
11C1501080	Capacitor	C468		1.128806	1	704977644.692287
11C1547890	Capacitor	C112		1.128806	1	704977644.692287
11C2501790	Capacitor	C137,C138,C141,C142,C147,C150,C154,C165,C172,C222,C28,C289,C321,C438,C454,C464,C465,C466,C467,C487,C501,C511,C545,C591,C691,C692,C702,C88		1.128806	28	30212160.975569
11C4515190	Capacitor	C329,C437		1.128806	2	375289731.076049

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11C4522290	Capacitor	C102,C331,C342, C343,C409		1.128806	5	159367490.199266
11C4568190	Capacitor	C433		1.128806	1	704977644.692287
11E1510050	Capacitor	C2,C53,C54, C78,C86		1.128806	5	159367490.199266
11E1622060	Capacitor	C253,C266		1.128806	2	375289731.076049
11E1647650	Capacitor	C249		1.128806	1	704977644.692287
11E4433090	Capacitor	C177,C183,C340, C386,C418		1.128806	5	159367490.199266
11E9501091	Capacitor	C11,C122,C13,C21, C23,C24,C241,C247, C25,C267,C268,C269, C27,C272,C274,C277, C278,C291,C294, C295,C301,C307, C311,C315,C349, C376,C377,C378, C379,C380,C381, C382,C385,C387, C389,C390,C393, C396,C397,C398, C399,C403,C404,		1.128806	127	6824198.060330
11E9510050	Capacitor	C108,C109,C115, C118,C190,C20,C216, C259,C275,C276,C36, C38,C486,C489,C521, C546,C593,C608, C680,C681,C721,C87, C91,C94		1.128806	24	35120617.936543
11E9522680	Capacitor	C170,C44,C611,C76		1.128806	4	196873384.410843

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11E9547680	Capacitor	C226,C298,C676		1.128806	3	257514172.353070
11E9547790	Capacitor	C408		1.128806	1	704977644.692287
11E9610080	Capacitor	C140,C217,C260,C261,C279,C280,C305,C314,C33,C361,C362,C363,C374,C425,C428,C429,C440,C441,C448,C449,C463,C472,C476,C48,C492,C500,C506,C51,C510,C513,C544,C552,C570,C574,C575,C592,C594,C60,C61,C613,C638,C705,C83		1.128806	43	19845816.558772



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**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
11E9622050	Capacitor	C100,C105,C110, C111,C116,C120, C125,C126,C129,C15, C161,C168,C19,C198, C223,C250,C271, C290,C293,C309, C312,C317,C318, C324,C325,C326, C330,C335,C336, C337,C339,C341, C345,C347,C348, C350,C351,C364, C365,C366,C367,		1.128806	92	9384747.805892
1211100113	Inductor	L11,L12,L13,L15		4.944252	4	43912872.424775
1211100160	Inductor	L14		4.944252	1	154760964.143460
121110106G	Inductor	L7		4.944252	1	154760964.143460
121110156K	Inductor	L1,L3		4.944252	2	83201062.149749
121110336Y	Inductor	L10		4.944252	1	154760964.143460
1211103671	Inductor	L2,L4,L5,L6		4.944252	4	43912872.424775
121110476Q	Inductor	L16		4.944252	1	154760964.143460
1211106874	Inductor	L8,L9		4.944252	2	83201062.149749
1212306030	Inductor	FB1,FB11,FB12,FB13, FB15,FB16,FB19,FB2, FB21,FB23,FB24, FB29,FB30,FB31, FB34,FB35,FB4,FB5, FB6		4.944252	19	9964387.381435
1212308054	Inductor	FB36		4.944252	1	154760964.143460
12123C0007	Inductor	FB3		4.944252	1	154760964.143460

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
12123D0001	Inductor	FB20,FB22,F B25, FB26,FB27,F B28, FB32,FB33,F B7,FB8, FB9		4.944252	11	16872203.304846
1214309008	Inductor	CH1,CH11,C H12,CH13, CH14,CH15,C H16,CH2		4.944252	8	22874049.098230
1214309009	Inductor	CH10,CH17,C H18, CH19,CH20,C H3,CH4, CH5,CH6,CH 7,CH8, CH9		4.944252	12	15520616.516984
123132505D	Miscellaneous	Y1,Y3,Y4		19.200000	3	5742504.738137
1231327053	Miscellaneous	Y5		19.200000	1	23844262.770939
1231332721	Miscellaneous	Y2		19.200000	1	23844262.770939
1301005444	Semiconductor	D2,D22,D3,D 39,D40, D41,D43,D44		7.793411	8	14161142.003130
1301053040	Semiconductor	D11,D37		7.793411	2	50578095.223398
1301400642	Semiconductor	D42		7.793411	1	92807310.010983
1304000043	Optical Device	D12		79.003355	1	6497172.749112
1304300140	Optical Device	D10,D13		79.003355	2	3783722.582110
1304500240	Optical Device	D9		79.003355	1	6497172.749112
1305080040	Semiconductor	D1,D14,D15, D16,D17, D18,D19,D20 ,D21, D23,D25,D26 ,D27, D28,D29,D30 ,D31, D32,D33,D34 ,D35, D36,D4,D5,D 6,D7,D8		7.793411	27	4436936.250266
1310390413	Semiconductor	Q14,Q34,Q3 8,Q39, Q50,Q7,Q8		22.463360	7	5525968.936223
1311390612	Semiconductor	Q10,Q9		22.463360	2	17315095.066101
1314111715	Semiconductor	U3		22.463360	1	31642600.748419
1314880510	Semiconductor	U72,U84		22.463360	2	17315095.066101
1315035110	Semiconductor	Q15		22.463360	1	31642600.748419
1315155510	Semiconductor	U102,U96,U9 8		22.463360	3	12043329.789539
1315190100	Semiconductor	U107		22.463360	1	31642600.748419

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1315230511	Semiconductor	Q1,Q18,Q20, Q21,Q26, Q31,Q32		22.463360	7	5525968.936223
1315422410	Semiconductor	U1		22.463360	1	31642600.748419
1315482110	Semiconductor	U15,U16,U17 ,U20, U25,U29,U41 ,U43, U44,U61		22.463360	10	3960370.776745
1315482410	Semiconductor	U10,U21,U23 ,U30, U37,U38,U40 ,U59, U71,U86,U88 ,U95		22.463360	12	3332353.664911
1315667910	Semiconductor	U13,U4,U46, U69		22.463360	4	9270607.712006
1315700216	Semiconductor	Q11,Q12,Q1 3,Q16, Q17,Q19,Q2, Q22,Q23, Q24,Q25,Q2 7,Q28, Q29,Q3,Q30, Q33,Q35, Q37,Q4,Q40, Q41,Q42, Q43,Q44,Q4 5,Q46, Q47,Q48,Q4 9,Q5,Q6		22.463360	32	1300932.597594
1315970211	Semiconductor	U60,U62,U63		22.463360	3	12043329.789539
143ALC8920	Integrated Circuit	U9	35.5	415.000462	1	1239064.473147
1462GM77B4	Integrated Circuit	U42		11.063278	1	58231413.220643
14S2083100	Integrated Circuit	U79		43.803003	1	11739202.588727
14S2321900	Integrated Circuit	U2		43.803003	1	11739202.588727
14S2591200	Integrated Circuit	U89		43.803003	1	11739202.588727
14S3020901	Integrated Circuit	U47		43.803003	1	11739202.588727
14S3104500	Integrated Circuit	U57,U58		43.803003	2	6834791.244197
14S3111701	Integrated Circuit	U8		43.803003	1	11739202.588727
14S3121600	Integrated Circuit	U68		43.803003	1	11739202.588727
14S3121800	Integrated Circuit	U93		43.803003	1	11739202.588727
14S3128422	Integrated Circuit	U67		43.803003	1	11739202.588727
14S3524700	Integrated Circuit	U12		43.803003	1	11739202.588727
14S3524701	Integrated Circuit	U14		43.803003	1	11739202.588727
14S3587000	Integrated Circuit	U91,U92		43.803003	2	6834791.244197
14S3E00100	Integrated Circuit	U103,U105		43.803003	2	6834791.244197
14S4021301	Integrated Circuit	U100,U22,U2 6,U31		43.803003	4	3879156.910661
14S4048502	Integrated Circuit	U75,U80		43.803003	2	6834791.244197

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
14S4121601	Integrated Circuit	U83		43.803003	1	11739202.588727
14S4250010	Integrated Circuit	U28	26.5	63.774318	1	8063000.106394
14S4257900	Integrated Circuit	U51	32.5	349.556911	1	1471040.375149
14S4600004	Integrated Circuit	U101		43.803003	1	11739202.588727
14S4811102	Integrated Circuit	U50	29.6	295.252463	1	1741602.166173
14S4872800	Integrated Circuit	U18		43.803003	1	11739202.588727
14S4963501	Integrated Circuit	U66		43.803003	1	11739202.588727
14S4QM7700	Integrated Circuit	U33	25.8	235.589261	1	2182664.551304
14S5912300	Integrated Circuit	U32		26.018600	1	25551442.237972
14S5A00601	Integrated Circuit	U11,U6		26.018600	2	14194252.866846
14S5A00702	Integrated Circuit	U90		26.018600	1	25551442.237972
14S5A00704	Integrated Circuit	U24,U45,U48 ,U5,U64, U65,U74,U97		26.018600	8	4090524.362829
14S5A00802	Integrated Circuit	U52,U53,U55 ,U56		26.018600	4	7696979.559193
14S5A00821	Integrated Circuit	U81,U87		26.018600	2	14194252.866846
14S5A01402	Integrated Circuit	U77,U78,U94		26.018600	3	9949526.289768
14S5A03200	Integrated Circuit	U82		26.018600	1	25551442.237972
14S5A12506	Integrated Circuit	U19		26.018600	1	25551442.237972
14S6212844	Integrated Circuit			11.063278	1	58231413.220643
14S6324640	Integrated Circuit			43.803003	1	11739202.588727
14S6324642	Integrated Circuit	U73		11.063278	1	58231413.220643
14S634022E	Integrated Circuit	U7		11.063278	1	58231413.220643
14S6366B00	Integrated Circuit	U49		43.803003	1	11739202.588727
14S9108500	Integrated Circuit	U27,U34,U35 ,U54, U99		43.803003	5	3214211.402100
14S9341101	Integrated Circuit	U104		43.803003	1	11739202.588727
14S9620800	Integrated Circuit	U85	38.5	491.212939	1	1046821.629265
14S9751100	Integrated Circuit	U70	43.5	646.379546	1	795526.919403
14S9811500	Integrated Circuit	U36		26.018600	1	25551442.237972
1540722281	Resistor	RP1		9.971436	1	51606907.671214
1540733085	Resistor	RP2		9.971436	1	51606907.671214
16515A2991	Connection	CN29		16.184835	1	35685591.360212
165251420B	Connection	CN23,CN24		16.184835	2	20390152.380746
1652602105	Connection	CN2		16.184835	1	35685591.360212
1653003101	Connection	JP11		16.184835	1	35685591.360212
1653003201	Connection	JP10&JP12,J P3&JP4, JP8		16.184835	3	14515880.849373
1653005201	Connection	JP9		16.184835	1	35685591.360212
1653006101	Connection	JP2&JP5,JP6 &JP7		16.184835	2	20390152.380746
165320520G	Connection	CN3,CN4,CN 5		16.184835	3	14515880.849373
1653212100	Connection	CN14		16.184835	1	35685591.360212
165321320G	Connection	CN12		16.184835	1	35685591.360212
165390003B	Connection	CN28		16.184835	1	35685591.360212

**File Name:** TKS-G21-QM77B.rfp  
**Assembly:** 9697QM7758-D  
**Ref Des:**  
**Description:**

**Failure Rate:** 12269.557900  
**MTBF (hrs):** 81,503  
**Temperature:** 30  
**Environment:** GF, GU - Ground Fixed, Uncontrolled

Part Number	Category	Ref Des	Tem.Rise	Unit Failure Rate	Quantity	MTBF,Unit
1653924110	Connection	CN28		16.184835	1	35685591.360212
1654030003	Connection	CN10,CN9		16.184835	2	20390152.380746
1654226303	Connection	CN30A		16.184835	1	35685591.360212
1654415308	Connection	CN26		16.184835	1	35685591.360212
1654818301	Connection	CN25		16.184835	1	35685591.360212
1654907004	Connection	SATA1,SATA 2		16.184835	2	20390152.380746
1654919300	Connection	CN21		16.184835	1	35685591.360212
1654926900	Connection	CN30B		16.184835	1	35685591.360212
1655003022	Connection	CN6		16.184835	1	35685591.360212
1655004014	Connection	CN20		16.184835	1	35685591.360212
1655302020	Connection	CN22		16.184835	1	35685591.360212
1655305020	Connection	CN1,CN7		16.184835	2	20390152.380746
1655306020	Connection	CN18		16.184835	1	35685591.360212
1655306023	Connection	CN17		16.184835	1	35685591.360212
1655902030	Connection	BAT1		16.184835	1	35685591.360212
1655906033	Connection	CN16		16.184835	1	35685591.360212
1655909031	Connection	CN11,CN13,C N15		16.184835	3	14515880.849373
1655909032	Connection	CN19		16.184835	1	35685591.360212
1655910131	Connection	CN8		16.184835	1	35685591.360212
175011901M	Miscellaneous	BAT1		306.000000	1	1681683.006787
1752001603	Miscellaneous	FS1,FS2,FS3, FS4		2.400000	4	79281882.025954