Digital Board Parts Stress Analysis

32-04010.03

Rev 01 ECO 32-125 5/8/06

Rev 02 5/10/06

Schematic: 32-03003 Rev 02

Capacitors

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Ambient Temperature (C) Spec	Derated	App.	Margin
49	C1, C5, C9, C19, C32, C33, C34, C35, C36, C37, C38, C39, C41, C42, C43, C44, C45, C46, C47, C48, C61, C62, C63, C64, C65, C66, C67, C71, C75, C90, C91, C93, C97, C98, C101, C107, C110, C115, C116, C117, C118, C119, C120, C121, C122, C123, C125, C126, C127	0.1uF 100V	CDR05	100	60	10	500%		110	50	120%
6	C2, C6, C10, C68, C72, C76		Not Used, Ref. Only								
6	C3, C7, C11, C69, C73, C77	1000 PF (do not populate)	Not Used, Ref. Only								
38	C4, C8, C12, C13, C14, C15, C16, C17, C18, C20, C24, C25, C26, C27, C28, C29, C30, C31, C51, C52, C53, C54, C57, C58, C70, C74, C78, C79, C80, C81, C82, C83, C84, C92, C94, C104, C124, C128	0.01uF 100V	CDR32	100	60	10	500%		110	50	120%
1	C21	33UF 15V	CWR06	15	7.5	5	50%		70	50	40%
1	C22	47UF 10V	CWR06	10	5	2.5	100%		70	50	40%
1	C23	1.0UF 10V	CWR06	10	5	2.5	100%		70	50	40%
1	C40	10 PF 100V	CDR01	100	60	10	500%		110	50	120%
2	C49, C50	2200 PF 100V	CDR34	100	60	10	500%		119	50	138%
4	C55, C56, C59, C60	0.022uF 100V	CDR03	100	60	10	500%		119	50	138%
5	C85, C86, C87, C88, C89	10UF 15V	CWR06	15	7.5	5	50%		119	50	138%

Connectors

Quantity	Reference	Part Description	Procurement Info	Working Voltage (volts) Spec	Derated	App.	Margin	Contact Current (A) Spec	Derated	App.	Margin	Ambient Temperature (C) Spec	Derated	App	Margin
1	J1	15 pin female	Positronics SCBM	420	315	40	688%	7.5	7.5	1.8	317%	125	100	50	100%
1	J5	78 pin female	Positronics SDD	420	315	225	40%	5	5	0.8	525%	125	100	50	100%

Crystal Oscillator

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Junction Temperature (C) Spec	Derated	App.	Margin	Output Current (ma) Spec	Derated	App.	Margin	Radiation (Krad) Spec	Derated	App.	Margin
1	J1	OSCILLATOR - 16MHz	QT50AC6M-16.000MHz	7	6.3	5.1	24%	125	100	50	100%	0.5	0.4	0.08	400%	200	29	5	460%

Magnetics

Quantity	Reference	Part Description	Procurement Info	Working Voltage (volts) Spec	Derated	App.	Margin	Operating Temperature (C) Spec	Derated	App.	Margin
2	T1, T2	TRANSFORMER - B-3227	M21038/27-27	100	50	27	85%	130	110	60	83%

Microcircuits -- Analog

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Power (mW) Spec	Derated	App.	Margin	Junction Temperature (C) Spec	Derated	App.	Margin	Output Current (ma) Spec	Derated	App.	Margin	Radiation (Krad) Spec	Derated	App.	Margin
9	U3, U9, U16, U17, U18, U24, U30, U34, U39	RH1498	RH1498MW	36	28.8	10	188%	n/a	n/a	n/a		150	110	50	120%	12.5	10	1	900%	200	29	5	460%
3	U4, U10, U27	RH119	RH119W	36	28.8	10	188%	n/a	n/a	n/a		150	110	50	120%	25	20	5	300%	100	14	5	180%
1	U14	RH1086M	RH1086MK	25	20	10	100%	15000	11250	170	6518%	150	110	60	83%	1500	1200	100	1100%	200	29	5	460%
1	U31	AD590LF/883	5962-87571	44	35.2	10	252%	n/a	n/a	na/		155	110	50	120%	n/a	n/a	n/a		100	14	5	180%
1	U37	AD584TH/QMLVR	5962-38128	40	32	5	540%	600	450	10	4400%	125	85	50	70%	5	4	1	300%	100	14	5	180%

Microcircuits -- Digital

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Power (mW) Spec	Derated	App.	Margin	Junction Temperature (C) Spec	Derated	App.	Margin	Output Current (ma) Spec	Derated	App.	Margin	Radiation (Krad) Spec	Derated	App.	Margin
3	U11, U12, U19	54AC14K02V	5962-87624	6	5.5	5.1	8%	n/a	n/a	n/a		125	85	50	70%	50	40	1	3900%	100	50	5	900%
1	U15	RTSX72SU	5962-01515	3.6	3.45	3.3	5%	n/a	n/a	n/a		125	85	60	42%	2	1.6	1	60%	100	50	5	900%
1	U13	2568C-30D	5962-92153	7	6	5.1	18%	n/a	n/a	n/a		125	85	50	70%	4	3.2	1	220%	1000	500	5	9900%
1	U20	BU-63705F-300	BU-63705F3-151Z	6.5	5.75	5.1	13%	n/a	n/a	n/a		150	110	60	83%	8	6.4	1	540%	100	14	5	186%
1	U21	HS26C32	26CT32K02V	7	6	5.1	18%	n/a	n/a	n/a		150	110	50	120%	6	4.8	1	380%	100	50	5	900%
7	U40-U46	CD4066BMS	5962-96652	15	13.5	5.1	165%	100	80	5		125	85	50	70%	n/a	na/	n/a		100	50	5	900%
1	U38	CD4514BMS	5962-96681	15	13.5	5.1	165%	100	80	5		125	85	50	70%	n/a	n/a	n/a		100	50	5	900%

Microcircuits -- Hybrid

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Power (mW) Spec	Derated	App.	Margin	Junction Temperature (C) Spec	Derated	App.	Margin	Output Current (ma) Spec	Derated	App.	Margin	Radiation (Krad) Spec	Derated	App.	Margin
6	U2, U6, U8, U23, U26, U29	PH300	Amptek PH300RH	12	9.6	5	92%	500	375	100	275%	125	85	50	70%	10	8	1	700%	100	14	5	180%

Microcircuits -- Plastic

Quantity	Reference	Part Description	Procurement Info	Voltage (volts) Spec	Derated	App.	Margin	Input Voltage (volts) Spec	Derated	App.	Margin	Junction Temperature (C) Spec	Derated	App.	Margin	Output Current (ma) Spec	Derated	App.	Margin	Radiation (Krad) Spec	Derated	App.	Margin
8	U1, U5, U7, U22, U25, U28, U35, U48	12-bit A/D converter	MAX145AEUA	5.25	5.2	5.1	2%	5	4	3	33%	125	85	50	70%	0.5	0.4	0.1	300%	10	1.4	0.6	138%

Resistors

Quantity	Reference	Part Description (ohms, 1%)	Procurement Info	Power (watts) Spec	Derated	App.	Margin	Voltage (volts) Spec	Derated	App.	Margin	Temperature (C) Spec	Derated	App.	Margin
14	R1, R9, R17, R31, R34, R35, R37, R38, R39, R96, R104, R112, R133, R147	49.9	MIL-PRF-55342/07	0.25	0.15	0.045	234%	100	80	10	700%	70	70	50	40%
6	R3, R11, R19, R98, R106, R114	499	MIL-PRF-55342/07	0.25	0.15	0.050	199%	100	80	10	700%	70	70	50	40%
7	R4, R12, R20, R99, R107, R115, R136	4.99E+03	MIL-PRF-55342/07	0.25	0.15	0.005	2894%	100	80	10	700%	70	70	50	40%
16	R5, R13, R21, R26, R29, R36, R84, R100, R108, R116, R131, R134, R146, R148, R149, R150	100	MIL-PRF-55342/07	0.25	0.15	0.090	67%	100	80	10	700%	70	70	50	40%
6	R6, R14, R22, R101, R109, R117	6.19E+03	MIL-PRF-55342/07	0.25	0.15	0.004	3614%	100	80	10	700%	70	70	50	40%
7	R7, R15, R23, R83, R102, R110, R118	2.00E+03	MIL-PRF-55342/07	0.25	0.15	0.013	1100%	100	80	10	700%	70	70	50	40%