

Digital Board Parts Stress Analysis																								
32-04010.03																								
Rev 01																								
Schematic: 32-03003 Rev 02																								
Capacitors																								
Quantity	Reference	Part Description	Procurement Info	Spec	Voltage (volts)				Ambient Temperature (C)															
					Derated	App.	Margin	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	1000 PF (do not populate)	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	Spec	Working Voltage (volts)				Contact Current (A)				Ambient Temperature (C)											
					Derated	App.	Margin	Spec	Derated	App.	Margin	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	Spec	Voltage (volts)				Junction Temperature (C)				Output Current (ma)											
					Derated	App.	Margin	Spec	Derated	App.	Margin	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	0.02	1900%									
Magnetics																								
Quantity	Reference	Part Description	Procurement Info	Spec	Working Voltage (volts)				Operating Temperature (C)															
					Derated	App.	Margin	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	Spec	Voltage (volts)				Power (mW)				Junction Temperature (C)				Output Current (ma)				Radiation (Krad)			
					Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	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		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	AD584THQMLVR	5962-36128	40	32	5	540%	800	450	10	4400%	125	85	50	70%	5	4	1	300%	100	14	5	180%	
Microcircuits -- Digital																								
Quantity	Reference	Part Description	Procurement Info	Spec	Voltage (volts)				Power (mW)				Junction Temperature (C)				Output Current (ma)				Radiation (Krad)			
					Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	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		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/	n/a			100	50	5	900%	
1	U38	CD4514BMS		15	13.5	5.1	165%	100	80	5		125	85	50	70%	n/a	n/a			100	50	5	900%	
Microcircuits -- Hybrid																								
Quantity	Reference	Part Description	Procurement Info	Spec	Voltage (volts)				Power (mW)				Junction Temperature (C)				Output Current (ma)				Radiation (Krad)			
					Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	
6	U2, U6, U8, U23, U26, U29	PH300	Amplek 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	Spec	Voltage (volts)				Input Voltage (volts)				Junction Temperature (C)				Output Current (ma)				Radiation (Krad)			
					Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin	
8	U1, U5, U7, U22, U25, U28, U35, U48	12-bit A/D converter	MAX145AUEA	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	0.9	59%	
Resistors																								
Quantity	Reference	Part Description (ohms, 1%)	Procurement Info	Spec	Power (watts)				Voltage (volts)				Temperature (C)											
					Derated	App.	Margin	Spec	Derated	App.	Margin	Spec	Derated	App.	Margin									
14	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%									