

Version: 1PM078B1

Date Jan.06.2006

SERVICE MANUAL

MT-103a **TRANSMITTER**

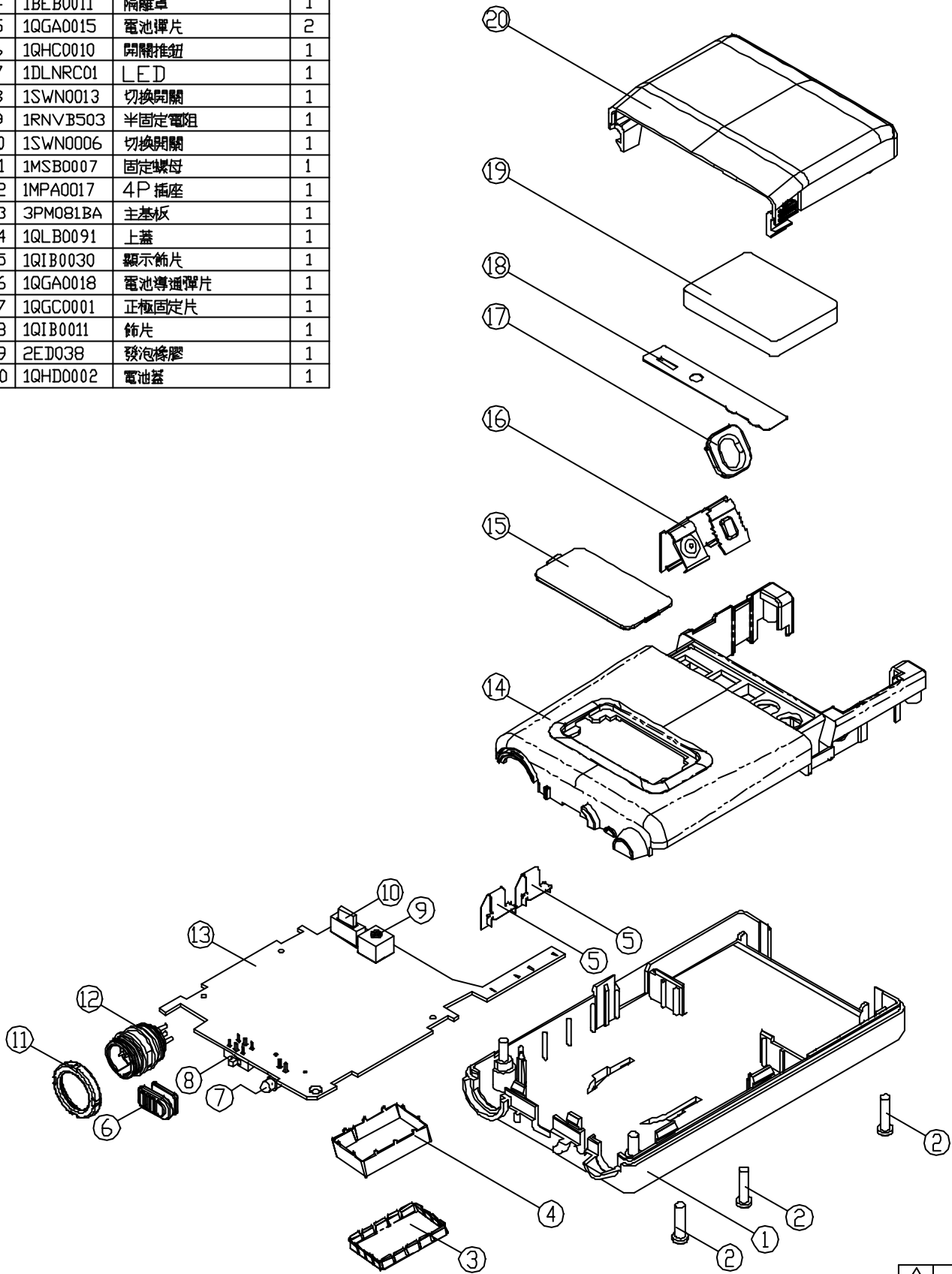


MIPRO

SPECIFICATIONS FOR MT-103a TRANSMITTER

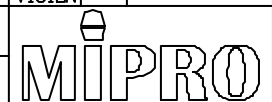
ITEM	SPECIFICATIONS
1. FREQUENCY RANGE	160.00~250.00 MHz
2. FREQUENCY GENERATION	Phase Locked Loop technique
3. CHANNEL	ONE Channel
4. FREQUENCY STABLE	$\pm 0.005\%$ 0 ~ +50
5. RF OUTPUT POWER	<10mW
6. HARMONICS	LESS THAN -45dBc
7. FREQUENCY DEVIATION	± 40 KHz
8. PRE-EMPHASIS	55uS
9. ANTENNA	1/4
10. BATTERY	AA3(1.5V) $\times 2$
11. CURRENT CONSUMPTION	Approx. 80mA
12. ENVIRONMENTAL	Full SPECS -10° ~ 60
13. WEIGHTS	Approx. 90g
14. DIMENSIONS (M/M)	105(L) \times 63(W) \times 21(H)
15. CONNECTORS	4 Pin Screw Type Miniature

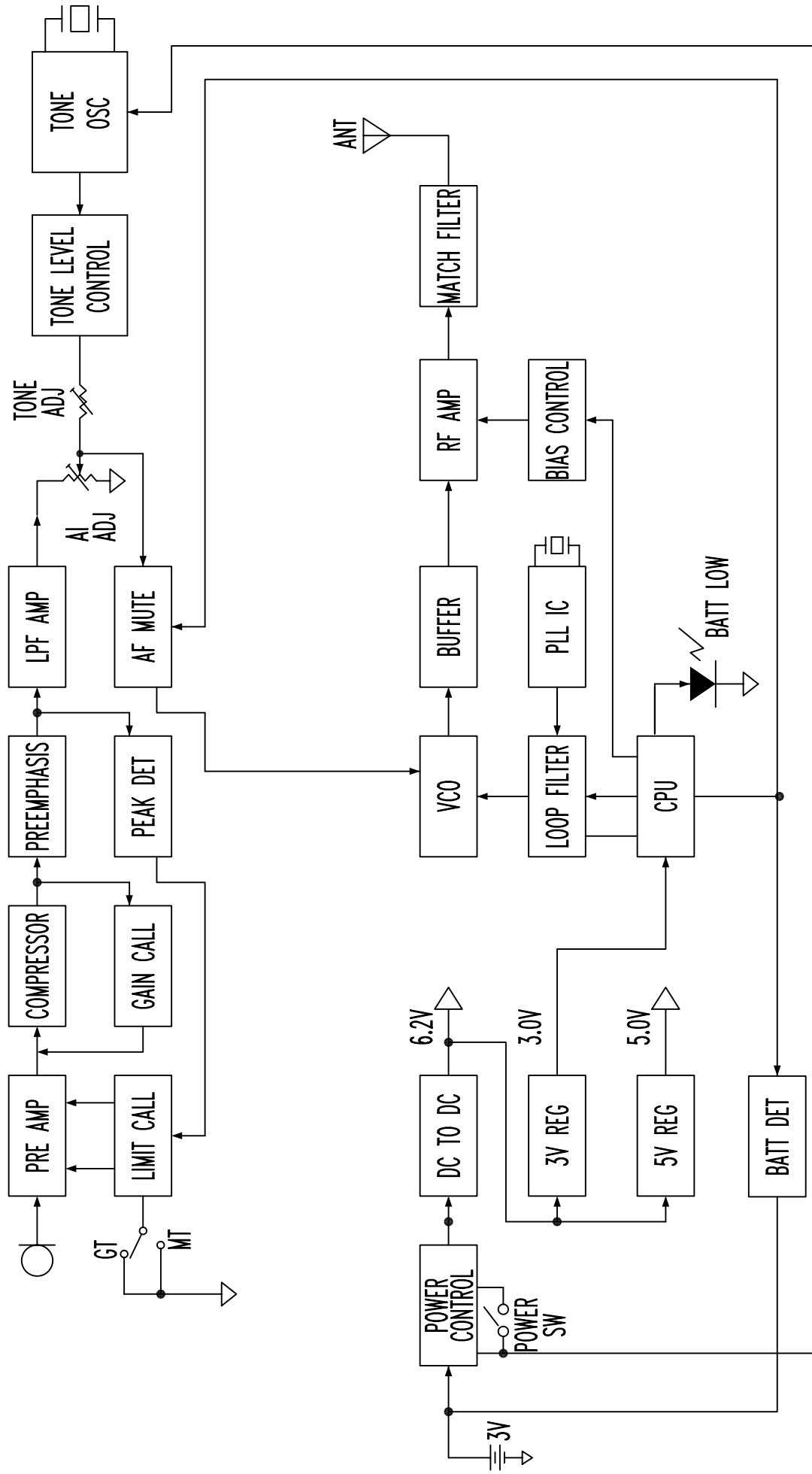
編號	電腦編號	品名	數量
1	1QLA0003	迷你膠盒	1
2	1MSA0063	螺絲	3
3	1BEA0011	隔離罩上蓋	1
4	1BEB0011	隔離罩	1
5	1QGA0015	電池彈片	2
6	1QHC0010	開關推鈕	1
7	1DLNRC01	LED	1
8	1SWN0013	切換開關	1
9	1RNVB503	半固定電阻	1
10	1SWN0006	切換開關	1
11	1MSB0007	固定螺母	1
12	1MPA0017	4P 插座	1
13	3PM081BA	主基板	1
14	1QLB0091	上蓋	1
15	1QIB0030	顯示飾片	1
16	1QGA0018	電池導通彈片	1
17	1QGC0001	正極固定片	1
18	1QIB0011	飾片	1
19	2EID038	發泡橡膠	1
20	1QHD0002	電池蓋	1



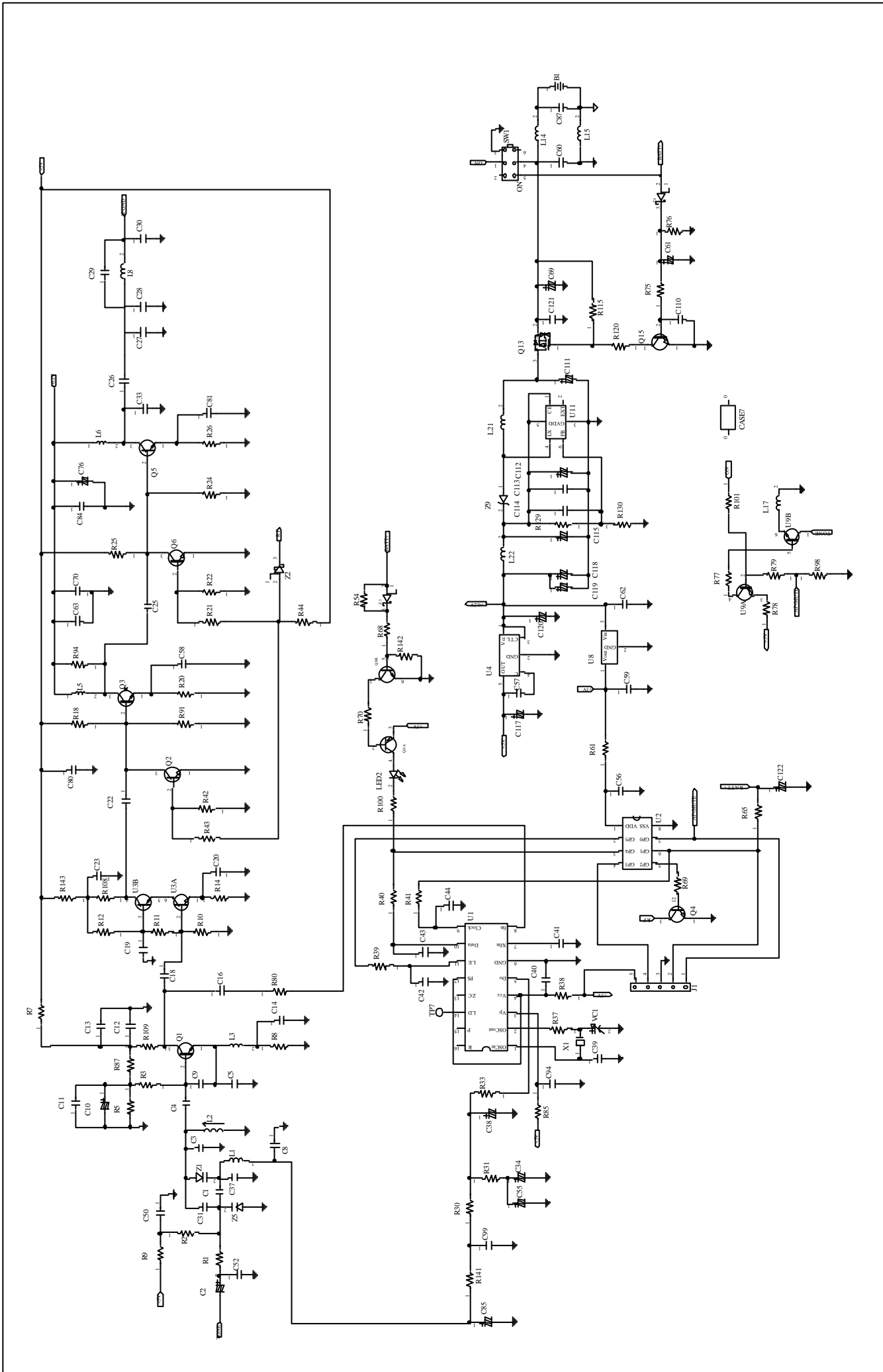
f	
e	
d	
c	
b	06/24/2005

圖號 NUMBER	T103AU01B	機型 MODEL	MT-103a	品名 DESCRIPTION	爆炸圖 (ASSEMBLY)	版本 VISION	b
日期 DATE	06/10/2005	比例 SCALE	1=2 A4	材質 MATERIAL			
設計 DESIGNED	TENOR	繪圖 DRAWN	BALL	核准 APPROVED	Michael		

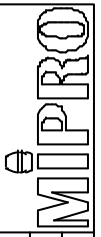


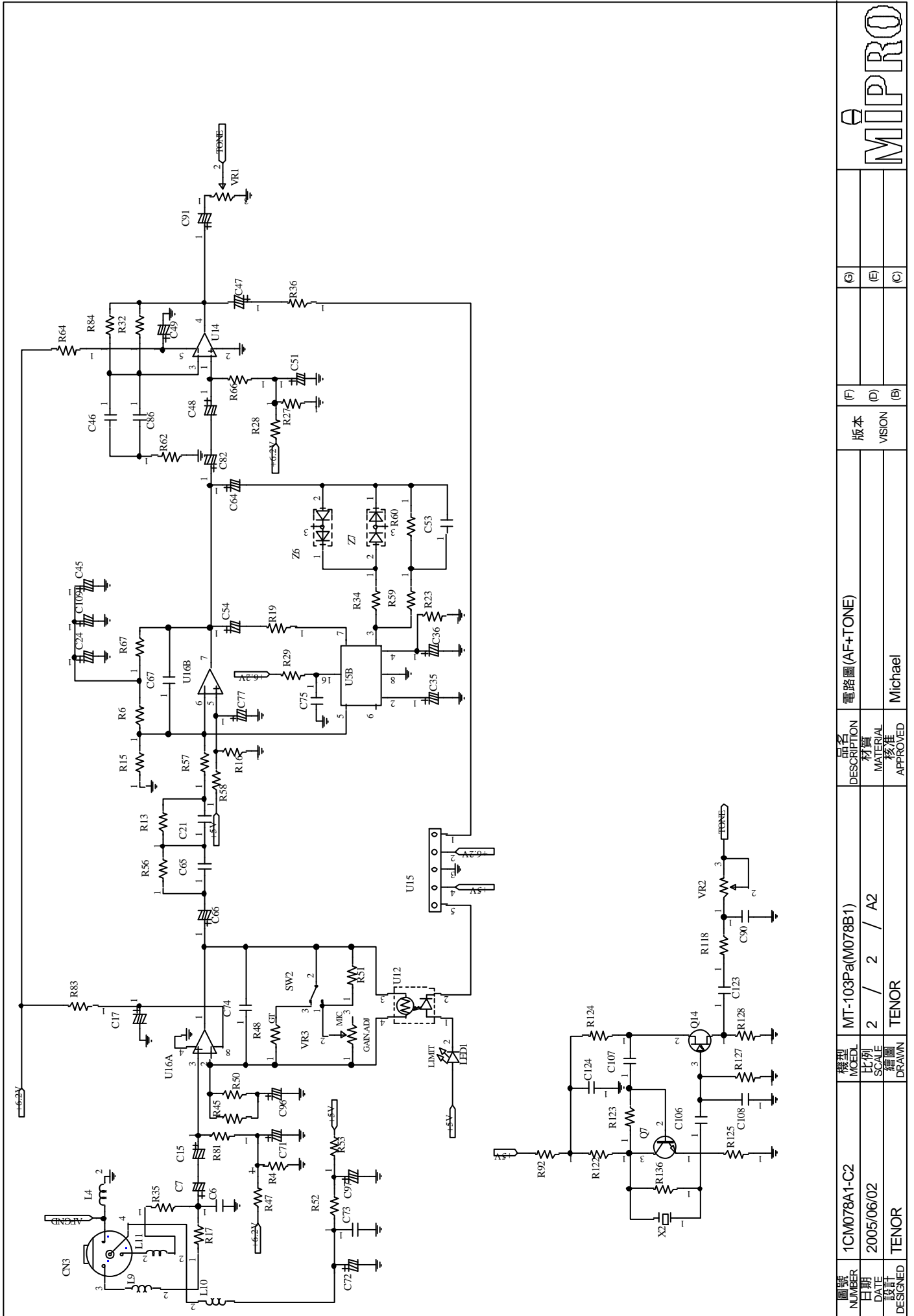


圖號 NUMBER	T103AQ01A	機型 MODEL	MT-103A	品名 DESCRIPTION	方塊圖(BLOCK DIAGRAM)	版本 VISION	MIPRO
日期 DATE	06/24/2005	比例 SCALE	1=1 A4	材質 MATERIAL			
設計 DESIGNED	TENDOR	繪圖 DRAWN	BALL	核准 APPROVED	Michael		

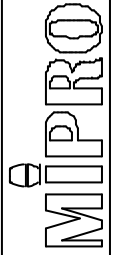


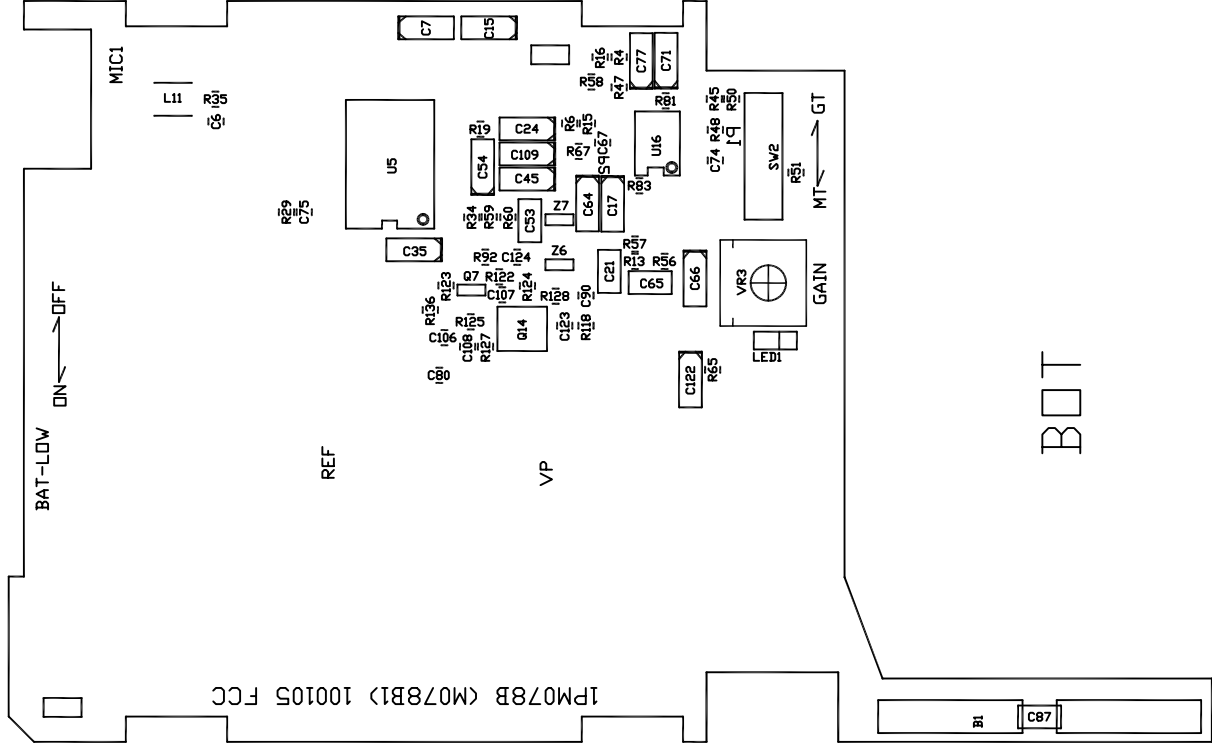
圖號	1CM078BA-C1	樣型	MT-103a(M078B1)	品名	電路圖 (RF) PLL 3V升壓系統	版本	(G)
NUMBER	2005/06/02	MOEDEL	1 / 2 / A1	DESCRIPTION	VISION	(F)	(E)
日期	TENOR	比例	TENOR	MATERIAL	(D)	(B)	(C)
SCALE		繪圖		核准	Michael		
DESIGN		DRAWN		APPROVED			



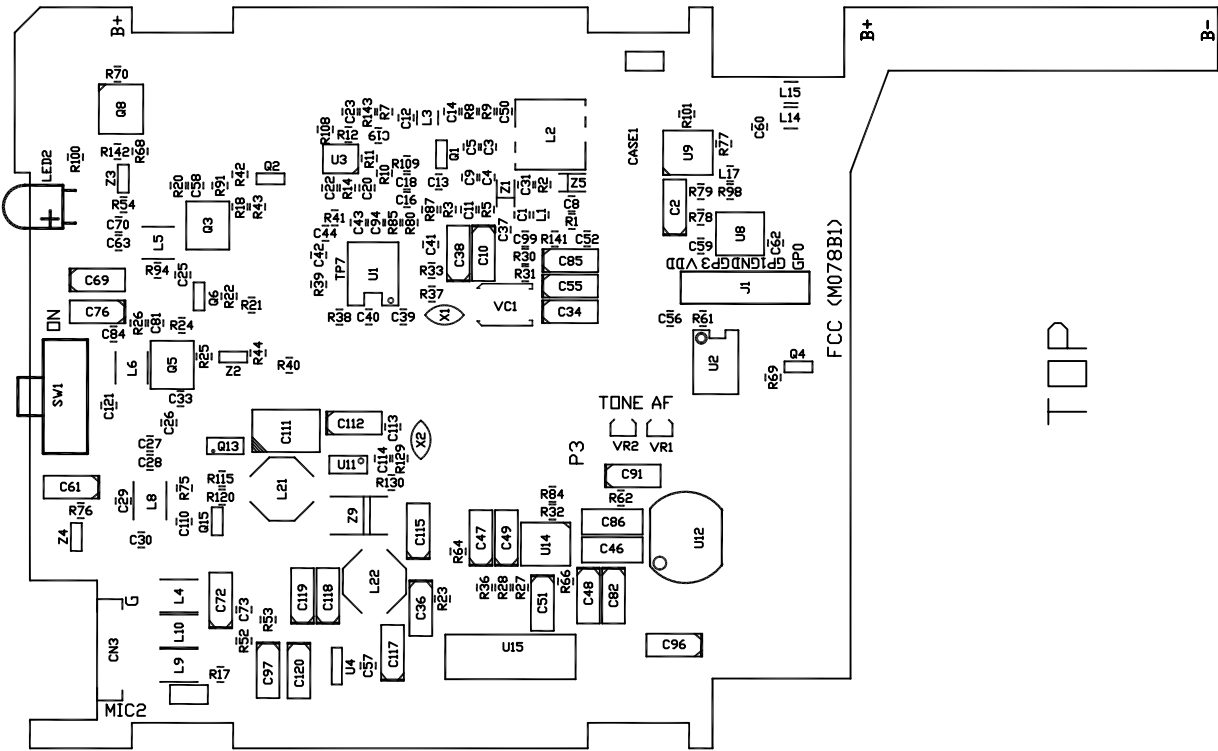


圖號 NUMBER	1CM078A1-C2	機型 MODEL	MT-103Pa(M078B1)	品名 DESCRIPTION	電路圖(AF+TONE)	(F)	(G)
日期 DATE	2005/06/02	比例 SCALE	2 / 2 / A2	材質 MATERIAL	版本 VERSION	(D)	(E)
設計 DESIGNED	TENOR	繪圖 DRAWN	TENOR	核准 APPROVED	Michael	(B)	(C)





BOT



TOP

品名 DESCRIPTION
PARTS REFNRCE(TOP/BOT)

機型 MODEL
MT-103a(M078B1)

圖號 NUMBER
1PM078BA-F1

材質 MATERIAL
1.0m/m 玻璃板

比例 SCALE
1=1 A4

日期 DATE
01/06/2006

核准 APPROVED
Michael

繪圖 DRAWN
BALL

設計 DESIGNED
TENDOR

版本 VISION

△

△

△

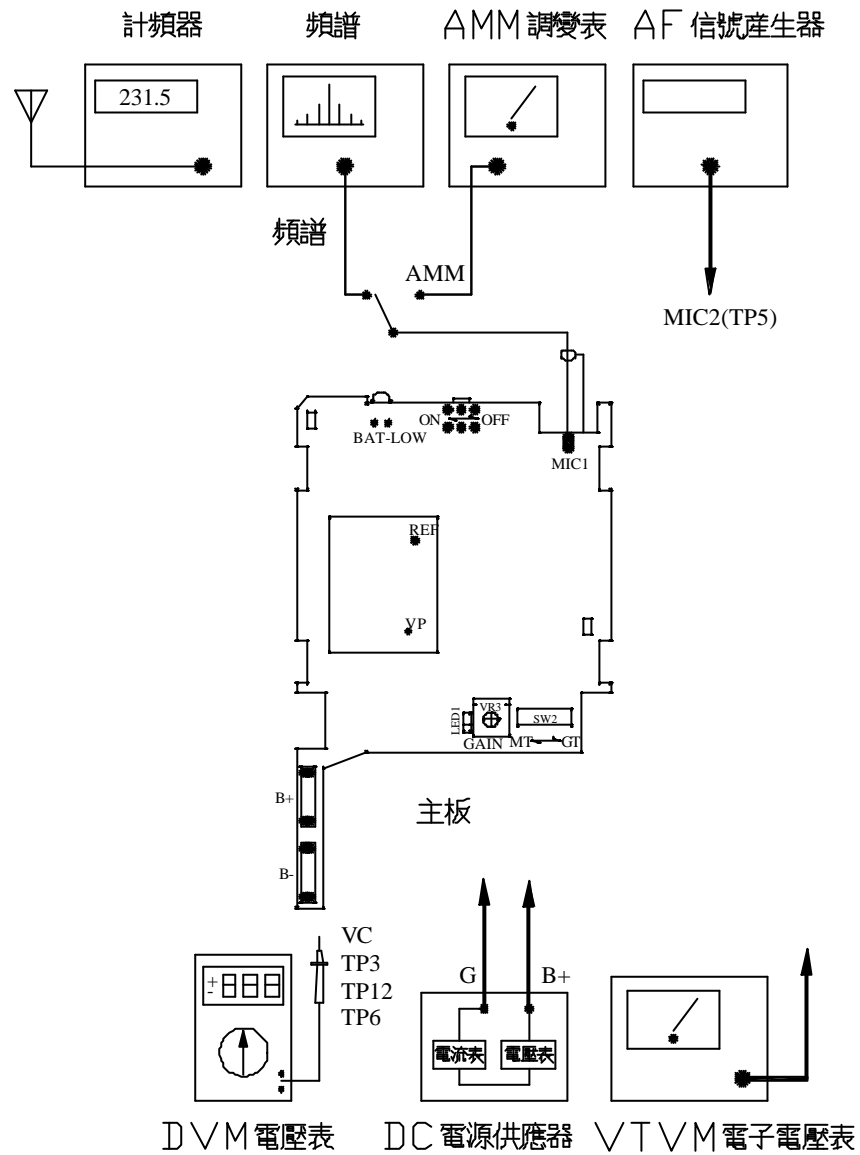
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TEST AND ALINGNMENT INSTRUCTIONS

1、 Measuring instruments and test set-up



2.Pre-set

- A、 Audio analyzer : 400Hz , -12.3dBV.
- B、 DC power supply : 3V
- C、 Spectrum analyzer : Frequency start 10MHz
Frequency stop 2.9GHz

TEST AND ALINGNMENT INSTRUCTIONS

NO	MEASUREMENT ADJUSTMENT	SET-UP	OBSERVATION	TEST POINT	ADJ	NORMAL VALUE
1	“BATT-LOW” LED	DC POWER SUPPLY 3V	“BATT-LOW” LED	BAT + , BAT -	NO	LED flash one time when switch ON
2	DC TO DC	DC POWER SUPPLY 3V	DC VOLTAGE METER	C119	NO	+ 6.2V ± 0.2V
3	VOLTAGE REAULATOR 3V	DC POWER SUPPLY 3V	DC VOLTAGE METER	C59	NO	+ 3V ± 0.25V
4	VOLTAGE REAULATOR 5V	DC POWER SUPPLY 3V	DC VOLTAGE METER	C117	NO	+ 5V ± 0.25V
5	CENTER FREQ TRACKING VOLTAGE	1. DC POWER SUPPLY 20V 2. SET TO CENTER FREQ	DC VOLTAGE METER	VC	VC4	1.5V~2.5V
6	RF OUTPUT POWER	SPECTRUM 1.FULL SPAN 2. Att 20dB 3. CENTER FREQ	SPECTRUM ANALYZET	ANT	VC1,VC2	1.PEAK:108dBuV 2.SPURIOUS>-52dBc
7	CURRENT DISSIPATION	DC POWER SUPPLY 3V	CURRENT MATER	BAT + BAT -	NO	85mA 96mA
8	CENTER FREQUENCY	FRQUENCY COUNTER (100Hz RES)	FREQUENCY COUNTER	ANT	VC1	Fo ± 3KHz
9	AF 0 dB COMPANDOR	1.SW4⇒ “MT” 2.AUDIO ANALYZER 400Hz , -12.3dBV	AUDIO ANALYZER	TP7	NO	565 mV ± 12mV
10	MODULATION	AUDIO ANALYZER 400Hz	AMM (3.5K LPF)	ANT	VR2	12 ± 1K
11	MODULATION	AUDIO ANALYZER 400Hz , -12.3dBV	AMM (3.5K LPF)	ANT	VR2	12 ± 1K
12	AF PREEMPHASIS	1. SW4⇒ “MT” 2. AUDIO ANALYZER 4Hz , -31.3dBV	AMM (15K LPF)	ANT	NO	19 ± 4K
13	TONE DEF (5K DEV)	AMM (50K , 60K LPF)OR SPECTRUM ANALYZER	AMM OR SPECTRUM ANALYZER MARK TO32K (NEXT PEAK)	ANT	VR1	4.3K ± 0.3K (AMM) -24 ± 1.5dB (SPECTRUN)
14	BATT. LOW DISPLAY	DC VOLTAGE 2.2V	“BATT-LOW” LED	BAT + BAT -	NO	BATTLOW LED” light”
15	BATT. LOW OFF	DC VOLTAGE 1.75V	LCD CURRENT METER	BAT + BAT -	NO	BATTLOW LED” light” RF PWR”OFF”

PART LIST

CIRCUIT : 1PM078B1

COMPUCTOR NO.	REFETENCE	VALUE
1QGA0015	B1	BATT9V
	C1	C1
1CTSBA225	C2	2.2uF
	C3	C3
	C4	C4
	C5	C5
1CCS6P101	C6	100P
1CTSBA106	C7	10uF
1CCS6P101	C8	100P
1CCS6P012	C9	12P
1CTSBA475	C10	4.7UF
1CCS6X103	C11	103P
1CCS6X104	C12	104P
1CCS6X102	C13	102P
1CCS6P082	C14	82P
1CTSBA106	C15	10uF
1CCS6P003	C16	3P
1CTSAA475	C17	4.7uF
1CCS6P101	C18	100P
1CCS6X103	C19	103P
1CCS6X103	C20	103P
1CCS8X103	C21	103P(0805 5%)
1CCS6X102	C22	102P
1CCS6X103	C23	103P
1CTSBA106	C24	10uF
	C25	C25
	C26	C26
	C27	C27
	C28	C28
	C29	C29
	C30	C30
	C31	C31
1CCS6P001	C33	1P
1CTSBA106	C34	10uF
1CTSBA225	C35	2.2uF
1CTSDA474	C36	0.47uF
	C37	C37
1CTSDA474	C38	0.47UF
1CCS6P047	C39	47P
1CCS6X103	C40	103P
1CCS6X102	C41	102P
1CCS6P101	C42	100P

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COMPUCTOR NO.	REFETENCE	VALUE
1CCS6P101	C43	100P
1CCS6P101	C44	100P
1CTSBA106	C45	10uF
1CCSCP332	C46	332P(1206)
1CTSBA106	C47	10uF
1CTSBA225	C48	2.2uF
1CTSAA475	C49	4.7uF
	C50	*
1CTSBA225	C51	2.2uF
1CCS6P033	C52	33P
1CCS8X103	C53	103P
1CTSBA225	C54	2.2uF
1CTSBA106	C55	10uF
1CCS6X104	C56	104P
1CCS6X103	C57	103P
1CCS6P101	C58	100P
1CCS6X104	C59	104P
1CCS6X102	C60	102P
1CTSBA105	C61	2.2UF
1CCS6X104	C62	104P
1CCS6X102	C63	102P
1CTSBA225	C64	2.2uF
1CCS8P102	C65	102P
1CTSBA225	C66	2.2uF
1CCS6P020	C67	20P
1CTSBA106	C69	10UF
1CCS6X473	C70	473P
1CTSBA225	C71	2.2uF
1CTSBA106	C72	10uF
1CCS6P101	C73	100P
1CCS6P068	C74	68P
1CCS6X104	C75	104P
1CTSBA225	C76	2.2uF
1CTSBA225	C77	2.2uF
1CCS6X103	C80	103P
1CCS6P101	C81	100P
1CTSBA225	C82	2.2uF
1CCS6X102	C84	102P
1CTSDA474	C85	0.47UF
1CCSCP332	C86	332P(1206)
1CCS8P102	C87	102P
1CCS6P471	C90	470P
1CTSBA225	C91	2.2uF

PART LIST

CIRCUIT : 1PM078B1

COMPUCTOR NO.	REFETENCE	VALUE
1CCS6X104	C94	104P
1CTSBA106	C96	10uF
1CTSBA106	C97	10uF
1CCS6X104	C99	104P
1CCS6P012	C106	12P
1CCS6X473	C107	473P
1CCS6P036	C108	36P
1CTSBA106	C109	10uF
1CCS6X104	C110	104P
1CTSHB686	C111	68UF
1CTSBA105	C112	1UF
1CCS6X103	C113	103P
1CCS6X104	C114	104P
1CTSBA106	C115	10uF
1CTSBA106	C117	10uF
1CTSBA106	C118	10uF
1CTSBA106	C119	10uF
1CTSBA105	C120	1UF
1CCS6X103	C121	103P
1CTSBA105	C122	0.1UF
1CCS6X104	C123	104P
1CCS6X473	C124	473P
1MPA0017	CN3	4PIN-CNT
1SFHB05B	J1	PINA5
1LLS6274	L1	270NH
	L2	L2
1LLS8823	L3	82NH
1LLSA105	L4	1UH
	L5	L5
	L6	L6
	L8	L8
1LLSA105	L9	1UH
1LLSA105	L10	1UH
1LLSA105	L11	1UH
1LLSD001	L14	BIT
1LLSD001	L15	BIT
1LLS6224	L17	220NH
1LRS5226	L21	22UH
1LRS5226	L22	22UH

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COMPUCTOR NO.	REFETENCE	VALUE
1DLSR210	LED1	R
1DLNRC01	LED2	LED-RED
1TS05085	Q1	1TS05085
1TS04774	Q2	1TS04774
1TS03082	Q3	1TS03082
1TS04097	Q4	1TS04097
1TS03082	Q5	1TS03082
1TS04774	Q6	1TS04774
1TS04097	Q7	1TS04097
1TSIMZ1A	Q8	1TSIMZ1A
1TS2305N	Q13	1TS2305N
1TS00508	Q14	1TS00508
1TS04097	Q15	1TS04097
1RS6A333	R1	33K
1RS6A123	R2	12K
1RS6A152	R3	1.5K
1RS6A153	R4	15K
1RS6A123	R5	12K
1RS6A103	R6	10K
1RS6A056	R7	56
1RS6A221	R8	220
1RS6A393	R9	39K
1RS6A472	R10	4.7K
1RS6A472	R11	4.7K
1RS6A472	R12	4.7K
1RS6A302	R13	3K
1RS6A181	R14	180
1RS6A104	R15	100K
1RS6A393	R16	39K
1RS6A182	R17	1.8K
1RS6A273	R18	27K
1RS6A183	R19	18K
1RS6A101	R20	100
1RS6A103	R21	10K
1RS6A473	R22	47K
1RS6A106	R23	10M
1RS6A272	R24	2.7K
1RS6A103	R25	10K
1RS6A022	R26	22
1RS6A473	R27	47K
1RS6A473	R28	47K

PART LIST

CIRCUIT : 1PM078B1

COMPUCTOR NO.	REFETENCE	VALUE
1RS6A047	R29	47
1RS6A561	R30	560
1RS6A561	R31	560
1RS6A153	R32	15K
1RS6A562	R33	5.6K
1RS6A272	R34	2.7K
1RS6A622	R35	6.2K
1RS6A222	R36	2.2K
1RS6A000	R37	0
1RS6A000	R38	0
1RS6A101	R39	100
1RS6A101	R40	100
1RS6A101	R41	100
1RS6A473	R42	47K
1RS6A103	R43	10K
1RS6A153	R44	15K
	R45	*
1RS6A153	R47	15K
1RS6A102	R48	1K
1RS6A512	R50	5.1K
1RS6A102	R51	1K
1RS6A101	R52	100
1RS6A101	R53	100
	R54	*
1RS6A273	R56	27K
1RS6A010	R57	10
1RS6A393	R58	39K
1RS6A562	R59	5.6K
1RS6A562	R60	5.6K
1RS6A047	R61	47
1RS6A821	R62	820
1RS6A047	R64	47
1RS6A561	R65	560
1RS6A123	R66	12K
1RS6A103	R67	10K
1RS6A104	R68	100K
1RS6A105	R69	1M
1RS6A563	R70	56K
1RS6A333	R75	33K
1RS6A105	R76	1M
1RS6A103	R77	10K
1RS6A010	R78	10
1RS6A104	R79	100K

T103AP01A

COMPUCTOR NO.	REFETENCE	VALUE
1RS6A101	R80	100
1RS6A474	R81	470K
1RS6A047	R83	47
1RS6A183	R84	18K
1RS6A022	R85	22
1RS6A273	R87	27K
1RS6A103	R91	10K
1RS6A272	R92	2.7K
1RS6A681	R94	680
	R98	*
1RS6A102	R100	1K
1RS6A152	R101	1.5K
1RS6A047	R108	47
1RS6A047	R109	47
1RS6A104	R115	100K
1RS6A103	R118	10K
1RS6A103	R120	10K
1RS6A472	R122	4.7K
1RS6A474	R123	470K
1RS6A561	R124	560
1RS6A010	R125	10
1RS6A104	R127	100K
1RS6A332	R128	3.3K
1RS6A224	R129	220K
1RS6A563	R130	56K
1RS6A225	R136	2.2M
1RS6A222	R141	2.2K
1RS6A104	R142	100K
1RS6A047	R143	47
1SWN0013	SW1	SW-SPDT
1SWN0006	SW2	SW
1IS1503S	U1	1IS1503S
1IS12675	U2	1IS12675
1TSUMX5N	U3	1TSUMX5N
1IS00050	U4	1IS00050
1IS00572	U5	1IS00572
1IS23002	U8	1IS23002
1TSIMZ1A	U9	1TSIMZ1A
1IS09266	U11	1IS09266
1INL0001	U12	1INL0001
1IS02221	U14	1IS02221

PART LISTT103AP01A

CIRCUIT : 1PM078B1

COMPUCTOR NO.	REFETENCE	VALUE
3PM020AA	U15	3PM020AA
1IS33078	U16	1IS33078
1CVS3U300	VC1	3-30P
1RSVC103	VR1	10K
1RSVC473	VR2	VR20K
1RNVB503	VR3	VR50K(B)
1KM40000	X1	4MHz
1KM32768	X2	32.768MHZ
1DVS0232	Z1	V232
1DDS0451	Z2	RB451
1DDS0451	Z3	RB451
1DDS0451	Z4	RB451
1DVS0232	Z5	V232
1DDS0204	Z6	204U
1DDS0204	Z7	204U
1DDS0160	Z9	RB160L-40