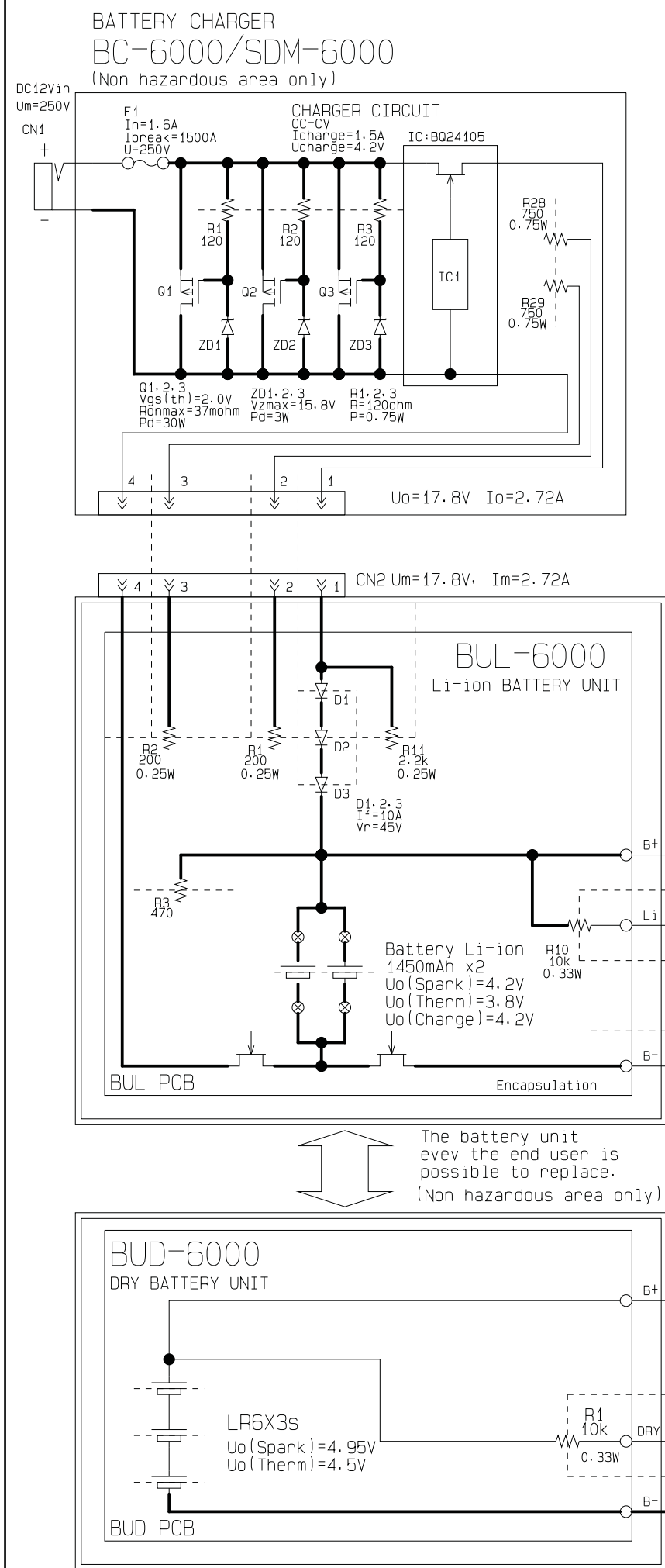


		DRAWING NAME	DRAWING No.	REV	DATE
	01	BLOCK DIAGRAM FOR MODEL GX-6000	E3-6991-5393-30-01K	0	2014.7.28
	02	DIAGRAM FOR I.S. KEEP FOR MODEL GX-6000	E3-6991-5361-10-01K	2	2014.12.16
	03	OUTER STRUCTURE GX-6000	M3-4777-01-01K	0	2014.7.18
	04	MAIN UNIT GX-6000	M2-4777-01-01K	1	2014.9.30
	05	SCHEMATIC MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-01K	0	2014.7.14
	06	SCHEMATIC MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-02K	0	2014.7.14
	07	SCHEMATIC MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-03K	0	2014.7.14
	08	SCHEMATIC MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-04K	0	2014.7.14
	09	SCHEMATIC MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-05K	0	2014.7.14
	10	PARTS LIST OF MAIN PCB	PLT-6991-5372-80 (1/4)	0	2014.7.14
	11	PARTS LIST OF MAIN PCB	PLT-6991-5372-80 (2/4)	3	2014.12.16
	12	PARTS LIST OF MAIN PCB	PLT-6991-5372-80 (3/4)	1	2014.11.5
	13	PARTS LIST OF MAIN PCB	PLT-6991-5372-80 (4/4)	0	2014.7.14
	14	MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-01A	0	2014.7.14
	15	MAIN PCB FOR MODEL GX-6000	E3-6991-5372-80-02A	0	2014.7.14
	16	SCHEMATIC SENSOR PCB FOR MODEL GX-6000	E3-6991-5373-50-01K	1	2014.11.5
	17	PARTS LIST OF SENSOR PCB	PLT-6991-5373-50 (1/1)	2	2014.12.16
	18	SENSOR PCB FOR MODEL GX-6000	E4-6991-5373-50-01A	1	2014.11.5
	19	SENSOR to MAIN WIRE FOR MODEL GX-6000	E4-6991-5382-70-01K	0	2014.7.14
	20	PUMP RP-12	M4-4181-61-01K	3	2013.1.29
	21	Buzzer BZ-9K	E4-6991-5008-70-01K	0	2011.2.28
	22	COMBUSTIBLE GAS SENSOR NC SENSOR	M3-4462-64-05K	3	2012.4.17
	23	TOXIC GAS SENSOR	M4-4084-92-03K	0	2014.7.30
	24	OXYGEN SENSOR	M4-4080-82-07K	0	2014.7.30
	25	SMART SENSOR Type-ESS	M4-4486-01-01K	0	2014.7.30
	26	TOXIC GAS SENSOR	M4-4084-30-08K	0	2014.7.30
	27	ESS SENSOR PCB	E3-6991-5384-10-01K	0	2014.7.14
	28	SMART SENSOR Type-DES	M4-4630-20-01K	0	2014.7.24
	29	DES SENSOR PCB	E3-6991-5385-90-01K	1	2015.5.25
	30	DES DIGITAL PCB	E3-6991-5386-60-01K	1	2015.2.24

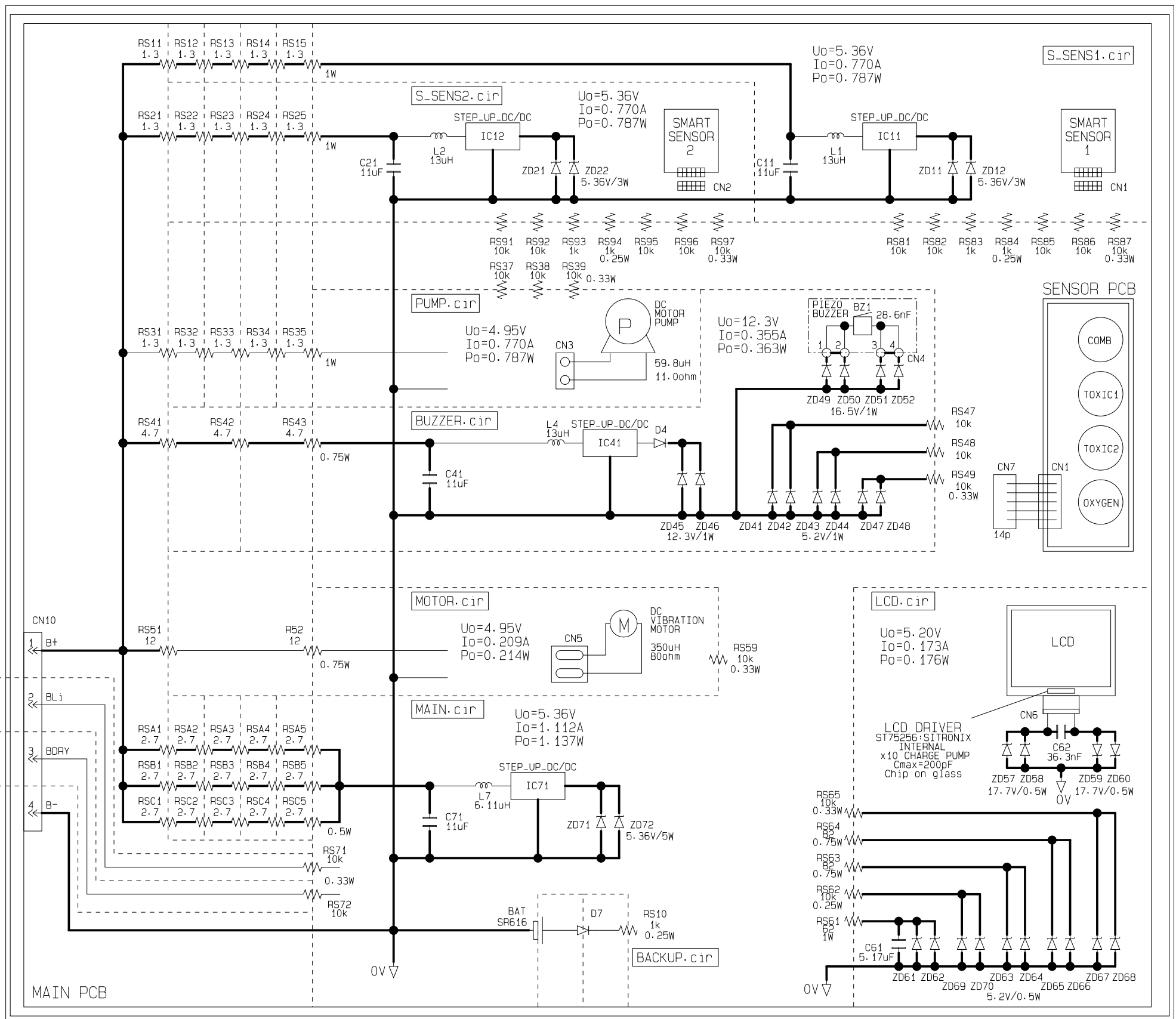
		DRAWING NAME	DRAWING No.	REV	DATE
	31	T- 3/4 BPA LAMP OL-8270BPA	E4-6991-5129-60-01K	0	2012.2.24
	32	SMART SENSOR Type-PIS	M4-4830-01-01K	1	2015.3.25
	33	PIS SENSOR PCB	E4-6991-5387-30-01K	2	2015.3.25
	34	PIS DIGITAL PCB	E3-6991-5388-10-01K	1	2015.3.25
	35	BUL-6000	M3-4777-03-01K	0	2014.7.28
	36	BUL PCB	E3-6991-5389-80-01K	1	2014.9.5
	37	BUD-6000	M3-4777-04-01K	1	2015.3.6
	38	BUD PCB	E4-6991-5390-50-01K	1	2014.9.5
	39	DIAGRAM FOR I.S. KEEP FOR MODEL BC-6000 / SDM-6000	E4-6991-5395-80-01K	1	2014.9.5
*	40	LABEL	M4-4777-01-01K	7	2021.7.26
	41	LABEL BC-6000 / SDM-6000	M4-4777-01-02K	0	2014.7.28
	42	SCHEMATIC CHARGER PCB FOR MODEL BC-6000	E3-6991-5255-80-01K	0	2014.12.16
	43	CHARGER PCB FOR MODEL BC-6000	E3-6991-5255-80-01A	0	2014.12.16
	44	SCHEMATIC CHARGER PCB FOR MODEL SDM-6000	E3-6991-5445-60-01K	1	2015.3.5
	45	CHARGER PCB FOR MODEL SDM-6000	E3-6991-5445-60-01A	2	2015.6.12
	46	SMART SENSOR Type-OSS	M4-4080-01-01K	0	2015.2.24
	47	OSS SENSOR PCB	E4-6991-5457-00-01K	0	2015.2.24
	48	OSS DIGITAL PCB	E3-6991-5458-70-01K	0	2015.2.24
	49	OXYGEN SENSOR	M4-4080-01-02K	0	2015.2.24
	50	BC-6000	M3-4777-02-01K	1	2015.3.23
	51	SDM-6000	M3-4395-23-01K	1	2015.3.23



注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
No.40		小野圭	2021.7.26	INDEX
改版回数 REV.	7			
総頁数 PAGES	1			GX-6000
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2015.3.6	E 3 - 6 9 9 1 - 5 4 7 0 - 7 0 - 0 1 K
<div>RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL</div>				



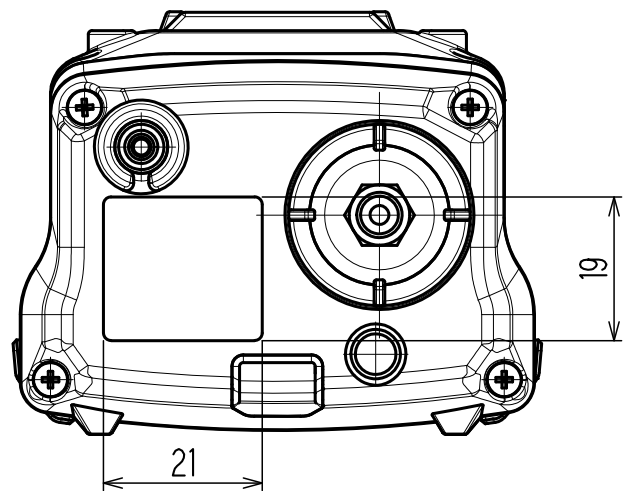
The battery unit
even the end user is
possible to replace.
(Non hazardous area only)



(MEMO)
1. --- marks means SEPARATE
2. — marks means INFALLIBLE CONNECTION

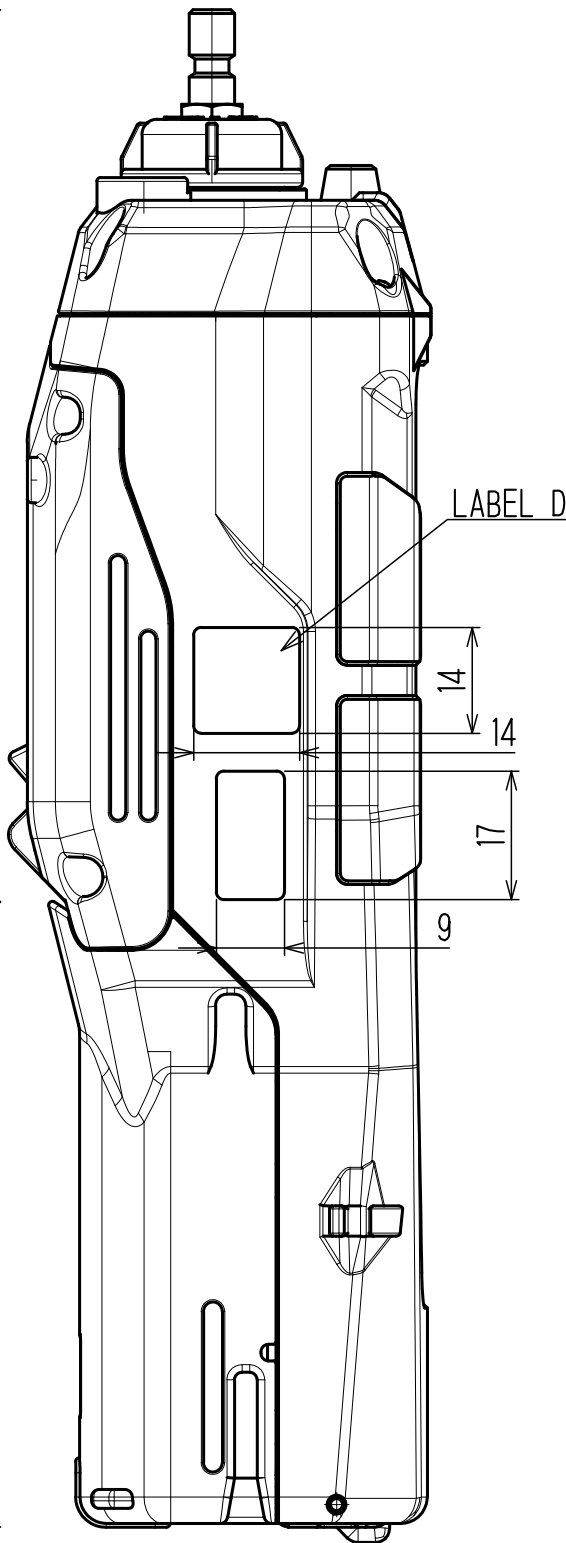
注 記 NOTES RS78→RS71、RS79→RS72	改版担当者 REV. BY 小野圭	改版日 REVISED 2014. 12. 16	名 称 NAME DIAGRAM FOR I. S. KEEP FOR MODEL GX-6000
改版回数 REV. 2	総頁数 PAGES 1	作成日 DATE 2014. 6. 23	図 番 DWG. NO. E3-6991-5361-10-01K
承認 APPROVED 石橋勝	検討 CHECKED 北村正英	製 図 DRAWN 小野圭	
理研計器株式会社 RIKEN KEIKI 機密情報 / CONFIDENTIAL			

寸法	C		I		G		π		m		D		C		寸法
	18未満		18以上50未満		50以上120未満		120以上260未満		260以上500未満		500以上1000未満		1000以上		
精級	0.1	0.15	0.2	0.3	0.4	0.6	0.8	1.2	1.6	2.0	2.5	3.0	3.5	3.5	精級
中級	0.2	0.3	0.4	0.6	0.8	1.2	1.6	2.0	2.5	3.0	3.5	4.0	4.5	4.5	中級
粗級	0.4	0.6	0.8	1.2	1.6	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	5.5	粗級

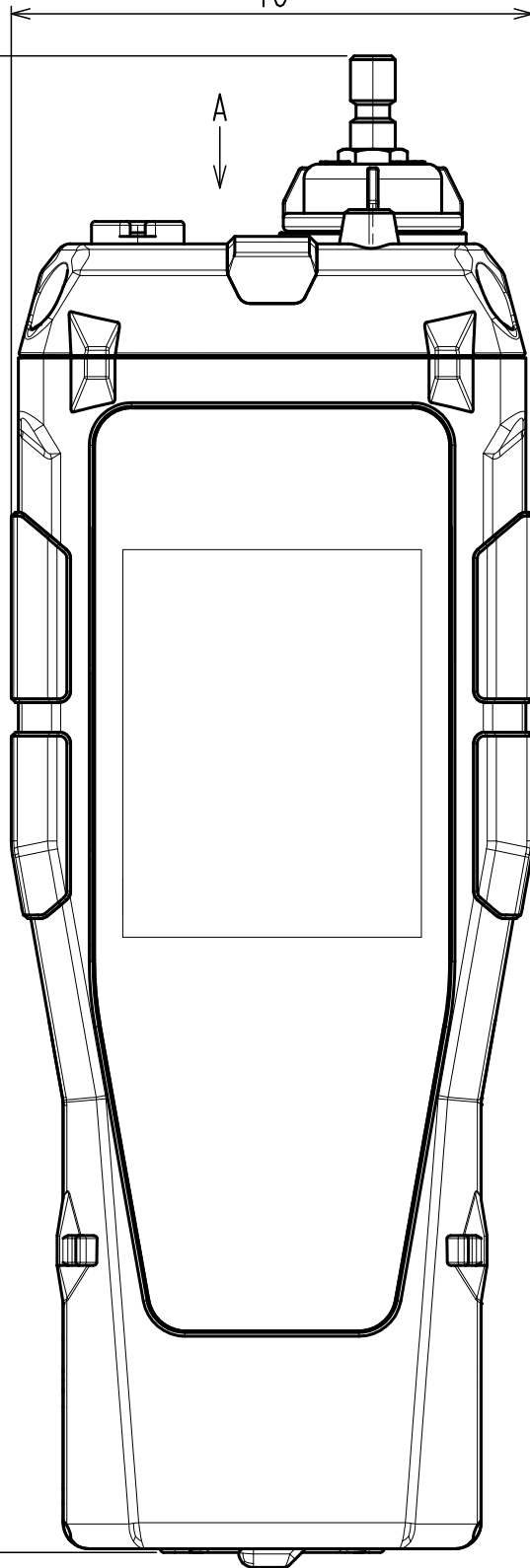


VIEW A

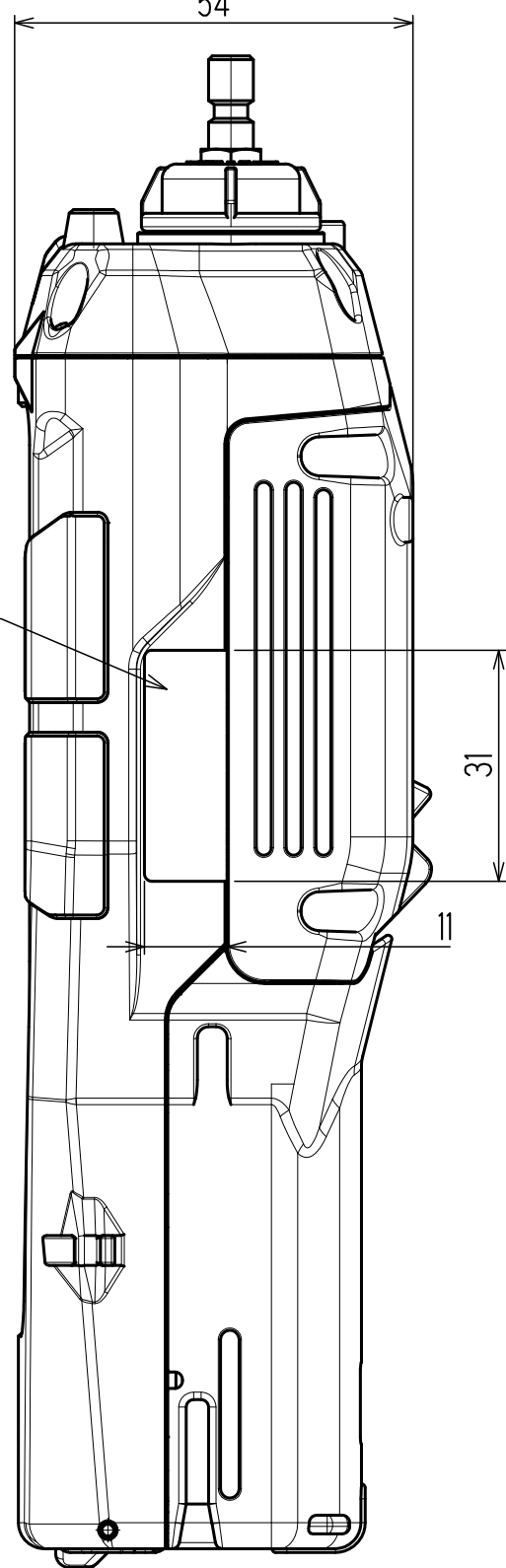
BATTERY UNIT
BUL-8000
M3-4777-03-01K
OR
BUD-8000
M3-4777-04-01K



201



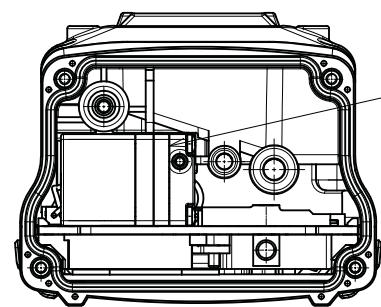
LABEL A



PROTECTION GRADE:MORE THAN IP 20

表面処理 TREAT.	許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME
材 質 MAT.		1 : 1		OUTER STRUCTURE GX-6000
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
青良治	近藤晴彦	海野裕作	2014. 7. 18	M3-4777-01-01K
△ 記 事 年 月 日 訂 正 者 RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL				

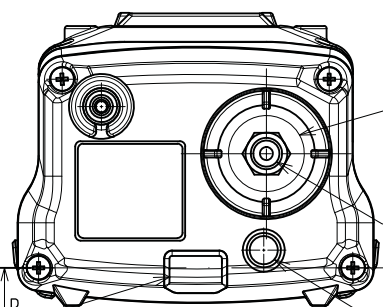
1 2 3 4 5 6 7 8 9 10 11



PUMP
M4-4181-61-01K

FIGURE WITHOUT TOP COVER

ALARM LAMP
MATERIAL:PC
SURFACE AREA:120mm²

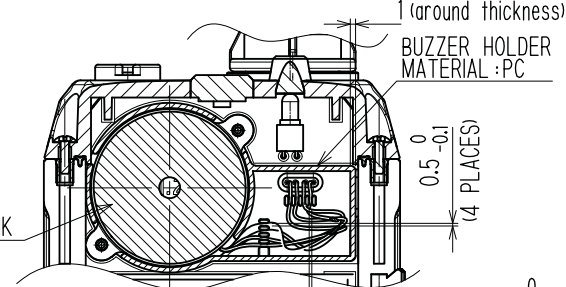


FILTER CASE
MATERIAL:PC
SURFACE AREA:397mm²

NIPPLE
MATERIAL:STAINLESS STEEL

BUZZER
E4-6991-5008-70-01K

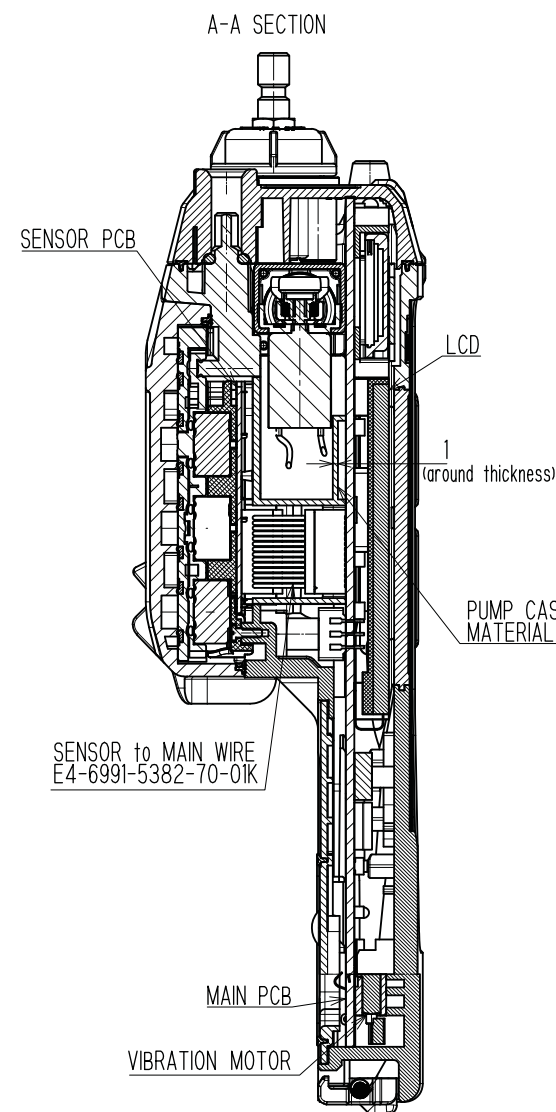
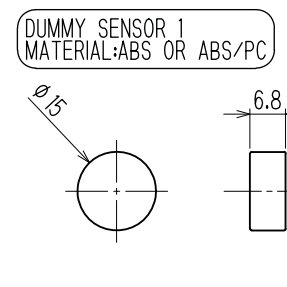
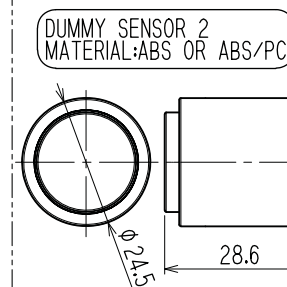
ALARM LAMP
MATERIAL:PC
SURFACE AREA:60cm²



B-B SECTION

CABLE CLAMPING FOR BUZZER

SENSOR COVER
ABS/PC ESC9448N(BLACK)
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP



A-A SECTION

SENSOR PCB

LCD

1 (around thickness)

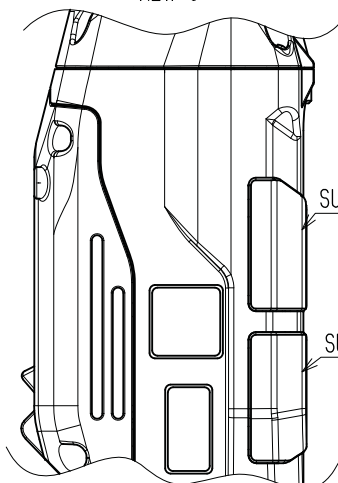
PUMP CASE
MATERIAL:PC

SENSOR to MAIN WIRE
E4-6991-5382-70-01K

MAIN PCB

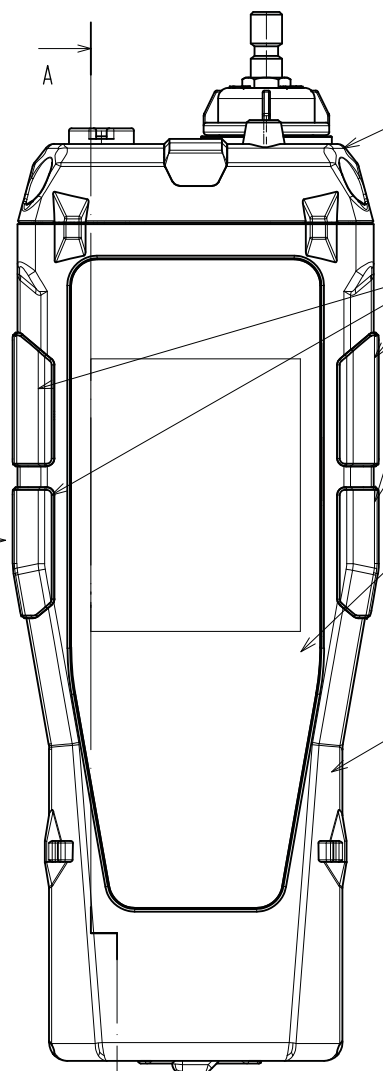
VIBRATION MOTOR

VIEW C



SURFACE AREA:290mm²

SURFACE AREA:290mm²



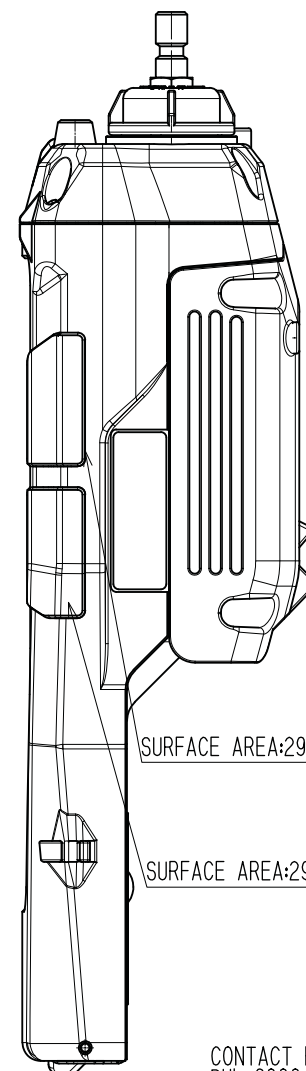
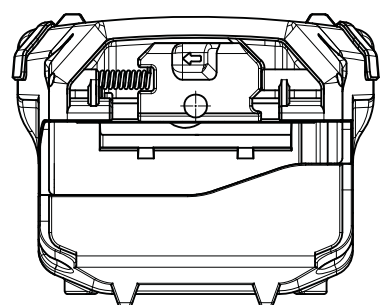
TOP COVER
ABS/PC ESC9448N(BLACK)
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP

ALARM LAMP
MATERIAL:PC

PANEL SHEET

△ PET ST-PET
RESISTANCE LESS THAN 1[GΩ]
ACHILLES CORP
OR
PET 300R
RESISTANCE LESS THAN 1[GΩ]
TOYOBO CO LTD

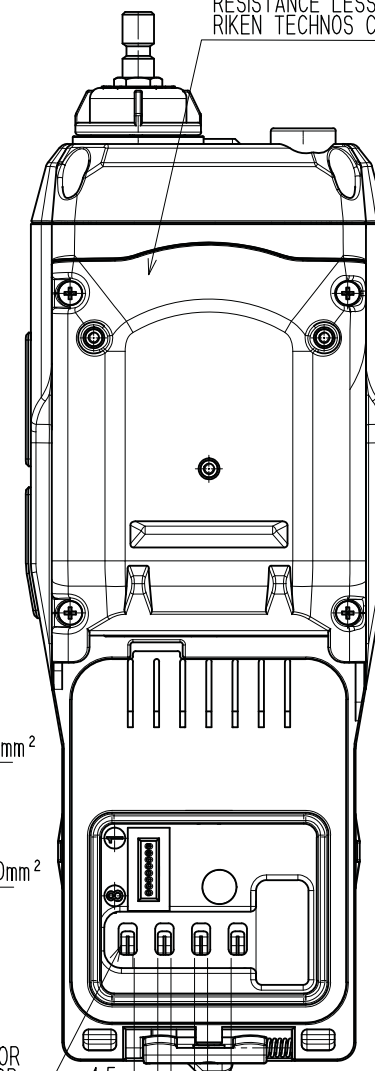
HOUSING
ABS/PC ESC9448N(BLACK)
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP



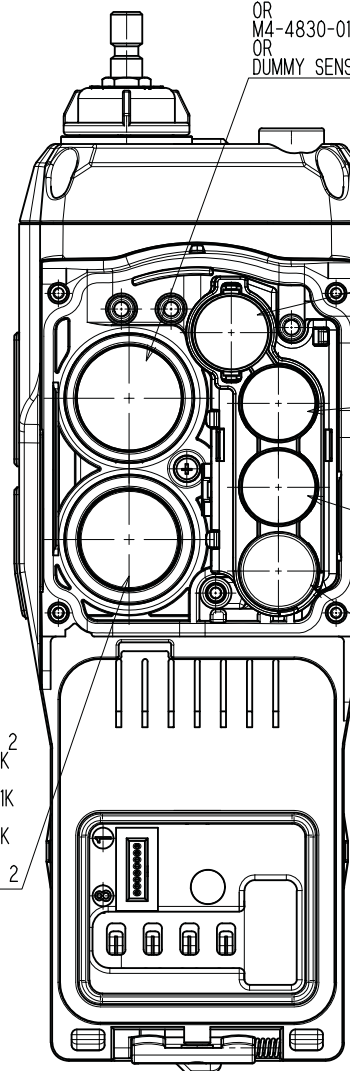
SURFACE AREA:290mm²

SURFACE AREA:290mm²

CONTACT FOR
BUL-6000 OR
BUD-6000



SMART SENSOR 2
M4-4486-01-01K
OR
M4-4630-20-01K
OR
M4-4830-01-01K
OR
DUMMY SENSOR 2



SMART SENSOR 1
M4-4486-01-01K
OR
M4-4630-20-01K
OR
M4-4830-01-01K
OR
DUMMY SENSOR 2

COMBUSTIBLE
GAS SENSOR
M3-4462-64-05K
OR
DUMMY SENSOR 1

TOXIC
GAS SENSOR 1
M4-4084-92-03K
OR
DUMMY SENSOR 1

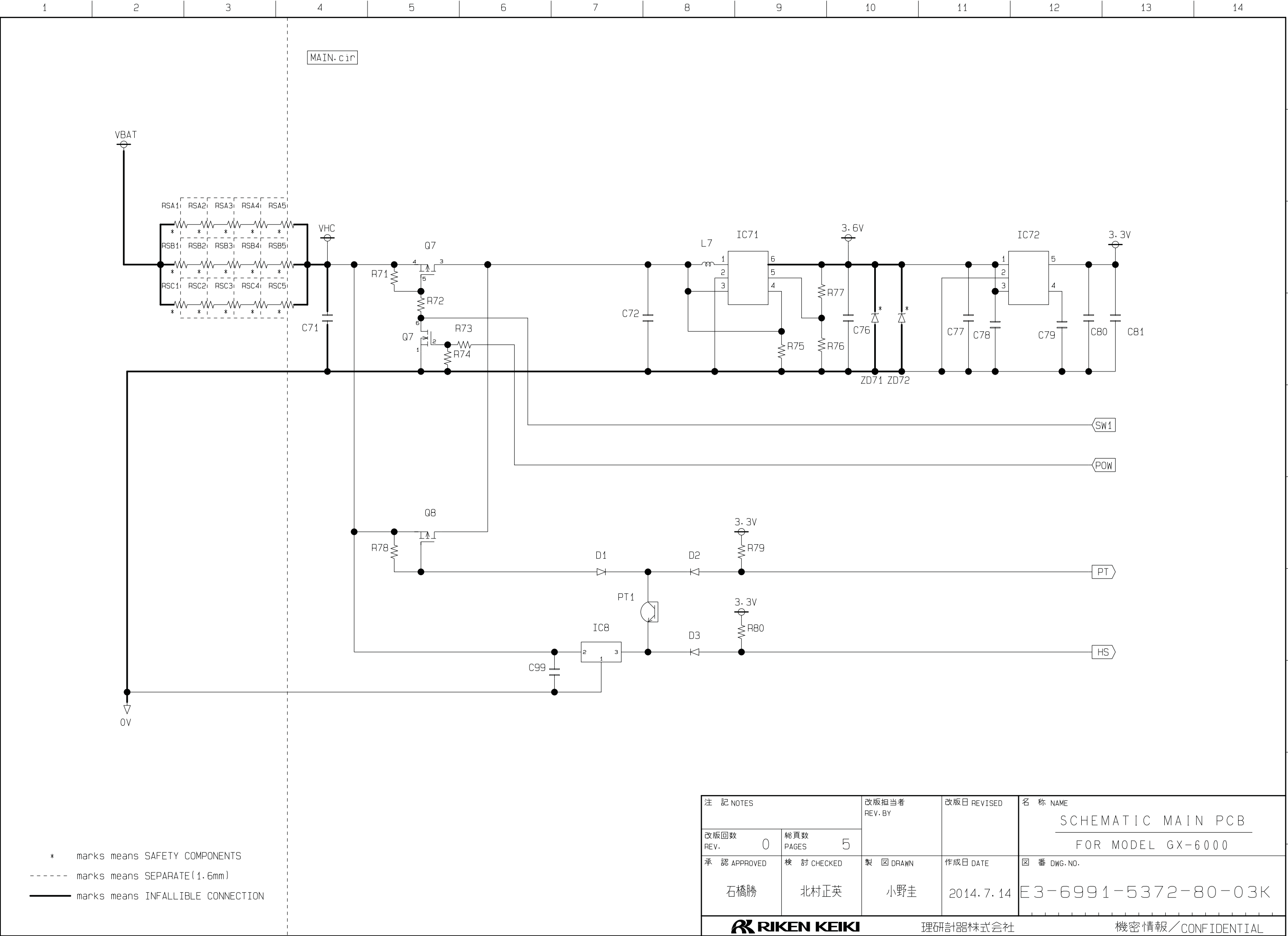
TOXIC
GAS SENSOR 2
M4-4084-92-03K
OR
DUMMY SENSOR 1

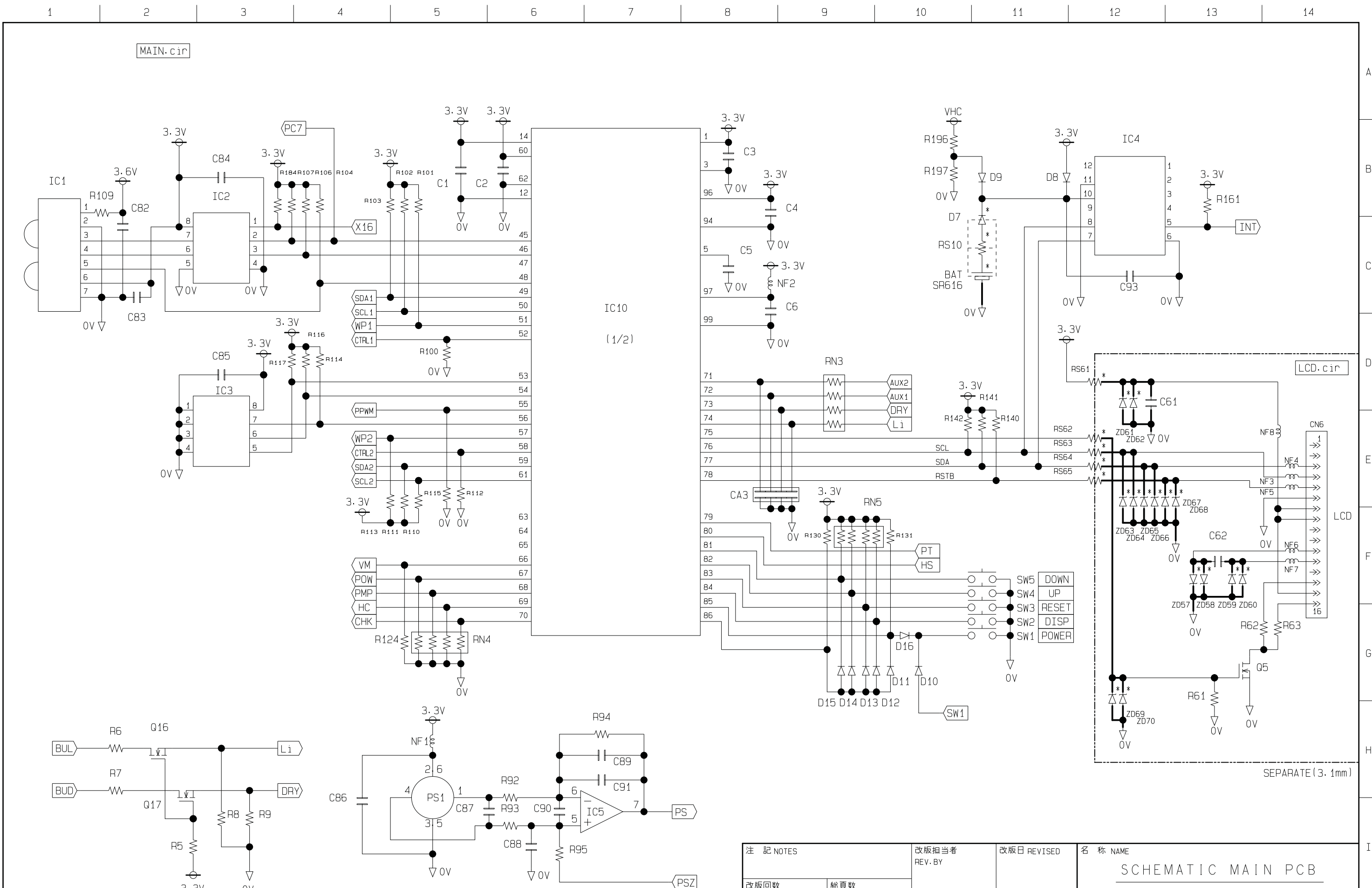
OXYGEN SENSOR
M4-4080-82-07K
OR
DUMMY SENSOR 1

FIGURE WITHOUT SENSOR COVER,SENSOR PACKING

△	ADD PANEL SHEET C5	2014.9.30	海野裕作
△	記 事	年 月 日	訂 正 者

表面处理 TREAT.	許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME
材 質 MAT.		1 : 1		MAIN UNIT GX-6000
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
青良治	近藤晴彦	海野裕作	2014. 7. 22	M2-4777-01-01K
機密情報/CONFIDENTIAL				





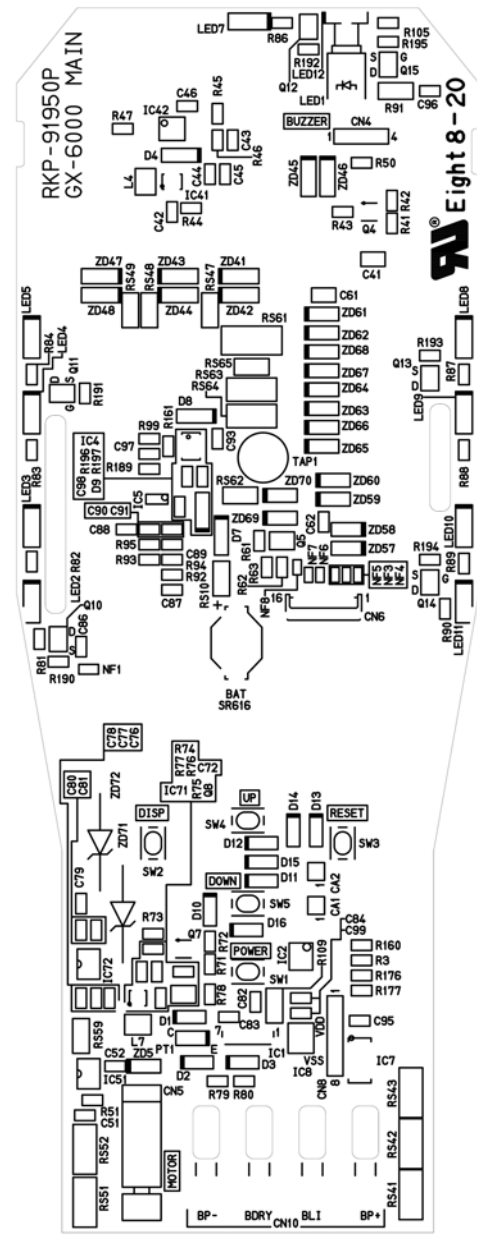
* marks means SAFETY COMPONENTS
 - - - - - marks means SEPARATE (1.6mm)
 ————— marks means INFALLIBLE CONNECTION

Mark of drawing		Kind of parts		Rating/Model of parts	Remarks
IC1		IC (IrDA module)		RPM841-H16	m
IC2		IC (IrDA encoder/decoder)		TIR1000IPW	m
IC3		IC (FRAM)		MB85RC256	m
IC4		IC (RTC)		RX-8564LC	m
IC5,9		IC (OPAMP)		S-89713B-K8T2	m
IC6		IC (Serial flash memory)		AT45DB081E-MHN	m
IC7		IC (Digital MEMS Accelerometer)		ADXL343	m
IC8		IC (Hole IC)		S-5716A –M3T1	m
IC10		IC (CPU)		R5F5210BBDFP	m
IC11,21		IC (DC/DC Converter)		TPS61020	m
IC71		IC (DC/DC Converter)		LTC3526	m
IC12,22,72		IC (Voltage regulator)		TPS73133	m
IC31		IC (Voltage regulator)		TPS79901	m
IC41		IC (DC/DC Converter)		TPS61041DRV	m
IC42		IC (Comparator)		TS3702IPT	m
IC51		IC (Voltage regulator)		S-1200B30-M5T1	m
Q1,2,4,7		N+Pch FET		NTLJD3119C	m
Q3		N-ch FET		SSM3K123TU	m
Q5,10-17		N-ch FET		SSM3K36TU or RUF025N02	m
Q8		P-ch FET		SSM3J130TU	m
NOTE	m marked parts are mounted or not.				
REV.	0	NAME	PARTS LIST OF MAIN PCB		
DATE	2014.7.14	DWG.No.	PLT-6991-5372-80 (1/4)		
RIKEN KEIKI CO., LTD.					

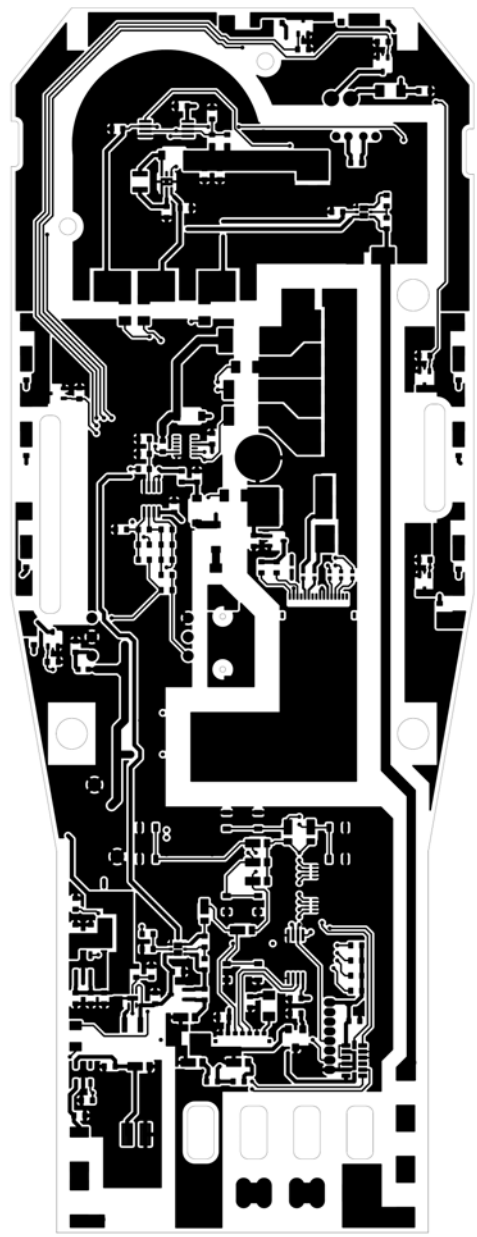
Mark of drawing	Kind of parts	Rating/Model of parts	Remarks
D1-3,10-16	Schottky barrier diode	RB160VA-40	m
D7	Schottky barrier diode	MMSD301, ON Semiconductor Vr = 30 V, If = 0.2 A	*
D4,8,9	Schottky barrier diode	MMSD301	m
ZD5	Zener diode	TFZ 5.1B	m
ZD61-70	Zener diode	TFZ 5.1B , ROHM Vz = 4.94 - 5.20V , 0.5W	*
ZD11,12,21,22	Zener diode	1SMB5918B, ON Semiconductor Vz = 4.84 - 5.36 V, 3W	*
ZD13,23	Zener diode	TFZ 6.8B	m
ZD41,42,43,44,47,48	Zener diode	KDZ4.7B , ROHM Vz = 4.70 – 5.20V , 1W	*
ZD45,46	Zener diode	KDZ11B , ROHM Vz = 11.0 – 12.3V , 1W	*
ZD49,50,51,52	Zener diode	KDZ15B , ROHM Vz = 14.7 – 16.5V , 1W	*
ZD57,58,59,60	Zener diode	TFZ 18B , ROHM Vz = 16.82 – 17.70V , 0.5W	*
ZD71,72	Zener diode	1N5338BG , ON Semiconductor Vz = 4.84 - 5.36 V, 5W	*
LED1	LED Lamp	HLMP-NW50 or NSPW300DS	m
LED2,3,4,5,7,8,9,10,11	LED Lamp	1105W	m
LED12	LED Lamp	HSMZ-C110	m
R1-3,5-9,11-16,21-26, R31-35,41-47,50,51, R61-63,71-84,86-90, R92-107,110-117,124, R130,131,140-142,160, R161,174,176,177, R182-186,189-199	Chip fixed resistor or Chip jumper	10 ohm-10M ohm / 1%, 0.1W or 50m ohm max, 1A (1608)	m
R48,49,91,109	Chip fixed resistor	2.2 ohm-100k ohm / 1%, 0.25W (3216)	m
RN1,2,3,4,5,6	Chip fixed resistor array	100 ohm-1M ohm x4 / 5%, 0.1W (1608 x 4)	m
NOTE	* marked parts are for safety. m marked parts are mounted or not. () Parts size code		
REV.	3	NAME	PARTS LIST OF MAIN PCB
DATE	2014.12.16	DWG.No.	PLT-6991-5372-80 (2/4)
RIKEN KEIKI CO., LTD.			

Mark of drawing	Kind of parts	Rating/Model of parts	Remarks
RS11-15,21-25,31-35	Chip fixed resistor	RK73HW3ATTE1R30F, KOA 1.3ohm / 1%, 1W	*
RS37-39,47-49,59,62, R65,71,72,81,82,85-87, R91,92,95-97	Chip fixed resistor	ESR18EZPD1002, ROHM 10k ohm / 0.5%, 0.33W	*
RS10,83,84,93,94	Chip fixed resistor	MCR18EZPF1001, ROHM 1k ohm / 1%, 0.25W	*
RS41,42,43	Chip fixed resistor	RK73HW2HTTE4R70F, KOA 4.7 ohm / 1%, 0.75W	*
RS51,52	Chip fixed resistor	RK73HW2HTTE12R0F, KOA 12 ohm / 1%, 0.75W	*
RS61	Chip fixed resistor	RK73HW3ATTE62R0F, KOA 62 ohm / 1%, 1W	*
RS63,64	Chip fixed resistor	RK73HW2HTTE82R0F, KOA 82 ohm / 1%, 0.75W	*
RSA1-5,RSB1-5, RSC1-5	Chip fixed resistor	RPL18T2R7F,TAIYOSHA 2.7 ohm / 1%, 0.5W	*
C1-6,12,16,18,22,26, C28,32,42,46,78,80, C82,84-89,92,94,95, C97-99	Chip multilayer capacitor	0.1uF / 10% , 50V	m
C7,8,13,23,34,43, C90,91	Chip multilayer capacitor	10pF-1000pF / 10% , 50V	m
C9,17,27,79	Chip multilayer capacitor	0.01uF / 10% , 50V	m
C11,21,41,71	Chip multilayer capacitor	10uF / 10% , 10V	m
C14,24,51,52,72,77, C83,93,96	Chip multilayer capacitor	1uF / 10% , 25V	m
C15,19,25,29,31,33	Chip multilayer capacitor	2.2uF / 10% , 16V	m
C44	Chip multilayer capacitor	0.47uF / 10% , 25V	m
C45	Chip multilayer capacitor	0.22uF / 10% , 25V	m
C61,76,81	Chip multilayer capacitor	4.7uF / 10% , 16V	m
C62	Chip multilayer capacitor	33000pF / 10% , 50V	m
CA1,2,3	Chip multilayer capacitor array	0.01uF x4 / 20%, 50V	m
NOTE	* marked parts are for safety. m marked parts are mounted or not.		
REV.	1	NAME	PARTS LIST OF MAIN PCB
DATE	2014.11.5	DWG.No.	PLT-6991-5372-80 (3/4)
RIKEN KEIKI CO., LTD.			

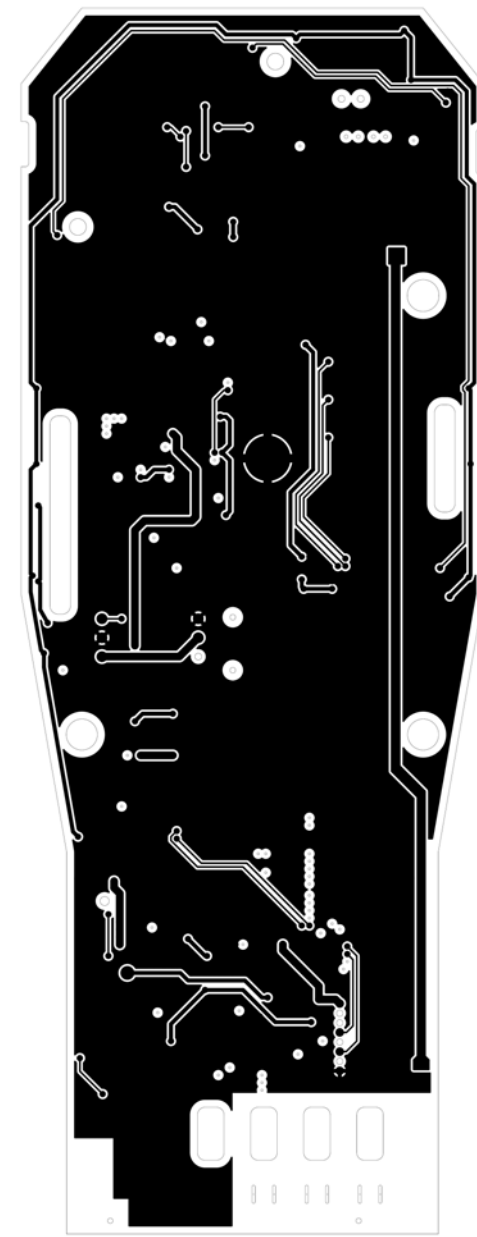
Mark of drawing	Kind of parts	Rating/Model of parts	Remarks
L1,2,4	Chip multilayer inductor	10uH / 30% (2520)	m
L7	Chip multilayer inductor	4.7uH / 30% (2520)	m
PT1	Photo transistor	PS1192HB	m
PS1	Pressure sensor	P-2000-101G	m
X1	Crystal	DSX321, 14.7456MHz	m
NF1,2	Noise filter	BLM18AG151	m
NF3-8	Noise filter	BLM15HD182	m
BAT	Silver oxide battery	SR616SW / Sony Vmax = 1.65V , Vtyp = 1.55V	*
LCD	LCD Module	BTD-128160B-FBWB / YEEBO	D
MOT	Vibration motor	A3BE-MT4 / SICOH	D
NOTE	* marked parts are for safety. m marked parts are mounted or not. D marked parts, refer to datasheet () Parts size code		
REV.	0	NAME	PARTS LIST OF MAIN PCB
DATE	2014.7.14	DWG.No.	PLT-6991-5372-80 (4/4)
RIKEN KEIKI CO., LTD.			



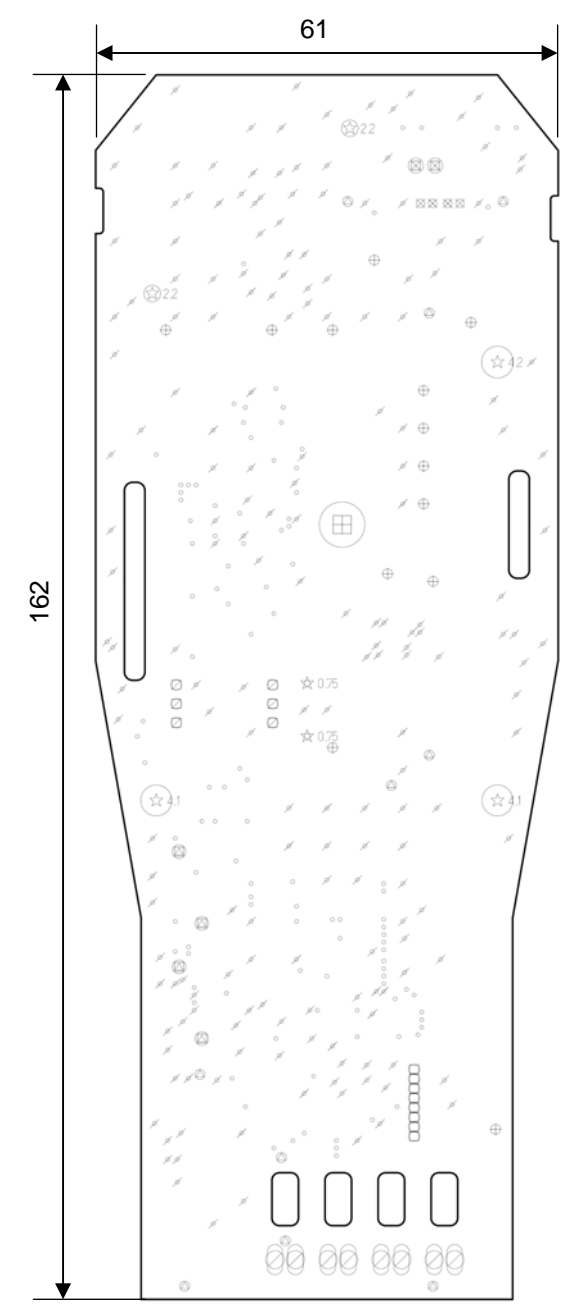
SILK PRINT FOR PARTS SIDE



PARTS SIDE



INNER LAYER(2 LAYER)



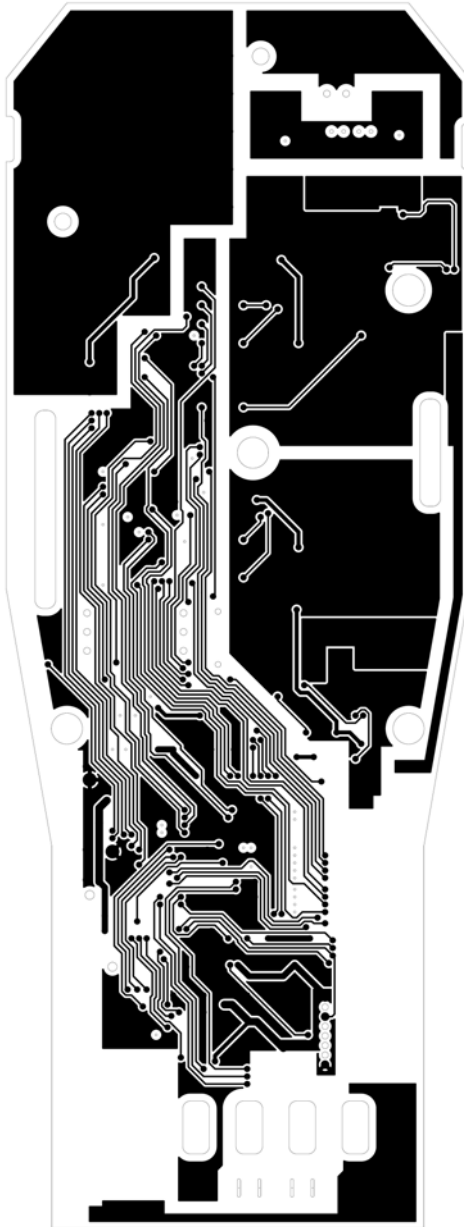
VIA HOLES FOR PARTS SIDE

MARK	DIAGRAM	HOLE
○	φ 0.3	1-4VIA
/	φ 0.3	1-2VIA
×	φ 0.5	1-4VIA
△	φ 0.7	1-4VIA
+	φ 0.7	1-2VIA
□	φ 0.85	1-4VIA
▣	φ 0.9	1-4VIA
▤	φ 0.9	1-4VIA
▥	φ 1.2	1-4VIA
▧	φ 4.1	1-4VIA
⊗	φ 0.4×2.4	1-4VIA
☆0.75	φ 0.75	NTH
☆2.2	φ 2.2	NTH
☆4.1	φ 4.1	NTH
☆4.2	φ 4.2	NTH

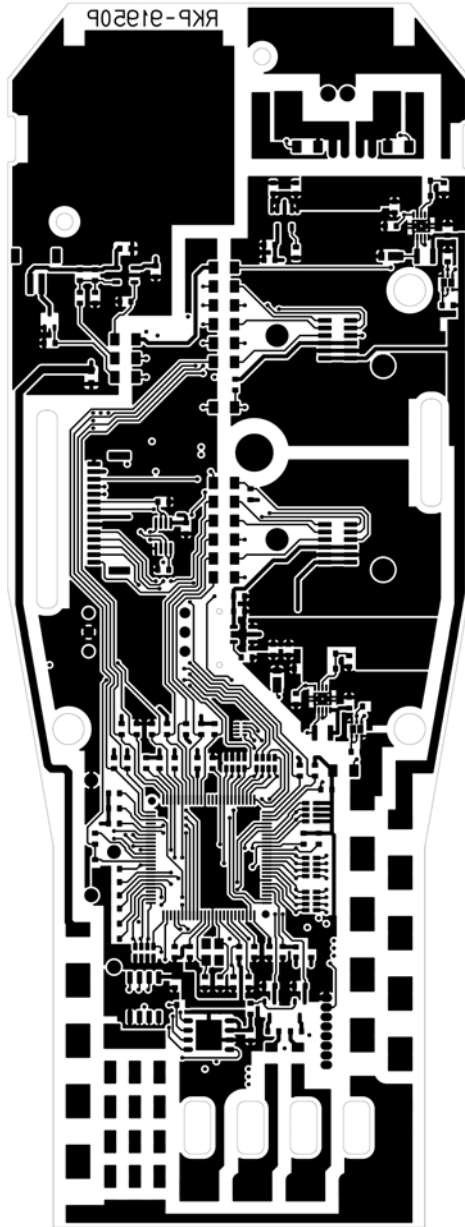
- SPECIFICATION FOR PCB**
- PCB No. : RKP-91950P
 - Material : Glass epoxy
 - Thickness : 1.6mm
 - Layer number : 4
(2+2 BVH , Between layer#2 and #3 is 0.6mm.)
 - Thickness copper film
Surface : 35um , Inner : 35um
 - Copper thickness of the via's : 35um above.
 - Minimum conductor width : 0.2mm
 - CTI : 100 above

All drawings are view of parts side
SCALE 1:1

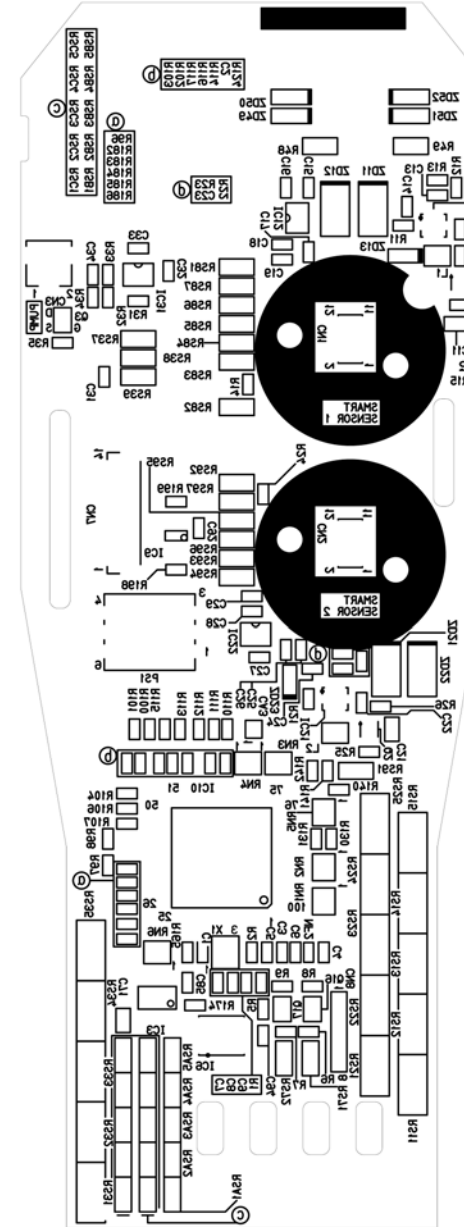
注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME MAIN PCB FOR MODEL GX-6000
改版回数 REV.	0	総頁数 PAGES	2	
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2014.7.14	E 3 - 6 9 9 1 - 5 3 7 2 - 8 0 - 0 1 A
RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL				



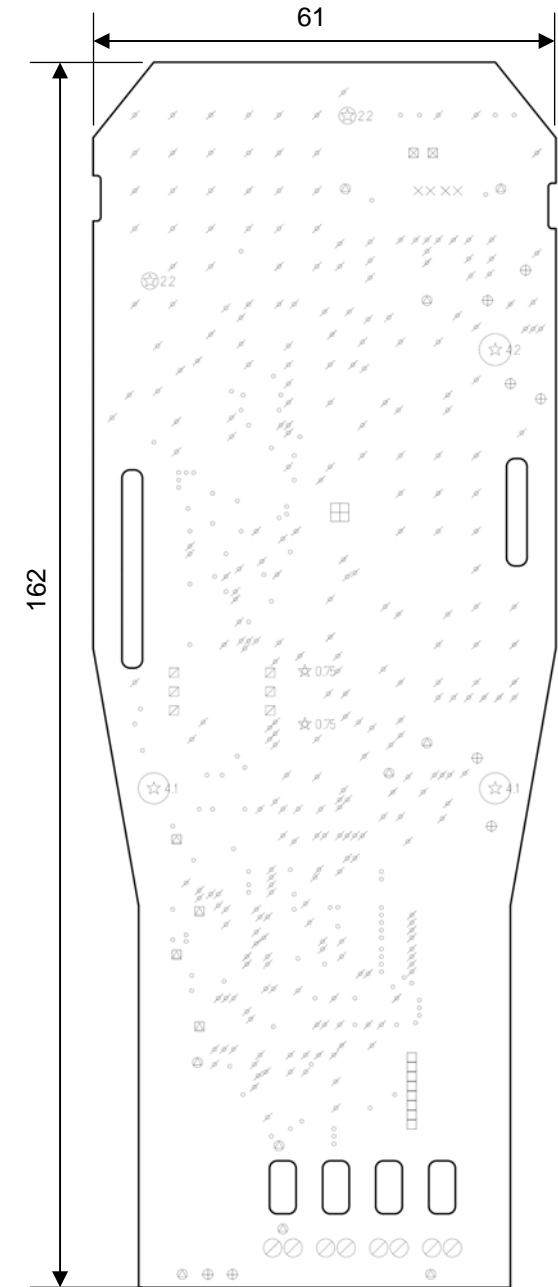
INNER LAYER(3 LAYER)



SOLDERING SIDE



SILK PRINT FOR SOLDERING SIDE



VIA HOLES FOR SOLDERING SIDE

SPECIFICATION FOR PCB

- PCB No. : RKP-91950P
- Material : Glass epoxy
- Thickness : 1.6mm
- Layer number : 4
(2+2 BVH , Between layer#2 and #3 is 0.6mm.)
- Thickness copper film
Surface : 35um , Inner : 35um
- Copper thickness of the via's : 35um above.
- Minimum conductor width : 0.2mm
- CTI : 100 above

All drawings are view of parts side

SCALE 1:1

MARK	DIAGRAM	HOLE
○	φ 0.3	1-4VIA
／	φ 0.3	3-4VIA
×	φ 0.5	1-4VIA
△	φ 0.7	1-4VIA
+	φ 0.7	3-4VIA
□	φ 0.85	1-4VIA
▣	φ 0.9	1-4VIA
⊠	φ 0.9	1-4VIA
⊞	φ 1.2	1-4VIA
⊞	φ 4.1	1-4VIA
⊞	φ 0.4×2.4	1-4VIA
☆0.75	φ 0.75	NTH
☆2.2	φ 2.2	NTH
☆4.1	φ 4.1	NTH
☆4.2	φ 4.2	NTH

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
改版回数 REV.	0	総頁数 PAGES	1	MAIN PCB FOR MODEL GX-6000
承認 APPROVED	石橋勝	検討 CHECKED	北村正英	
製 図 DRAWN	小野圭	作成日 DATE	2014.7.14	図 番 DWG. NO.
E 3 - 6 9 9 1 - 5 3 7 2 - 8 0 - 0 2 A				

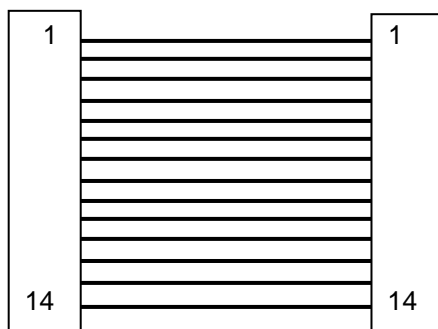
Mark of drawing	Kind of parts	Rating/Model of parts	Remarks
IC1	IC (A/D Converter)	ADS1110A0IDBV	m
IC2	IC (OPAMP)	OPA333AIDBV	m
IC3	IC (OPAMP)	OPA2379AIDCN	m
IC4	IC (OPAMP)	OPA2333AIDR	m
Q1	PNP Transistor	2SB1115	m
Q2	NPN Transistor	2SD2700	m
Q3	N-ch FET	SSM3K123TU	m
Q4,5	N-ch J-FET	2SK209	m
D1,2	Schottky barrier diode	RB160VA-40	m
R1,2,4-12,14,22-30, R32-38,41-47, TH1,2,3,4	Chip fixed resistor or Chip jumper or Chip thermistor	3.3 ohm-10M ohm / 1%, 0.1W or 50m ohm max, 1A or (1608) Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1608)	m
R3	Chip fixed resistor	1 ohm - 100 ohm / 1%, 0.25W (3216)	m
NF3,R21,R31	Noise filter	BLM18AG151	m
C1,2,3	Chip multilayer capacitor	1uF / 10%, 10V	m
C4-8,14-16,19	Chip multilayer capacitor	0.1uF / 10%, 25V	m
C9,11,12,17,18,21,22 C24,25,26,34,35,36	Chip multilayer capacitor	10pF-1000pF / 10%, 50V	m
C13,23	Chip multilayer capacitor	4.7uF / 10%, 10V	m
C30	Chip multilayer capacitor	0.01uF / 10%, 25V	m
NOTE	* marked parts are for safety. m marked parts are mounted or not. () Parts size code		
REV.	2	NAME	PARTS LIST OF SENSOR PCB
DATE	2014.12.16	DWG.No.	PLT-6991-5373-50 (1/1)
RIKEN KEIKI CO., LTD.			

1 2 3 4 5 6 7

A
B
C
D
E
F
G
H
I

CN1
CONNECTOR
Model : NSHR-14V-S
Manufacturer : JST

CN2
CONNECTOR
Model : NSHR-14V-S
Manufacturer : JST

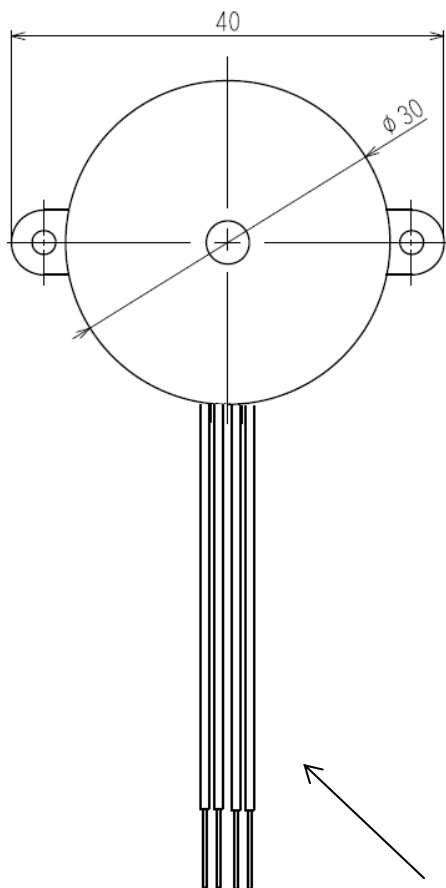


Wire : UL1571 AWG30
Maximum wire length : 40mm

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
改版回数 REV.	0			SENSOR to MAIN WIRE FOR MODEL GX-6000
総頁数 PAGES	1	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
承認 APPROVED	検 討 CHECKED			E 4 - 6 9 9 1 - 5 3 8 2 - 7 0 - 0 1 K
石橋勝	北村正英	小野圭	2014.7.14	

1 2 3 4 5 6 7

A
B
C
D
E
F
G
H
I



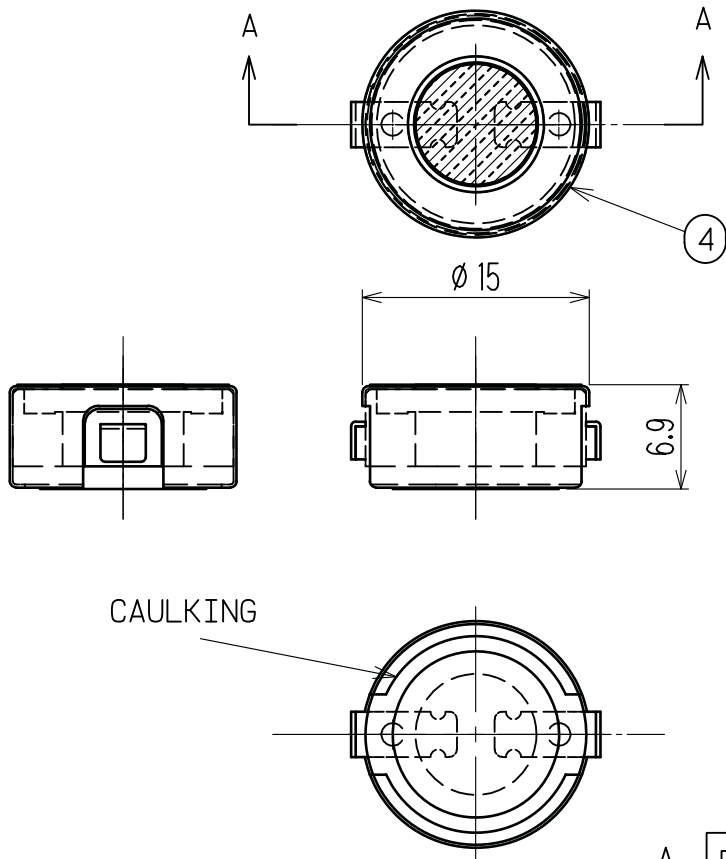
Cable: UL1571 , AWG32
Maximum length : 45mm

Piezo elements : M274C4
Manufacturer : NIHON CERATEC
Capacitance : 22 nF / 30%

SCALE $\sqrt{2}$:1

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
改版回数 REV.	0			総頁数 PAGES
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小暮晋祐	2011.02.28	E 4 - 6 9 9 1 - 5 0 0 8 - 7 0 - 0 1 K

寸法	公差			
	精級	中級	粗級	粗級
1000以上	0.7	1.2	2.5	
500以上1000未満	0.5	1.0	2.0	
260以上500未満	0.4	0.8	1.6	
120以上260未満	0.3	0.6	1.2	
50以上120未満	0.2	0.4	0.8	
18以上50未満	0.15	0.3	0.6	
1未満	0.1	0.2	0.4	
寸法	精級	中級	粗級	粗級



CAULKING

INSIDE SPACE
CAPACITY 0.1CC

A-A SECTION

B-B SECTION

3^{+0.4}₀
※ EPOXY RESIN POTTED

④ CAP
MATERIAL: STAINLESS STEEL (SUS304) t0.2
CHEMICAL COMPOSITIONS:

	UNIT %
C	0.08 or less
Si	1.00 or less
Mn	2.00 or less
P	0.045 or less
S	0.030 or less
Ni	8.00~10.50
Cr	18.00~20.00

② BOTTOM CAP

MATERIAL: ALUMINIUM ALLOY (A5056)
CHEMICAL COMPOSITIONS:

	UNIT %
Si	0.30 or less
Fe	0.40 or less
Cu	0.10 or less
Mn	0.05~0.20
Mg	4.5~5.6
Cr	0.05~0.20
Zn	0.10 or less
OTHER COMPONENTS	INDIVIDUAL 0.05 or less TOTAL 0.15 or less
Al	rem

③ ELEMENT HOLDER
HOLDER

MATERIAL: PHENOLIC RESIN
MANUFACTURE: HITACHI CHEMICAL
CP-J-1900

TERMINAL
MATERIAL: PHOSPHOR BRONZE (C5191)
CHEMICAL COMPOSITIONS:

	UNIT %
Pb	0.05 or less
Fe	0.10 or less
Sn	5.5~7.0
Zn	0.20 or less
P	0.03~0.35
Cu+Sn+P	99.5 or more

TERMINAL

HOLDER

DETAIL DRAWING

B-B SECTION

COIL

8 of active coils

MATERIAL Pt

COIL DETAIL DRAWING

(Remarks)
Binder in section 1.2.6 of
the type approval
guide: Uses epoxy resin
which has enough thermal
stability at min. 120°C

△	Correction	2012.4.17	島田聡
△	UP DATE	2007.8.30	武井康典
△	UP DATE	2007.5.21	中村幸男
△	記事	年月日	訂正者

表面处理 TREAT.	許容差 TOL.	尺度 SCALE	投影法 PROJECTION	名称 NAME
材質 MAT.		2 : 1		COMBUSTIBLE GAS SENSOR △ NC SENSOR
承認 APPROVED	検討 CHECKED	製図 DRAWN	作成日 DATE	図番 DWG. NO.
田島秀二	青良治	中村幸男	2007. 3. 16	M3-4462-64-05K
理研計器株式会社 RIKEN KEIKI CO., LTD.				

寸法	精細 0.1	中級 0.2	粗級 0.4	18以上50未満 0.15 0.3 0.6	50以上120未満 0.2 0.4 0.8	120以上260未満 0.3 0.6 1.2	260以上500未満 0.4 0.8 1.6	500以上1000未満 0.5 1.0 2.0	1000以上 0.7 1.2 2.5
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CAP(-)
MATERIAL: STAINLESS STEEL

Ø 15

6.8

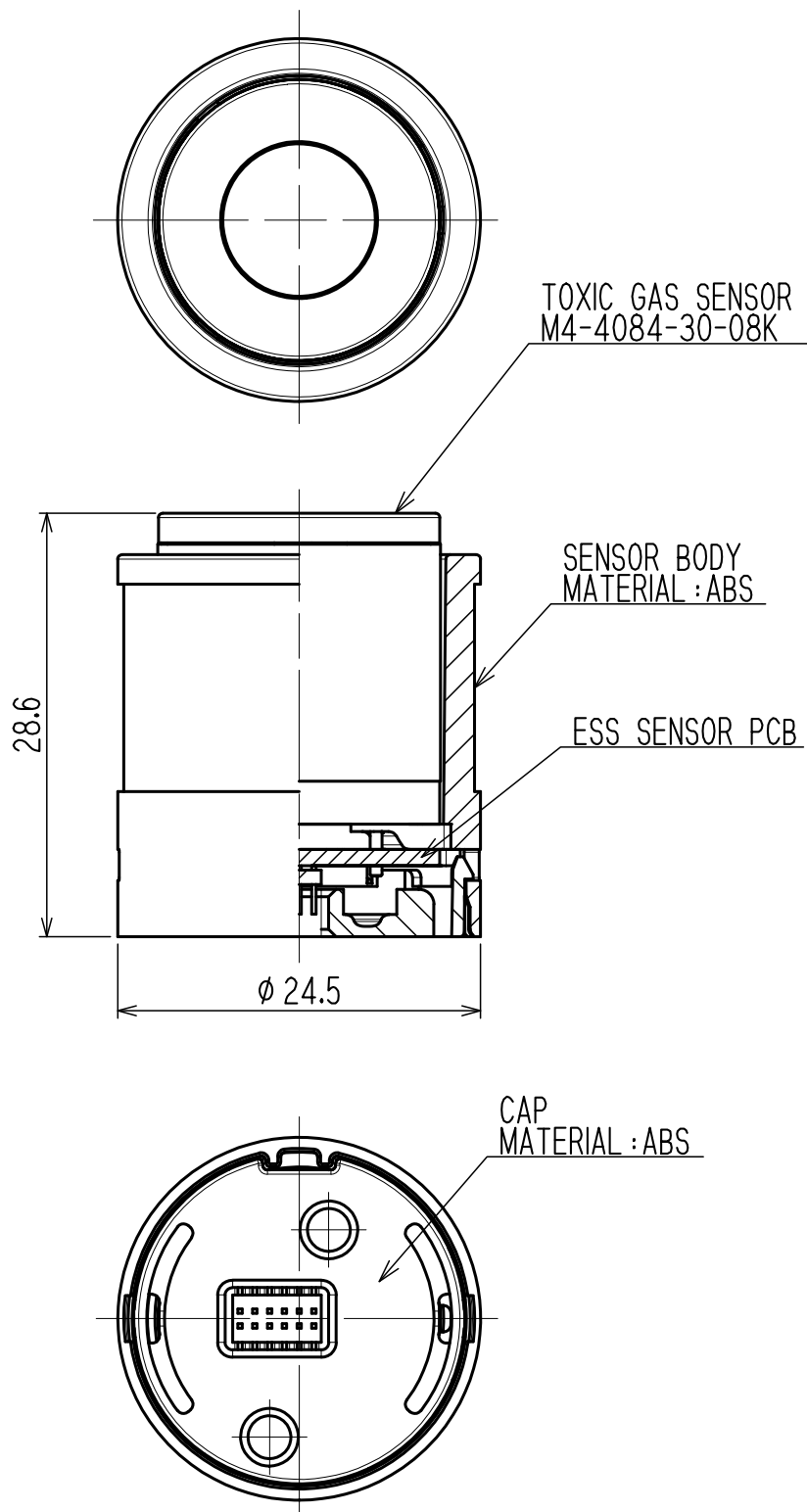
BOTTOM CAP(+)
MATERIAL: COPPER ALLOY



Output specification
 ・Open circuit voltage : 0.5V(max)
 ・Short circuit current : 0.1mA(max)

CAPACITANCE ≒ 0

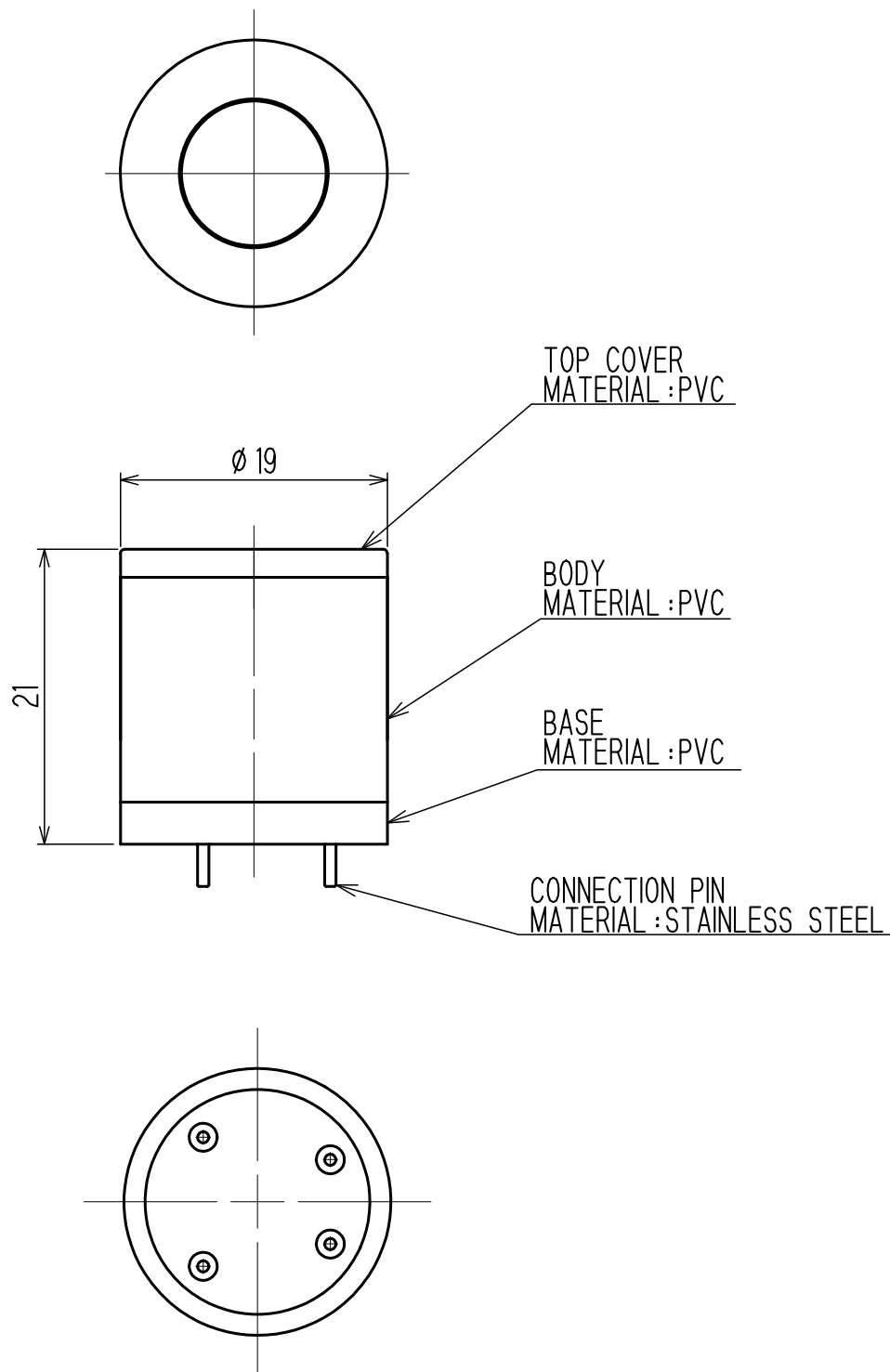
△		記 事		年 月 日	訂 正 者
表面処理 TREAT.		許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME
材 質 MAT.		2 : 1	2 : 1		OXYGEN SENSOR
承認 APPROVED	検 討 CHECKED				製 図 DRAWN
青良治	近藤晴彦	海野裕作	2014. 7. 30	M4-4080-82-07K	
RIKEN KEIKI			理研計測株式会社		機密情報 / CONFIDENTIAL

		18 未 満		18以上50未満		50以上120未満		120以上260未満		260以上500未満		500以上1000未満		1000以上							
寸 法																					
精容差	精級 0.1	中級 0.2	粗級 0.4	0.15	0.3	0.6	0.2	0.4	0.8	0.3	0.5	1.2	0.4	0.8	1.6	0.5	1.0	2.0	0.7	1.2	2.5




				△	記 事	年 月 日	訂 正 者
表面処理 TREAT.		許公差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME SMART SENSOR Type-ESS		
材 質 MAT.							
承認 APPROVED		検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.		
青良治		近藤晴彦	武井康典	2014. 7. 30	M4-4486-01-01K		
							
機密情報 / CONFIDENTIAL							

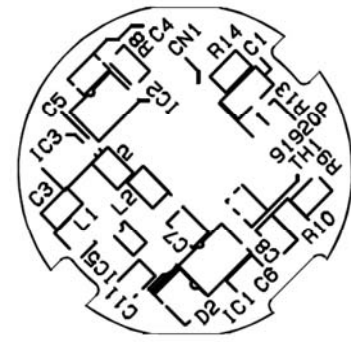
寸法		18 未満		18以上50未満		50以上120未満		120以上260未満		260以上500未満		500以上1000未満		1000以上									
		精細	0.1	中細	0.2	粗細	0.4	0.15	0.3	0.6	0.2	0.4	0.8	0.3	0.5	1.2	0.4	0.8	1.6	0.5	1.0	2.0	0.7



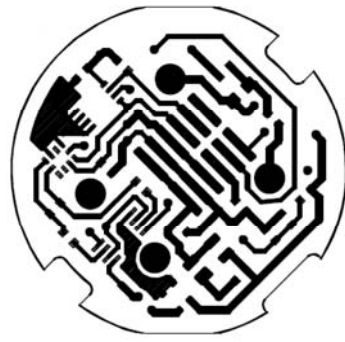
Output specification

- Open circuit voltage : 0.4V(max)
- Short circuit current : 0.1mA(max)

				△	記 事	年 月 日	訂 正 者
表面処理 TREAT.		許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME TOXIC GAS SENSOR		
材 質 MAT.							
承 認 APPROVED		検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.		
青良治		近藤晴彦	武井康典	2014. 7. 30	M4-4084-30-08K		
 RIKEN KEIKI				理研計測株式会社			
機密情報 / CONFIDENTIAL							



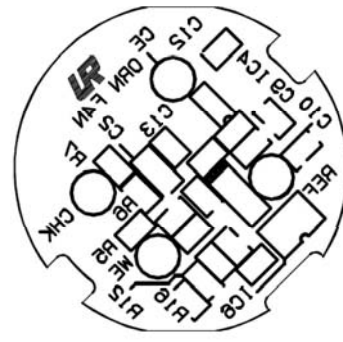
SILK PRINT FOR PARTS SIDE



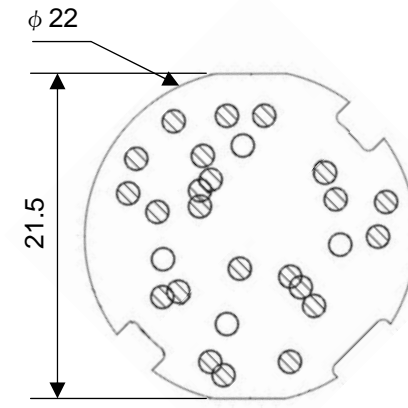
PARTS SIDE



SOLDERING SIDE



SILK PRINT FOR SOLDERING SIDE



THROUGH HOLE DATA

MARK	DIAGRAM	HOLE
①	φ 0.3	TH
○	φ 1.0	TH

SPECIFICATION FOR PCB

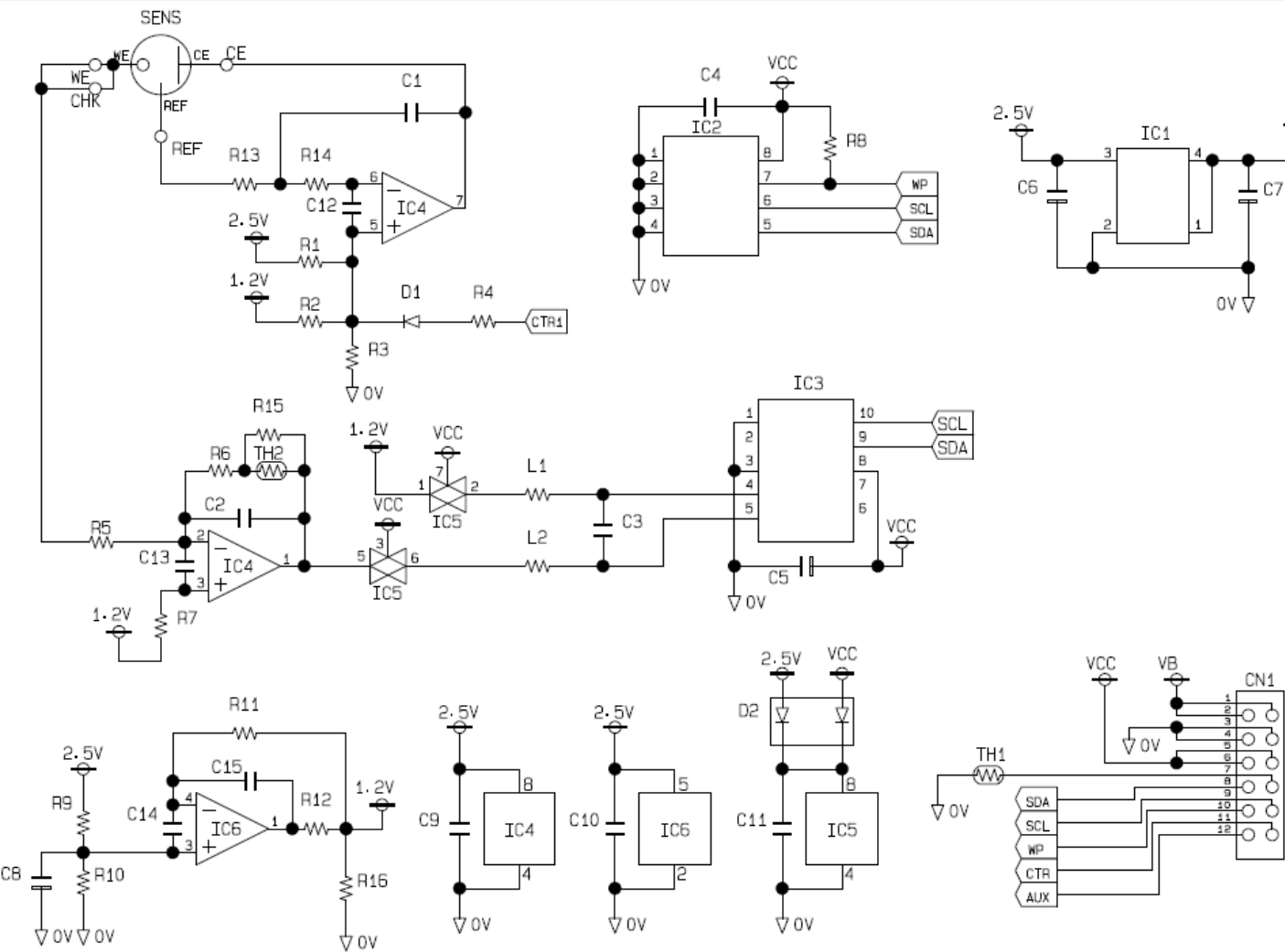
- PCB No. : RKP-91920P
- Material : Glass epoxy
- Thickness : 1.2mm
- Layer number : 2
- Thickness copper film : 18um
- Minimum conductor width : 0.2mm
- CTI : 100 above

All drawings are view of parts side
SCALE 2:1

PARTS LIST

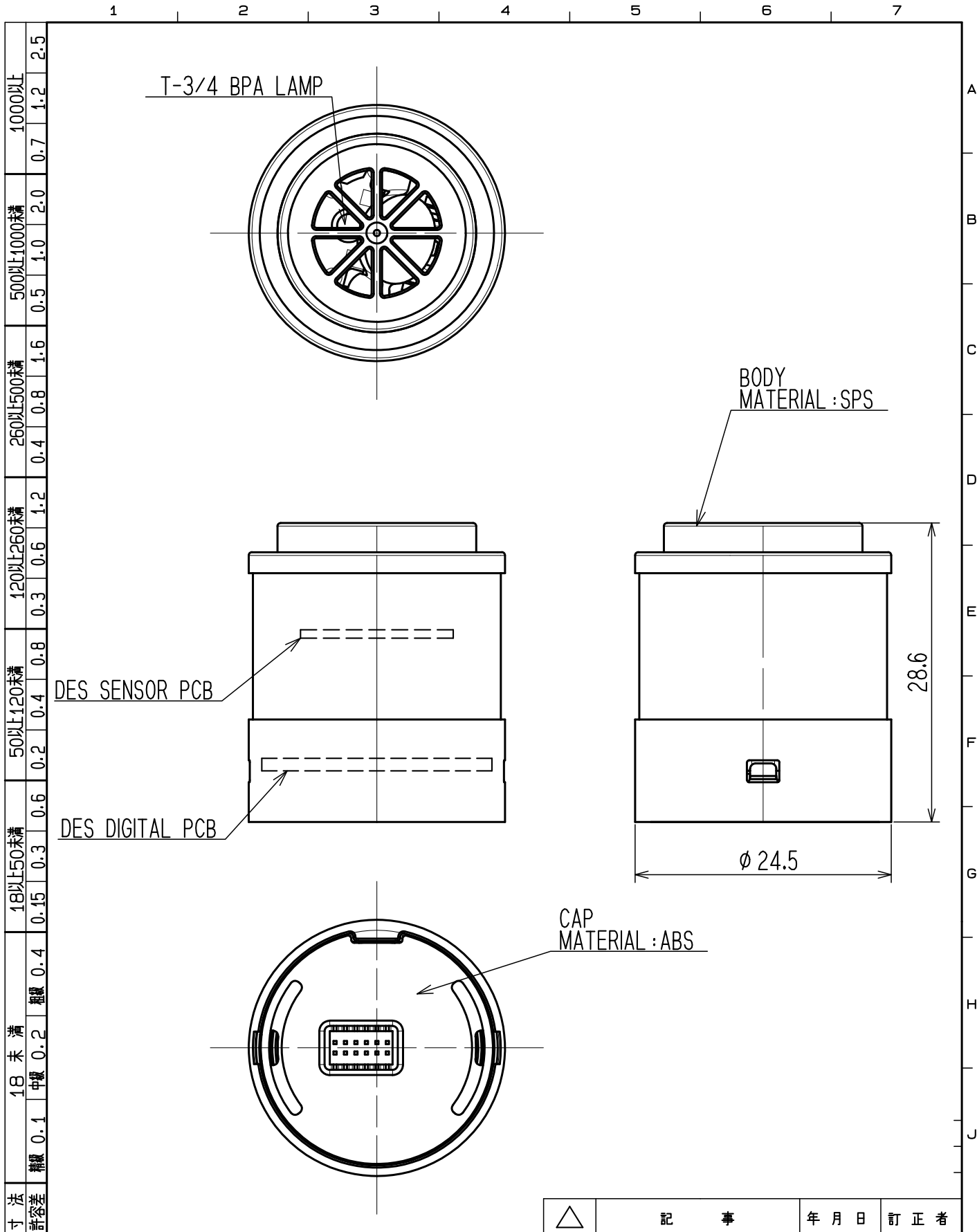
Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Voltage regulator)	S-1313D25-N4T1	m
IC2	IC (EEPROM)	S-24C16CI-I8T1	m
IC3	IC (A/D Converter)	ADS1114IRU	m
IC4	IC (OPAMP)	LT6004CMS8	m
IC5	IC (Logic)	HD74ALVC2G66	m
IC6	IC (OPAMP)	AD8500AKS	m
D1	Diode	1SS355	m
D2	Diode array	RB480Y (2elements)	m
TH1	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1005)	m
R1-16	Chip fixed resistor or Chip jumper	10 ohm - 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005)	m
C1,2	Chip multilayer capacitor	10uF / 10%, 6.3V	m
C4,5,6,7,9,10,11	Chip multilayer capacitor	0.1uF / 10%, 16V	m
C3,8,12,13,14	Chip multilayer capacitor	10pF-1000pF / 10%, 50V	m
C15	Chip multilayer capacitor	1uF / 10%, 10V	m
L1,2	Chip fixed resistor or Chip jumper or Noise filter	10 ohm - 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005) or BLM15HD182	m


m marked parts are mounted or not

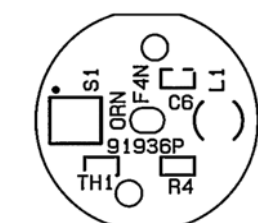


SCHEMATIC

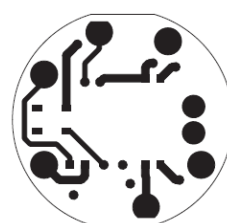
注 記 NOTES	改版担当者 REV. BY	改版日 REVISED	名称 NAME ESS SENSOR PCB
改版回数 REV. 0	総頁数 PAGES 1		
承認 APPROVED 石橋勝	検討 CHECKED 北村正英	製図 DRAWN 小野圭	作成日 DATE 2014.7.14
			図番 DWG. NO. E3-6991-5384-10-01K



表面処理 TREAT.		許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME
材 質 MAT.					
			2 : 1		SMART SENSOR Type-DES
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.	
青良治	武井康典	近藤晴彦	2014. 7. 24	M4-4630-20-01K	
RIKEN KEIKI		理研計測株式会社		機密情報 / CONFIDENTIAL	



SILK PRINT
FOR PARTS SIDE



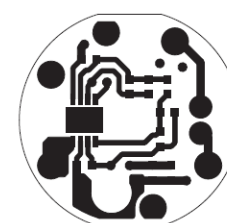
PARTS SIDE



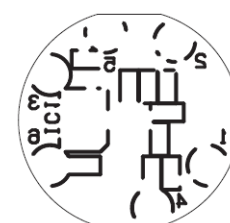
Lay.2



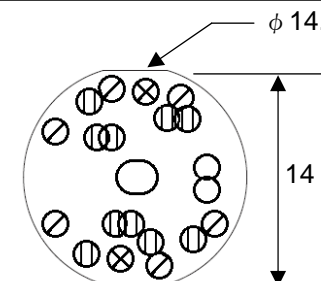
Lay.3



SOLDERING SIDE



SILK PRINT FOR
SOLDERING SIDE

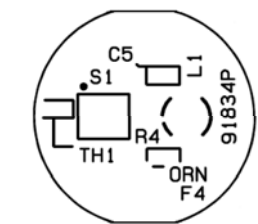


THROUGH HOLE
DATA

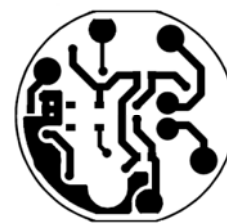
MARK	DIAGRAM	HOLE
⊙	φ 0.3	TH
○	φ 0.5	TH
⊗	φ 0.8	TH
⊗	φ 1.7	NTH

SPECIFICATION FOR PCB

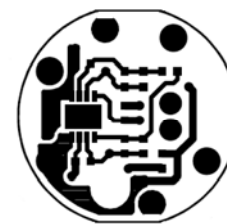
- PCB No. : RKP-91936P
- Material : Glass epoxy
- Thickness : 0.8mm
- Layer number : 4
- Thickness copper film : 18um
- Minimum conductor width : 0.2mm
- CTI : 100 above



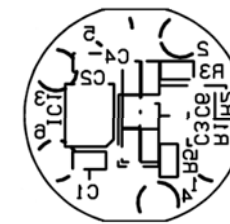
SILK PRINT
FOR PARTS SIDE



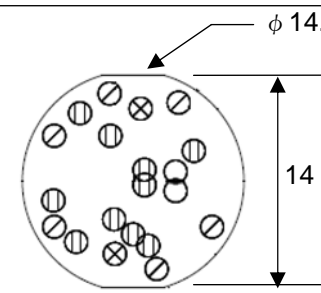
PARTS SIDE



SOLDERING SIDE



SILK PRINT FOR
SOLDERING SIDE



THROUGH HOLE
DATA

MARK	DIAGRAM	HOLE
⊙	φ 0.3	TH
○	φ 0.5	TH
⊗	φ 0.8	TH
⊗	φ 1.7	NTH

SPECIFICATION FOR PCB

- PCB No. : RKP-91834P
- Material : Glass epoxy
- Thickness : 0.8mm
- Layer number : 2
- Thickness copper film : 18um
- Minimum conductor width : 0.2mm
- CTI : 100 above

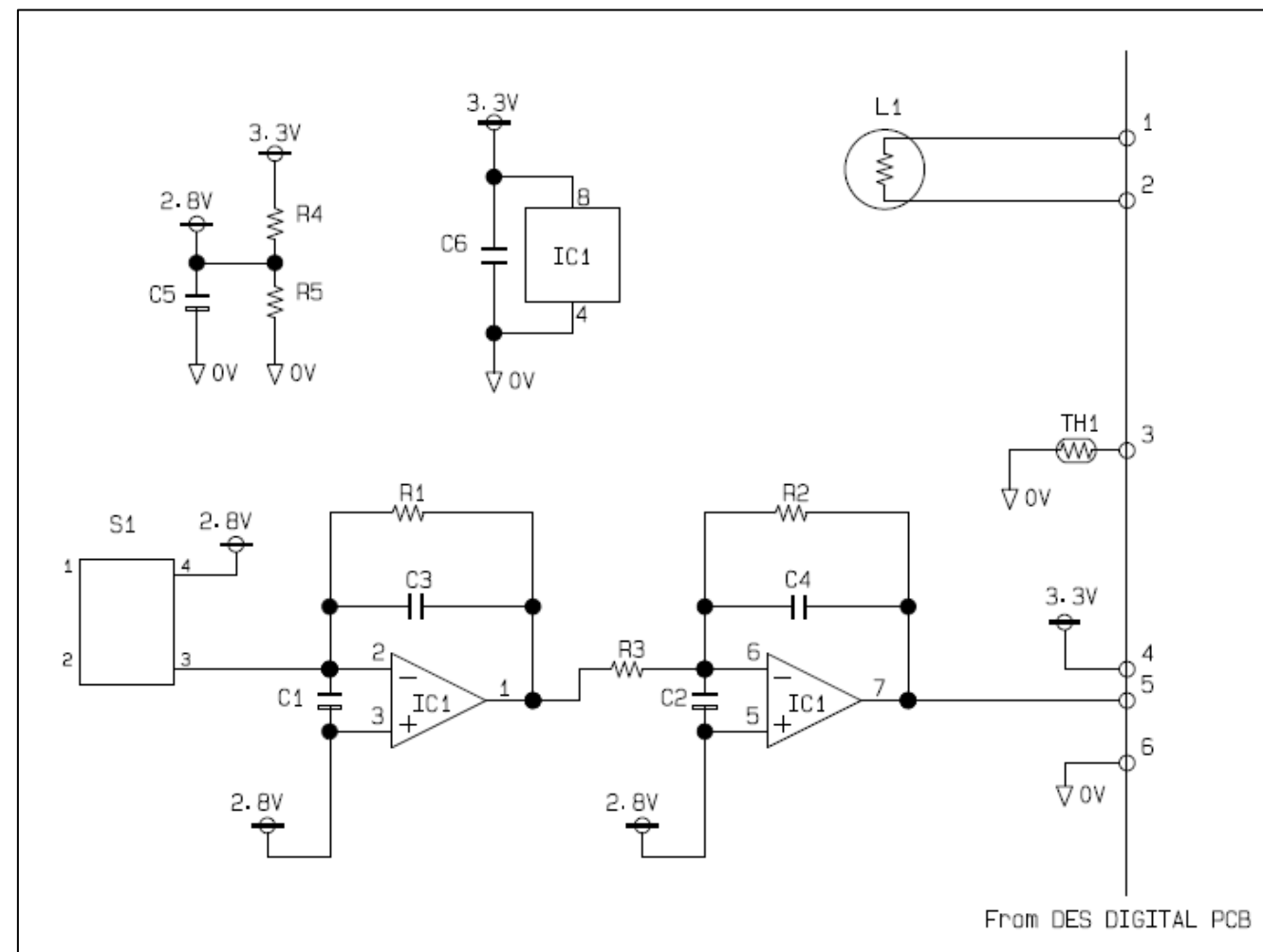
All drawings are view of parts side

SCALE 2:1

PARTS LIST

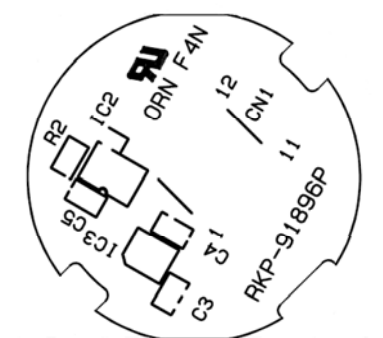
Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
S1	IR Sensor	IR1011	
IC1	IC (OPAMP)	LTC2055HDD	m
TH1	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1005)	m
R1,2,3,4,5	Chip fixed resistor or Chip jumper	10 ohm - 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005)	m
C1,2	Chip multilayer capacitor	10pF-1000pF / 10%, 50V	m
C3	Chip multilayer capacitor	0.01uF / 10%, 25V	m
C4,5,6	Chip multilayer capacitor	0.1uF / 10%, 25V	m
L1	T-3/4 BPA LAMP	OL-8270BPA refer to E4-6991-5129-60-01K	

m marked parts are mounted or not



SCHEMATIC

注 記 NOTES		改版担当 小野圭		改版日 2015.5.25	
Add RKP-91936P		REV. BY		REV. NO.	
改版回数 REV.	1	総頁数 PAGES	1	DES SENSOR PCB	
承認 APPROVED	石橋勝	検討 CHECKED	北村正英	製図 DRAWN	小野圭
		作成日 DATE		図番 DWG. NO.	
		2014.7.14		E3-6991-5385-90-01K	



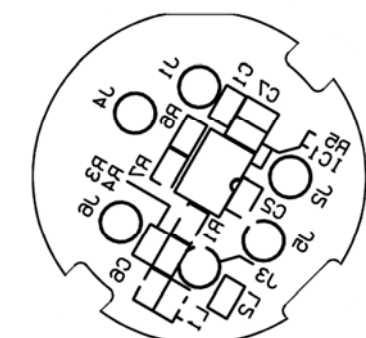
SILK PRINT FOR PARTS SIDE



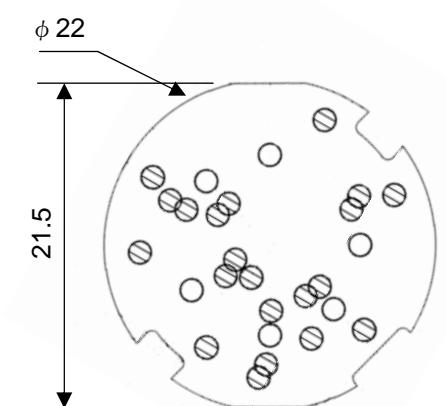
PARTS SIDE



SOLDERING SIDE



SILK PRINT FOR SOLDERING SIDE



THROUGH HOLE DATA

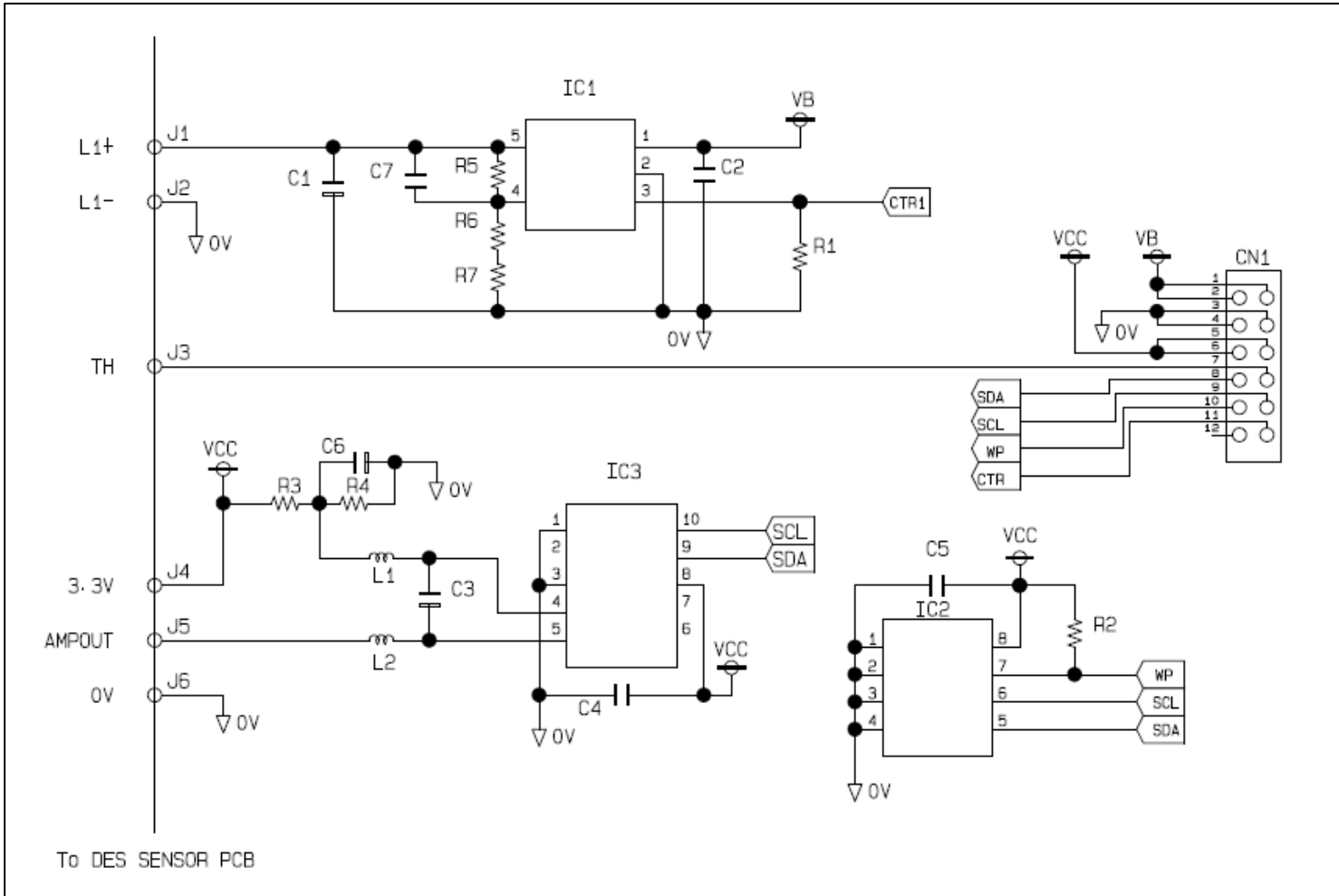
MARK	DIAGRAM	HOLE
⊙	φ 0.3	TH
○	φ 0.9	TH

SPECIFICATION FOR PCB

- ・PCB No. : RKP-91896P
- ・Material : Glass epoxy
- ・Thickness : 1.2mm
- ・Layer number : 2
- ・Thickness copper film : 35um
- ・Minimum conductor width : 0.3mm
- ・CTI : 100 above

All drawings are view of parts side

SCALE 2:1



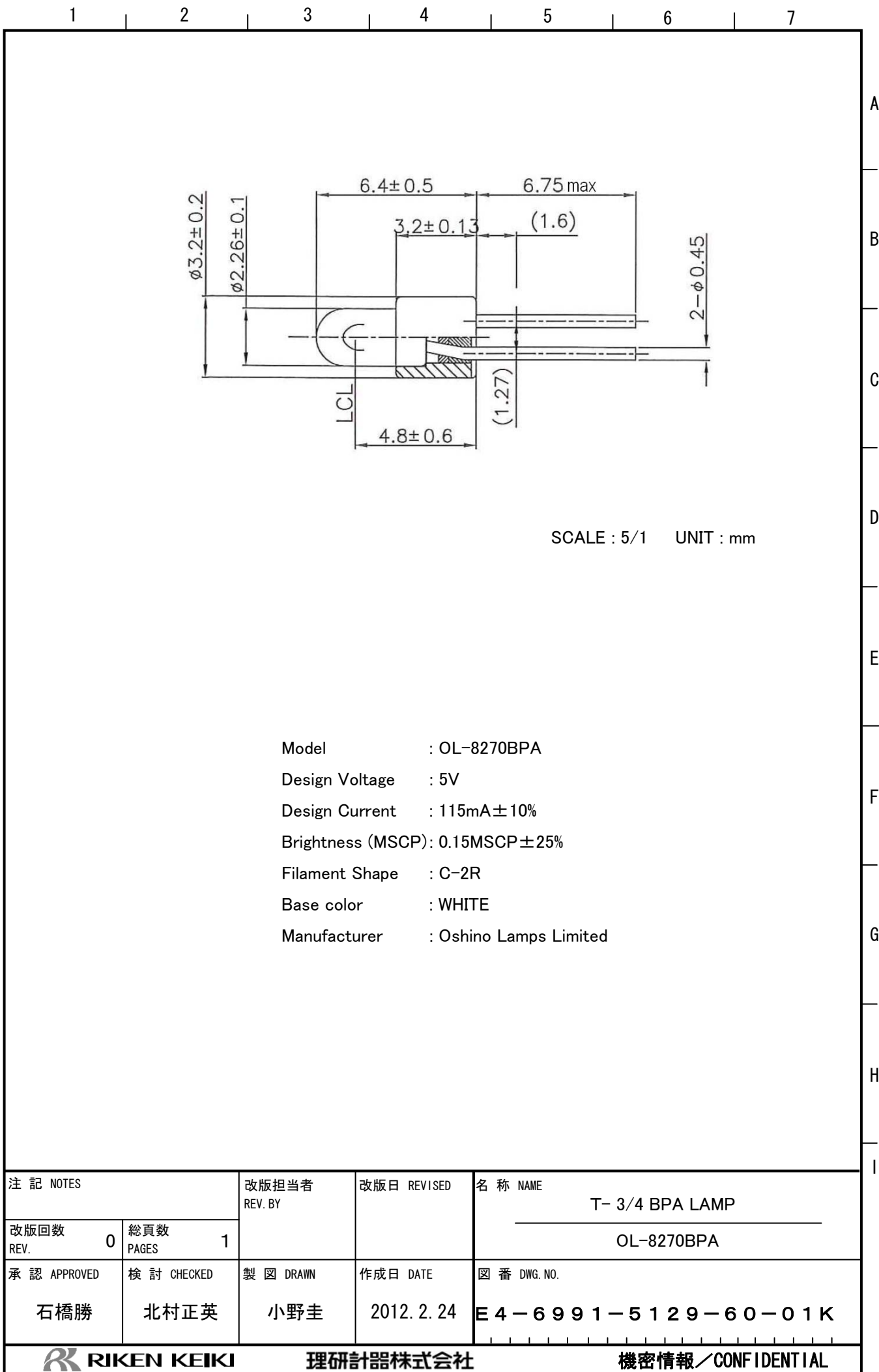
SCHEMATIC

PARTS LIST

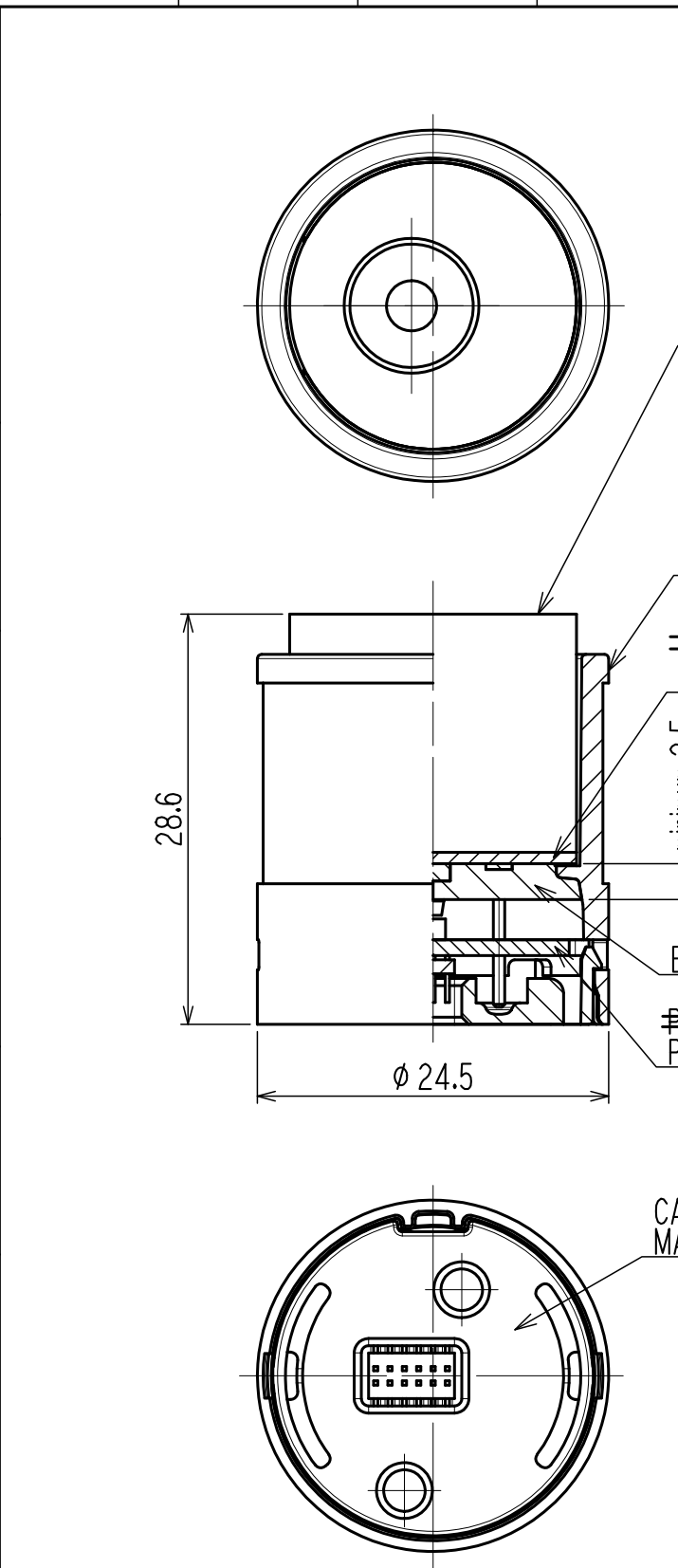
Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Voltage regulator)	TPS73201DBV	m
IC2	IC (EEPROM)	S-24C16CI-I8T1	m
IC3	IC (A/D Converter)	ADS1114IRU	m
R1,2,3,4,5,6,7	Chip fixed resistor or Chip jumper	10 ohm – 1M ohm / 1%, 0.063W or 50m ohm max, 1A (1005)	m
C1,2	Chip multilayer capacitor	4.7uF / 20%, 6.3V	m
C3,4,5,6	Chip multilayer capacitor	0.1uF / 10%, 25V	m
C7	Chip multilayer capacitor	1uF / 10%, 10V	m
L1,2	Chip fixed resistor or Chip jumper or Noise filter	10 ohm – 1M ohm / 1%, 0.063W or 50m ohm max, 1A (1005) or BLM15HD182	m

m marked parts are mounted or not

注 記 NOTES		改版担当 REV. BY	改版日 REVISED	名称 NAME
C1、C2 change		小野圭	2015.2.24	DES DIGITAL PCB
改版回数 REV.	1	総頁数 PAGES	1	
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2014.7.14	E 3 - 6 9 9 1 - 5 3 8 6 - 6 0 - 0 1 K
RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL				



寸法	18未満	18以上50未満	50以上120未満	120以上260未満	260以上500未満	500以上1000未満	1000以上
許容差	精細 0.1 中級 0.2 粗級 0.4	精細 0.15 中級 0.3 粗級 0.6	精細 0.2 中級 0.4 粗級 0.8	精細 0.3 中級 0.6 粗級 1.2	精細 0.4 中級 0.8 粗級 1.6	精細 0.5 中級 1.0 粗級 2.0	精細 0.7 中級 1.2 粗級 2.5



VOC GAS SENSOR
MINI PID 3PIN
Ion Science Ltd.
IDENTIFICATION
II 1G Ex ia IIC T4 (-40℃≤Ta≤+55℃)
0.1W limitation
CERTIFICATE
Baseefa 07ATEX0060U
IECEx BAS 07.0030U

SENSOR BODY
MATERIAL: ABS

PIS SENSOR PCB

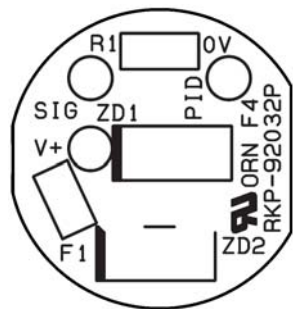
EPOXY RESIN

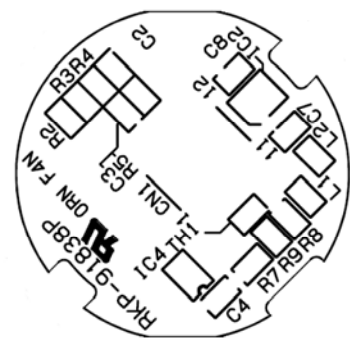
PIS DIGITAL PCB

CAP
MATERIAL: ABS

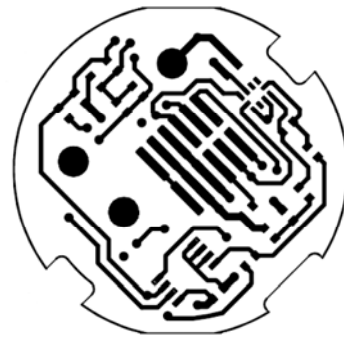
表面処理 TREAT.	許容差 TOL.	尺度 SCALE	投影法 PROJECTION
材質 MAT.		2 : 1	
承認 APPROVED	検討 CHECKED	製図 DRAWN	作成日 DATE
青良治	近藤晴彦	武井康典	2014. 7. 30

△	REVISION	2015.3.25	武井康典
△	記 事	年 月 日	訂 正 者
名 称 NAME	SMART SENSOR △ Type-PIS Type=PID		
図 番 DWG. NO.	M4-4830-01-01K		





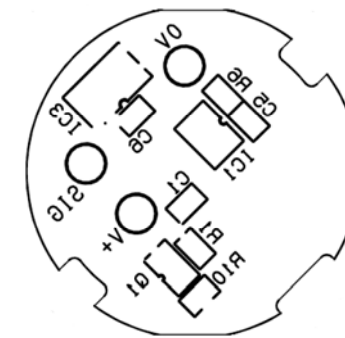
SILK PRINT FOR PARTS SIDE



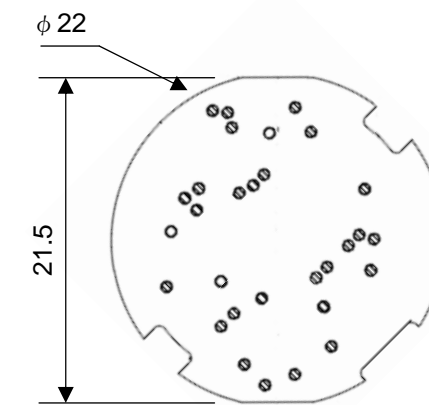
PARTS SIDE





SOLDERING SIDE



SILK PRINT FOR SOLDERING SIDE



THROUGH HOLE DATA

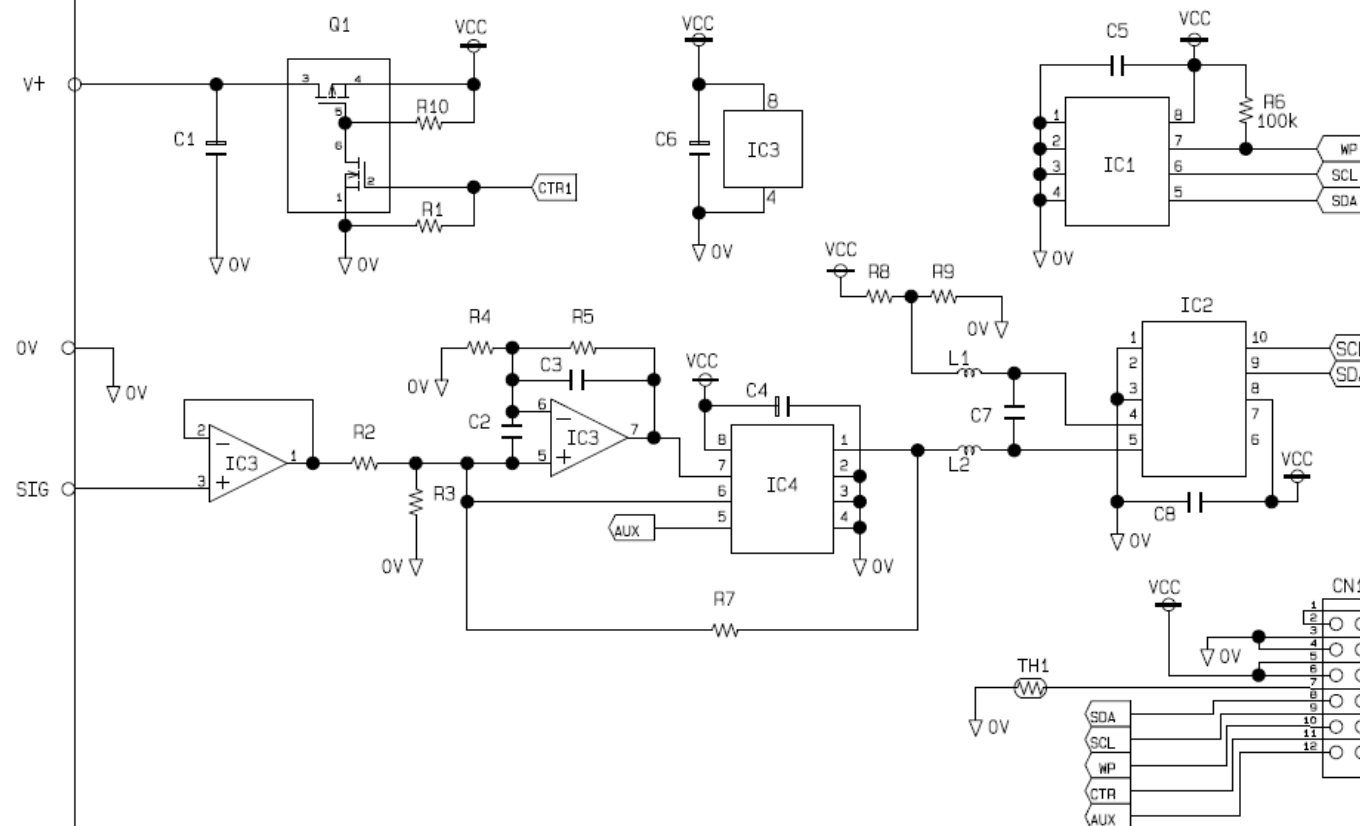
MARK	DIAGRAM	HOLE
	ϕ 0.3	TH
	ϕ 1.0	TH

SPECIFICATION FOR PCB

- PCB No. : RKP-91838P
- Material : Glass epoxy
- Thickness : 1.2mm
- Layer number : 2
- Thickness copper film : 18um
- Minimum conductor width : 0.3mm
- CTI : 100 above

All drawings are view of parts side

SCALE 2:1




SCHEMATIC

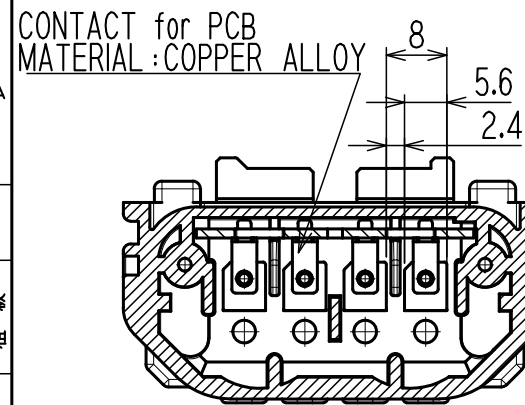
PARTS LIST

Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (EEPROM)	S-24C16CI-I8T1	m
IC2	IC (A/D Converter)	ADS1114IRU	m
IC3	IC(OPAMP)	OPA2378AIDCN	m
Q1	N+P-ch FET	EM6M2	m
TH1	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1005)	m
R1-10	Chip fixed resistor or Chip jumper	10 ohm – 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005)	m
C1,2,4,5,6,7,8	Chip multilayer capacitor	0.1uF / 10%, 16V	m
C3	Chip multilayer capacitor	10pF-1000pF / 10%, 50V	m
L1,2	Chip fixed resistor or Chip jumper or Noise filter	10 ohm – 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005) or BLM15HD182	m

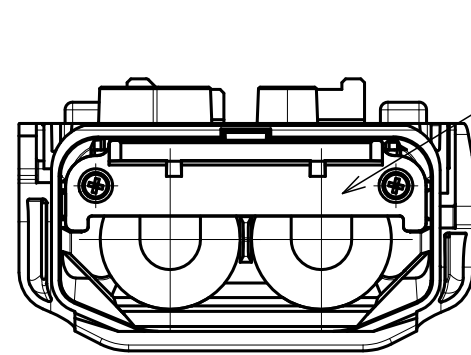
m marked parts are mounted or not

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
PID=>PIS		小野圭	2015.3.25	PIS DIGITAL PCB
改版回数 REV.	総頁数 PAGES			
0	1			
承認 APPROVED	検討 CHECKED	製図 DRAWN	作成日 DATE	図番 DWG. NO.
石橋勝	北村正英	小野圭	2014.7.14	E 3 - 6 9 9 1 - 5 3 8 8 - 1 0 - 0 1 K
 理研計器株式会社 機密情報 / CONFIDENTIAL				

寸法	精度	中級	粗級
1000以上	0.7	1.2	2.5
500以上1000未満	0.5	1.0	2.0
260以上500未満	0.4	0.8	1.6
120以上260未満	0.3	0.6	1.2
50以上120未満	0.2	0.4	0.8
18以上50未満	0.15	0.3	0.6
1日未満	0.1	0.2	0.4



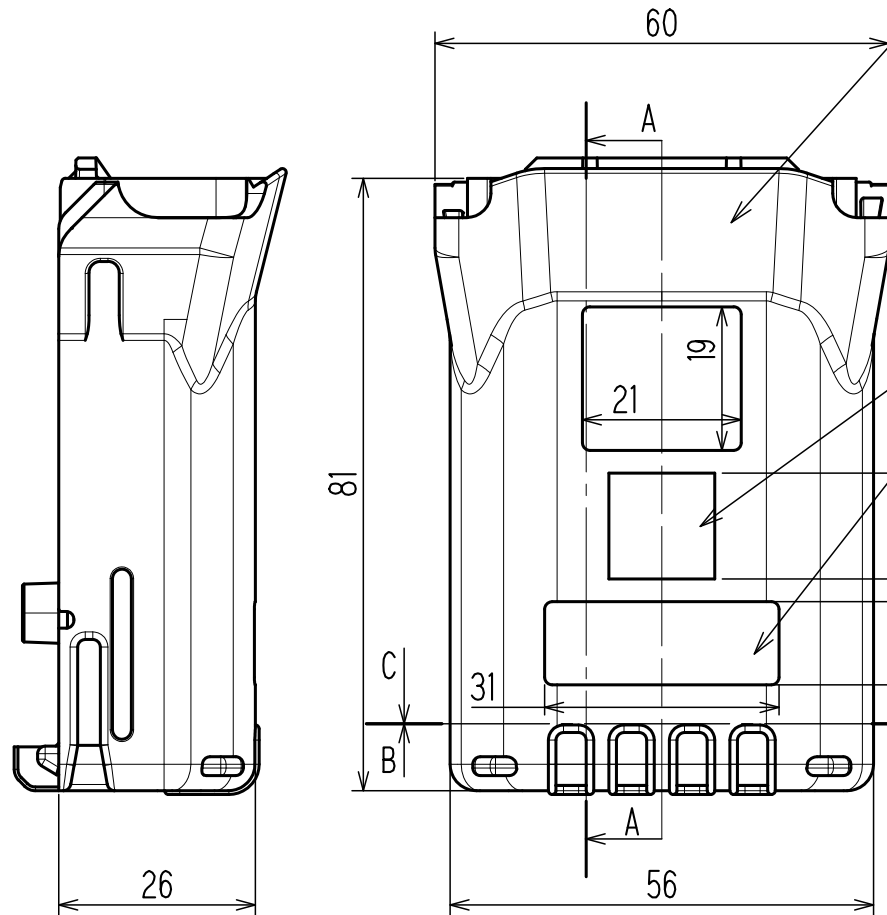
Section C-C



LID
MATERIAL: PC

CASE
ABS/PC ESC9448N
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP

BATTERY
・INR18650PB1 MAXELL
or
・INR18650-15M SDI
or
・US18650VT3 SONY



1.5 : MIN

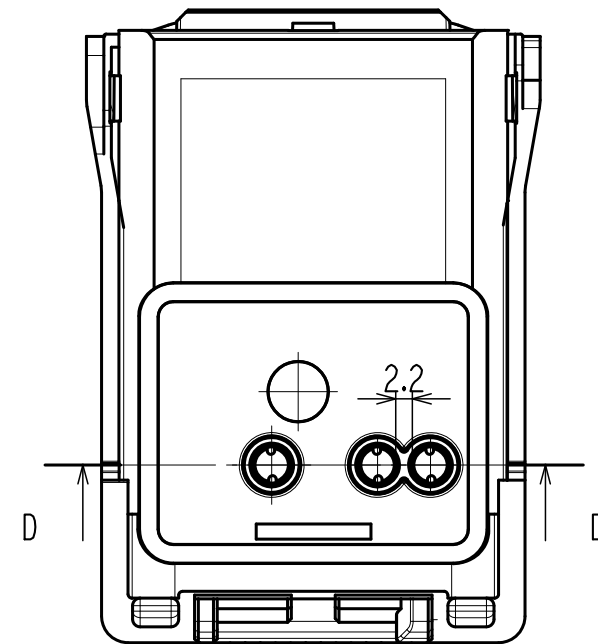
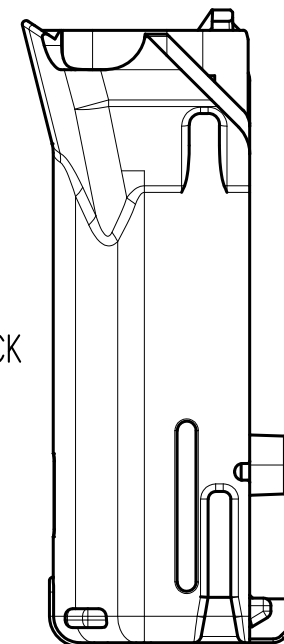
LABEL D

LABEL B

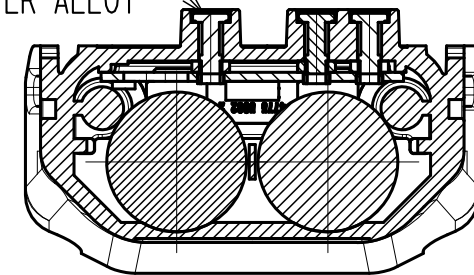
FILLING OF
EPOXY RESIN
DP-270 BLACK
3M

Section A-A

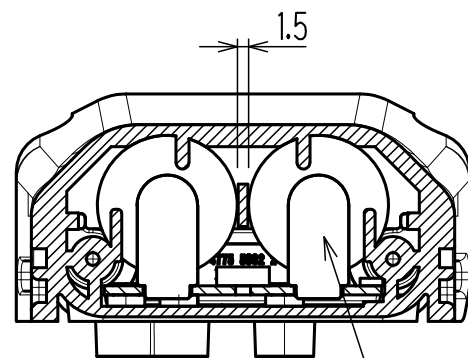
BUL PCB



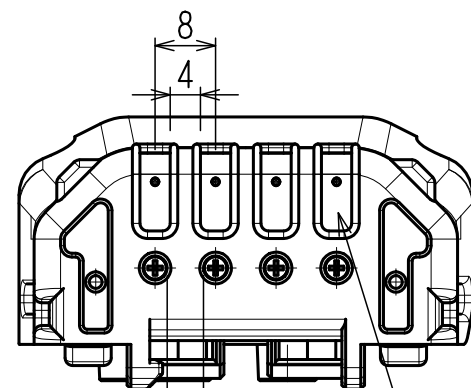
CONTACT for GX-6000
MATERIAL: COPPER ALLOY



Section D-D



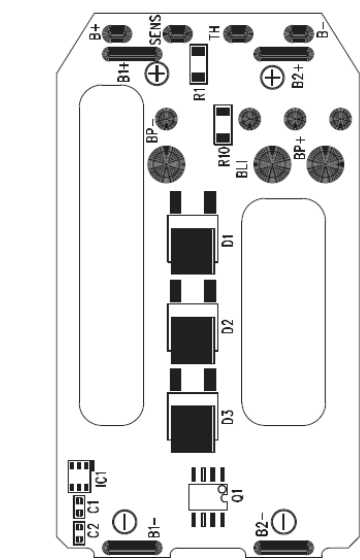
Section B-B



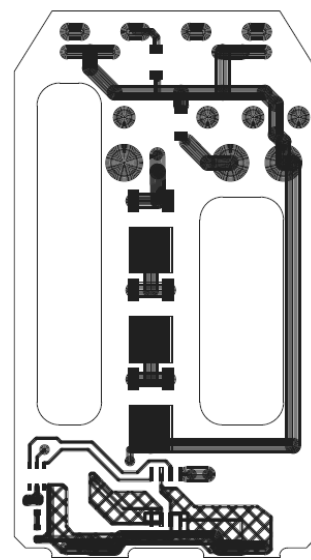
CONTACT for CHARGER
MATERIAL: COPPER ALLOY

表面处理 TREAT. 材質 MAT.	許容差 TOL.	尺 度 SCALE 1 : 1	投影法 PROJECTION 	名 称 NAME BUL-6000
承認 APPROVED 青良治	検 討 CHECKED 武井康典	製 図 DRAWN 近藤晴彦	作成日 DATE 2014. 7. 28	図 番 DWG. NO. M3-4777-03-01K

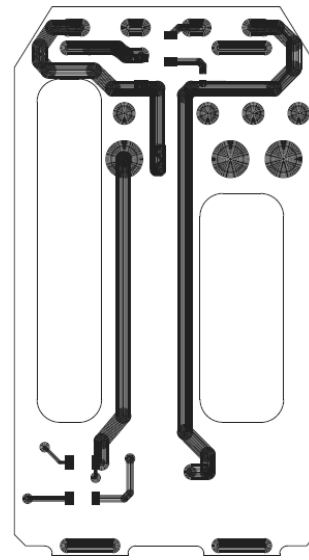
△	記 事	年 月 日	訂 正 者	RIKEN KEIKI	理研計器株式会社	機密情報 / CONFIDENTIAL
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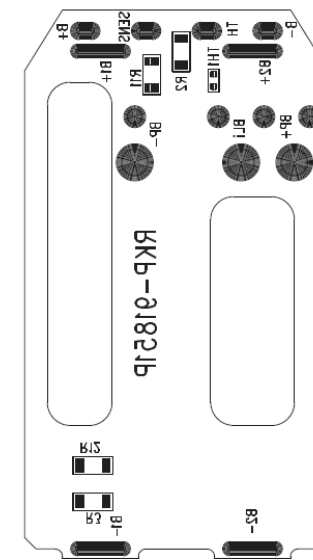
SILK PRINT FOR PARTS SIDE



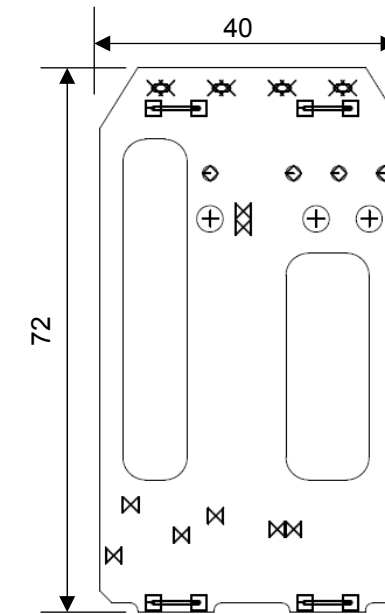
PARTS SIDE



SOLDERING SIDE








SILK PRINT FOR SOLDERING SIDE



THROUGH HOLE DATA

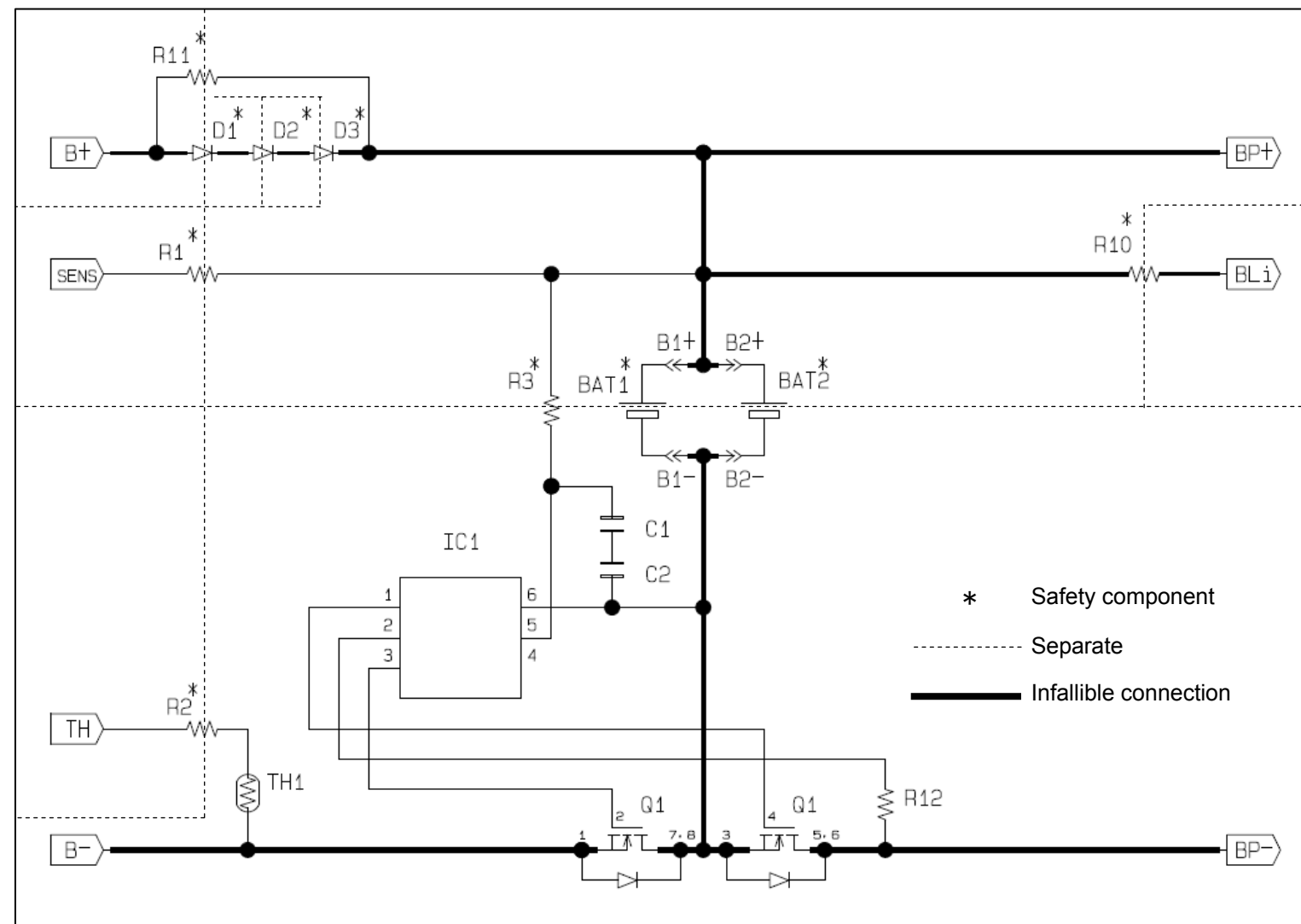
SPECIFICATION FOR PCB

- PCB No. : RKP-91851P
- Material : Glass epoxy
- Thickness : 1.6mm
- Layer number : 2
- Thickness copper film : 35um
- Minimum conductor width : 0.3mm
- CTI : 100 above

MARK	DIAGRAM	HOLE
	3.5	TH
	0.8×6.5	TH
	0.5×6.5	TH
	2	TH
	0.8	TH

All drawings are view of parts side

SCALE 1:1




SCHEMATIC

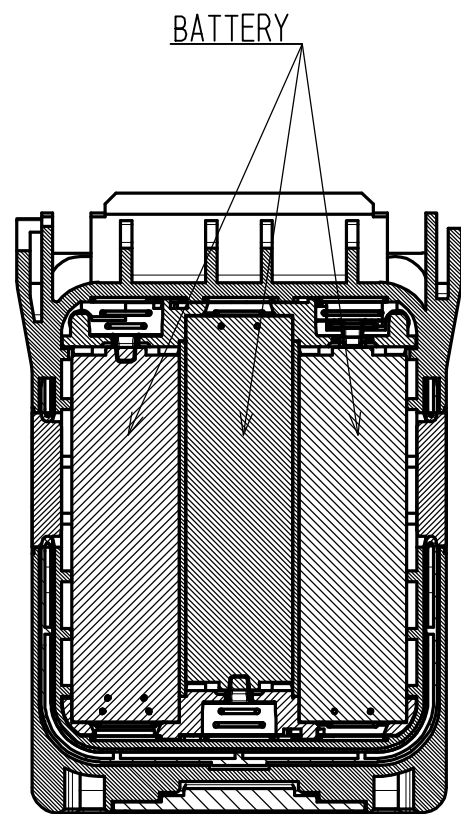
PARTS LIST

Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Protection IC)	S-8261	
Q1	FET	FDS6961A	
D1,2,3	Schottky barrier diode	MBRD1045, On semiconductor Vr = 45V, If = 10A	*
R1,2	Chip fixed resistor	MCR18EZP_2000, ROHM or RK73H2BT_2000, KOA 200ohm / 1% , 0.25W	*
R3	Chip fixed resistor	MCR18EZP_4700, ROHM or RK73H2BT_4700, KOA 470ohm / 1% , 0.25W	*
R10	Chip fixed resistor	MCR18EZP_1002, ROHM or RK73H2BT_1002, KOA 10k ohm / 1% , 0.25W	*
R11	Chip fixed resistor	MCR18EZP_1002, ROHM or RK73H2BT_1002, KOA 2.2k ohm / 1% , 0.25W	*
R12	Chip fixed resistor	200Ω-10kΩ / 1% , 0.25W (3216)	
C1,2	Chip multilayer capacitor	0.1uF / 10%, 50V	m
TH1	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1005)	

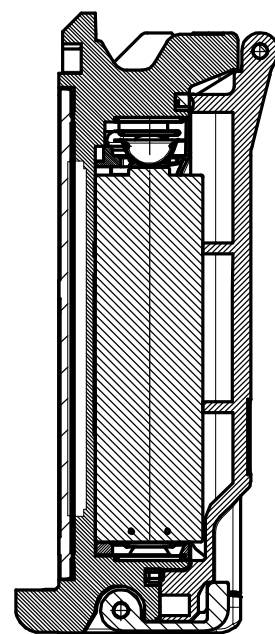
m marked parts are mounted or not

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME BUL PCB
改版回数 REV.	1	総頁数 PAGES	1	小野圭 2014.9.5
承認 APPROVED	検討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2014.7.14	E 3 - 6 9 9 1 - 5 3 8 9 - 8 0 - 0 1 K
 理研計器株式会社 機密情報 / CONFIDENTIAL				

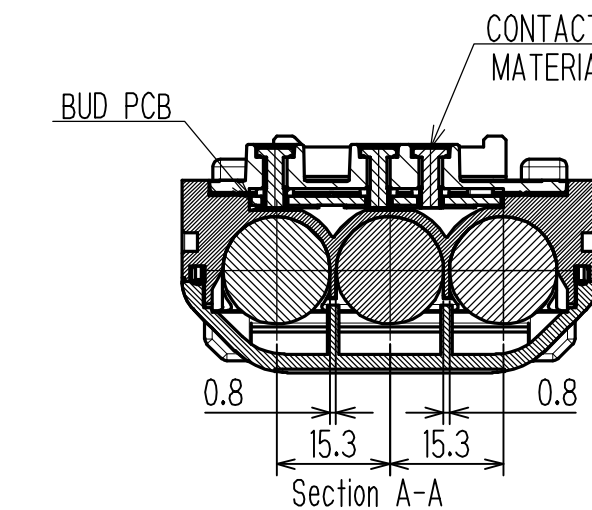
寸法	精度	中級	粗級
1000以上	0.7	1.2	2.5
500以上1000未満	0.5	1.0	2.0
260以上500未満	0.4	0.8	1.6
120以上260未満	0.3	0.6	1.2
50以上120未満	0.2	0.4	0.8
18以上50未満	0.15	0.3	0.6
18未満	0.1	0.2	0.4
寸法	精度	中級	粗級



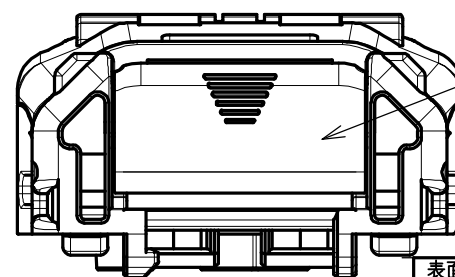
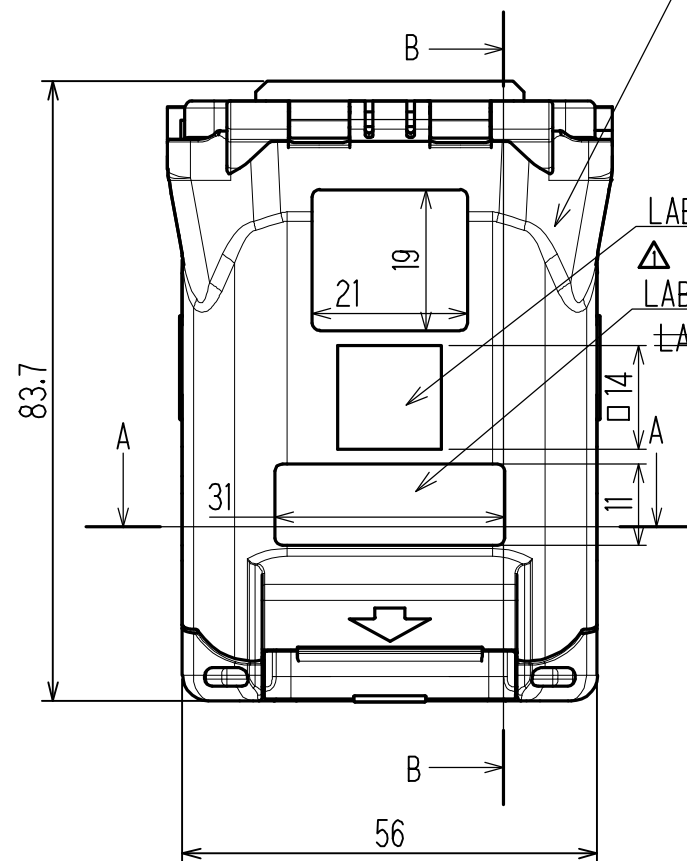
Section C-C



Section B-B



Section A-A



LID
ABS/PC ESC9448N
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP

CASE
ABS/PC ESC9448N
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP

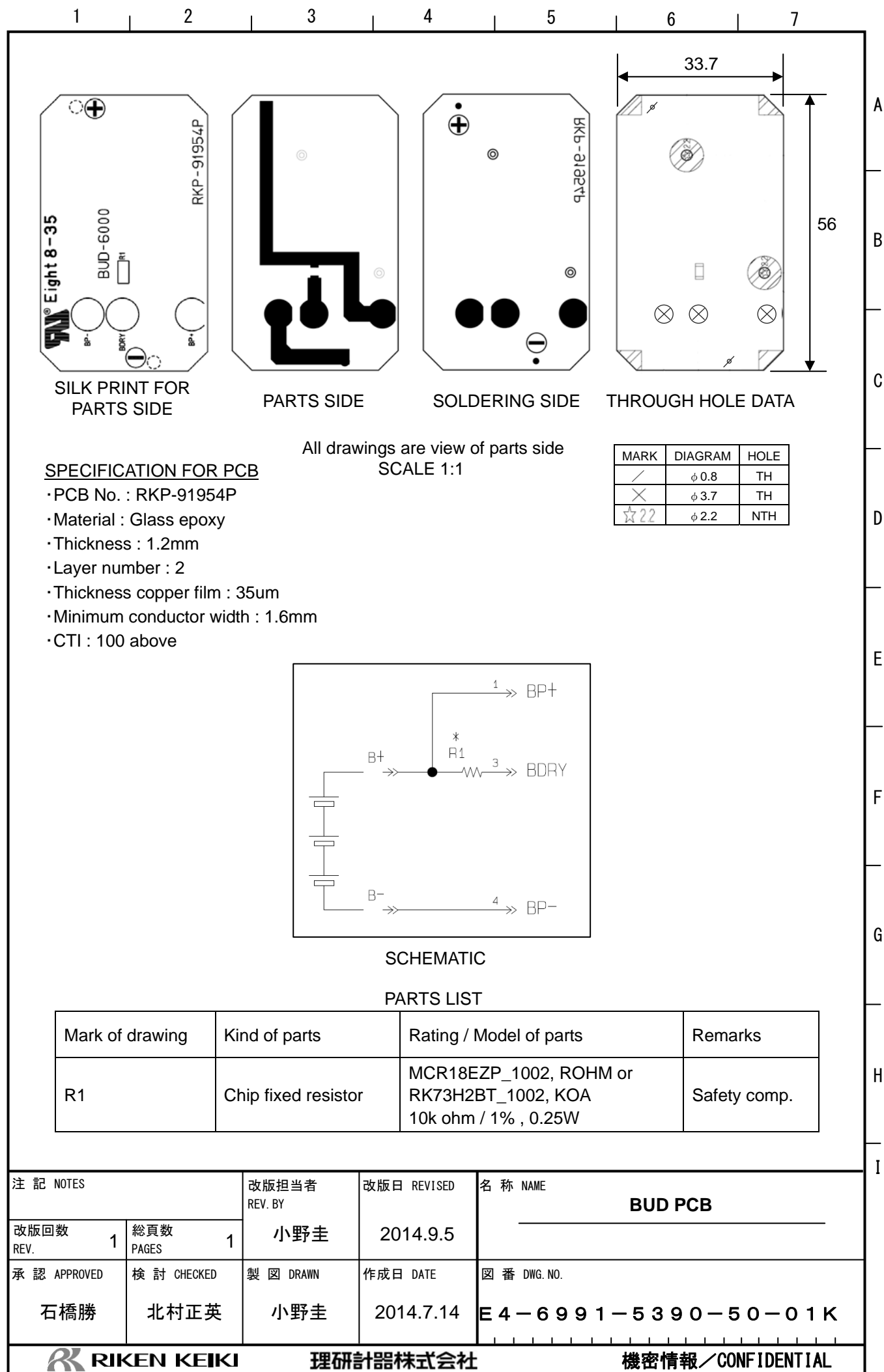
LID
MATERIAL:PC

LOCK PLATE
ABS/PC ESC9448N
RESISTANCE LESS THAN 1[GΩ]
RIKEN TECHNOS CORP

表面処理 TREAT.	許容差 TOL.	尺度 SCALE	投影法 PROJECTION	名称 NAME
材質 MAT.		1 : 1		BUD-6000
承認 APPROVED	検討 CHECKED	製図 DRAWN	作成日 DATE	図番 DWG. NO.
青良治	武井康典	近藤晴彦	2014. 7. 28	M3-4777-04-0.1K

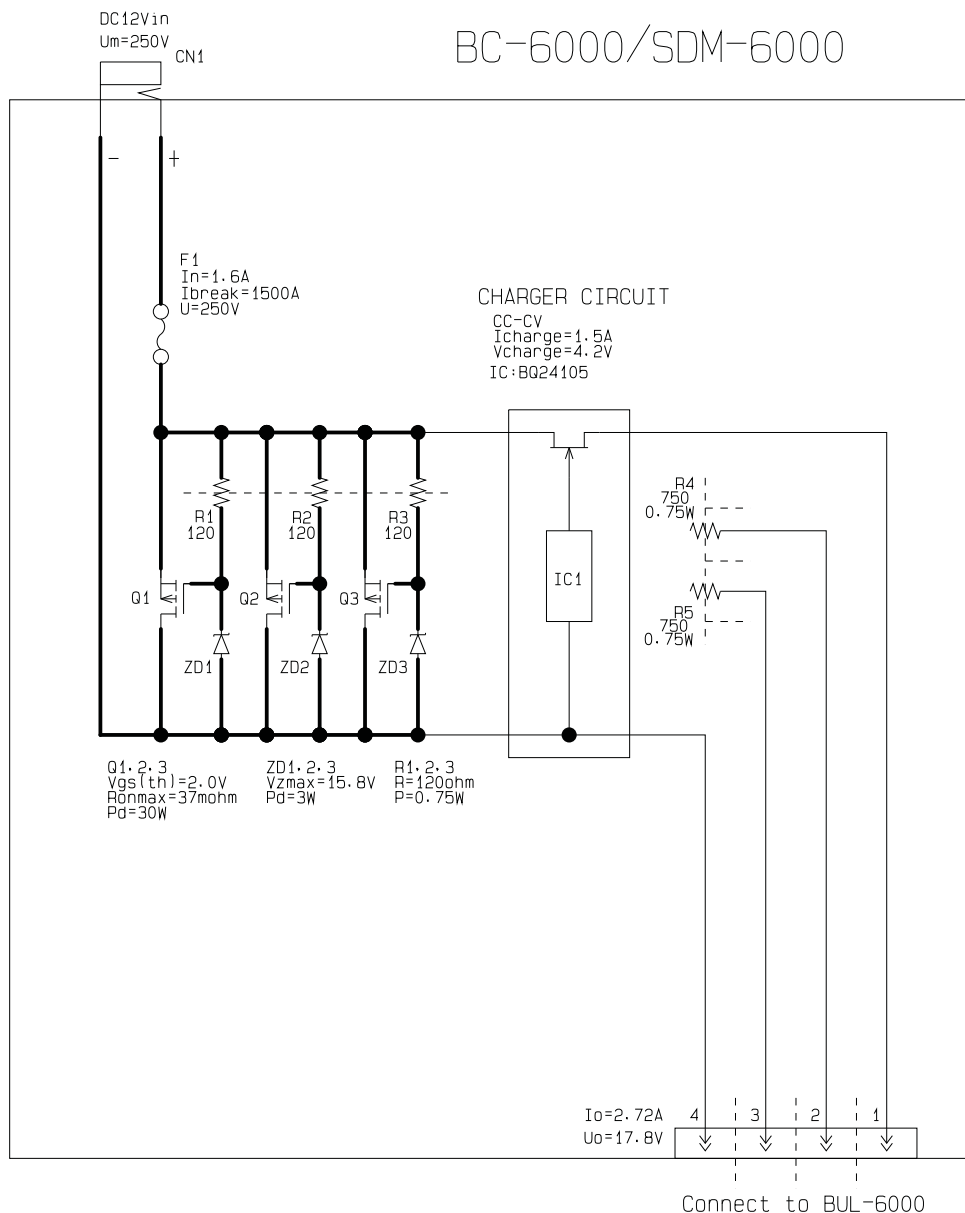
△	REVISION E9	2015.3.6	海野裕作
△	記事	年月日	訂正者

RIKEN KEIKI 理研計器株式会社 機密情報/CONFIDENTIAL



BATTERY CHARGER

BC-6000/SDM-6000

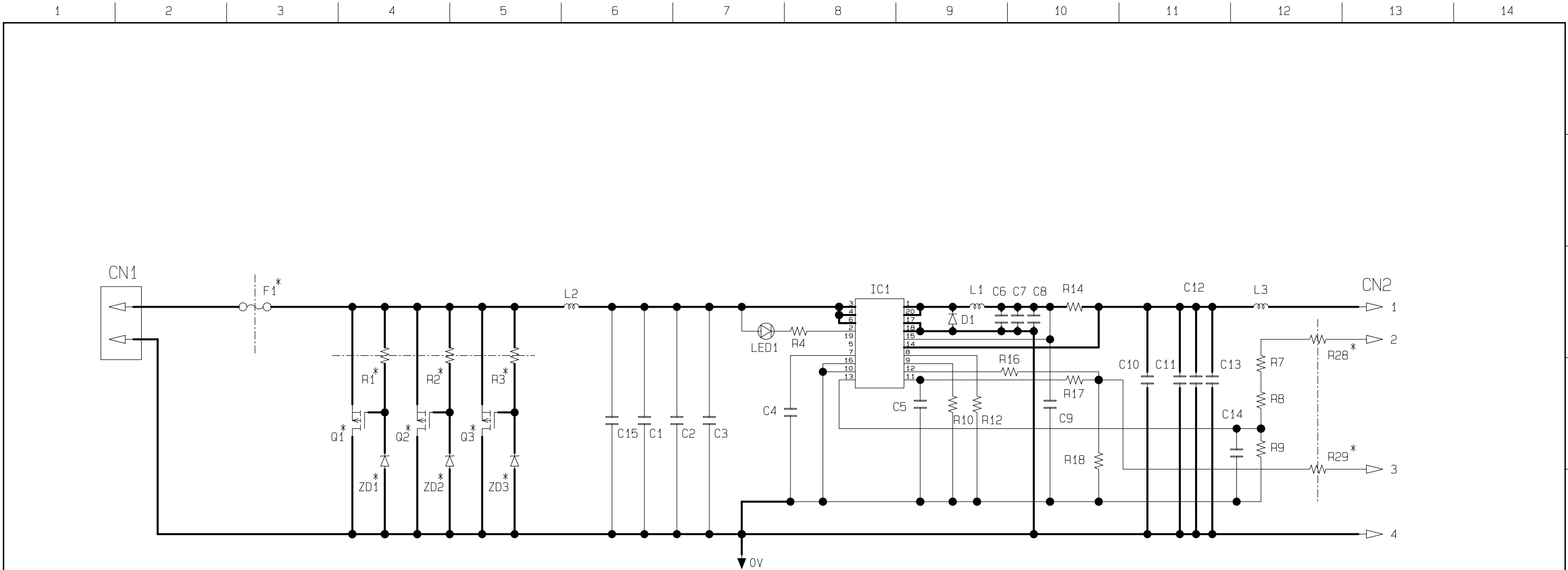


(MEMO)

1. - - - - marks means SEPARATE

2. ——— marks means INFALLIBLE CONNECTION

注 記 NOTES		改版担当者 REV. BY 小野圭	改版日 REVISED 2014. 9. 5	名 称 NAME DIAGRAM FOR I. S. KEEP FOR MODEL BC-6000/SDM-6000
改版回数 REV.	1			
総頁数 PAGES	1	製 図 DRAWN 小野圭	作成日 DATE 2014. 7. 30	図 番 DWG. NO. E4-6991-5395-80-01K
承認 APPROVED 石橋勝	検討 CHECKED 北村正英			

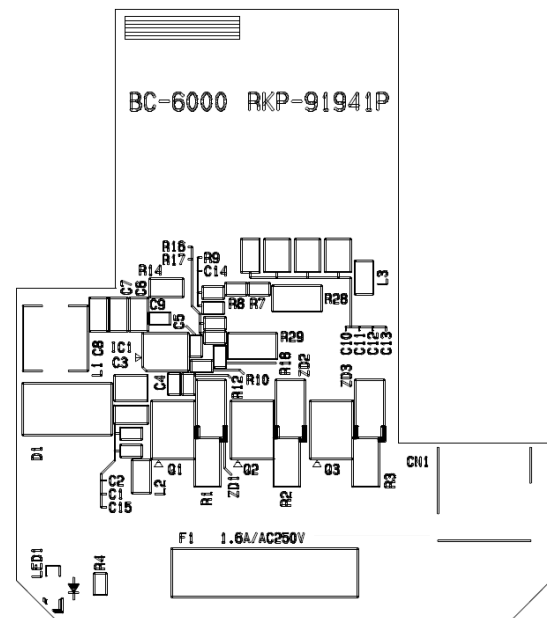


* marks means safety components

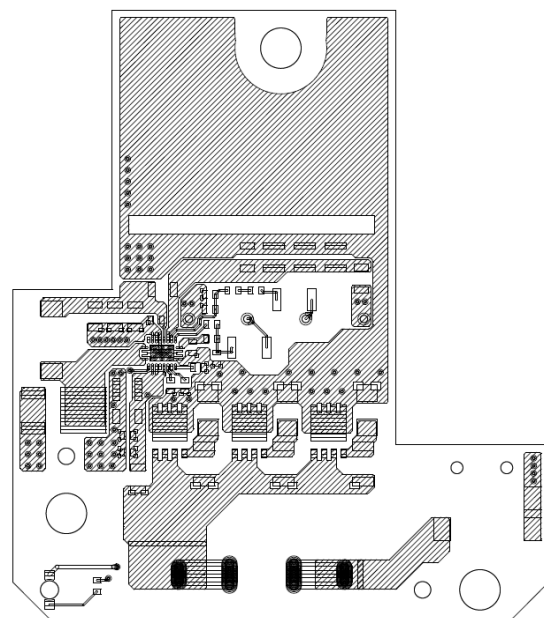
----- marks means separate

———— marks means infallible connection

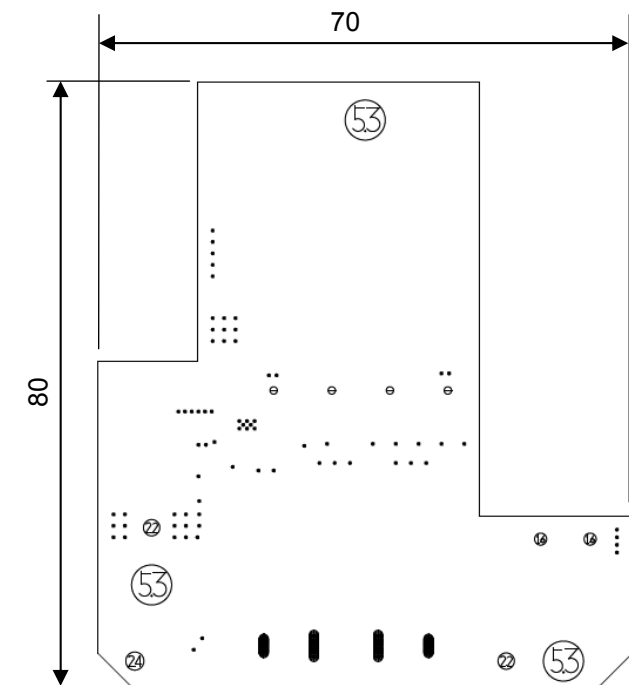
注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME SCEHMATIC CHARGER PCB FOR MODEL BC-6000
改版回数 REV.	総頁数 PAGES			
0	1			
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2014. 12. 16	E3-6991-5255-80-01K
RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL				



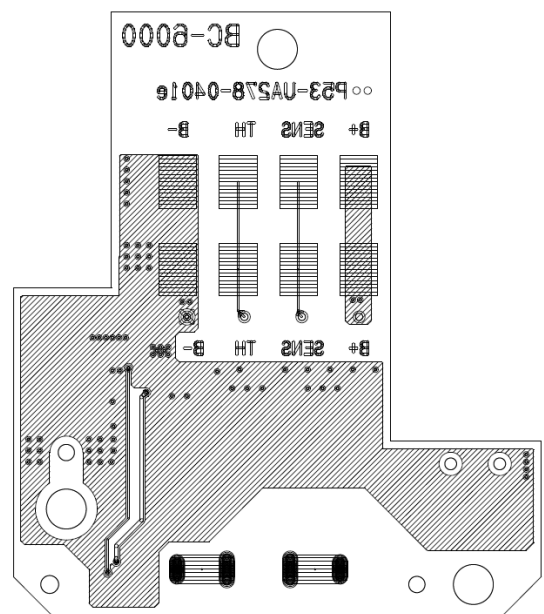
SILK PRINT FOR PARTS SIDE



PARTS SIDE



VIA HOLES



SOLDERING SIDE

All drawings are view of parts side
SCALE 1:1

MARK	DIAGRAM	HOLE
⊗	Φ0.3	TH
⊖	Φ1.0	TH
⊕	Φ1.2	TH
⑬	Φ1.6	NTH
⑳	Φ2.2	NTH
㉔	Φ2.4	NTH
㉟	Φ5.3	NTH

SPECIFICATION FOR PCB

- PCB No. : RKP-91941P
- Material : Glass epoxy
- Thickness : 1.6mm
- Layer number : 2
- Thickness copper film : 35um
- Copper thickness of the via's : 35um above.
- Minimum conductor width : 0.3mm
- CTI : 175 above

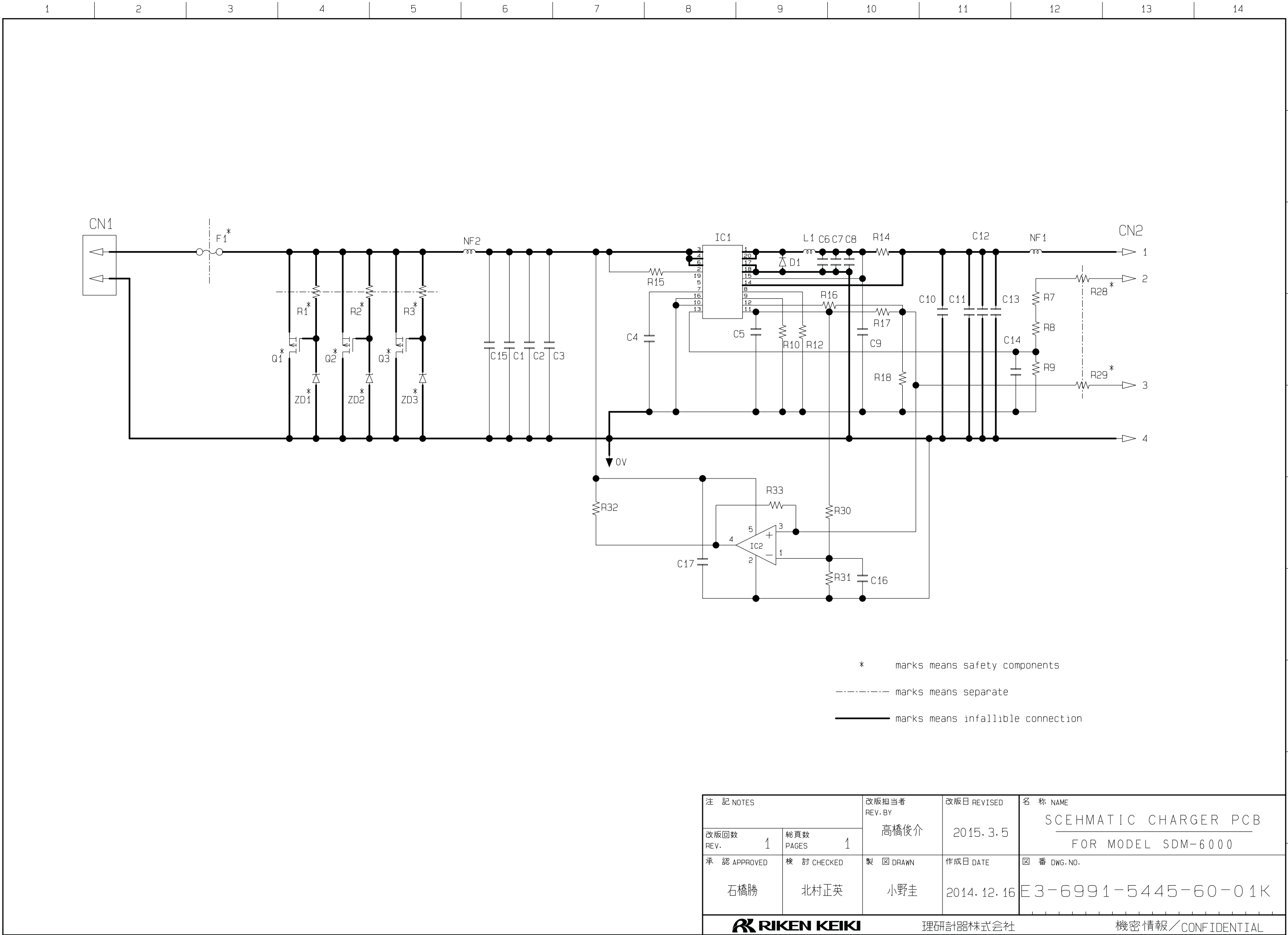
PARTS LIST

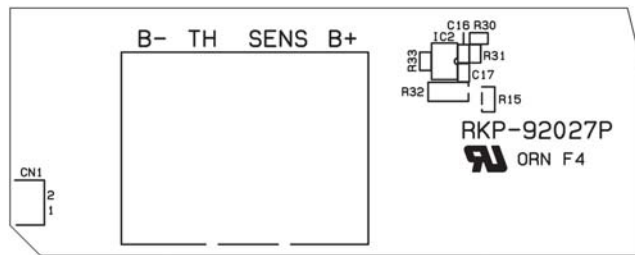
Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Battery charger)	BQ24105RHLR	
D1	Schottky barrier diode	MBRD1045	
F1	Fuse	021601.6P Littelfuse In=1.6A, Ibreak=1500A@250Vac	*
Q1,Q2,Q3	P-ch MOSFET	TPCA8507-H TOSHIBA Ron_max=37mΩ , Pd=30W	*
ZD1,ZD2,ZD3	1SMB5929B	1SMB5929B ON Semiconductor Vz= 14.25V -15.75V ,Pd=3W	*
R1,R2,R3	Chip fixed resistor	RK73HW2H_1200F KOA 120Ω /1% ,0.75W	*
R4,R7,R8,R9,R10, R12,R16,R17,R18	Chip fixed resistor or Chip jumper	100Ω - 1MΩ /1% , 0.1W (1608) or 50mΩ max ,1A	m
R14	Chip fixed resistor	0.068Ω - 0.2Ω /1% , 0.25W (3216)	
R28,R29	Chip fixed resistor	RK73HW2H_7500F KOA 750Ω /1% ,0.75W	*
C1	Chip multilayer capacitor	1uF / 10% , 50V	m
C2,C6,C7,C8,C10	Chip multilayer capacitor	10uF / 10% , 25V	m
C3	Chip multilayer capacitor	22uF / 10% , 25V	m
C4	Chip multilayer capacitor	0.068uF / 10% , 50V	m
C5,C9,C15	Chip multilayer capacitor	0.1uF / 10% , 50V	m
C1,C12,C13	Chip multilayer capacitor	47uF / 10% , 16V	m
C14	OPEN	OPEN	
L1	Inductor	10uH / 20%	
L2,L3	Chip ferrite beads	BLM31PG391	m
LED1	LED Lamp	SML-811U	m

* marked parts are for safety

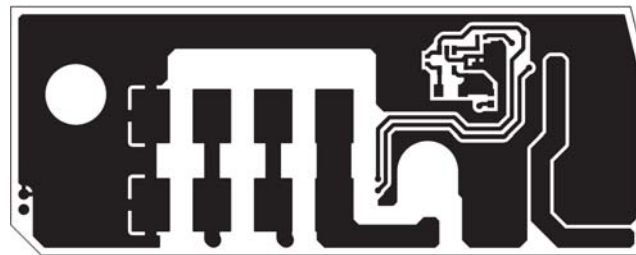
m marked parts are mounted or not

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME
改版回数 REV.	0	総頁数 PAGES	1	CHARGER PCB FOR MODEL BC-6000
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2014.12.16	E 3 - 6 9 9 1 - 5 2 5 5 - 8 0 - 0 1 A

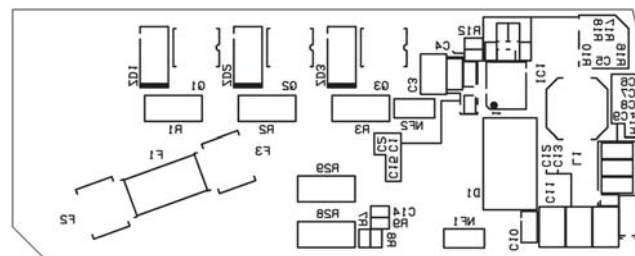




SILK PRINT FOR SOLDERING SIDE



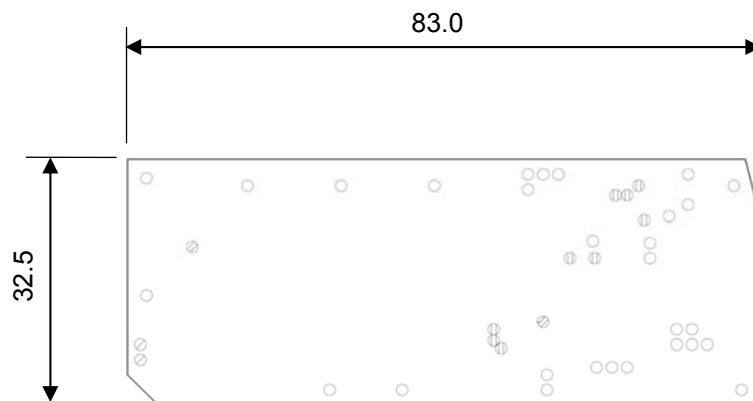
SOLDERING SIDE



SILK PRINT FOR PARTS SIDE



PARTS SIDE



All drawings are view of soldering side

SCALE 1:1

VIA HOLES

MARK	DIAGRAM	HOLE
⊙	Φ0.4	TH
○	Φ0.7	TH
⊗	Φ0.8	TH
⊘	Φ5.6	NTH

SPECIFICATION FOR PCB

- PCB No. :RKP-92027P
- Material : Glass epoxy
- Thickness : 1.6mm
- Layer number : 2
- Thickness copper film : 35um
- Copper thickness of the via's : 35um above.
- Minimum conductor width : 0.3mm
- CTI : 175 above

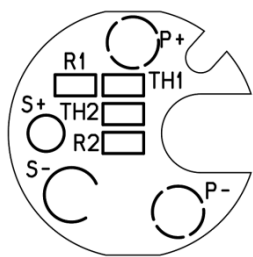
PARTS LIST

Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Battery charger)	BQ24105RHLR	
IC2	IC(Comparator)	TL331	
D1	Schottky barrier diode	MBRD1045	
F1	Fuse	021601.6P Littelfuse In=1.6A, Ibreak=1500A@250Vac	*
Q1,Q2,Q3	P-ch MOSFET	TPCA8507-H TOSHIBA Ron_max=37mΩ , Pd=30W	*
ZD1,ZD2,ZD3	1SMB5929B	1SMB5929B ON Semiconductor Vz= 14.25V -15.75V ,Pd=3W	*
R1,R2,R3	Chip fixed resistor	RK73HW2H_1200F KOA 120Ω /1% ,0.75W	*
R7,R8,R9,R10,R12, R16,R17,R18,R30, R31,R33	Chip fixed resistor or Chip jumper	100Ω - 4.7MΩ /1% , 0.063W (1005) or 50mΩ max ,1A	m
R14	Chip fixed resistor	0.068Ω - 0.2Ω /1% , 0.25W (3216)	
R15	Chip fixed resistor or Chip jumper	100Ω - 1MΩ /1% , 0.1W (1608) or 50mΩ max ,1A	m
R28,R29	Chip fixed resistor	RK73HW2H_7500F KOA 750Ω /1% ,0.75W	*
R32,	Chip fixed resistor or Chip jumper	100Ω - 1MΩ /1% , 0.125W (3216) or 50mΩ max ,1A	m
C1,	Chip multilayer capacitor	1uF / 10%,25V	m
C3,	Chip multilayer capacitor	22uF / 10% 25V	m
C11,C12,C13	Chip multilayer capacitor	47uF / 10%,16V	m
C5,C9, C14,C15, C16,C17	Chip multilayer capacitor	0.1uF / 10%, 25V	m
C2,C6,C7,C8,C10	Chip multilayer capacitor	10uF / 10%, 16V	m
C4,	Chip multilayer capacitor	0.22uF / 10%, 10V	m
L1	Inductor	10uH / 20%	
NF1,NF2	Chip ferrite beads	BLM31PG391	m

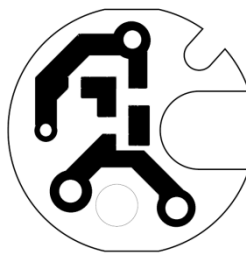
* marked parts are for safety

m marked parts are mounted or not

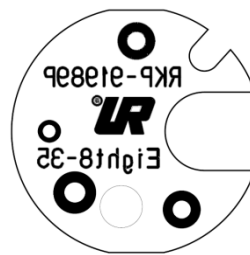
注 記 NOTES		改版担当者 REV. BY		改版日 REVISION	名 義 者
C4,C14		小野圭		2015.6.12	Presafe® DNV Nemko Presafe AS 097 067 401 mva
改版回数 REV.	2	総頁数 PAGES	1	CHARGER PCB FOR MODEL SDM-6000	
承認 APPROVED	石橋勝	検 討 CHECKED	北村正英	製 図 DRAWN	小野圭
		作成日 DATE		図 番 DWG. NO.	
		2014.12.15		E 3 - 6 9 9 1 - 5 4 4 5 - 6 0 - 0 1 A	



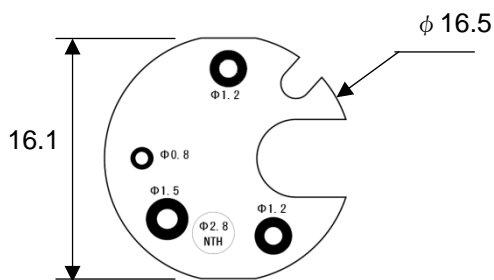
SILK PRINT FOR PARTS SIDE



PARTS SIDE



SOLDERING SIDE



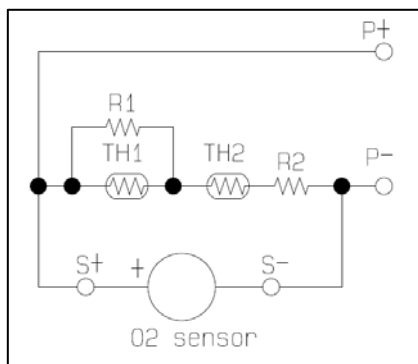
THROUGH HOLE DATA

SPECIFICATION FOR PCB

- PCB No. : RKP-91989P
- Material : Glass epoxy
- Thickness : 0.8mm
- Layer number : 2
- Thickness copper film : 35um
- Minimum conductor width : 0.5mm
- CTI : 100 above

All drawings are view of parts side

SCALE 2:1



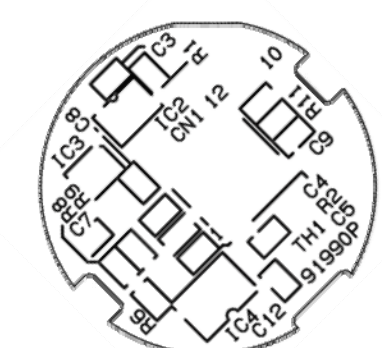
SCHEMATIC

PARTS LIST

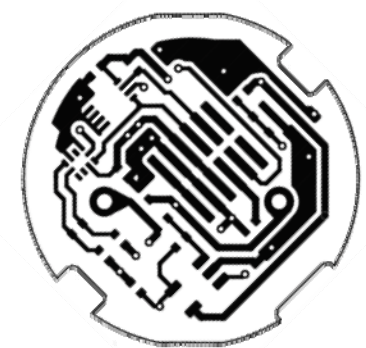
Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
O2 SENSOR	OXYGEN SENSOR	Refer to M4-4080-01-01K	
R1,2	Chip fixed resistor or Chip jumper	10 ohm – 1M ohm / 1%, 0.1W or 50m ohm max,1A (1608)	m
TH1,2	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1608)	m

m marked parts are mounted or not

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME OSS SENSOR PCB
改版回数 REV.	0			
総頁数 PAGES	1	製 図 DRAWN	作成日 DATE	図 番 DWG. NO. E 4 - 6 9 9 1 - 5 4 5 7 - 0 0 - 0 1 K
承認 APPROVED	検 討 CHECKED			
石橋勝	北村正英	小野圭	2015.2.24	



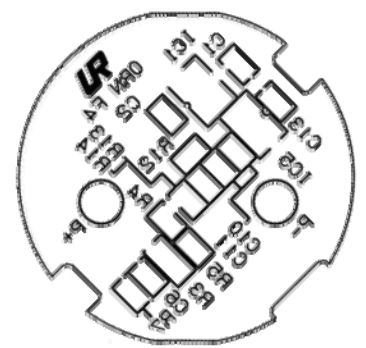
SILK PRINT FOR PARTS SIDE



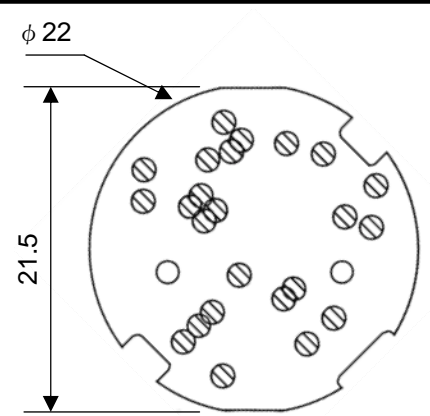
PARTS SIDE



SOLDERING SIDE



SILK PRINT FOR SOLDERING SIDE



THROUGH HOLE DATA

MARK	DIAGRAM	HOLE
⊙	φ 0.3	TH
○	φ 1.0	TH

SPECIFICATION FOR PCB

- PCB No. : RKP-91990P
- Material : Glass epoxy
- Thickness : 1.2mm
- Layer number : 2
- Thickness copper film : 18um
- Minimum conductor width : 0.3mm
- CTI : 100 above

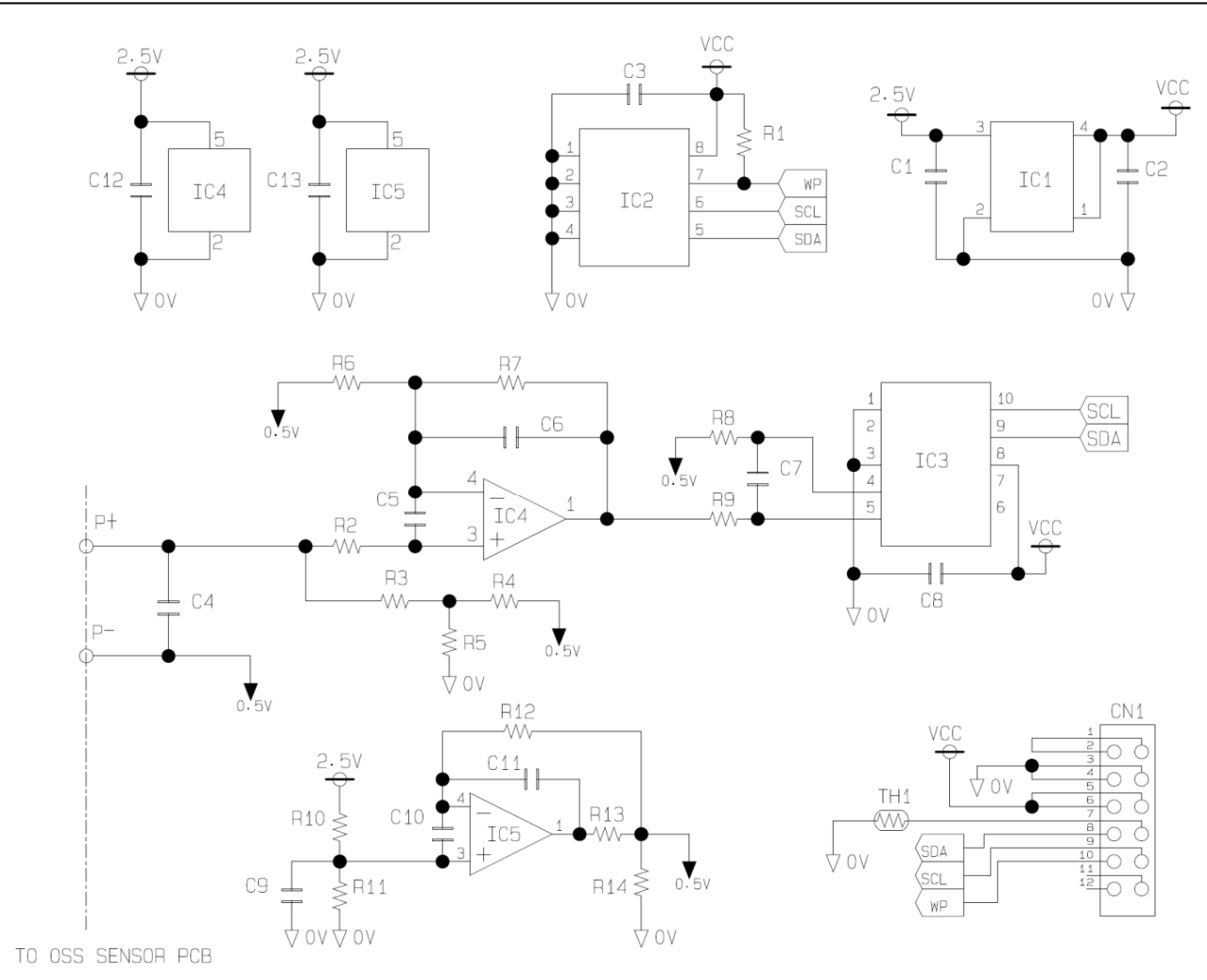
All drawings are view of parts side

SCALE 2:1

PARTS LIST

Mark of drawing	Kind of parts	Rating / Model of parts	Remarks
IC1	IC (Voltage regulator)	S-1313D25-N4T1	m
IC2	IC (EEPROM)	S-24C16CI-I8T1	m
IC3	IC (A/D Converter)	ADS1114IRU	m
IC4	IC(OPAMP)	OPA333AIDBV	m
IC5	IC(OPAMP)	AD8500AKS	m
TH1	Chip thermistor	Rt25 = 470 ohm -100 k ohm / 5%, B=3000K-5000K (1005)	m
R1-14	Chip fixed resistor or Chip jumper	10 ohm – 1M ohm / 1%, 0.063W or 50m ohm max,1A (1005)	m
C1,2,3,8,12,13,	Chip multilayer capacitor	0.1uF / 10%, 25V	m
C4	Chip multilayer capacitor	0.01uF / 10%, 25V	m
C5,7,10	Chip multilayer capacitor	10pF-1000pF / 10%, 50V	m
C6,11	Chip multilayer capacitor	1uF / 10%, 10V	m
C9	Chip multilayer capacitor	100pF-6800pF / 10%, 50V	m

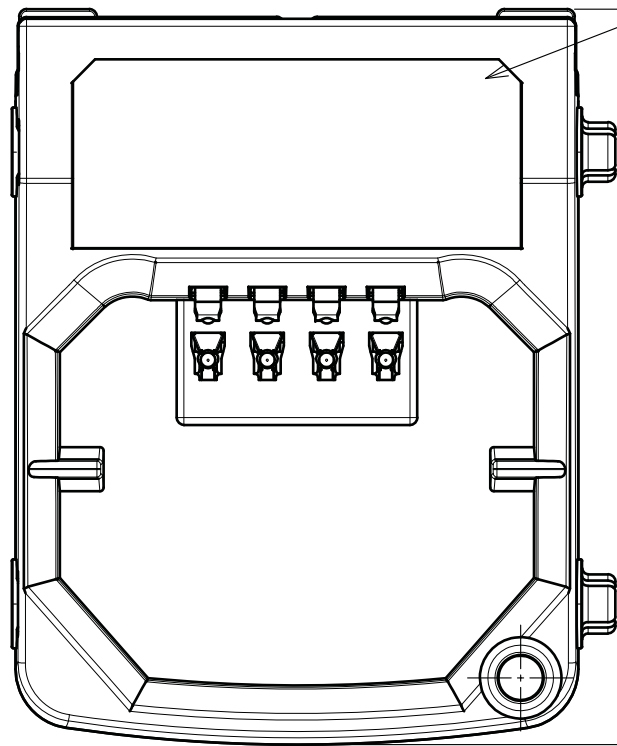
m marked parts are mounted or not



SCHEMATIC

注 記 NOTES		改版担当者 REV. BY	改版日 REVISED	名 称 NAME OSS DIGITAL PCB
改版回数 REV.	0	総頁数 PAGES	1	
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
石橋勝	北村正英	小野圭	2015.2.24	E 3 - 6 9 9 1 - 5 4 5 8 - 7 0 - 0 1 K
RIKEN KEIKI 理研計器株式会社 機密情報 / CONFIDENTIAL				

寸法	精度	中級	粗級
1000以上	0.7	1.2	2.5
500以上1000未満	0.5	1.0	2.0
260以上500未満	0.4	0.8	1.6
120以上260未満	0.3	0.6	1.2
50以上120未満	0.2	0.4	0.8
18以上50未満	0.15	0.3	0.6
18未満	0.1	0.2	0.4
寸法	精度	中級	粗級

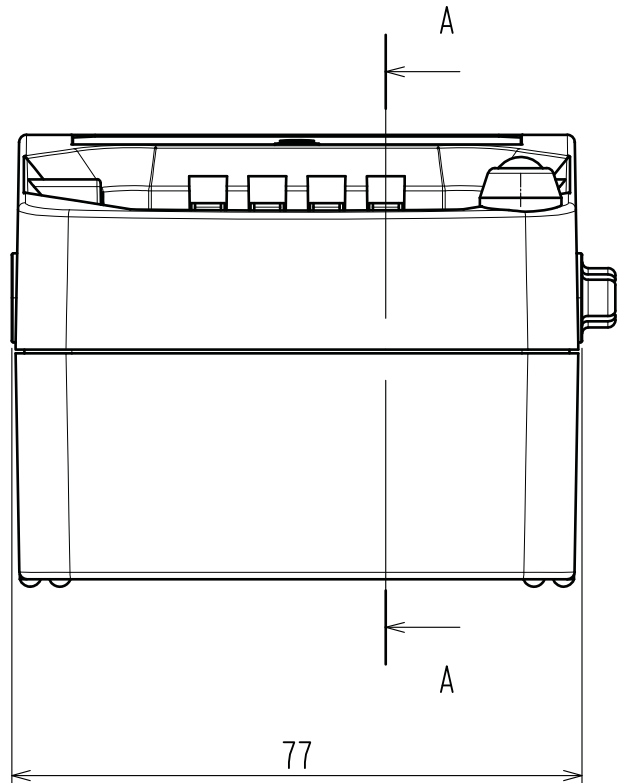


△ LABEL

WARNING

- ・Not for use in hazardous area.
 - ・Use only with exclusive AC adaptor.
- Um=250V

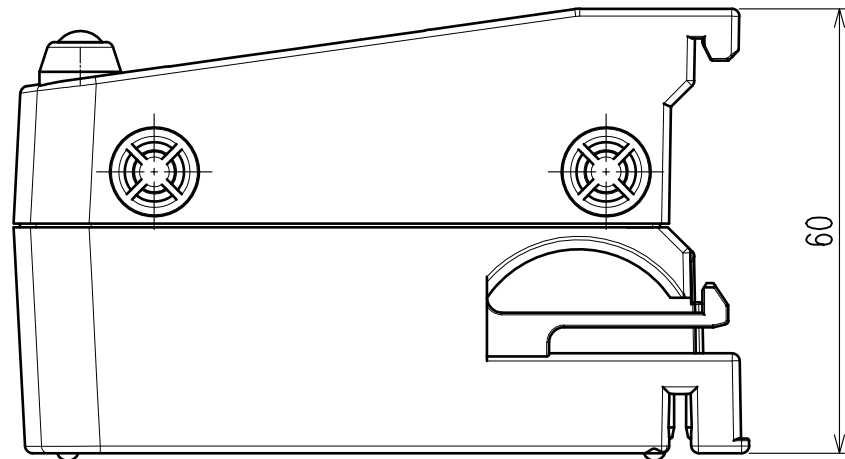
100



A

A

77

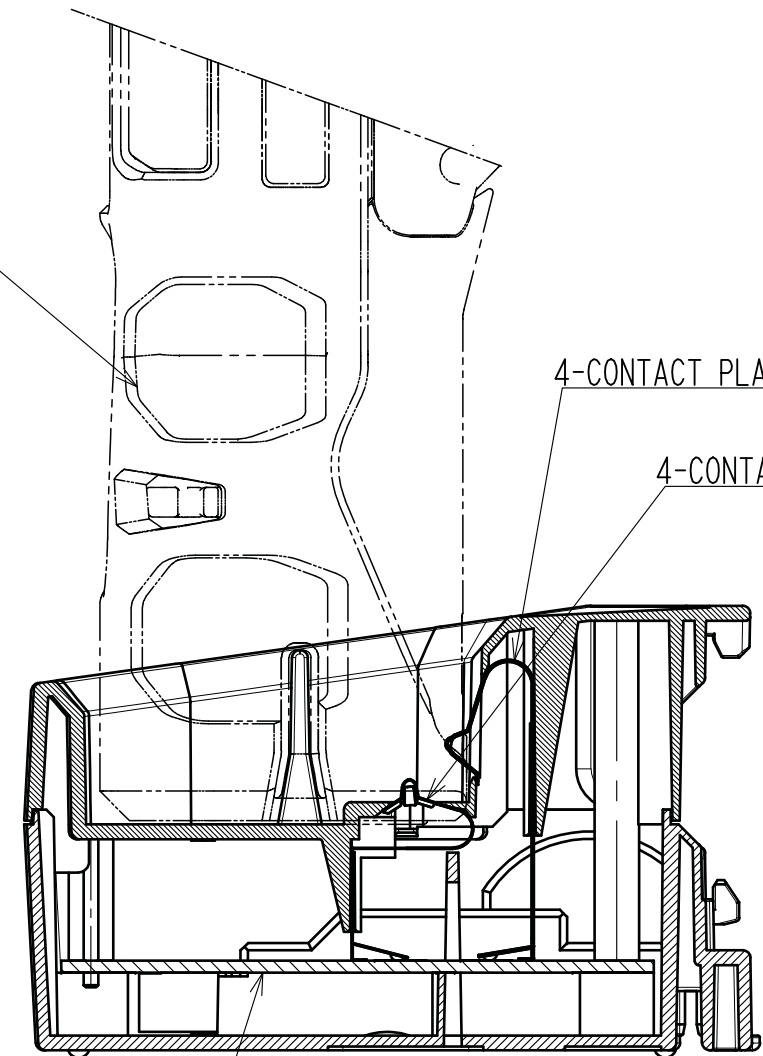


60

GX-6000

4-CONTACT PLATE(B)

4-CONTACT PLATE(A)



CHARGER PCB

断面 A-A

表面処理 TREAT.	許容差 TOL.	尺 度 SCALE	投影法 PROJECTION	名 称 NAME
材 質 MAT.		1 : 1		BC-6000
承認 APPROVED	検 討 CHECKED	製 図 DRAWN	作成日 DATE	図 番 DWG. NO.
青良治	海野裕作	近藤晴彦	2015. 3. 24	M3-4777-02-01K

△ ADD LABEL	2015.3.27	近藤晴彦
△ 記 事	年 月 日	訂 正 者

RIKEN KEIKI 理研計器株式会社 機密情報/CONFIDENTIAL

