

# SHARP SERVICE MANUAL

CODE : 00ZPC1270SM/E

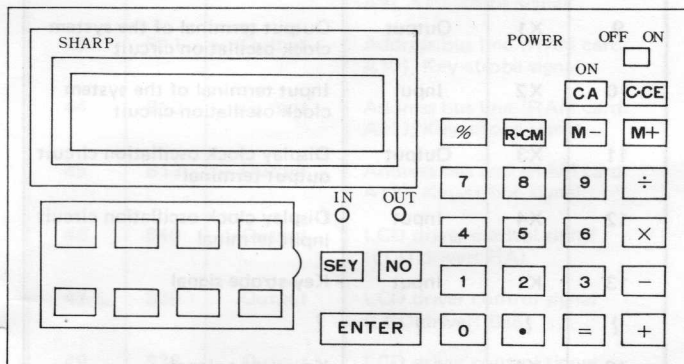


## MODEL PC-1270

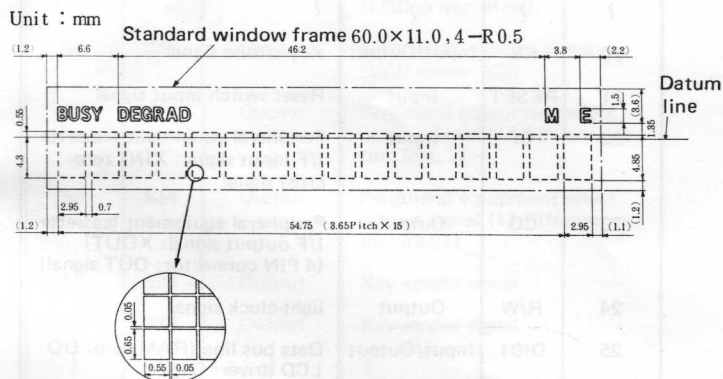
- The PC-1270 is a program operated pocket computer with the 16-digit display unit. Also, it requires the RAM card option in order to operate the pocket computer.
- The PC-1270 offers computing capability using packaged software programs from distributors.

### 1. SPECIFICATIONS

- MODEL: PC-1270
- KEY LAYOUT:



- DISPLAY: 16-character x 1-line LCD



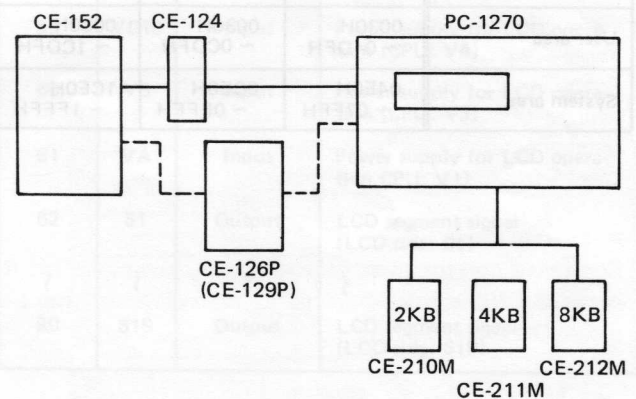
Standard detail drawing of the section of dots  
(5×7 dot)

- CPU: CMOS CPU (4 bit)
- SYSTEM ROM: 14K STEPS (0000H ~ 37FFH)
- MEMORY CAPACITY:
  - When used the RAM Card CE-210M (2K-byte RAM).
  - System area 640 byte
  - Data only area 208 byte
  - Program data area 1200 byte

NOTE: Two bytes of "FF" of TEXT and OBTM are included in the program and data area.

- Dimensions: 135(W) x 70(D) x 9.5(H) mm,  
5-5/16"(W) x 2-3/4"(D) x 3/8"(H)
- Weight: Approximately (with batteries)  
85g (0.19 lb.)
- Power: 6.0VDC (lithium battery) CR-2032 x 2
- Power consumption: 0.04W
- Operating temperature: 0°C ~ 40°C (32°F ~ 104°F)
- Battery life  
Continuous operation in normal circumstances: About 120 hours (with CE-212M) (based on 10 minutes of operation or program execution and 50 minutes of display per hour, at an ambient temperature of 20°C).
- Accessories  
Hard case, template, two lithium batteries (provided in the unit), operation manual

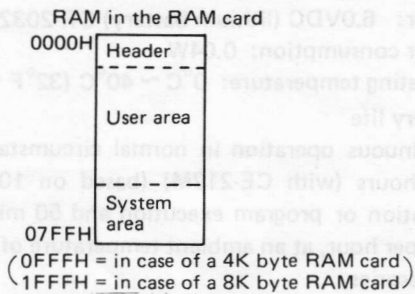
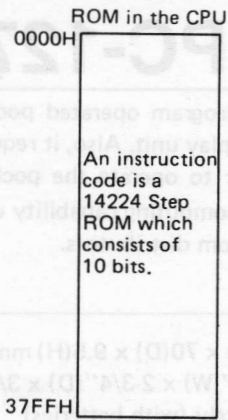
### 2. SYSTEM DIAGRAM



- PC-1270: COMPUTER
- CE-152: Cassette recorder
- CE-124: Cassette interface
- CE-126P: 24 digits thermal printer
- CE-129P: 24 digits thermal printer
- CE-210M: 2KB RAM card
- CE-211M: 4KB RAM card
- CE-212M: 8KB RAM card

### 3. MEMORY MAP

Address of the CPU internal ROM, RAM card memory address.  
Independent address is assigned to the above memory spaces.



Area \ RAM card	2KB RAM	4KB RAM	8KB RAM
Header (48 bytes starting from the beginning address)	0000H ~ 002FH	←	←
User area	0030H ~ 04DFH	0030H ~ 0CDFH	0030H ~ 1CDFH
System area	04E0H ~ 07FFH	0CE0H ~ 0FFFH	1CE0H ~ 1FFFH

### 4. EXPLANATION OF LSI TERMINAL SIGNALS

CPU (ESR-J): SC61720D09

Terminal No.	Signal name	Input/Output	Explanation of signals
1	V1	Input	Power supply for LCD operation
2	V2	Input	Power supply for LCD operation (VB)
3	V3	Input	Power supply for LCD operation (VA)
4	V4	Input	Power supply for LCD operation (VDIS)
5	V5	Output	RAM card selection signal (CS)
6	VDD	Output	Power supply for LCD operation
7	GND	Input	Plus power supply 0V (GND)
8	VGG	Input	Minus power supply - 4 ~ 6V (VGG)
9	X1	Output	Output terminal of the system clock oscillation circuit
10	X2	Input	Input terminal of the system clock oscillation circuit
11	X3	Output	Display clock oscillation circuit output terminal
12	X4	Input	Display clock oscillation circuit input terminal
13	K1	Input	Key-strobe signal
14	}	}	}
16	K4	Input	Key-strobe signal
17	K5	Input/Output	Key-strobe signal
18	}	}	}
20	K8	Input/Output	Key-strobe signal
21	RESET	Input	Reset switch input signal
22	CI	Input	Peripheral equipment (cassette I/F input signal: XIN) zero-cross signal
23	CO	Output	Peripheral equipment (cassette I/F output signal: XOUT) (4 PIN connector: OUT signal)
24	R/W	Output	light-clock signal
25	DI01	Input/Output	Data bus line (RAM card: DO LCD driver: O1)
26	}	}	}
32	DI08	Input/Output	Data bus line (RAM card: DO LCD drive: O8)
33	B1	Output	Address bus line (RAM card: A0), Data out port output terminal for DOUT (data out) combined peripheral sections
34	B2	Output	Address bus line (RAM card: A1)
35	B3	Output	Address bus line (RAM card: A2), Input strobe signal for K4 at OFF time.

Terminal No.	Signal name	Input/Output	Explanation of signals
36	B4	Output	Address bus line (RAM card: A3), Input strobe signal for K3 passing through the mode select switch
37	B5	Output	Address bus line (RAM card: A4), Input strobe signal for K3 passing through the mode select switch
38	B6	Output	Address bus line (RAM card: A5), Input strobe signal for K3 passing through the mode select switch
39	B7	Output	Address bus line (RAM card: A6), Input strobe signal for K3 passing through the mode select switch
40	B8	Output	Address bus line (RAM card: A7), Key-strobe signal
41	B9	Output	Address bus line (RAM card: A8), Key-strobe signal
42	B10	Output	Address bus line (RAM card: A9), Key-strobe signal:
43	B11	Output	Address bus line (RAM card: A10), Key-strobe signal
44	B12	Output	Address bus line (RAM card: A11), Key-strobe signal
45	B13	Output	Address bus line (RAM card: A12), Key-strobe signal:
46	S40	Output	LCD driver control signal (LCD driver: HA)
47	S39	Output	LCD driver control signal (LCD driver: DIS)
48	S38	Output	LCD driver control signal (LCD driver: φAL)
49	S37	Output	LCD driver control signal (LCD driver: R/W)
50	S36	Output	LCD driver control signal (LCD driver: CE)
51	S35	Output	Peripheral equipment select output signal (11 PIN connector: SEL 2)
52	S34	Output	Peripheral equipment select output signal (11 PIN connector: SEL1)
53	S33	Output	Key-strobe signal
54	S32	Output	Key-strobe signal
}	}	}	}
65	S21	Output	Key-strobe signal
66	S20	Output	LCD segment signal (LCD side: S80)
67	S19	Output	LCD segment signal (LCD side: S79)
}	}	}	}
85	S1	Output	LCD segment signal (LCD side: S61)
86	H16	Output	LCD common signal (LCD side: H16)
}	}	}	}
100	H1	Output	LCD common signal (LCD side: H1)

LCD driver: SC43537

Terminal No.	Signal name	Input/Output	Explanation of signals
1	S20	Output	LCD segment signal (LCD side: S20)
2	S21	Output	LCD segment signal (LCD side: S21)
}	}	}	}
41	S60	Output	LCD segment signal (LCD side: S60)
42	S61	-	N.C
43	S62	-	N.C
44	HA	Input	Display synchronous signal. H1 is started with timing from Low to High in the width of HA pulse signal = common signal width.
45	DIS	Input	Display control signal. When this is Low, the display is set to the OFF pattern forcibly, and when it is High, the display is available.
46	φAL	Input	Address latch signal. This is a clock signal used to latch a signal on the data bus line as address information when this is Low.
47	R/W	Input	Display data write signal. When this is Low, available.
48	CE	Input	LCD driver.
49	O8	Input/Output	Data bus line (CPU: DI08)
}	}	}	}
56	O1	Input/Output	Data bus line (CPU: DI01)
57	GND	Input/Output	Plus power supply 0V
58	VGG	Input	Minus power supply - 4 ~ -6V
59	VDIS	Input	Power supply for LCD operation (CPU: V4)
60	VB	Input	Power supply for LCD operation (CPU: V3)
61	VA	Input	Power supply for LCD operation CPU: V1)
62	S1	Output	LCD segment signal (LCD side: S1)
}	}	}	}
80	S19	Output	LCD segment signal (LCD side: S19)



## 5. NOTES FOR SERVICE

### Automatic check flow

This device consists of the following blocks:

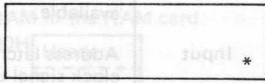
- LCD
- CPU (containing LCD driver circuits in some sections)
- RAM cards
- Key or switch section
- Power supply sections

In this device, LSIs are applied for most main circuits. Therefore, repairing by observing the waveform is rather difficult, but the contained check flow may be used effectively to check defective parts.

This device checks whether a RAM card exists or not when the power supply switch is turned on.

When the existence of the card is normal, an indication appears according to the mode switch set position.

If a RAM card is not inserted, or if the RAM address signal line or the RAM data signal line is abnormal, "\*" is displayed at the bottom of the LCD section.



When the RAM card is not inserted, and the power supply 6V and the clock are normal, if "\*" does not appear, check the following items of 1 ~ 4 to determine that the fault is in the CPU or in the section other than the CPU:

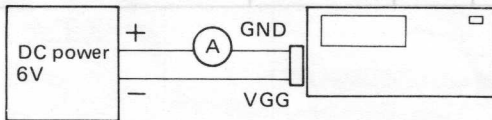
- 1: Checking the LCD power supply.
- 2: Checking the common segment signal line
- 3: Checking the contact of the LCD rubber connector
- 4: Checking the LCD cell.

When a RAM card is not inserted, if the ALL RESET switch is operated, address bus lines of B1 ~ B13 (RAM card signal: A0 ~ A12) which are other than CPU terminal signal V5 (RAM card signal: CS) are instantaneously set to the low level.

Accordingly, since the system program is started from address 0000H and the check program is executed in a moment, pulses may be confirmed and the bus line may be checked.

### Current check

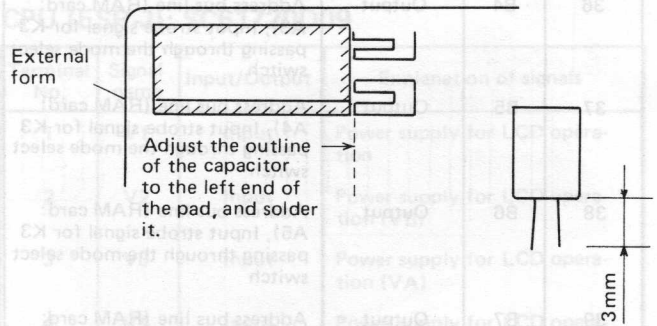
Consumed current must be checked by supplying DC 6V between GND and VGG in the 11 pin connector after preparing DC power supply.



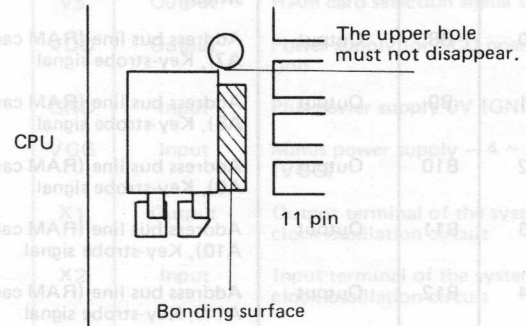
1. Demount the lithium battery from the main frame.
2. Mount a CE-210M of the RAM card.
3. POWER switch "ON".
4. Press RESET switch.
5. At this time, check if the current is 275  $\mu$ A or less. Then, set the power switch to OFF, and check if the current is 7  $\mu$ A or less.

### Notes for attaching parts

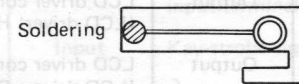
- 1) Attaching 22 $\mu$ F electrolysis Capacitor.



- 2) Attaching a ceramic oscillator

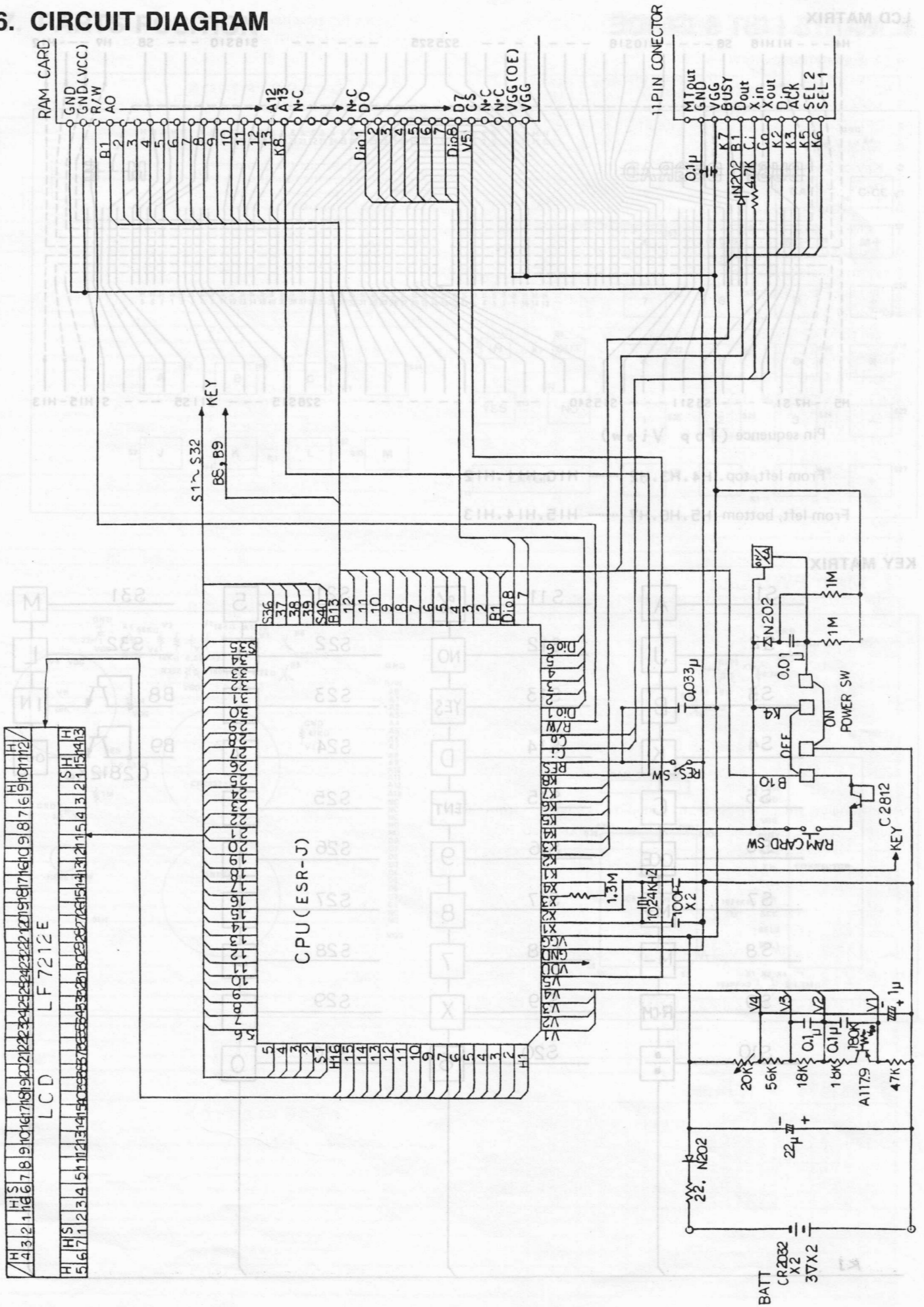


- 3) Soldering the power supply terminal for RAM CARD

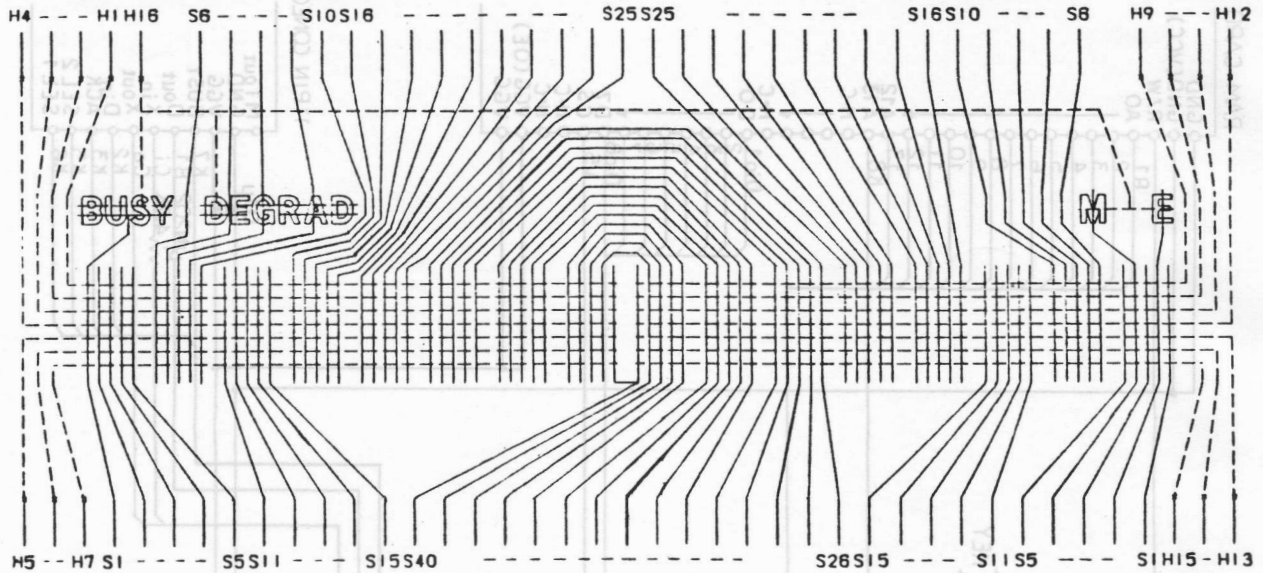


- Soldering must be performed at the endmost section not to use too much solder.

# 6. CIRCUIT DIAGRAM



LCD MATRIX

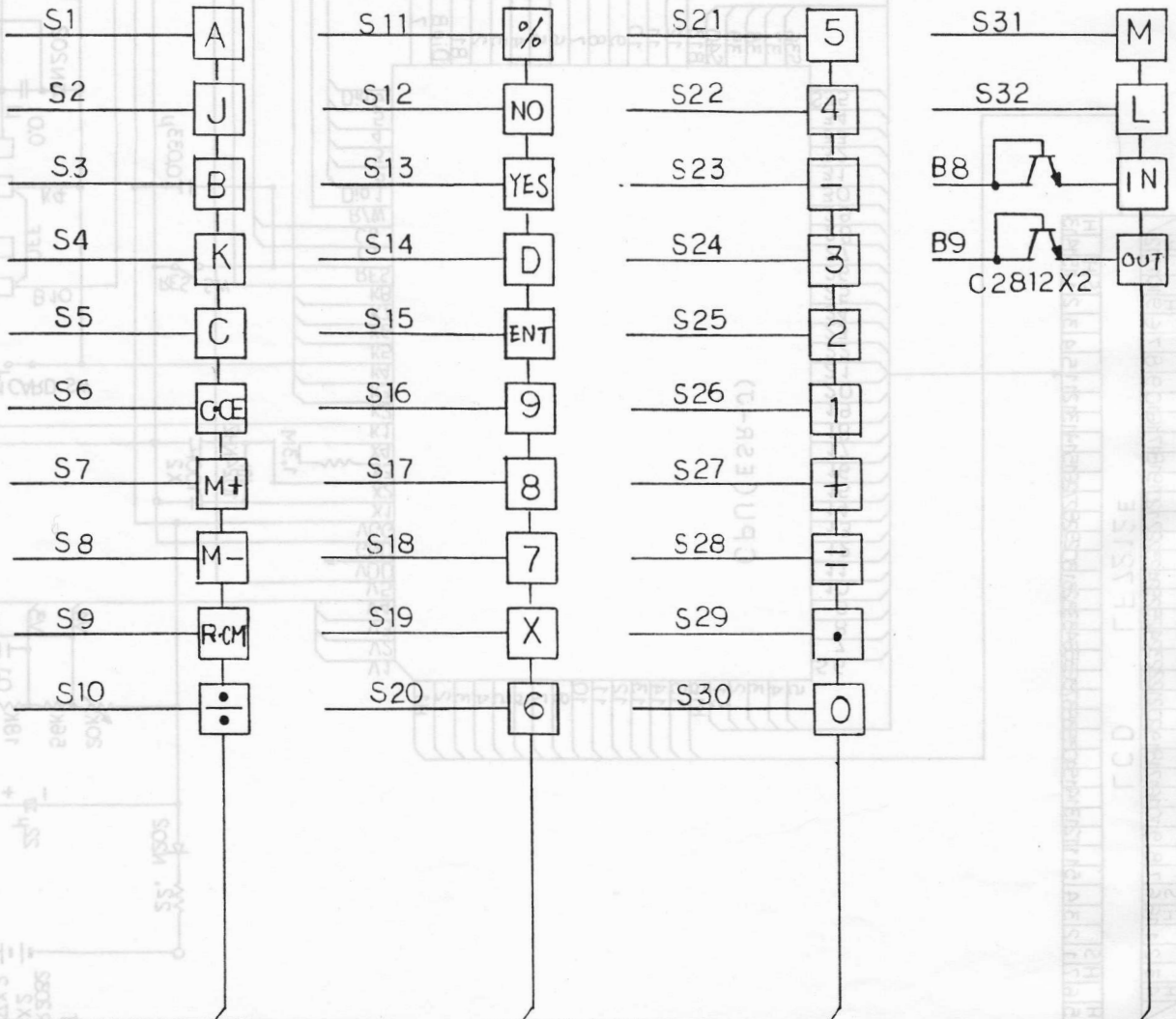


Pin sequence (Top View)

From left, top H4.H3.H2 ..... H10.H11.H12

From left, bottom H5.H6.H7 ..... H15.H14.H13

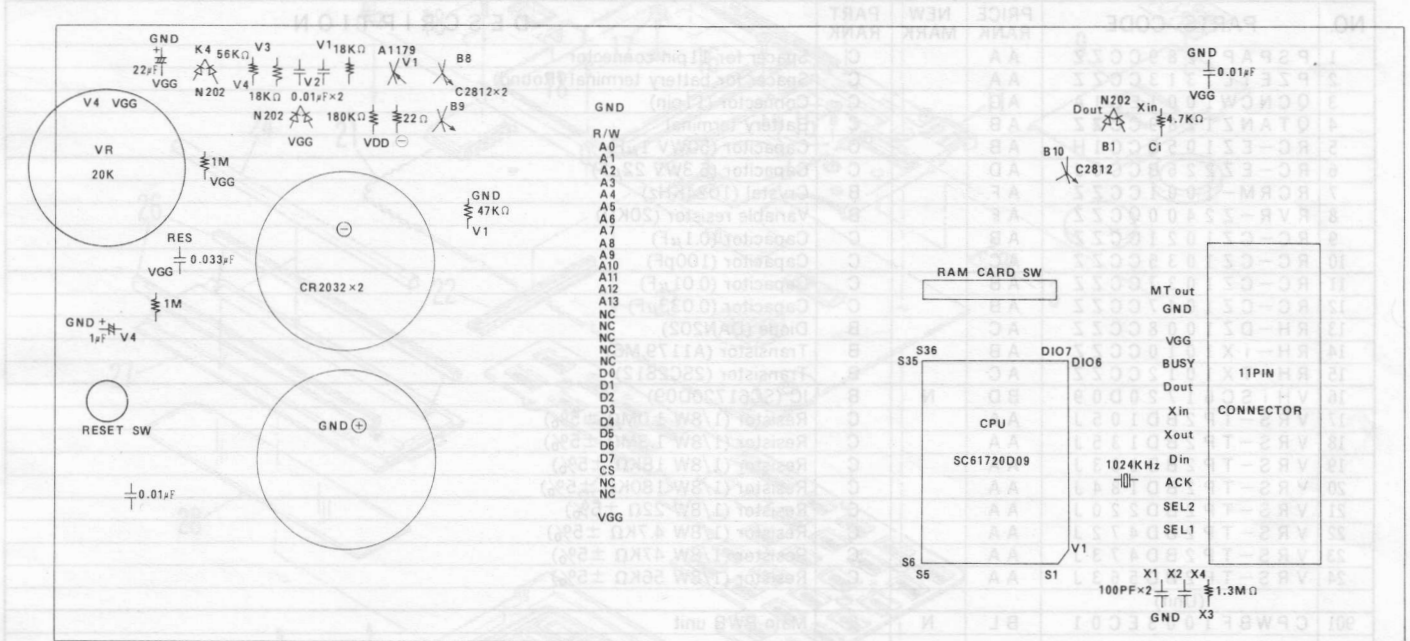
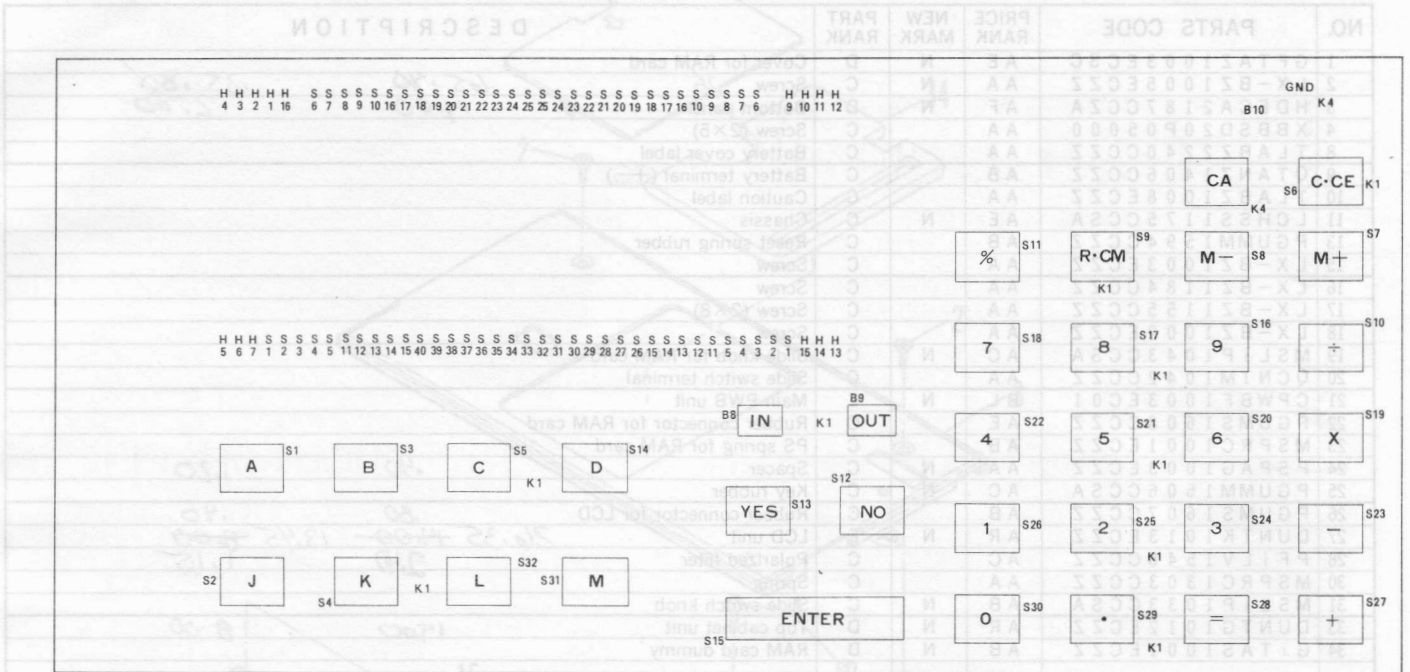
KEY MATRIX





# 7. PARTS POSITION

# 8. PARTS LIST & GUIDE



NO	PARTS CODE	PRICE RANK	NEW MARK	DESCRIPTION
1	AA	AA	N	
2	AA	AA	N	
3	AA	AA	N	
4	AA	AA	N	
5	AA	AA	N	
6	AA	AA	N	
7	AA	AA	N	
8	AA	AA	N	
9	AA	AA	N	
10	AA	AA	N	
11	AA	AA	N	
12	AA	AA	N	
13	AA	AA	N	
14	AA	AA	N	
15	AA	AA	N	
16	AA	AA	N	
17	AA	AA	N	
18	AA	AA	N	
19	AA	AA	N	
20	AA	AA	N	
21	AA	AA	N	
22	AA	AA	N	
23	AA	AA	N	
24	AA	AA	N	
25	AA	AA	N	
26	AA	AA	N	
27	AA	AA	N	
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36	AA	AA	N	
37	AA	AA	N	
38	AA	AA	N	
39	AA	AA	N	
40	AA	AA	N	
41	AA	AA	N	
42	AA	AA	N	
43	AA	AA	N	
44	AA	AA	N	
45	AA	AA	N	
46	AA	AA	N	
47	AA	AA	N	
48	AA	AA	N	
49	AA	AA	N	
50	AA	AA	N	

# 8. PARTS LIST & GUIDE

NOTES POSITION 160

## 1 Exteriors

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GFTAZ1003ECSC	AE	N	D	Cover for RAM card
2	LX-BZ1005ECZZ	AA	N	C	Screw <sup>25</sup>
3	HDECA2187CCZA	AF	N	D	Bottom panel
4	XBBSD20P05000	AA		C	Screw (2x5)
8	TLABZ2240CCZZ	AA		C	Battery cover label
9	QTANZ1406CCZZ	AB		C	Battery terminal (+)
10	TLABZ1008ECZZ	AA		C	Caution label
11	LCHSS1175CCSA	AE	N	C	Chassis
13	PGUMM1594CCZZ	AB		C	Reset spring rubber
15	LX-BZ1003ECZZ	AA		C	Screw
16	LX-BZ1184CCZZ	AA		C	Screw
17	LX-BZ1155CCZZ	AA		C	Screw (2x8)
18	LX-BZ1002ECZZ	AA		C	Screw
19	MSLIP1043CCSA	AC	N	C	Slide knob for RAM card
20	QCNTM1042CCZZ	AA		C	Slide switch terminal
21	CPWBF1003EC01	BL	N	E	Main PWB unit
22	PGUMS1608CCZZ	AE		C	Rubber connector for RAM card
23	MSPRC1001ECZZ	AB		C	PS spring for RAM card
24	PSPAG1003ECZZ	AA	N	C	Spacer
25	PGUMM1606CCSA	AC	N	C	Key rubber
26	PGUMS1607CCZZ	AB		C	Rubber connector for LCD
27	DUNTK1013ECZZ	AR	N	E	LCD unit
28	PFLV1546CCZZ	AC		C	Polarized filter
30	MSPRC1303CCZZ	AA		C	Spring
31	MSLIP1033CCSA	AB	N	C	Slide switch knob
33	DUNTG1012ECZZ	AR	N	D	Top cabinet unit
34	GITAS1001ECZZ	AB	N	D	RAM card dummy

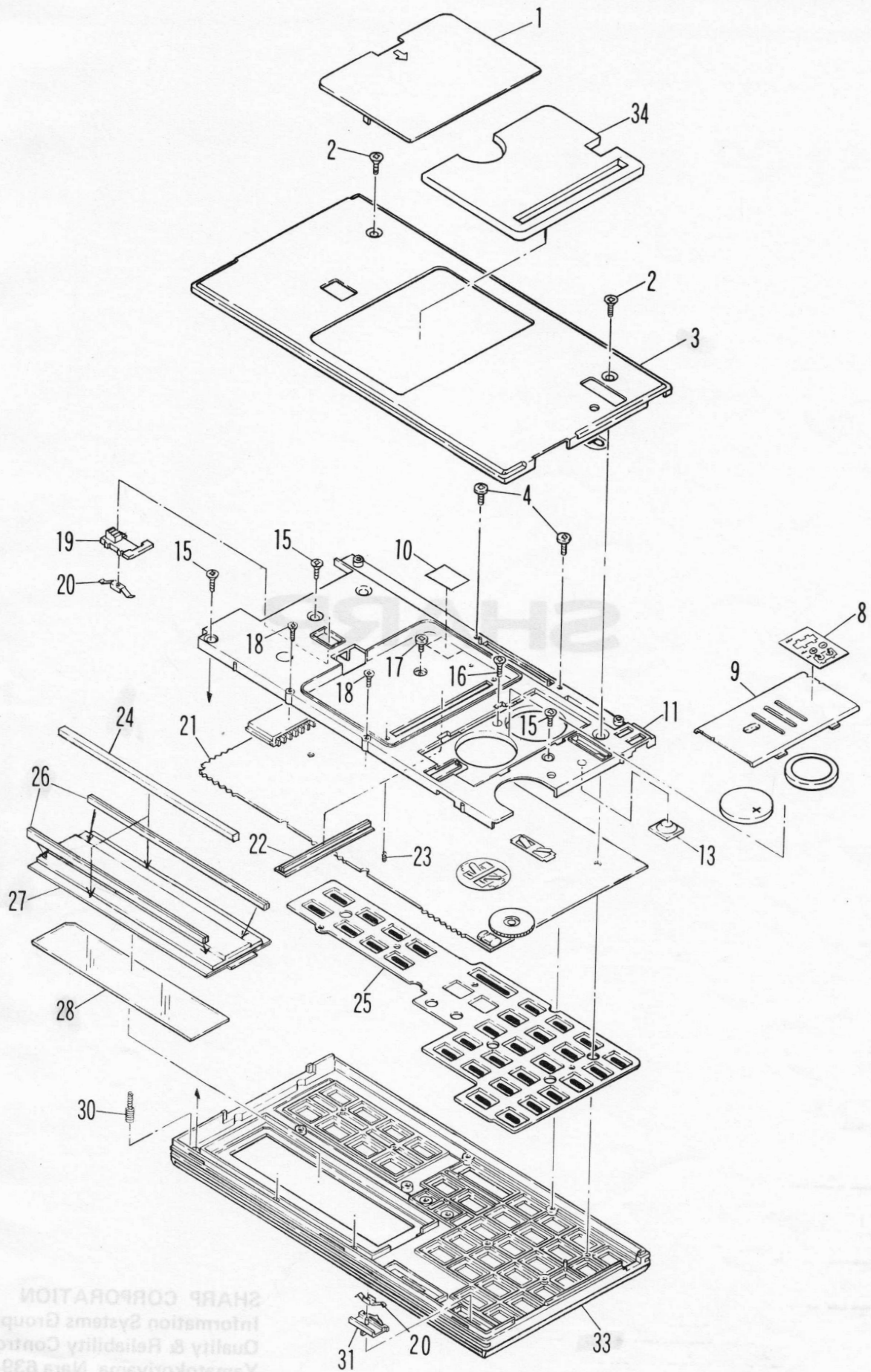
## 2 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	PSPAP1289CCZZ	AA		C	Spacer for 11 pin connector
2	PZETL1313CCZZ	AA		C	Spacer for battery terminal (Round)
3	QCNCW1001EC1A	AG		C	Connector (11pin)
4	QTANZ1289CCZZ	AB		C	Battery terminal
5	RC-EZ105CCC1H	AB		C	Capacitor (50WV 1μF)
6	RC-EZ226BCC0J	AD		C	Capacitor (6.3WV 22μF)
7	RCRM-1001CCZZ	AF		B	Crystal (1024KHz)
8	RVR-Z2400QCZZ	AF		B	Variable resistor (20KΩ)
9	RC-CZ1021CCZZ	AB		C	Capacitor (0.1μF)
10	RC-CZ1035CCZZ	AC		C	Capacitor (100pF)
11	RC-CZ1037CCZZ	AB		C	Capacitor (0.01μF)
12	RC-CZ1047CCZZ	AB		C	Capacitor (0.033μF)
13	RH-DZ1008CCZZ	AC		B	Diode (DAN202)
14	RH-IX1010CCZZ	AB		B	Transistor (A1179M6)
15	RH-TX1012CCZZ	AC		B	Transistor (2SC2812)
16	VHISC61720D09	BD	N	B	IC (SC61720D09)
17	VRS-TP2BD105J	AA		C	Resistor (1/8W 1.0MΩ ±5%)
18	VRS-TP2BD135J	AA		C	Resistor (1/8W 1.3MΩ ±5%)
19	VRS-TP2BD183J	AA		C	Resistor (1/8W 18KΩ ±5%)
20	VRS-TP2BD184J	AA		C	Resistor (1/8W 180KΩ ±5%)
21	VRS-TP2BD220J	AA		C	Resistor (1/8W 22Ω ±5%)
22	VRS-TP2BD472J	AA		C	Resistor (1/8W 4.7KΩ ±5%)
23	VRS-TP2BD473J	AA		C	Resistor (1/8W 47KΩ ±5%)
24	VRS-TP2BD563J	AA		C	Resistor (1/8W 56KΩ ±5%)
	(Unit)				
901	CPWBF1003EC01	BL	N	E	Main PWB unit

## 3 梱包材 & 付属品

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	GCASP1099CCSA	AE	N	D	Hard case
2	LPLTP1140CCZZ	AB		D	Ten plate
3	TINSE1021ECZZ	AG	N	D	Operation manual (USA only)
4	TLABH1013ECZZ	AC	N	C	Operation label
6	SPAKC0036ECZZ	AK	N	D	Packing case





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