

PART SPEC

DESCRIPTION: INVERTER,SIC581	
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SPECIFICATION: 13.0V-14.5V,,48KHZ,0 +50 ,BULK



SECTION : VISUAL & DISPLAY R&D

[illegible]

SHEET	1	2	3	4	5	6	7	8	9	10	11								
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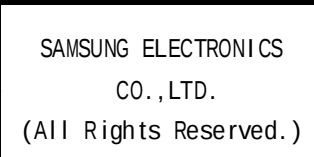
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DRAWN:
MYUNG-SOO NA

CHECKED:

APPROVED:

BYUNG-JU KWAK



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REV.	DATE	CONTENTS	DRAWN	APPROVED
00	2001.02.15	initial release	M.S NA	B.J. KWAK
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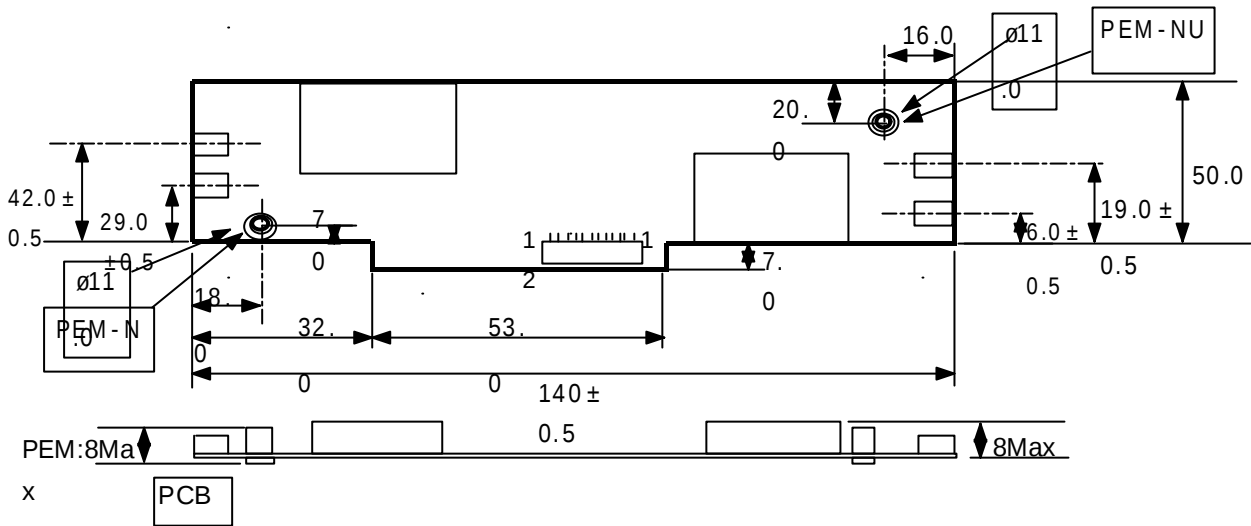
PART SPEC

1.0 SCOPE

- 1.1 THIS DOCUMENT DEFINES FOR INVERTER, SIC581,13.0~14.5V,48KHz
- 1.2 USAGE : BACK LIGHT 4 LAMP CCFL DRIVER INVERTER FOR SEC LCD
- 1.3 TYPE OF PACKAGE :
- 1.4 COATING :

2.0 RELATED DOCUMENTS

3.0 DIMENSIONS



4.0 REQUIREMENTS

4.1 MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V_{in1}	input voltage1	13.0~14.5	V
V_{in2}	input voltage2	5.0	V
T_{opr}	operating temperature	0 +50	
T_{stg}	storage temperature	-30 +80	
H_{op}	operating/storage humidity	90	%RH

4.2 CONTROL SIGNAL

PIN NO.	SYMBOL	STATUS	ACTION	REMARKS
CN1 #4	BKLT-ON	HIGH	LAMP(CCFL)-ON	2.4~5.25V
		LOW	LAMP(CCFL)-OFF	0.8V MAX.

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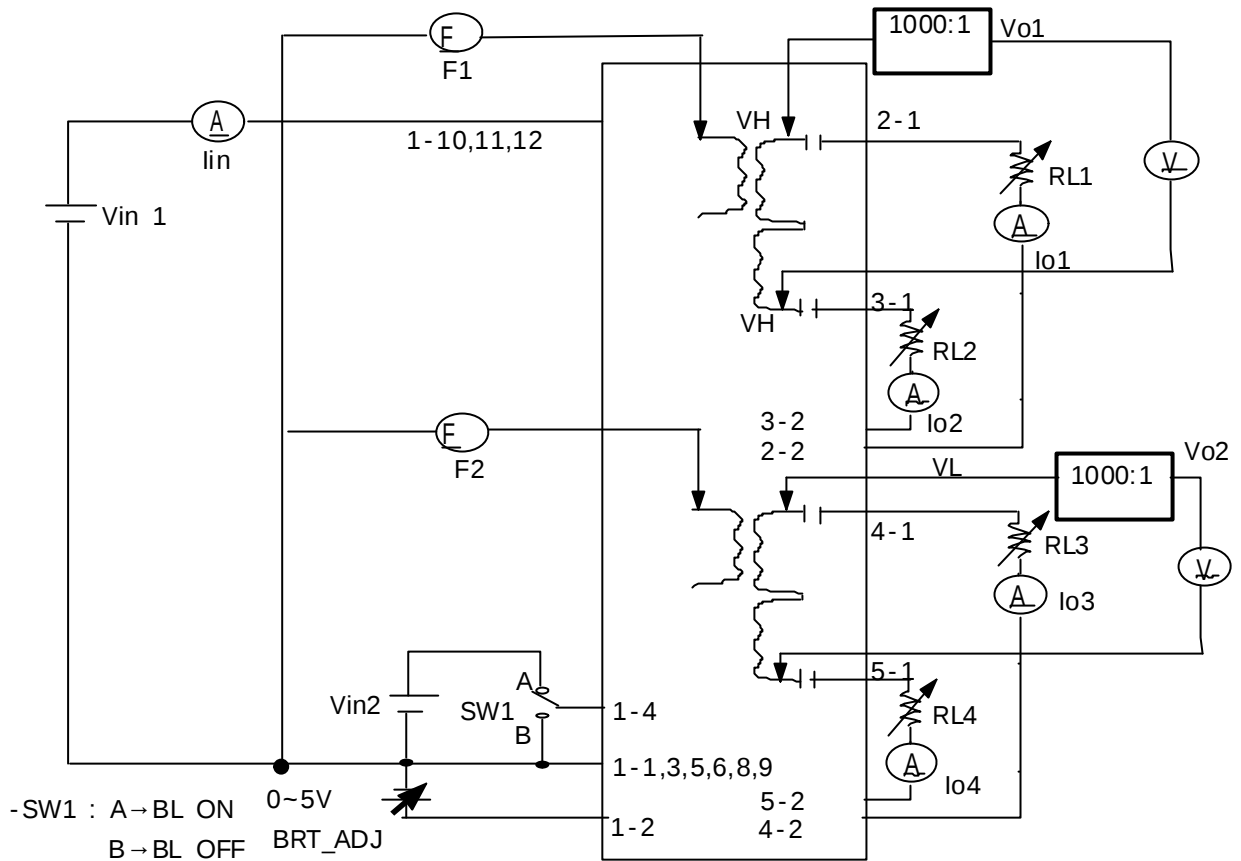
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4.3 TEST CIRCUIT



4.4 INPUT/OUTPUT CHARACTERISTICS

ITEM	SYMBOL	CONDITION				SPECIFICATION			UNIT
		Vin1(V) (DC-IN)	Vin2(V)	BRT- ADJ	RL(kΩ)	MIN	TYP	MAX	
OUTPUT CURRENT	Io1,2(max)	13.0~14.5	5	0V	110±0.5	5.4	6.1	6.8	mArms
	Io1,2(min)	13.0~14.5	5	5V	110±0.5	1.6	2.6	3.6	
	Io3,4(max)	13.0~14.5	5	0V	110±0.5	5.4	6.1	6.8	
	Io3,4(min)	13.0~14.5	5	5V	110±0.5	1.6	2.6	3.6	
INPUT CURRENT	Iin	14	5	0V	110±0.5	-	1600	1900	mADC
FREQUENCY	F(1)	14	5	0V	110±0.5	40	48	56	kHz
FREQUENCY	F(2)	14	5	0V	110±0.5	40	48	56	kHz
DIMMING FREQUENCY (Ta=25℃)	FD	14	5	5	110±0.5	525	535	545	Hz

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5.0 FUNCTIONAL PIN DESCRIPTION

5.1 CN1 CONNECTOR 12505WR-12WR-1200(YEONHO)

PIN NO	SYMBOL	REMARK
1	GND	GND
2	BRT_ADJ	0 ~ 5V
3,5,6,8,9	GND	GND
4	BL ON/OFF	CCFL Drive SIGNAL(Active HIGHT)
7	N.C	NO CONNECTION
10,11,12	DC- IN	DC INPUT Power(14V)

5.2 CN2 CONNECTOR:35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.3 CN3 CONNECTOR : 35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.4 CN4 CONNECTOR : 35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.5 CN5 CONNECTOR :35001WR-02P(YEONHO)

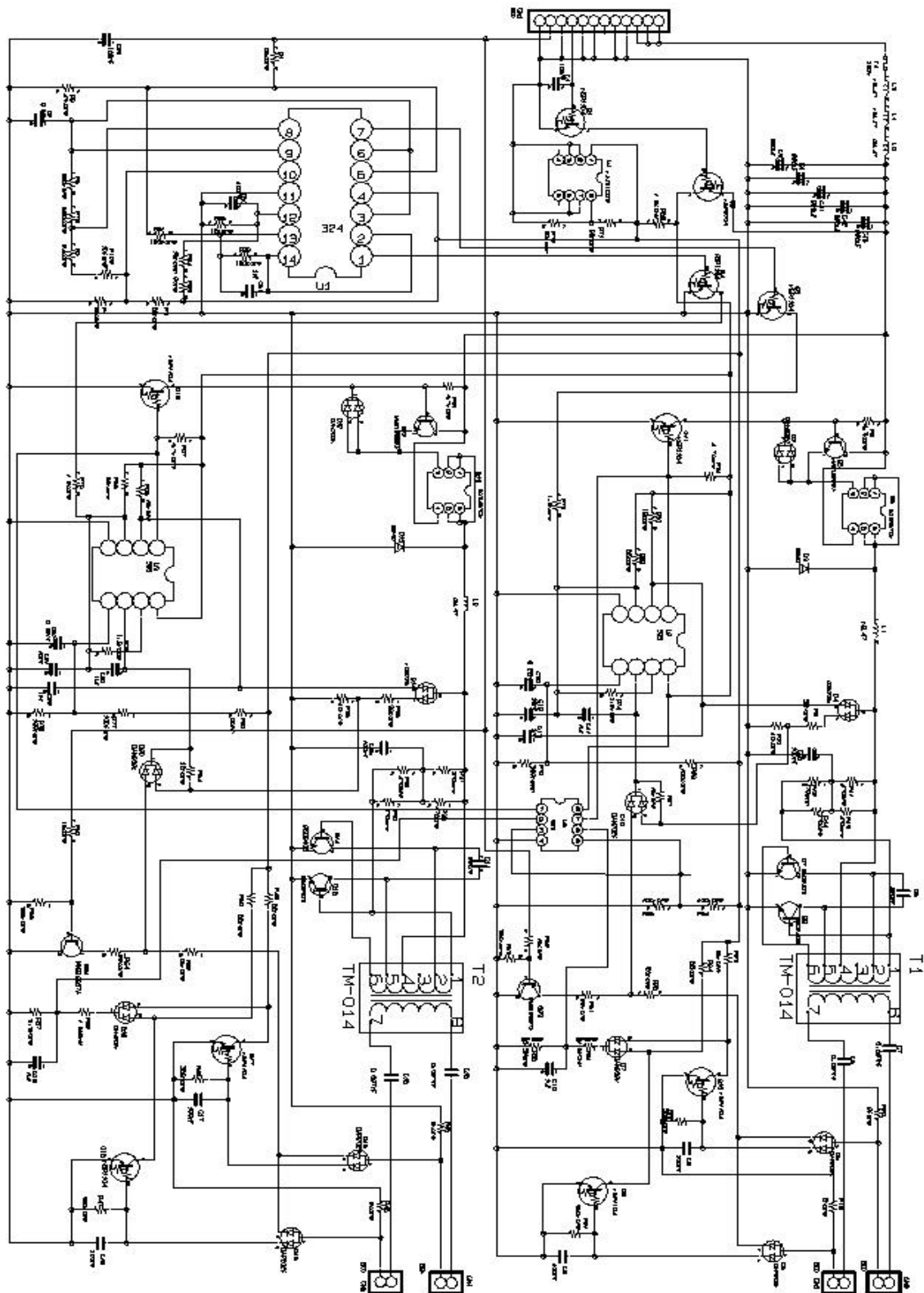
PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW



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6.0 INTERNAL CIRCUIT DIAGRAM



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7.0 PARTS LIST

SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
U1	IC	KA324	FAIRCHILD	BA10324	ROHM
		KIA324	KEC	LM324	SGS
U2,3,5	IC	KA393	FAIRCHILD	BA10393	ROHM
		KIA393	KEC	LM393	T.I
U4	IC	KA431CD	FAIRCHILD	TL431CD	SGS
Q11,18	"	KRC104S	KEC		
Q1,3,4,9,10,16,17	TR	SRC1204U	AUK	KRC404	KEC
Q2	"	SRA2204U	AUK	KRA304	KEC
Q5,12	"	SBT2222AU	AUK	KTN2222AU	KEC
Q23,24	"	SBT2907AU	AUK	KTN2907AU	KEC
Q6,13	TR	SI3457DV	VISHAY	FDC658P	FAIRCHILD
Q7,8,14,15	TR	KTD1624C	KEC	2SD2403	NEC
D2,7,10,12,19,20	DIODE	SDS142WK	AUK	KDS121	KEC
D5,6,15,16	"	SDS142WA	AUK	KDS120	KEC
D4,14	"	SDS142WM	AUK	KDS122	KEC
D3,13	DIODE	B240	DIODES. INC	MBRS230	ONSEMI
C3,4,41,42,43	C-ELEC	CETMQ1Y221M0611AF	SEMC		
C5,14	C-FILM	MMX-E2A224KT	HITACHI	MML-E2A224KT	HITACHI
C6,7,15,16	MLCC	4520470J302	EXPAN	CL42C470JKN	SEMC
		XC44CG3F470K	MARUWA	C4520CG3F470JT	TDK
C13,22,C51	"	CL10C102JBN	SEMC		
C1,8,9,17,18,23,50	"	CL10B104KON	"		
C11,20,C10,19	"	CL21F105ZAN	"		
C12,21	"	CL10B103KBN	"		
C30,31	"	CL10B221KBN	"		
C2	"	CL10C681JBN	"		
C25,26	"	CL21B104KBN	"		
C52		NO MOUNT			
R1,3,23,24,29, 49,50,55,25,52	CHIP-R	RC1608J563	SEMC		
R2	"	RC1608J433	"		
R4,9,35	"	RC1608J393	"		
R5	"	RC1608J243	"		
R6,79	CHIP-R	RC1608J684	SEMC		
R8,31,34,57	"	RC2012J472	"		
R10,36,95	"	RC1608J103	"		
R21,22,47,48,63,66	"	RC1608J364	"		
R27,54,62,65,94	"	RC1608J153	"		
R28,70,77,78, 84,85,91,92	"	RC1608J104	"		
R30,56	"	RC1608J183	"	"	

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SYMBOL	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
R19,20,45,46	"	RC2012J202	"	"	
R11~14,37~40	"	RC3216J511	"	"	
R61,64	"	RC1608J223	"	"	
R81,82	"	RC1608J165	"	"	
R73,74,75,76	"	RC1608J122	"	"	
R69	"	RC3216J182	"	"	
R71,72	"	RC1608J203	"	"	
R80,93	"	RC1608J000	"	"	
R86,87	"	RC1608J335	"	"	
R100	VR	10kΩ		"	
T1,2	TRANS	TM-014	NAMYANG	TM-014	DAESUNG
L1,2,3,4,5	COIL	KSL47	NAMYANG	KSL47	KYUNG IN
		KSL47	CLOVER		
F1	FUSE	SSQ3	BEL	451003	LITTEL
		25H3000	PICO ELEC.		
CN1	CONNECTOR	12505WR-12A00	YEONHO	53261-1290	MOLEX
CN2,3,4,5	CONNECTOR	35001WR-02P	YEONHO	SM02B-BHS	JST
PCB	PCB	SIC581 REV0.0	YOUNGEUN	SIC581 REV0.0	KIJOO
		SIC581 REV0.0	NIPPON PRODUCTS		
PEM-NUT	PEM-NUT	PN5.8	SAMJIN PRECISION	PN5.8	ATAI PRECISION

8.0 RELIABILITY SPECIFICATION

NO	ITEM	CONDITION AND METHOD
1	HIGH TEMPERATURE STORAGE TEST	TEMP.;70 DURATION: 500 hrs
2	LOW TEMPERATURE STORAGE TEST	TEMP.;40 DURATION: 500 hrs
3	HIGH TEMPERATURE HIGH HUMIDITY STORAGE TEST	TEMP.;40 ,HUMIDITY:95%RH DURATION: 500 hrs
4	HIGH TEMPERATURE HIGH HUMIDITY OPERATION TEST	TEMP.;40 ,HUMIDITY:95%RH DURATION: 1000 hrs
5	THERMAL SHOCK TEST	TEMP; -30 ↔ 70 , 250 CYCLE (30 MINUTE), (30 MINUTE)
6	VIBRATION TEST	AMPLITUDE;1.5mm,FEEQUENCY;10~55Hz, POSITION; TREE PERPENDLCULAR PLANES,DURATION;1000 hrs
7	HIGH TEMPERATURE OPERATION TEST	TEMP;50 DURATION;72 hrs
8	LOW TEMPERATURE OPERATION TEST	TEMP; 0 DURATION;72 hrs



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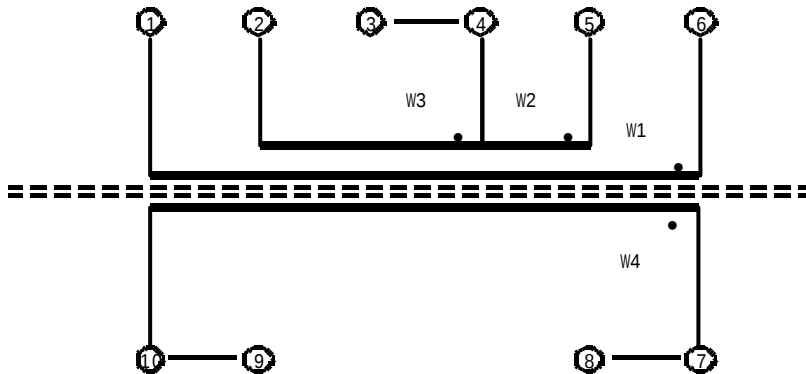
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9.0 DETAIL SPECIFICATION FOR KEY PARTS

9.1 TRANS (TM-014)

9.1.1 WINDING SPEC & ELECTRICAL CHARACTERISTICS



SYMBOL& WINDING	WIRE	TURNS	INDUCTANCE	CONDITION
W1 (#6-#1)	1UEW 0.15 ¢	2	0.7uH REF	AT 1KHZ 1Vrms
W2 (#5-#4)	1UEW 0.35 ¢	7	31.5 uH ± 12%	
W3 (#4-#2)	1UEW 0.15 ¢	7		
W4 (#7-#10)	1UEW 0.04 ¢	1750(350*5)	450mH ± 12%	

9.1.2 MATERIAL LIST (TM-014)

NO.	COMPONENT	MANUFACTURE COMPONENT	NAME OF MATERIAL	MANUFACTURE OF MATERIAL	UL FILE NO.
1	CORE	SAM SUNG CORNING CO., LTD.	SL-2 EEA 2124S		
		SAM WHA ELECTRONICS CO., LTD.	PL-7 EFD 2124S		
		ISU CERAMICS CO., LTD.	PM7 EFD 2124S		
2	BOBBIN	JO KWANG ELECTRONICS CO., LTD.	(94V-0) LCP EFD 2124	SUMITOMO CHEMICAL CO., LTD.	E54705 (M)
3	WIRE	DONGYANG ELECTRONICS CO.,LTD. YOUNG WHA SA CO.,LTD.	1 UEW 0.15Ø (AWG #35)		E102761(S)
4			1 UEW 0.35Ø (AWG #27)		E141925(S)
5			1 UEW 0.04Ø (AWG #44)		
6	INSULATION TAPE	DUCK SUNG TAPE CO., LTD.	POLYESTER FILM TAPE 0.025 mm X 16.0 mm (Transparent Color)		E105147(S)
7	CORE FIXING TAPE	(Cat No. DTS-204)	POLYESTER FILM TAPE 0.025 mm X 4.0 mm (Yellow Color)		
8	INSULATOR	SKC LTD	PETP FILM (SR55) 0.100mm(T) MIN		E74359 (S)
9	EPOXY RESIN	SUNGMOON RESIN CO.,LTD.	UNIBOND # 812		
10	WAX	NIPPON SEIRO CO., LTD. NIPPON WAX INDUSTRIAL CO., LTD.	PARAFIN WAX MOBIL MICRO WAX180		

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9.2 DETAIL MATERIAL LIST FOR KEY PARTS (SAFETY)

SYMBOL	NAME	TYPE NO.	MANUFACTURE	DESCRIPTION
FI	FUSE	451003	LITTELFUSE INC	UL FILE NO : E10480 CSA FILE NO : LR29862
		SSQ3	BEL	UL FILE NO : E20624 CSA FILE NO : LR39772
		25H3000	PICO ELECTRONICS	UL FILE NO : E220005
PCB	PRINTED WIRING BOARD	FR-4	KIJOO	UL FILE NO : E111636
			YOUNG EUN ELECTRONICS	UL FILE NO : E173507
			NIPPON PRODUCTS	UL FILE NO : E56327
CN1	CONNECTOR	53261-1290	MOLEX	NYLON 4/6 UL94V-0
		12505WR-12A00	YEONHO	"
CN2,3 CN4,5	CONNECTOR	SM02B-BHS	JST	PA46 UL94V-0
		35001WR-02P	YEONHO	"
	INSULATOR	SKC LTD	PETP FILM (SR50) 0.05mm(T) MIN	UL FILE NO:E74359(S)
		SKC LTD	PETP FILM (SR53) 0.125mm(T) MIN	UL FILE NO:E74359(S)
T1,2	TRANSFORMER	TM-014	DAISUNG TELECOMMUNICATIONS	CLASS A (105 de.C) SEE TRANS SPEC
			NAMYANG ELECTRONICS	CLASS A (105 de.C) SEE TRANS SPEC
	ADHESIVE	KE40RTV	SHINETSU	UL FILE NO:E48923A UL94V-0

10.0 PACKING REQUIREMENTS

BULK



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SAMSUNG P/N	VENDOR #1 P/N	VENDOR #2 P/N	VENDOR #3 P/N	VENDOR #4 P/N
BN44-00066A	SIC581			
VENDOR #1	SAMSUNG ELECTRO-MECHANICS CO.,LTD.			
VENDOR #2				
VENDOR #3				
VENDOR #4				
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