REFERENCE DATA

SPECIFICATION

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SIGNATURE	DATE
DRAWN BY S. Koizumi	20 Nov. 1997
CHECKED BY K. Sakai	20. Nov. 1997
APPROVED BY M. Tanaka	25. Nov. 1997
QC. APPROVED BY Hideo Wakabayashi	25. Nov. 1997

1. Purpose

This part drawing defines the requirements for TK10658M.

(Noise Reduction System)

2. TOKO Part Number

TK10658M

3. Function

Noise Reduction System (Compandor)

4. Applications

Cordless Phones, Amateur Radio Transceiver, Inter phone

5. Structure

The structure is a silicon monolithic bipolar circuit

6. Package Outline

20Lead—Shrink Small Outline Package :SSOP-20 (MFP20)

7. Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit	Condition
Supply Voltage	$V_{CC\ MAX}$	10	V	
Power Dissipation	P_D	410	mW	※
Operating Voltage Range	V_{OP}	2.4 ～ 7.0	V	
Storage Temperature Range	Tstg	-55 ～ +150	℃	
Operating Temperature Range	T_{OP}	-20 ～ +70	℃	
Input Frequency	f_{MAX}	100	kHz	

※ P_D must be derated at rate of 3.3mW／℃ for operation at 25℃.

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8. Electrical Characteristics (1)

Condition : Ta=25℃, V_{CC}=3.0V, fin=1.0kHz, R_L=10k Ω

Parameter	Symbol	Value			Unit	Condition
		MIN	TYP	MAX		
Supply Current	I_{CC}	—	4.0	6.5	mA	No signal
Threshold Voltage	V_{TH}	1.15	1.30	1.45	V	11, 12, 13pin
Standby Current	I_{CCS}	—	20	50	uA	12pin=GND
Compressor						
Input Impedance	Zinc	90	120	—	k Ω	
Standard Input Voltage	Vinc	8.0	12.5	17.0	mVrms	Voc=300mVrms, Vin=0dB ※
Gain Error 1	△Gc 1	-0.5	0.0	+0.5	dB	Vin=-20dB ※
Gain Error 2	△Gc 2	-1.0	0.0	+1.0	dB	Vin=-40dB ※
Total Harmonic Distortion	THDc	—	0.5	1.0	%	Vin=0dB
Output Noise Voltage	Vnoc	—	3.0	5.5	mVrms	Rg=620 Ω ※
Attenuation	Attc	60	80	—	dB	Vin=0dB, 11pin GND ※
Limiting Voltage	V_{LC}	1.15	1.35	1.50	Vp-p	
Voltage Gain for DATA Terminal	G_{VD}	-0.5	0.0	+0.5	dB	V4pin=300mVrms
Maximum Output Voltage for DATA Terminal	V_{OMD}	800	900	—	mVrms	THD=10% Point
Crosstalk	CTc	—	-35	-30	dB	Exp Vin=30mVrms, Rg=620 Ω ※
Buffer Amp.						
Voltage Gain	G_{VB}	-0.5	0.0	+0.5	dB	Vin=300mVrms
Frequency Characteristics 1	△f 1	—	-3	—	dB	Vin=300mVrms, f=3kHz
Frequency Characteristics 2	△f 2	—	-60	—	dB	Vin=300mVrms, f=30kHz
Total Harmonic Distortion	THD_B	—	0.02	0.10	%	Vin=300mVrms
Maximum Output Voltage	V_{OMB}	550	700	—	mVrms	THD=10% Point

※ Evaluated by CCITT standard P.53 noise filter.

Electrical Characteristics (2)

Condition : Ta=25℃, Vcc=3.0V, fin=1.0kHz, RL=10k Ω

Parameter	Symbol	Value			Unit	Condition
		MIN	TYP	MAX		
Expander						
Standard Output Voltage	Voe	110	130	160	mVrms	Vin=30mVrms=0dB ※
Gain Error 1	△Ge 1	-0.5	0.0	+0.5	dB	Vin=-10dB ※
Gain Error 2	△Ge 2	-1.0	0.0	+1.0	dB	Vin=-20dB ※
Gain Error 3	△Ge 3	-1.5	0.0	+2.0	dB	Vin=-30dB ※
Total Harmonic Distortion	THDe	—	0.5	1.5	%	Vin=0dB
Output Noise Voltage	Vnoe	—	10	30	uVrms	Rg=620 Ω ※
Attenuation	Atte	60	80	—	dB	Vin=0dB, 13pin GND ※
Maximum Output Voltage	VOMe	700	800	—	mVrms	THD=10% Point
Voltage Gain for Input Amp.	GVI	14.5	15.5	16.5	dB	Vin=0dB
Maximum Output Voltage for Input Amp.	VOMI	450	500	—	mVrms	THD=10%
Crosstalk	Cte	—	-70	-60	dB	Comp Vin=Vinc, Rg=620 Ω ※

※ Evaluated by CCITT standard P.53 noise filter.

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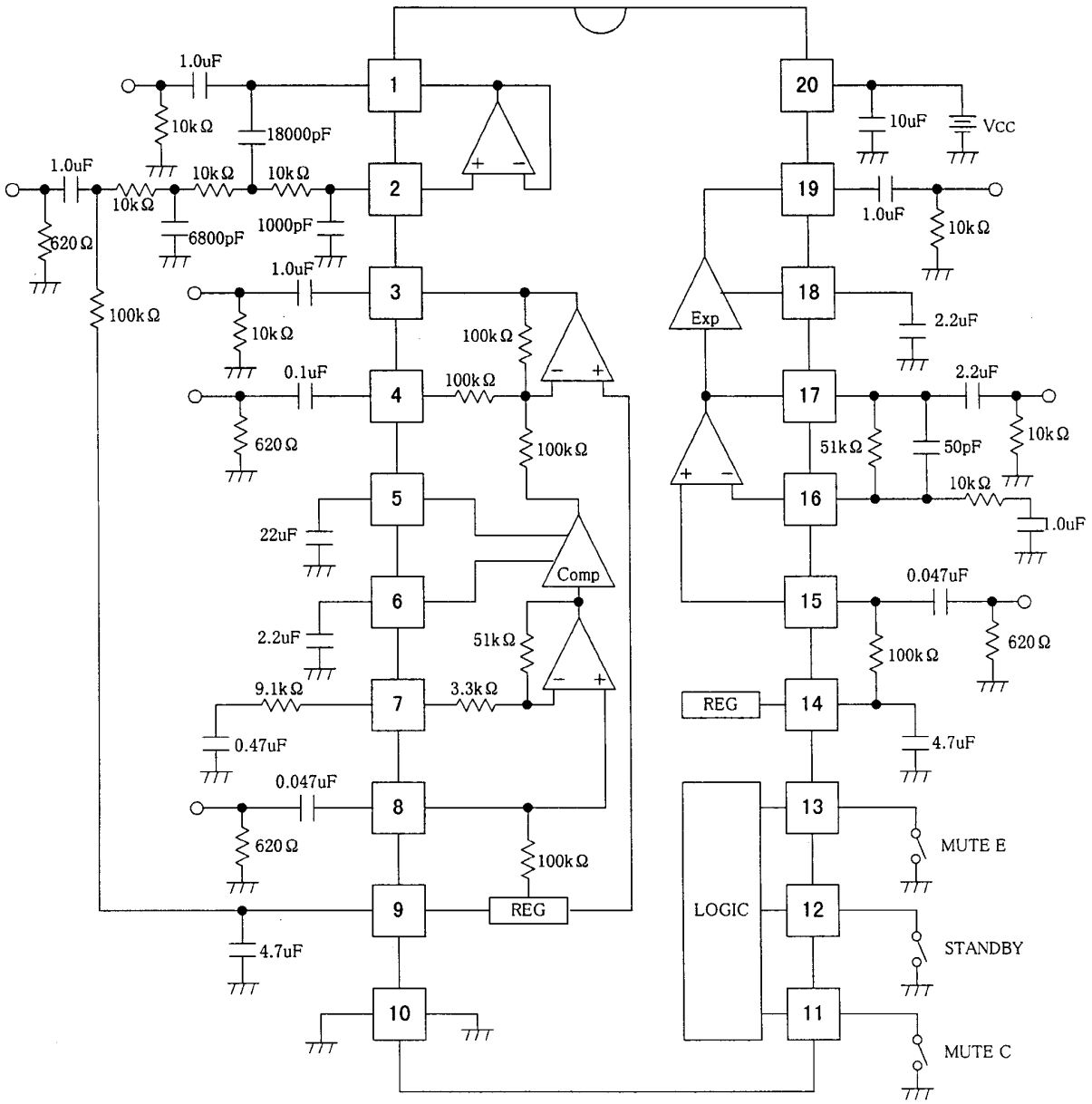
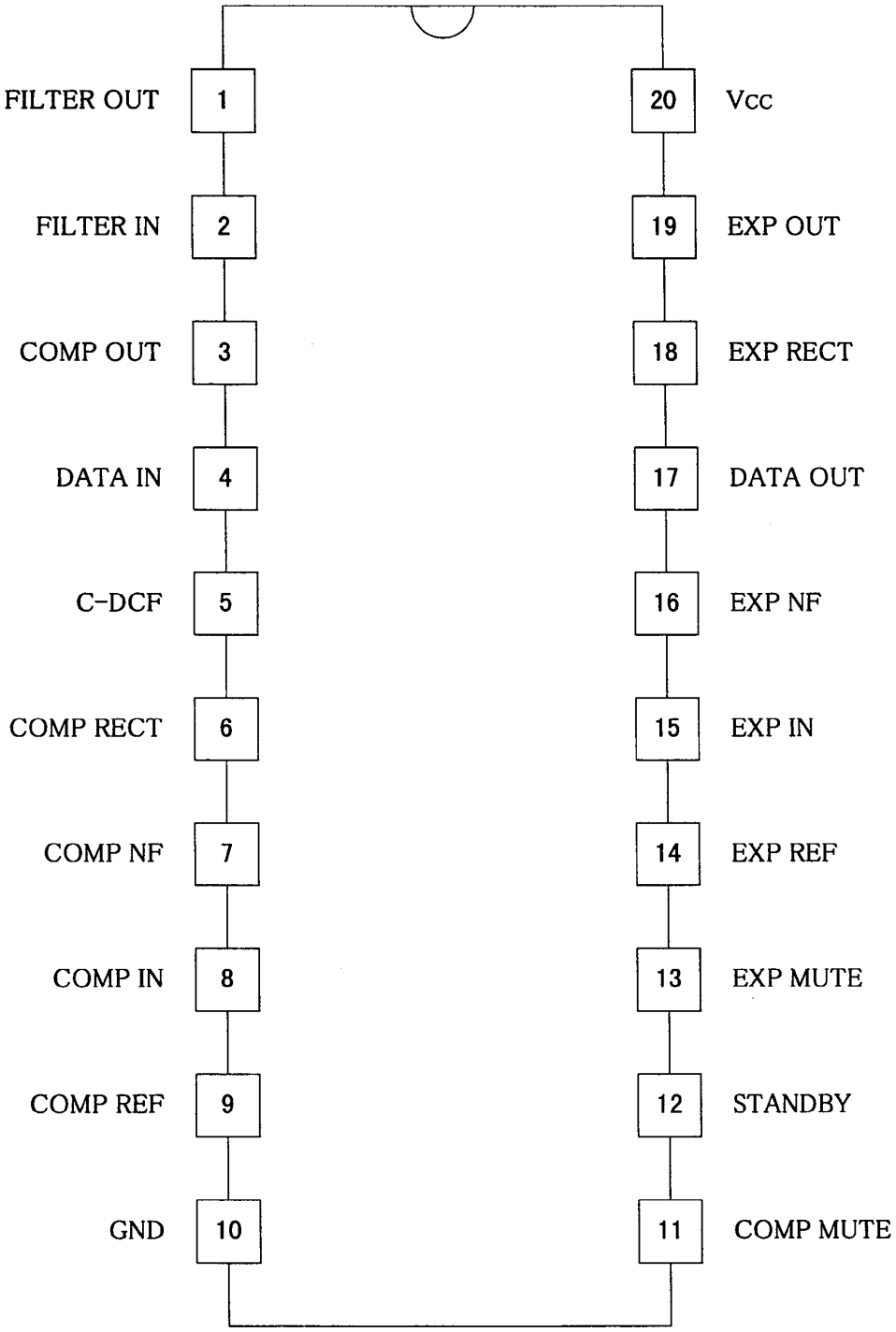
9. Test Circuit



Switch terminal	High (OPEN or Vcc)	Low (GND)
Pin 11	Comp Mute OFF	Comp Mute ON
Pin 12	Operate	Standby
Pin 13	Exp Mute OFF	Exp Mute ON

10. Pin Assignment



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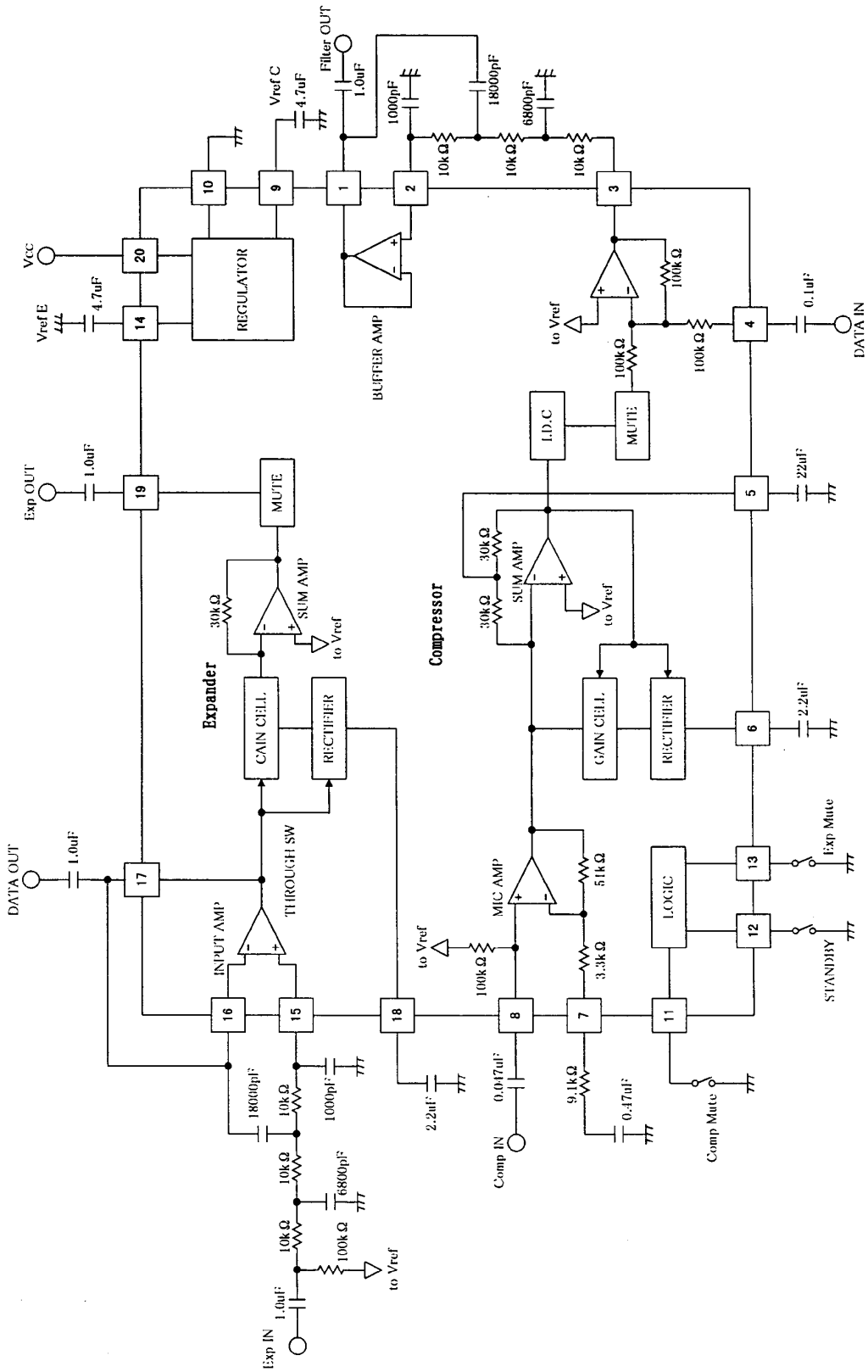
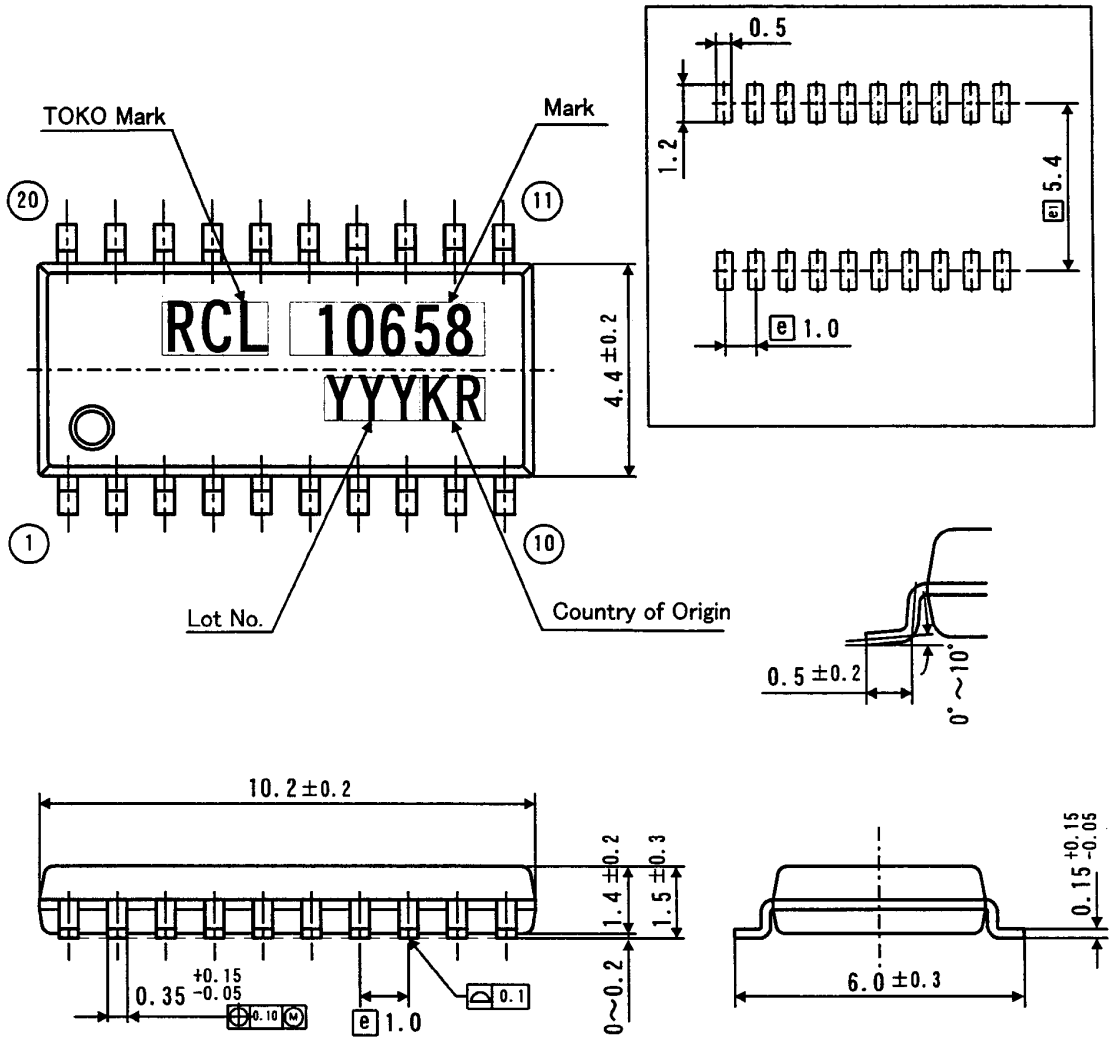
11. Block Diagram



12. Package Outline Dimensions/Marking

SSOP-20 (MFP20)



			Molded Resin	:	Epoxy Resin
			Lead Frame	:	42 Alloy
			Terminal Treatment	:	Solder Plating(5~15 μm)
			Mark Method	:	Ink
Unit	:	mm	Country of Origin	:	Korea
General Tolerance	:	±0.2	Weight	:	0.15g

13. Cautions

13-1. WARNING - Life support applications policy
TOKO,INC. products shall not be used within any life support systems without the specific written consent of TOKO,INC. A life support system is a product or system intended to support or sustain life which, if it fails, can be reasonably expected to result in a significant personal injury or death.

13-2. Examples of characteristics given here are typical for each product and being technical data, these do not constitute a guarantee of characteristics or conditions of use.
The circuits shown in this specification are intended to explain typical applications of the products concerned. Accordingly, TOKO is not responsible for any circuit problems, nor for any infringement of third party patents or any other intellectual property rights that may arise from the use of these circuits. Moreover , this catalog dose not signify that TOKO agrees implicitly or explicitly to license any patent rights or other intellectual property rights which it holds.

13-3. This part is not designed for anti-nuclear radiation structure.
Please do not use this part in an environment where nuclear radiation may occur.

13-4. We may not accept the return of parts damaged by careless handling.

14. Others

14-1. No Ozone Depleting Substances were used in the manufacture of theses parts.

14-2. No material used in this part contain brominated PBBOs or PBBs as the flame-retardant.

14-3. In the event of any confusion concerning this "Specifications", both parties shall settle such confusion through reasonable discussions.

14-4. The announcement number of CISTEC list is as follows.
TK10658***** No. :0002500010000008 Announcement time : September 1992

14-5. For the cautions to storage and device mounting, please refer to the Quality Specification No. QH7-B114.

14-6. For the package, please refer to the Package Specification No. DP3-F022.