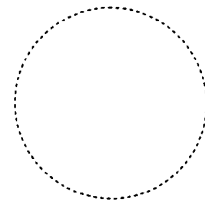


REFERENCE DATA

SPECIFICATION

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1. Purpose

This specification is applicable to TK14521M which is designed for FM-IF system in communication apparatus.

2. TOKO Part Number

TK14521M

3. Function

Narrow Band FM-IF System

4. Applications

Communication Apparatus

5. Structure

The structure is a silicon monolithic bipolar circuit

6. Package Outline

16Lead—Small Outline Package :SOP-16 (MFP16)

7. Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit	Condition
Supply Voltage	VCC MAX	6.0	V	
Power Dissipation	PD	230	mW	※1
Operating Voltage Range	VOP	1.8 ~ 4.0	V	※2
Storage Temperature Range	Tstg	-55 ~ +150	°C	
Operating Temperature Range	TOP	-30 ~ +70	°C	
Maximum Input Frequency	fMAX	60	MHz	

※1:PD must be derated at rate of 1.84mW/°C for operation at 25°C.

※2:In case squelch circuit is not used, rating is 1.8~5.5V.

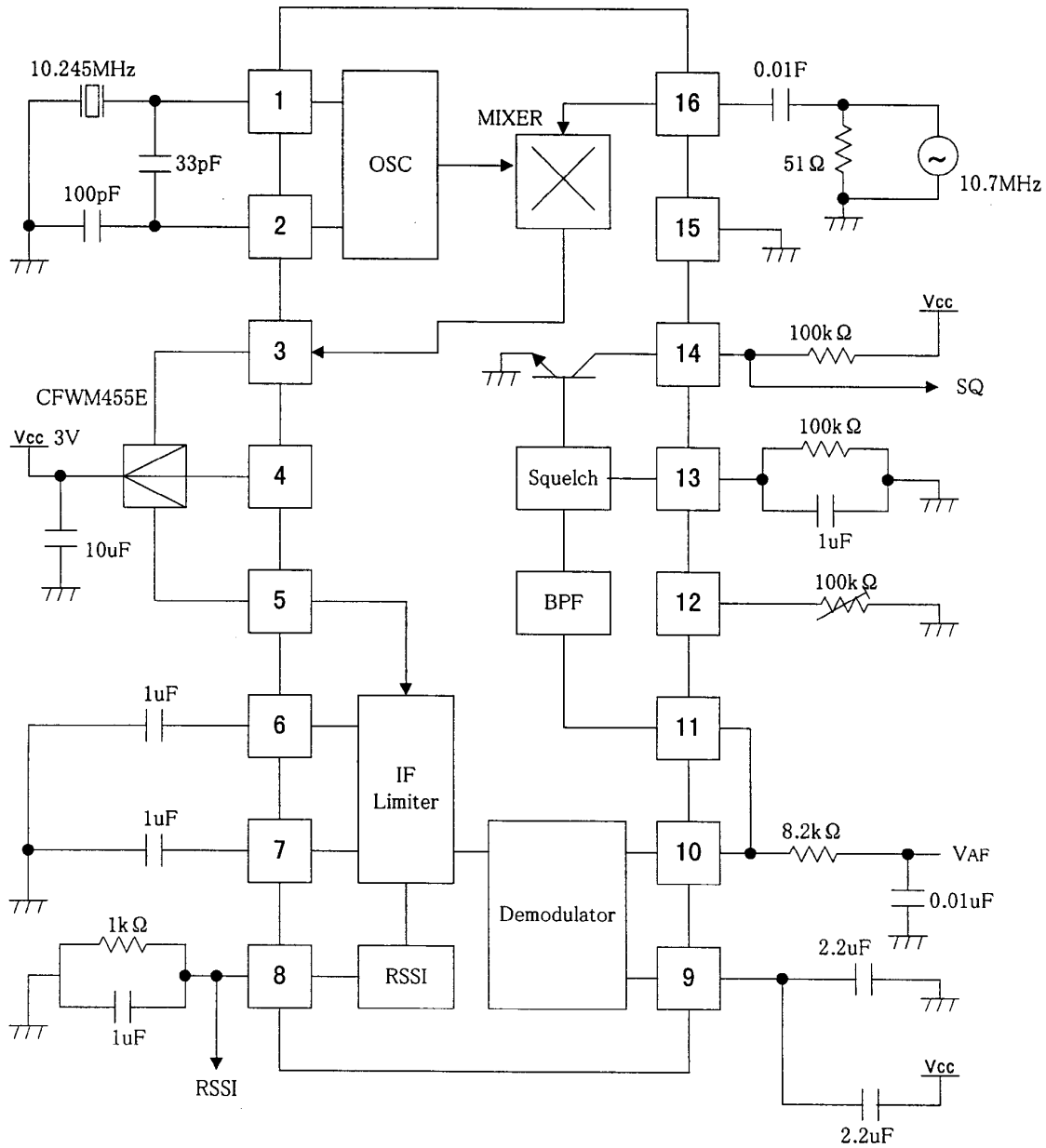
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8. Electrical Characteristics

Condition : Ta=25°C, Vcc=3V, fm=10.7kHz,
fm=1kHz, Mod=±3kHz

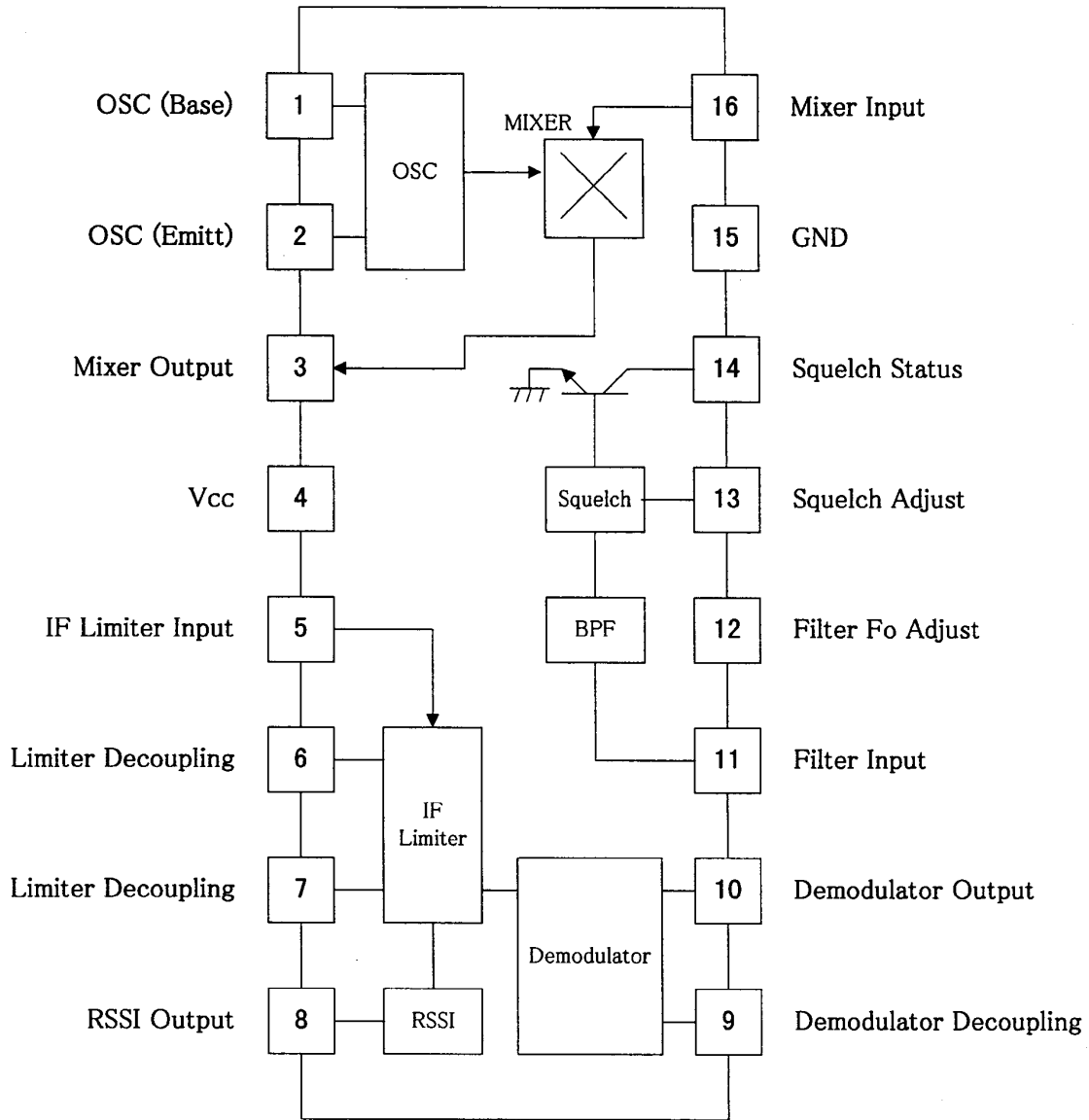
Parameter	Symbol	Value			Unit	Condition
		MIN	TYP	MAX		
Supply Current	Icc	4.3	7.0	9.8	mA	Non Input
Mixer + IF						
Limiting Sensitivity	Limit	-94	-100	-106	dBm	-3dB Point
Output Voltage	Vo	200	300	400	mVrms	
Total Harmonic Distortion	THD		0.8	2.8	%	
Signal to Noise Ratio	S?N	40	46	52	dB	
AM Rejection Ratio	AMRR	30	40		dB	AM 30% mod
Mixer Transfer Gain	GM	20	26	32	dB	
Mixer 3rd Order Intercept	VICP	-10	-3		dBm	
Mixer Input Resistance	RIM	2.8	3.6	4.4	kΩ	DC Measurement
Mixer Output Resistance	ROM	1.2	1.5	1.9	kΩ	DC Measurement
Limiter Input Resistance	RIFIN	1.2	1.5	1.9	kΩ	DC Measurement
RSSI						
RSSI Output Current 1	IRSSI 1	41	60	88	uA	-30dBm Input
RSSI Output Current 2	IRSSI 2	22	40	59	uA	-60dBm Input
RSSI Output Current 3	IRSSI 3	10	17	25	uA	-100dBm Input
Squelch BPF						
Center Frequency 1	fCT 1	10.5	15.0	21.0	kHz	Programmable R for fCT is ∞
Center Frequency 2	fCT 2	21.0	30.0	39.0	kHz	Programmable R for fCT is 36kΩ
Center Frequency 3	fCT 3	38.5	55.0	71.5	kHz	Programmable R for fCT is 6.8kΩ
Squelch Output Current	ISQ	6	10	18	uA	Programmable R for fCT is 36kΩ 25mVrms input (Pin #11)
Squelch On Voltage	VSQ(ON)	0.40	0.47	0.54	V	Apply DC Voltage to Pin #13
Squelch Off Voltage	VSQ(OFF)	0.50	0.57	0.64	V	Apply DC Voltage to Pin #13

9. Test Circuit



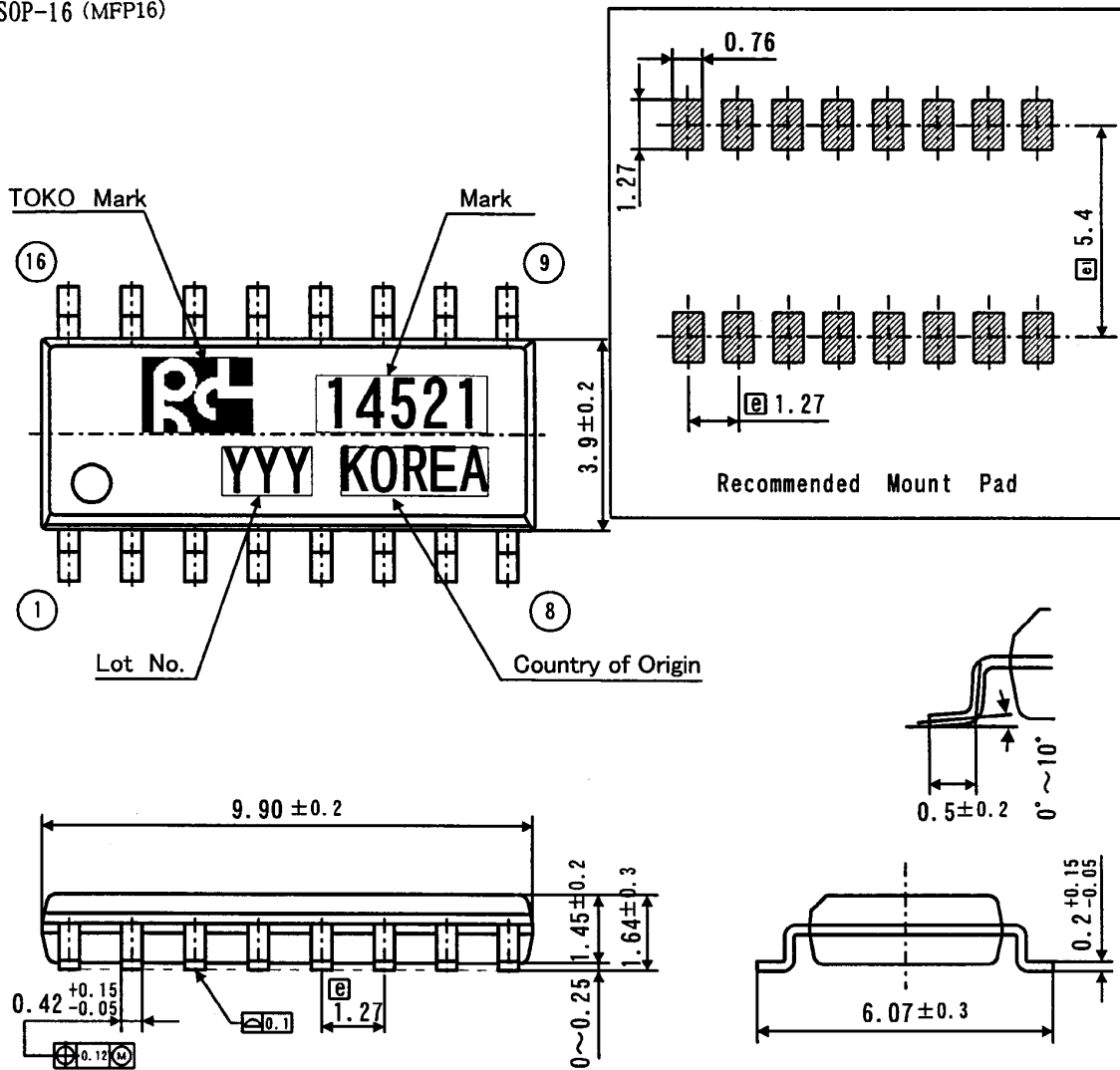
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10. Pin Assignment / Block Diagram



11. Package Outline Dimensions/Marking

SOP-16 (MFP16)



Molded Resin	:	Epoxy Resin
Lead Frame	:	Copper Alloy
Terminal Treatment	:	Solder Plating(5~15 μ m)
Mark Method	:	Ink
Country of Origin	:	Korea
Weight	:	0.15g

Unit : mm
General Tolerance : ± 0.2

12. Cautions

- 12-1. **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.

- 12-2. 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 does not signify that TOKO agrees implicitly or explicitly to license any patent rights or other intellectual property rights which it holds.

- 12-3. This part is not designed for anti-nuclear radiation structure.
 Please do not use this part in an environment where nuclear radiation may occur.

- 12-4. We may not accept the return of parts damaged by careless handling.

13. Others

- 13-1. No Ozone Depleting Substances were used in the manufacture of these parts.

- 13-2. No material used in this part contains brominated PBBs or PBBs as the flame-retardant.

- 13-3. In the event of any confusion concerning this "Specifications", both parties shall settle such confusion through reasonable discussions.

- 13-4. The announcement number of CISTEC list is as follows.
 TK1452***** No. : 0002500010000297 Announcement time : January 1995

- 13-5. For the cautions to storage and device mounting, please refer to the Quality Specification No. QH7-B012.

- 13-6. For the package, please refer to the Package Specification No. DP3-F026.