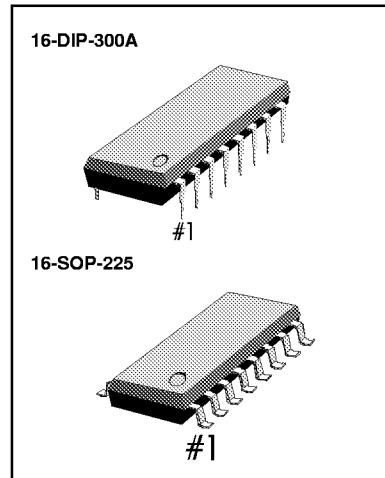


**INTRODUCTION**

The KS8803B/4B are designed to select 10/15 channels of cordless phone of which frequency band is 46/49MHz. It has reference frequency generator, programmable divider for transmit and receive section and phase detector.

**FEATURES**

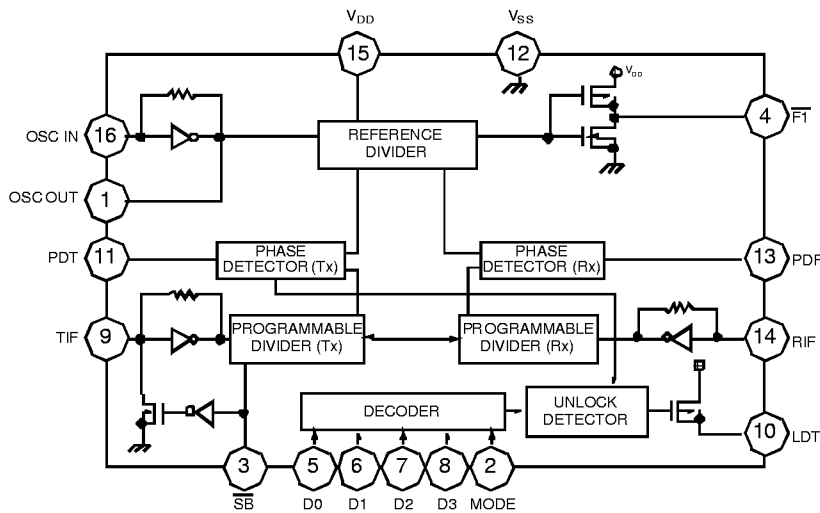
- 10 Channels selectable : KS8803B (both transmit/receive)
- 15 Channels selectable : KS8804B (both transmit/receive)
- Include oscillation circuit with external x-tal (10.24MHz)
- 5KHz output for guard tone
- Unlock detector (phase difference more than 6.25us)
- Stand-by function for power saving



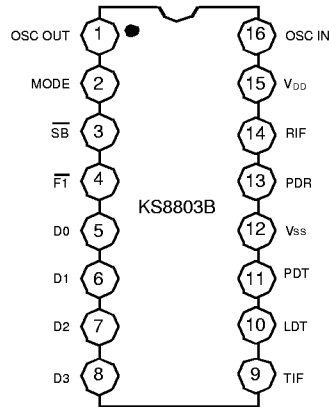
**ORDERING INFORMATION**

Device	Package	Operating Temperature
KS8803B	16-DIP-300A	- 30°C ~ + 75°C
KS8803BD	16-SOP-225	

**BLOCK DIAGRAM**



**PIN CONFIGURATION**



**PIN DESCRIPTION**

Pin No	Symbol	Description
1	OSC OUT	<ul style="list-style-type: none"> <li>This output generates reference frequency when it is connected to Pin 16 with external OSC of which frequency is 10.24MHz</li> </ul>
2	MODE	<ul style="list-style-type: none"> <li>Base/Remote Unit Selection Pin</li> <li>"High" : Base Unit</li> <li>"Low" : Remote Unit</li> </ul>
3	$\overline{SB}$	<ul style="list-style-type: none"> <li>Stand-by pin</li> <li>This input controls Tx PLL for reducing the power dissipation</li> <li>"High" : Normal operation</li> <li>"Low" : Stand-by</li> </ul>
4	$\overline{F1}$	<ul style="list-style-type: none"> <li>5KHz output</li> </ul>
5	D0	<ul style="list-style-type: none"> <li>Channel selection pins</li> </ul>
6	D1	<ul style="list-style-type: none"> <li>The Combinations of these inputs select one channel among the 10/15 channels</li> </ul>
7	D2	
8	D3	
9	TIF	<ul style="list-style-type: none"> <li>Input to programmable divider of Tx</li> <li>AC coupling with VCO</li> <li>In case of lager signal, It needs DC-coupling</li> <li>Min. input voltage is 0.1Vrms</li> </ul>
10	LDT	<ul style="list-style-type: none"> <li>Unlocked signal out pin (see output charateristics)</li> </ul>

## PIN DESCRIPTION

Pin No	Symbol	Description
11	PDT	<ul style="list-style-type: none"><li>• Phase detector output for Tx</li><li>• PDT detects the phase error from Tx PLL and its output is connected to external low pass filter</li></ul>
12	V <sub>SS</sub>	<ul style="list-style-type: none"><li>• This pin is negative supply of the IC.</li><li>• It usually grounded</li></ul>
13	PDR	<ul style="list-style-type: none"><li>• Phase detector output for Rx</li><li>• PDR detects the phase error from Rx PLL and its output is connected to external low pass filter</li></ul>
14	RIF	<ul style="list-style-type: none"><li>• Input of programmable divider for Rx.</li><li>• AC coupling with VCO</li><li>• In case of larger signal (standard CMOS logic), it needs DC coupling</li><li>• Min. input voltage is 0.1Vrms</li></ul>
15	V <sub>DD</sub>	<ul style="list-style-type: none"><li>• This pin is positive supply of the IC</li><li>• Its reference is V<sub>SS</sub>, and normally + 3.0V ~ + 5.5V more positive than V<sub>SS</sub></li></ul>
16	OSC IN	<ul style="list-style-type: none"><li>• X-TAL osc connection pin</li><li>• This input generates the reference frequency when it is connected to pin 1 with external osc</li></ul>

**ABSOLUTE MAXIMUM RATING ES** ( $T_a = 25^\circ\text{C}$ )

Characteristic	Symbol	Value	Unit
Supply voltage	$V_{DD}$	- 0.5 ~ 6.0	V
Input Voltage	$V_I$	- 0.3 ~ $V_{DD} + 0.5$	V
Power Dissipation	$P_D$	350	mW
Operating Temperature	$T_{OPR}$	- 30 ~ + 75	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	- 40 ~ + 125	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_a = 25^\circ\text{C}$ ,  $V_{DD} = 5\text{V}$ , unless otherwise specified)

Characterostoc	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	$V_{DD}$	-	3	-	5.5	V
Input Voltage	$V_{IH1}$	D0 - D3, SB	$0.7V_{DD}$	-	$V_{DD}$	V
	$V_{IL1}$	D0 - D3, SB	-	-	$0.3V_{DD}$	V
	$V_{IH2}$	MODE	$0.9V_{DD}$	-	$V_{DD}$	V
	$V_{IL2}$	MODE	-	-	$0.1V_{DD}$	V
Input Frequency	$f_{I1}$	$V_{TIF} = 0.15\text{Vrms}$	10	-	52	MHz
	$f_{I2}$	$V_{RIF} = 0.15\text{Vrms}$	30	-	42	MHz
	$f_{I3}$	$OSC_{IN} = 0.3\text{Vrms}$	5	10.24	11	MHz
Input Amplitude	$V_{I(AMP)1}$	$f_{TIF} = 52\text{MHz}$	0.1	-	$0.3V_{DD}$	Vrms
	$V_{I(AMP)2}$	$f_{RIF} = 42\text{MHz}$	0.1	-	$0.3V_{DD}$	Vrms
	$V_{I(AMP)3}$	$OSC_{IN} = 11\text{MHz}$	0.3	-	$0.3V_{DD}$	Vrms
Input Current	$I_{IH}$	$V_{IN} = V_{DD}$	-	-	40	$\mu\text{A}$
	$I_{IL}$	$V_{IN} = V_{SS}$	-	-	40	$\mu\text{A}$

**ELECTRICAL CHARACTERISTICS** ( $T_a = 25^\circ\text{C}$ ,  $V_{DD} = 5\text{V}$ , unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Output Voltage	$V_{OH1}$	PDT, RDR : $I_O = 0.5\text{mA}$	$V_{DD}-1.0$	-	-	V
	$V_{OL1}$	PDT, RDR : $I_O = 0.5\text{mA}$	-	-	1.0	V
	$V_{OH2}$	LDT : $I_O = 1\text{mA}$	$V_{DD}-1.0$	-	-	V
	$V_{OL2}$	F1 : $I_O = 1\text{mA}$	-	-	1.0	V
Output OFF Leakage Current	$I_{LKG1}$	PDT, PDR : $V_O = V_{DD}/V_{SS}$	-	0.01	1.0	$\mu\text{A}$
	$I_{LKG2}$	LDT : $V_O = V_{SS}$	-	-	5.0	$\mu\text{A}$
Stand-by Current	$I_{SB1}$	$V_{DD} = 3\text{V}$ (Note 2)	-	1.0	2.0	mA
	$I_{SB2}$	$V_{DD} = 3\text{V}$ (Note 2)	3.5	4.0	-	mA
Operating Current	$I_{DD1}$	$V_{DD} = 3\text{V}$ (Note 1)	-	2.0	3.0	mA
	$I_{DD2}$	$V_{DD} = 5\text{V}$ (Note 1)	-	6.0	7.0	mA

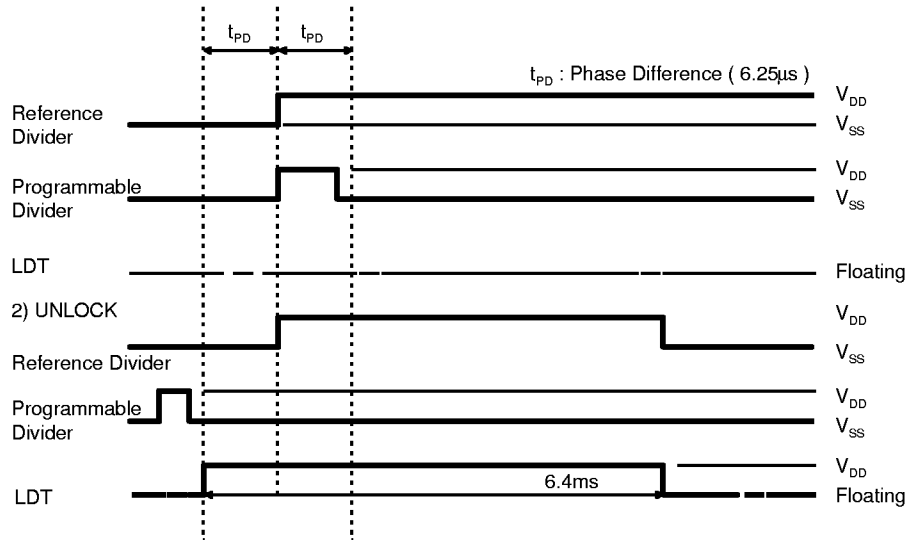
- NOTE 1)  $OSC_{IN}$  : 10.24MHz X-tal Connection  
TIF : 27MHz 150mVrms  
RIF : 42MHz 150mVrms  
MODE :  $V_{DD}$ , SB =  $V_{DD}$ , others are opened

- NOTE 2)  $OSC_{IN}$  : 10.24MHz X-tal Connection  
TIF : 27MHz 150mVrms  
RIF : 42MHz 150mVrms  
MODE :  $V_{DD}$ , SB =  $V_{SS}$ , others are opened

- Capacitor more than 2000pF should be connected between  $V_{DD}$  &  $V_{SS}$

OUTPUT CHARACTERISTICS

1) LOCK



**TABLE 1. Channel & Frequency table to Base/Remote input data for KS8803B (10CH)  
BASE (MODE = 1)**

INPUT					Rx (f <sub>REF</sub> = 5KHz)			Tx (f <sub>REF</sub> = 5KHz)		
D0	D1	D2	D3	CH	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N	f <sub>TX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N
1	0	0	0	1	49.670	38.975	7795	46.610	46.610	9322
0	1	0	0	2	49.845	39.150	7830	46.630	46.630	9326
1	1	0	0	3	49.860	39.165	7833	46.670	46.670	9334
0	0	1	0	4	49.770	39.075	7815	46.710	46.710	9342
1	0	1	0	5	49.875	39.180	7836	46.730	46.730	9346
0	1	1	0	6	49.830	39.135	7827	46.770	46.770	9354
1	1	1	0	7	49.890	39.195	7839	46.830	46.830	9366
0	0	0	1	8	49.930	39.235	7847	46.870	46.870	9374
1	0	0	1	9	49.990	39.295	7859	46.930	46.930	9386
0	1	0	1	10	49.970	39.275	7855	46.970	46.970	9394
1	1	0	1	10	49.970	39.275	7855	46.970	46.970	9394
0	0	1	1	10	49.970	39.275	7855	46.970	46.970	9394
1	0	1	1	10	49.970	39.275	7855	46.970	46.970	9394
0	1	1	1	10	49.970	39.275	7855	46.970	46.970	9394
1	1	1	1	10	49.970	39.275	7855	46.970	46.970	9394
0	0	0	0	10	49.970	39.275	7855	46.970	46.970	9394

**REMOTE (MODE = 0)**

INPUT					Rx (f <sub>REF</sub> = 5KHz)			Tx (f <sub>REF</sub> = 5KHz)		
D0	D1	D2	D3	CH	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N
1	0	0	0	1	46.610	35.915	7183	49.670	49.670	9934
0	1	0	0	2	46.630	35.935	7187	49.845	49.845	9969
1	1	0	0	3	46.670	35.975	7195	49.860	49.860	9972
0	0	1	0	4	46.710	36.015	7203	49.770	49.770	9954
1	0	1	0	5	46.730	36.035	7207	49.875	49.875	9975
0	1	1	0	6	46.770	36.075	7215	49.830	49.830	9966
1	1	1	0	7	46.830	36.135	7227	49.890	49.890	9978
0	0	0	1	8	46.870	36.175	7235	49.930	49.930	9986
1	0	0	1	9	46.930	36.235	7247	49.990	49.990	9998
0	1	0	1	10	46.970	36.275	7255	49.970	49.970	9994
1	1	0	1	10	46.970	36.275	7555	49.970	49.970	9994
0	0	1	1	10	46.970	36.275	7255	49.970	49.970	9994
1	0	1	1	10	46.970	36.275	7255	49.970	49.970	9994
0	1	1	1	10	46.970	36.275	7255	49.970	49.970	9994
1	1	1	1	10	46.970	36.275	7255	49.970	49.970	9994
0	0	0	0	10	46.970	36.275	7255	49.970	49.970	9994

**TABLE 2. Channel & Frequency table to Base/Remote input data for KS8804B (15CH)  
BASE (MODE = 1)**

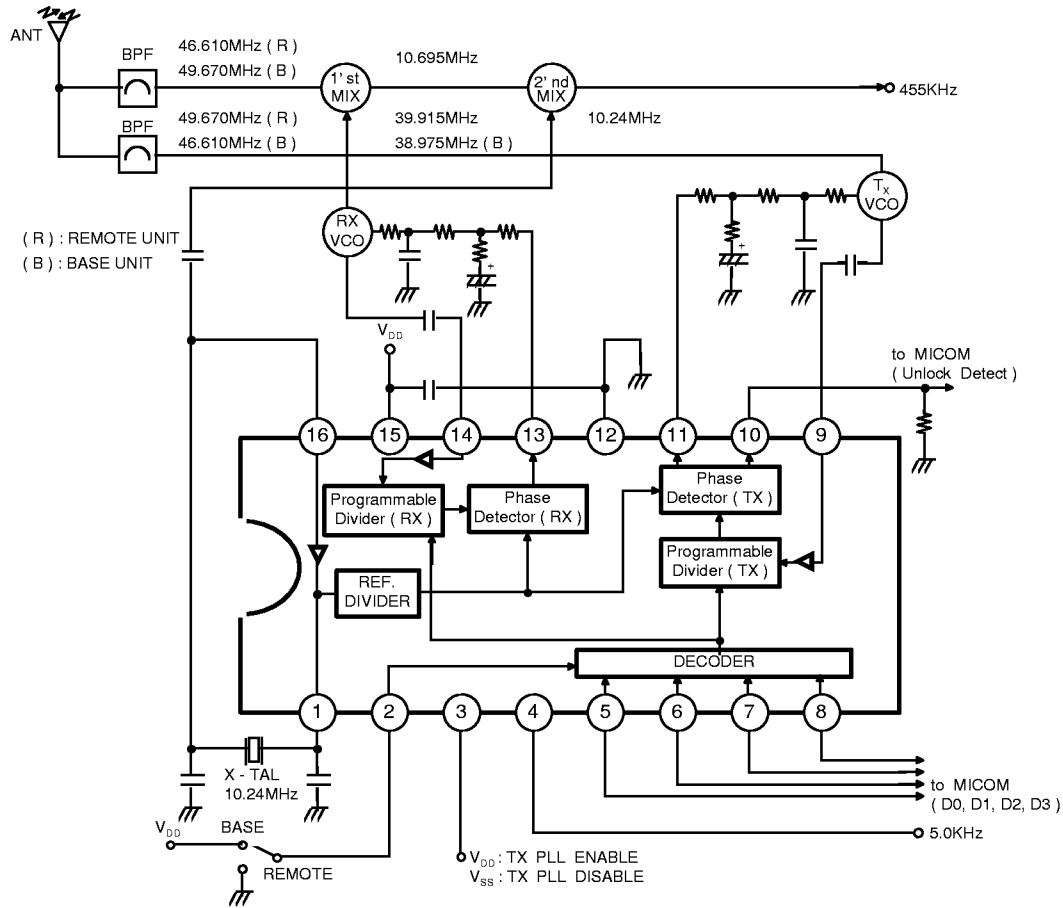
INPUT					Rx (f <sub>REF</sub> = 5KHz)			Tx (f <sub>REF</sub> = 5KHz)		
D0	D1	D2	D3	CH	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N	f <sub>TX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N
1	0	0	0	1	49.695	39.000	7800	46.510	46.510	9302
0	1	0	0	2	49.710	39.015	7803	46.530	46.530	9306
1	1	0	0	3	49.725	39.030	7806	46.550	46.550	9310
0	0	1	0	4	49.740	39.045	7809	46.570	46.570	9314
1	0	1	0	5	49.755	39.060	7812	46.590	46.590	9318
0	1	1	0	6	49.670	38.975	7795	46.610	46.610	9322
1	1	1	0	7	49.845	39.150	7830	46.630	46.630	9326
0	0	0	1	8	49.860	39.165	7833	46.670	46.670	9334
1	0	0	1	9	49.770	39.075	7815	46.710	46.710	9342
0	1	0	1	10	49.875	39.180	7836	46.730	46.730	9346
1	1	0	1	11	49.830	39.135	7827	76.770	46.770	9354
0	0	1	1	12	49.890	39.195	7839	46.830	46.830	9366
1	0	1	1	13	49.930	39.235	7847	46.870	46.870	9374
0	1	1	1	14	49.990	39.295	7859	46.930	46.930	9386
1	1	1	1	15	49.970	39.275	7855	46.970	46.970	9394
0	0	0	0	15	49.970	39.275	7855	46.970	46.970	9394

**REMOTE (MODE = 0)**

INPUT					Rx (f <sub>REF</sub> = 5KHz)			Tx (f <sub>REF</sub> = 5KHz)		
D0	D1	D2	D3	CH	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N	f <sub>RX</sub> (MHz)	f <sub>VCO</sub> (MHz)	N
1	0	0	0	1	46.510	35.815	7163	49.695	49.695	9939
0	1	0	0	2	46.530	35.835	7167	49.710	49.710	9942
1	1	0	0	3	46.550	35.855	7171	49.725	49.725	9945
0	0	1	0	4	46.570	35.875	7175	49.740	49.740	9948
1	0	1	0	5	46.590	35.895	7179	49.755	49.755	9951
0	1	1	0	6	46.610	35.915	7183	49.670	49.670	9934
1	1	1	0	7	46.630	35.935	7187	49.845	49.845	9969
0	0	0	1	8	46.670	35.975	7195	49.860	49.860	9972
1	0	0	1	9	46.710	36.015	7203	49.770	49.770	9954
0	1	0	1	10	46.730	36.035	7207	49.875	49.875	9975
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0	0	1	1	12	46.830	36.135	7227	49.890	49.890	9978
1	0	1	1	13	46.870	36.175	7235	49.930	49.930	9986
0	1	1	1	14	46.930	36.235	7247	49.990	49.990	9998
1	1	1	1	15	46.970	36.275	7255	49.970	49.970	9994
0	0	0	0	15	46.970	36.275	7255	49.970	49.970	9994

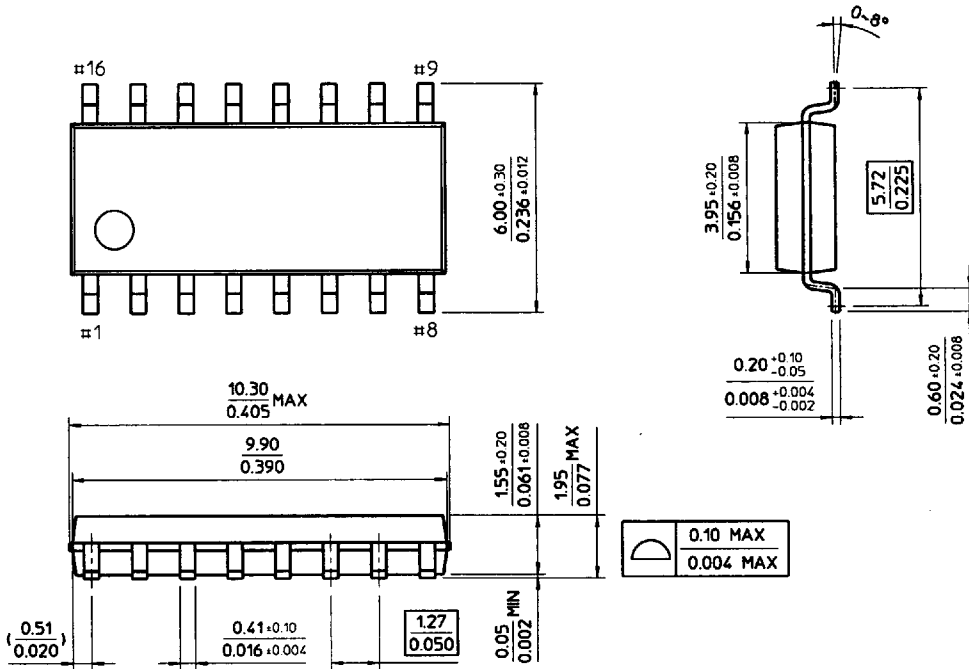


APPLICATION CIRCUIT





16-SOP-225



16-SOP-225A

