



Absolute Maximum Ratings

Temperature under bias	0°C	to	70°C
Storage temperature	-65°C	to	150°C
Input voltage	-0.3V	to	+6.0V
Output voltage	-0.3V	to	+6.0V

DC Electrical Characteristic

(Ta=0°C~70°C, VDD=5V, VSS=0V)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
I_{IL}	Input Leakage Current	$V_{IN} = V_{DD}, V_{SS}$			± 1	μA
V_{IH}	Input High Voltage		2.0			V
V_{IL}	Input Low Voltage				0.8	V
V_{IHT}	Input High Threshold Voltage	/RESET, TCC, /INT	$0.85V_{DD}$		V_{DD}	V
V_{ILT}	Input Low Threshold Voltage	/RESET, TCC, /INT	V_{SS}		$0.15V_{DD}$	V
V_{IHx}	Clock Input High Voltage	OSCI	3.5			V
V_{ILx}	Clock Input Low Voltage	OSCI			1.5	V
V_{OH1}	Output High Voltage (Ports 5, 6, 7)	$I_{OH} = -12.0mA$	2.4			V
V_{OL1}	Output Low Voltage (Ports 5, 6)	$I_{OL} = 12.0mA$			0.4	V
V_{OL2}	Output Low Voltage (Port 7)	$I_{OL} = 20.0mA$			0.4	V
I_{PH}	Pull-high current	Pull-high active, input pin at V_{SS}	-50	-100	-240	μA
I_{SB}	Power down current	All input and I/O pin at V_{DD} , output pin floating, WDT enabled			10	μA
I_{CC1}	Operating supply current	/RESET="High", Fosc=4MHz (MS="1", HLF="1", CK2="0"), output pin floating			2	mA
I_{CC2}	Operating supply current	/RESET="High", Fosc=10MHz (MS="1", HLF="1", CK2="0"), output pin floating			5	mA
I_{CC3}	Operating supply current ($V_{DD}=3.25V$)	/RESET="High", Fosc=32KHz (MS="1", HLF="0", CK2="0"), output pin floating, WDT disabled			30	μA

AC Electrical Characteristic

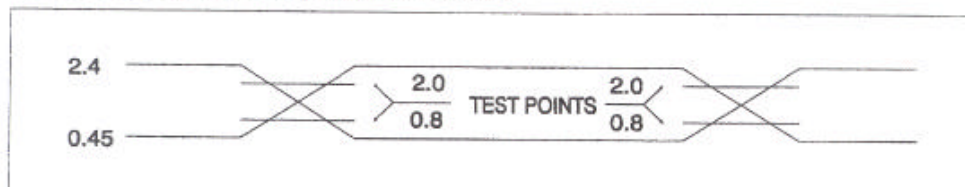
(Ta=0°C~70°C, VDD=5V, VSS=0V)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Dclk	Input CLK duty cycle		45	50	55	%
Tins	Instruction cycle time (CK2="0")	XTAL Type RC Type	100 500		DC DC	ns ns
Ttcc	TCC input period		(Tins+20)/N*			ns
Tdrh	Device reset hold time	Ta = 25°C		18		ms
Twdt	Watchdog timer period	Ta = 25°C		18		ms

* N= selected prescaler ratio.

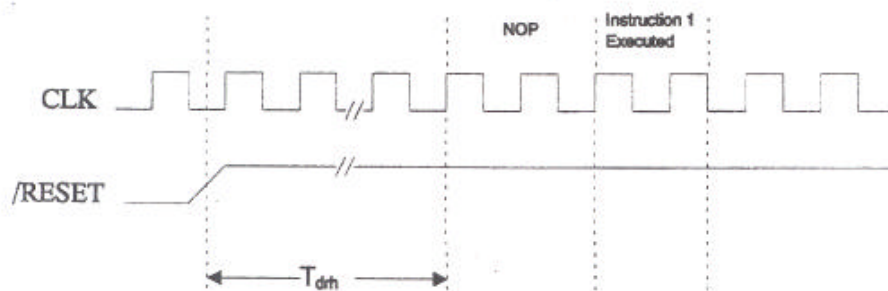


Timing Diagrams AC Test Input/Output Waveform

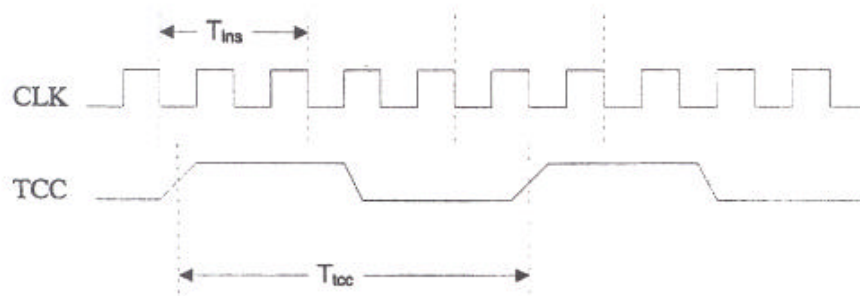


AC Testing: Input are driven at 2.4V for logic "1", and 0.45V for logic "0". Timing measurements are made at 2.0V for logic "1", and 0.8V for logic "0".

RESET Timing (CK2="0")



TCC Input Timing (CK2="0")



Data frequency MIN. 347 Hz MAX. 1.3KHz



HANDSET SELFTEST MODE TABLE

			Tx					Rx				VTX	Beep	TXD	Pin-5	10.250Mhz
			MUTE	CP	AF	RF	MUTE	CP	AF	RF		Tx-RF	Rx-CP			Rx-AF:1/0~ND/CD Tx-CP:1/0~ / Rx Lock
1	KEY-3	Tx Power (vco Adjust))	1	1	1	0	1	1	1	0		On	-	-	N.D	0x EE
2	KEY-4	Tx DEV.	0	0	0	0	1	1	1	0		On	-	-	RX	0x 0E
3	KEY-5	Tx Data	1	1	1	0	1	1	1	0		On	-	On	N.D	0x EE
4	KEY-6	Rx SINAD W/O Tx	1	1	1	1	0	1	0	0		Off	-	-	C.D	0x F4
5	KEY-7	Rx SINAD W/H Tx	0	1	0	0	0	1	0	0		On	-	-	C.D	0x 44 BAT LED On
6	KEY-8	BeepTone Test	0	1	0	0	1	0	1	0		On	On	-	N.D	0x 4A INTC LED On
	KEY-9	Reserve														
	CHAN	Channel = Channel + 1														

1. To Access Selftest Mode: Press FLASH MEM Key -> and put in battery.
2. To press KEY 0,1,2 to change Channel (01~25) example CH-25: press "2", "5" CH-03:press "0", "3"
3. To press "CHAN" Key: Channel = Channel + 1
4. To preset Channel: 16 (25-CH) or 06 (10-CH)
5. To press KEY 3,4,5,6,7,8,9 to choose MODE 1 to 7, and to reset Channel for preset Channel = 16 (CH-25) or 06 (CH-10)
6. To press "TALK" Key to access DTMF test when Talk LED flash on and to dial Key the number you need to be changed, if you need to retrain to SELFTEST Mode, dial "TALK" key (Talk LED Light off). PS: it must be matched with Mode-0 of main machine.

BASESET SELFTEST MODE TABLE

		T B 3 1 2 2 3								Lo	Hi	*	Lo	Pin-5	REF CLK
		Tx				Rx				VTX	Hook	TXD	SPON (LineMute)		10.245Mhz
		MUTE	CP	AF	RF	MUTE	CP	AF	RF	Tx-RF	Rx-CP				Rx-AF:1/0=ND/CD TX-CP:1/0=~/Rxlock
0	DTMF Test	0	1	0	0	1	1	1	0	On	On	-	off (10: Mute)	N.D	0x 4E
1	Talk Mode	0	1	0	0	0	1	0	0	On	On	-	off (10: Mute)	C.D	0x 44
2	Tx Power (vco)	1	1	1	0	1	0	1	0	On	Off	-	off (10: Mute)	N.D	0x EA
3	Tx DEV.	0	0	0	0	1	1	1	0	On	On	-	off (10: Mute)	RX	0x 0E
4	Tx Data	1	1	1	0	1	0	1	0	On	Off	On	off (10: Mute)	N.D	0x EA
5	Rx Sinad (w/o Tx)	1	1	1	1	0	1	0	0	Off	On	-	off (10: Mute)	C.D	0x F4
6	Intercom Tx	0	1	0	0	1	0	1	0	On	Off	-	On (Mute)	N.D	0x 4A INTC_LED On
7	Intercom Rx	1	1	1	0	0	0	0	0	On	Off	-	On (Mute)	C.D	0x ED INTC_LED On
8	DTMF Dialing	0	1	0	0	1	1	1	0	On	On DTMF	-	off (10: Mute)	N.D	0x 4E

1. To access Selftest Mode: 1-> Ringer On/Off switch to place off position 2-> press Page Key 3-> Off Cradle. 4-> Plug in adaptor to access MODE-0 (DTMF TEST)
2. To press Page Key to change Channel the sequence: 20->25->01->07->13->14->15..... 25,1->25CH
10->05->01->07->03->04->05..... 10,1->10CH
(under Mode-0 for matching with cellular, therefore CH=CH+1)
3. To press Page Key in Mode8, you may dial 1,2,3,4,5,6,7,8,9,*,0,0-> in DTMF then it automatically back to Mode 1 to press (no more press Mode-0)
4. To preset Channel = 16 (CH-25) or 06 (CH-10)
5. To switch to T.P. Switch for choosing Mode, and reset Channel to preset Channel = 16 (CH-25) or 06 (CH-10)
6. TALK LED: If HOOK On in the above MODE, the TALK_LED will be flashing, if not the TALK_LED will be light off.

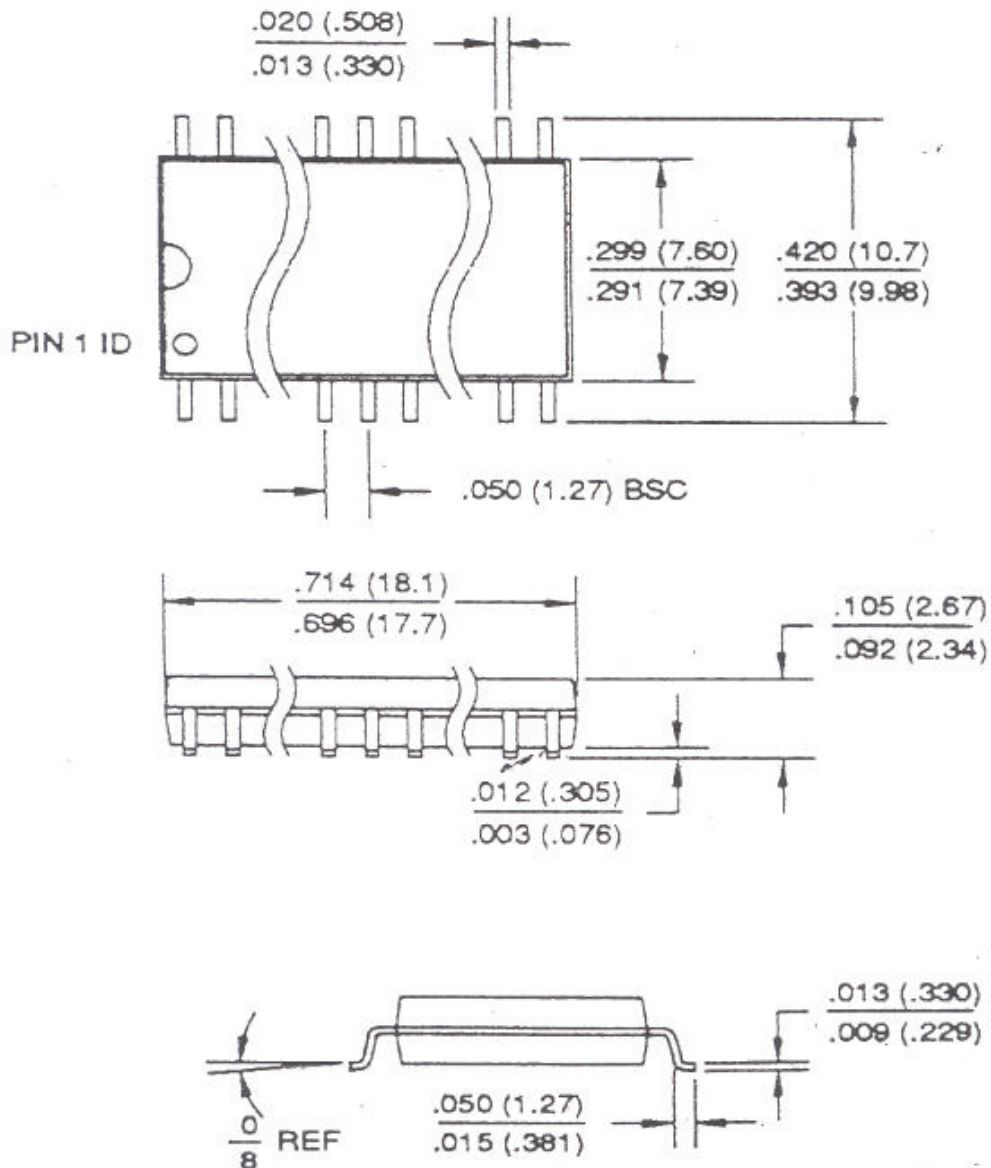


PACKAGE INFORMATION

28S, 28Lead, 0.300" Wide,

Plastic Gull Wing Small Outline (SOIC)

Dimensions in Inches and (Millimeters)



MC13109

USA CT-1 HANDSET CHANNEL FREQUENCIES (2nd LO = 10.240 MHz, Ref Divider = 2048)

Channel Number	T _x Channel Frequency (MHz)	T _x Divider (5.0 kHz Ref)	1st LO Frequency (MHz) 1st IF = 10.695 MHz	R _x Divider (5.0 kHz Ref)
1	48.760	9752	33.025	6605
2	48.840	9768	33.045	6609
3	48.860	9772	33.125	6625
4	48.920	9784	33.145	6629
5	49.020	9804	33.225	6645
6	49.080	9816	33.265	6653
7	49.100	9820	33.425	6685
8	49.160	9832	33.465	6693
9	49.200	9840	33.485	6697
10	49.240	9848	33.505	6701
11	49.280	9856	33.625	6725
12	49.360	9872	33.665	6733
13	49.400	9880	33.705	6741
14	49.460	9892	33.765	6753
15	49.500	9900	33.785	6757
16	49.670	9934	35.915	7183
17	49.845	9969	35.935	7187
18	49.860	9972	35.975	7195
19	49.770	9954	36.015	7203
20	49.875	9975	36.035	7207
21	49.830	9966	36.075	7215
22	49.890	9978	36.135	7227
23	49.930	9986	36.175	7235
24	49.990	9998	36.235	7247
25	49.970	9994	36.275	7255

MC13109

APPENDIX A – CHANNEL FREQUENCIES

USA CT-1 BASE SET CHANNEL FREQUENCIES (2nd LO = 10.240 MHz, Ref Divider = 2048)

Channel Number	T _x Channel Frequency (MHz)	T _x Divider (5.0 kHz Ref)	1st LO Frequency (MHz) 1st IF = 10.695 MHz	R _x Divider (5.0 kHz Ref)
1	43.720	8744	38.065	7613
2	43.740	8748	38.145	7629
3	43.820	8764	38.165	7633
4	43.840	8768	38.225	7645
5	43.920	8784	38.325	7665
6	43.960	8792	38.385	7677
7	44.120	8824	38.405	7681
8	44.160	8832	38.465	7693
9	44.180	8836	38.505	7701
10	44.200	8840	38.545	7709
11	44.320	8864	38.585	7717
12	44.360	8872	38.665	7733
13	44.400	8880	38.705	7741
14	44.460	8892	38.765	7753
15	44.480	8896	38.805	7761
16	46.610	9322	38.975	7795
17	46.630	9326	39.150	7830
18	46.670	9334	39.165	7833
19	46.710	9342	39.075	7815
20	46.730	9346	39.180	7836
21	46.770	9354	39.135	7827
22	46.830	9366	39.195	7839
23	46.870	9374	39.235	7847
24	46.930	9386	39.295	7859
25	46.970	9394	39.275	7855