



VCO 004004SM5

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production</u>	<u>First Article</u>
						<u>Test</u>	<u>Test</u>
Frequency Range	42		46	MHz	1	..	..
Tuning Voltage	0.5		4.5	V	1	..	..
Modulation Sensitivity		3		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-3.0	-1.0	1.0	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-97		dBc/Hz	2		..
10 KHz Offset		-122		dBc/Hz	3		..
100 KHz Offset		-142		dBc/Hz	2		..
Pushing			1	MHz/V	3		..
Pulling (14 dB R.L.)			1	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		500		pF	2		..
Harmonics		-25		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc		5		V	5		..
Icc		8		mA	5	..	..
Operating Temperature	-30		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 008008SMi8

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	85		88	MHz	1	..	..
Tuning Voltage	1		4	V	1	..	..
Modulation Sensitivity	2		4	MHz/V	3		..
Operates with Vtune = 0V					3		..
No destruction Vtune (thru 100ohms)	0.5		5	V	2		..
Output Power	7		11	dBm	1,6	..	..
Phase Noise @ 10 KHz							
1 KHz Offset			-75	dBc/Hz	2		..
10 KHz Offset			-110	dBc/Hz	3		..
100 KHz Offset			-130	dBc/Hz	2		..
1 MHZ Offset			-150	dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling			5	MHz	3		..
Modulation Bandwidth	1			MHz	4		..
Harmonics			-7	dBc	3		..
Vcc		8		V	5		..
Icc			25	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.5		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection
6. Pout > +7dBm at Vtune = 0.5V



VCO 013015SMi9

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	130	140	150	MHz	1,6	..	..
Tuning Voltage	0.5		6	V	1,6	..	..
Tuning Voltage at 140 MHz	2.3	2.8	3.3	V	1,6	..	..
Maximum Tuning Voltage			6	V	3		..
Modulation Sensitivity	4	6	8	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	4	6	8	dBm	1	..	..
Phase Noise @ 10 KHz							
100 Hz Offset			-48	dBc/Hz	2		
1 KHz Offset			-73	dBc/Hz	2		
10 KHz Offset			-98	dBc/Hz	3		..
100 KHz Offset			-118	dBc/Hz	2		
1 MHz Offset			-138	dBc/Hz	2		
Pushing			2	MHz/V	3		..
Pulling (12 dB R.L.)			11	MHz	3		..
Tuning Port Capacitance		1200		pF	2		
Modulation Bandwidth		N/A		MHz	4		
Harmonics			-5	dBc	3		..
Vcc	8.75	9.00	9.25	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package							
LxW		0.500		inch sq.	5	..	..
Height		0.220		inch	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection
6. Frequency range is for acquisition purposes. The unit operates at 140MHz only.



VCO 0408SM5

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	400		800	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		43		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	2	5	8	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-79		dBc/Hz	2		..
10 KHz Offset		-104		dBc/Hz	3		..
100 KHz Offset		-124		dBc/Hz	2		..
1 MHz Offset		-144		dBc/Hz	2		..
Pushing			6	MHz/V	3		..
Pulling (12 dB R.L.)			2	MHz	3		..
Tuning Port Capacitance			150	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-7	dBc	3		..
Vcc		5.00		V	5		..
Icc		15		mA	5	..	..
Operating Temperature	-10		+70	C	3		..
Package							
L x W		0.500		inch sq.		..	..
Height		0.220		inch		..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 043086SM5

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	430		860	MHz	1	..	..
Tuning Voltage	0.5		12	V	1	..	..
Modulation Sensitivity	40		80	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	3	5	7	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-77		dBc/Hz	2		..
10 KHz Offset		-102		dBc/Hz	3		..
100 KHz Offset		-122		dBc/Hz	2		..
1 MHz Offset		-142		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			1	MHz	3		..
Tuning Port Capacitance			47	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc	4.75	5.00	5.25	V	5		..
Icc			25	mA	5	..	..
Operating Temperature	-30		+75	C	3		..
Package		0.5		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 050053SM5

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	502		529	MHz	1	..	..
Tuning Voltage	0.5		4.5	V	1	..	..
Modulation Sensitivity		10		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-3	0	3	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-91		dBc/Hz	2		..
10 KHz Offset		-116		dBc/Hz	3		..
100 KHz Offset		-136		dBc/Hz	2		..
1 MHz Offset		-156		dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (14 dB R.L.)			5	MHz	3		..
Tuning Port Capacitance			150	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		5.00		V	5		..
Icc		11		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package							
L x W		0.500		inch sq.	5	..	..
Height		0.220		inch	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 066066SMi8

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range		660		MHz	1	..	..
Tuning Voltage	1		4	V	1	..	..
Modulation Sensitivity	9		17	MHz/V	3		..
Operates with Vtune = 0V					3		..
No destruction Vtune (thru 100ohms)	-0.5		9	V	2		..
Output Power	4		11	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset			-75	dBc/Hz	2		..
10 KHz Offset			-107	dBc/Hz	3		..
100 KHz Offset			-127	dBc/Hz	2		..
1 MHz Offset			-147	dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling			15	MHz	3		..
Modulation Bandwidth	5			MHz	4		..
Harmonics			-7	dBc	3		..
Vcc		8		V	5		..
Icc			25	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.5		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 0816SM12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	800		1600	MHz	1	..	..
Tuning Voltage	0		20	V	1	..	..
Modulation Sensitivity	25		65	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	12	15	18	dBm	1	..	..
Phase Noise @							
1 KHz Offset				dBc/Hz	2		..
10 KHz Offset		-96	-94	dBc/Hz	3		..
100 KHz Offset				dBc/Hz	2		..
1 MHz Offset				dBc/Hz	2		..
Pushing		5		MHz/V	3		..
Pulling (12 dB R.L.)		15		MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc		12		V	5		..
Icc		35		mA	5	..	..
Operating Temperature	0		70	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 095190SMA10

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	950		1900	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		91		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	3.0	5.5	8.0	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-72		dBc/Hz	2		..
10 KHz Offset		-97		dBc/Hz	3		..
100 KHz Offset		-117		dBc/Hz	2		..
1 MHz Offset		-137		dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (12 dB R.L.)			15	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-8		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	9.75	10.00	10.25	V	5		..
Icc		15	22	mA	5	..	..
Operating Temperature	-30		+80	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 1020SM10

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	1000		2000	MHz	1	..	..
Tuning Voltage	0		20	V	1	..	..
Modulation Sensitivity	47	66	78	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	10	12	14	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-75		dBc/Hz	2		..
10 KHz Offset		-100		dBc/Hz	3		..
100 KHz Offset		-120		dBc/Hz	2		..
1 MHz Offset		-140		dBc/Hz	2		..
Pushing		3		MHz/V	3		..
Pulling (12 dB R.L.)		5		MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		1200		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc		10.0		V	5		..
Icc		30		mA	3	..	..
Operating Temperature	-40		+85	C	3		..
Package							
LxW		0.500		inch sq.	5	..	..
Height		0.220		inch	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 119161SM10

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1190		1610	MHz	1	..	..
Tuning Voltage	0.5		8.5	V	1	..	..
Modulation Sensitivity		68		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	8	10	12	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset			-74	dBc/Hz	2		..
10 KHz Offset			-99	dBc/Hz	3		..
100 KHz Offset			-119	dBc/Hz	2		..
1 MHz Offset			-139	dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (12 dB R.L.)			15	MHz	3		..
Tuning Port Capacitance			100	pF	2		..
Modulation Bandwidth	5			MHz	4		..
Harmonics			-7	dBc	3		..
Vcc		10.00		V	5		..
Icc		23		mA	5	..	..
Operating Temperature	0		+80	C	3		..
Package							
L x W		0.500		inch sq.		..	..
Height		0.220		inch		..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 1221SM12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1200		2100	MHz	1	..	..
Tuning Voltage	0.5		25	V	1	..	..
No destruction Tuning Voltage	-0.5		30	V	3		..
Modulation Sensitivity	20		70	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power							
within tune voltage range	2.5		9.5	dBm	1	..	..
within -0.5 to 0.5 tune voltage rang	2.5			dBm	3		..
Phase Noise @							
1 KHz Offset			-70	dBc/Hz	2		..
10 KHz Offset			-95	dBc/Hz	3		..
100 KHz Offset			-120	dBc/Hz	2		..
1 MHz Offset			-140	dBc/Hz	2		..
Pushing			10	MHz/V	3		..
Pulling (18 dB R.L.)			25	MHz	3		..
Modulation Bandwidth			5	MHz	4		..
Tuning Port Capacitance			50	pF	2		..
Harmonics							
2nd			-8	dBc	3		..
3rd			-15	dBc	3		..
4th and higher			-20	dBc	3		..
Vcc	11.5	12.0	12.5	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 125150S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1250		1500	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		32		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	4	6	8	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-81		dBc/Hz	2		..
10 KHz Offset		-106		dBc/Hz	3		..
100 KHz Offset		-126		dBc/Hz	2		..
1 MHz Offset		-146		dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (12 dB R.L.)			20	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	11.75	12.00	12.25	V	5		..
Icc			40	mA	3	..	..
Operating Temperature	0		+70	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 125250SMC8

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1250		2500	MHz	1	..	..
Tuning Voltage	0.5		27	V	1	..	..
Modulation Sensitivity		80		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	7	9	11	dBm	1	..	..
Phase Noise @							
1 KHz Offset				dBc/Hz	2		..
10 KHz Offset		-95		dBc/Hz	3		..
100 KHz Offset				dBc/Hz	2		..
1 MHz Offset				dBc/Hz	2		..
Pushing		5		MHz/V	3		..
Pulling (12 dB R.L.)		15		MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	7.75	8.00	8.25	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	0		+70	C	3		..
Package						..	..
LxW		0.700		inch sq.	5		
Height		0.180		inch sq.	5		

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 1519S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1500		1900	MHz	1	..	..
Tuning Voltage	0		22	V	1	..	..
Modulation Sensitivity		30		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	2	4	6	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-82		dBc/Hz	2		..
10 KHz Offset		-107		dBc/Hz	3		..
100 KHz Offset		-127		dBc/Hz	2		..
1 MHz Offset		-147		dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (12 dB R.L.)			20	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	11.75	12.00	12.25	V	5		..
Icc			40	mA	3	..	..
Operating Temperature	0		+70	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 1627SM11

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1600		2700	MHz	1	..	..
Tuning Voltage	0		17	V	1	..	..
Modulation Sensitivity	45	65	90	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	3	5	7	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-73	-70	dBc/Hz	2		..
10 KHz Offset		-98	-95	dBc/Hz	3		..
100 KHz Offset		-118	-115	dBc/Hz	2		..
1 MHz Offset		-138	-135	dBc/Hz	2		..
Pushing		1.5		MHz/V	3		..
Pulling (12 dB R.L.)		5		MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		47		pF	2		..
Harmonics			-10	dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc		11		V	5		..
Icc		25		mA	3	..	..
Operating Temperature	-40		+85	C	3		..
Package							
LxW		0.500		inch	5	..	..
Height		0.220		inch	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection
6. Design goal



VCO 175250S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1750		2500	MHz	1	..	..
Tuning Voltage	0		30	V	1	..	..
Modulation Sensitivity	25		55	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	6	8	10	dBm	1	..	..
Phase Noise @							
1 KHz Offset			-80	dBc/Hz	2		..
10 KHz Offset			-105	dBc/Hz	3		..
100 KHz Offset			-125	dBc/Hz	2		..
1 MHz Offset			-145	dBc/Hz	2		..
Pushing			1	MHz/V	3		..
Pulling (12 dB R.L.)			5	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics			-10	dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	11.75	12.00	12.25	V	5		..
Icc			45	mA	5	..	..
Operating Temperature	0		+70	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 210283SM12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2100		2830	MHz	1	..	..
Tuning Voltage	0.5		25	V	1	..	..
No destruction Tuning Voltage	-0.5		30	V	3		..
Modulation Sensitivity	18		54	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power							
within tune voltage range	2.5		9.5	dBm	1	..	..
within -0.5 to 0.5 tune voltage rang	2.5			dBm	3		..
Phase Noise @							
1 KHz Offset			-70	dBc/Hz	2		..
10 KHz Offset			-95	dBc/Hz	3		..
100 KHz Offset			-120	dBc/Hz	2		..
1 MHz Offset			-140	dBc/Hz	2		..
Pushing			5	MHz/V	3		..
Pulling (18 dB R.L.)			25	MHz	3		..
Modulation Bandwidth			10	MHz	4		..
Tuning Port Capacitance			50	pF	2		..
Harmonics							
2nd			-8	dBc	3		..
3rd			-15	dBc	3		..
4th and higher			-20	dBc	3		..
Vcc	11.5	12.0	12.5	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 2138SM12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2140		3700	MHz	1	..	..
Tuning Voltage	0.5		24	V	1	..	..
Modulation Sensitivity		100		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	2	4	6	dBm	1	..	..
Phase Noise @							
1 KHz Offset		-65		dBc/Hz	2		..
10 KHz Offset		-90		dBc/Hz	3		..
100 KHz Offset		-110		dBc/Hz	2		..
1 MHz Offset		-130		dBc/Hz	2		..
Pushing			10	MHz/V	3		..
Pulling (12 dB R.L.)			25	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		50		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		N/A		dBc	3		..
Vcc	11.75	12.00	12.25	V	5		..
Icc		27		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		SMCTM PACKAGE					
LxW		0.700		inch sq.	5	..	..
Height		0.180		inch	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 7875SM3R3

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range		7875		MHz	1	..	..
Tuning Voltage	0.5		2.7	V	1	..	..
Modulation Sensitivity		85		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	3		7	dBm	1	..	..
Phase Noise @							..
10 KHz Offset		-82	-80	dBc/Hz	3		..
100 KHz Offset		-102	-100	dBc/Hz	2		..
Pushing		12		MHz/V	3		..
Pulling (12 dB R.L.)		10		MHz	3		..
Modulation Bandwidth	5			MHz	4		
Tuning Port Capacitance		50		pF	2		
Harmonics							..
2nd			-10	dBc	3		..
3rd			-15	dBc	3		..
Vcc	3.13	3.30	3.47	V	5		..
Icc			20	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 120120SM8CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range		1200		MHz	1	..	..
Tuning Voltage	1		4	V	1	..	..
Modulation Sensitivity	2.5		7.5	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	4	7.5	11	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-95		dBc/Hz	2		..
10 KHz Offset		-120		dBc/Hz	3		..
100 KHz Offset		-140		dBc/Hz	2		..
1 MHz Offset		-160		dBc/Hz	2		..
3 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (18 dB R.L.)			3	MHz	3		..
Tuning Port Capacitance			100	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-15	dBc	3		..
Vcc	7.5	8.00	8.5	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 128132S8CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	1280		1320	MHz	1	..	..
Tuning Voltage	0		10	V	1	..	..
Modulation Sensitivity		6		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	4	6	8	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-89		dBc/Hz	2		..
10 KHz Offset		-114		dBc/Hz	3		..
100 KHz Offset		-124		dBc/Hz	2		..
1 MHz Offset		-144		dBc/Hz	2		..
3 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (14 dB R.L.)			3	MHz	3		..
Tuning Port Capacitance			100	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-15	dBc	3		..
Vcc	7.5	8.00	8.5	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 1370SM11CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range		1370		MHz	1	..	..
Tuning Voltage	1		4	V	1	..	..
Modulation Sensitivity	3	4	5	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	5	7	9	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-92		dBc/Hz	2		..
10 KHz Offset		-117		dBc/Hz	3		..
100 KHz Offset		-137		dBc/Hz	2		..
1 MHz Offset		-157		dBc/Hz	2		..
3 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (14 dB R.L.)			3	MHz	3		..
Tuning Port Capacitance			100	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-15	dBc	3		..
Vcc		11.00		V	5		..
Icc		21		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 150154S8CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Test</u>	<u>Test</u>
Frequency Range	1500		1540	MHz	1	..	..
Tuning Voltage	1		10	V	1	..	..
No destruction Tuning Voltage	-0.5		14.5	V	3		..
Modulation Sensitivity	3.5		11.5	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power							
within tune voltage range	4		11	dBm	1	..	..
within -0.5 to 1.0 tune voltage rang	4			dBm	3		..
Phase Noise @							
1 KHz Offset			-85	dBc/Hz	2		..
10 KHz Offset			-115	dBc/Hz	3		..
100 KHz Offset			-138	dBc/Hz	2		..
1 MHz Offset			-152	dBc/Hz	2		..
3 MHz Offset			-155	dBc/Hz	2		..
Pushing			2	MHz/V	3		..
Pulling (18 dB R.L.)			25	MHz	3		..
Modulation Bandwidth			5	MHz	4		..
Tuning Port Capacitance			50	pF	2		..
Harmonics							
2nd			-15	dBc	3		..
3rd			-15	dBc	3		..
4th and higher			-15	dBc	3		..
Vcc	7.5	8.0	8.5	V	5	..	..
Icc			40	mA	5	..	..
Operating Temperature	-40		+85	C	3	..	..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 160165SM11CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	1600		1650	MHz	1	..	..
Tuning Voltage	0		15	V	1	..	..
Modulation Sensitivity	3	4.5	7	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	10	12	14	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-87		dBc/Hz	2		..
10 KHz Offset		-112		dBc/Hz	3		..
100 KHz Offset		-122		dBc/Hz	2		..
1 MHz Offset		-142		dBc/Hz	2		..
3 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (14 dB R.L.)			3	MHz	3		..
Tuning Port Capacitance			100	pF	2		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		11.00		V	5		..
Icc		25		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 208221SM12R5CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2085		2210	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		18		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	1	3	5	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-85	-79	dBc/Hz	2		..
10 KHz Offset		-110	-104	dBc/Hz	3		..
100 KHz Offset		-130	-124	dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		12.5		V	5		..
Icc		24		mA	5	..	..
Operating Temperature	-33		+80	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 224239SM12R5CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2243		2399	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		20		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-2	0	+2	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-85	-81	dBc/Hz	2		..
10 KHz Offset		-110	-106	dBc/Hz	3		..
100 KHz Offset		-130	-126	dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		12.5		V	5		..
Icc		30		mA	5	..	..
Operating Temperature	-33		+80	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 243259SM12R5CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2436		2590	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		24		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-2	0	+2	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-83		dBc/Hz	2		..
10 KHz Offset		-108		dBc/Hz	3		..
100 KHz Offset		-128		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		12.5		V	5		..
Icc		35		mA	5	..	..
Operating Temperature	-33		+80	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 249269S10CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2488		2685	MHz	1	..	..
Tuning Voltage	0		20	V	1	..	..
Modulation Sensitivity		30		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-3	0	+3	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-82		dBc/Hz	2		..
10 KHz Offset		-107		dBc/Hz	3		..
100 KHz Offset		-127		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		10		V	5		..
Icc		30		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 256257S8CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2565		2575	MHz	1	..	..
Tuning Voltage	0		5	V	1	..	..
Modulation Sensitivity	4	6	8	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-3	-1	+1	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-95		dBc/Hz	2		..
10 KHz Offset		-120		dBc/Hz	3		..
100 KHz Offset		-140		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		8		V	5		..
Icc		28		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 260274SM12R5CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2600		2741	MHz	1	..	..
Tuning Voltage	0		12	V	1	..	..
Modulation Sensitivity		23		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-0.5	1.5	3.5	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-81		dBc/Hz	2		..
10 KHz Offset		-106		dBc/Hz	3		..
100 KHz Offset		-126		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		12.5		V	5		..
Icc		30		mA	5	..	..
Operating Temperature	-33		+80	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 2810S11CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range		2810		MHz	1	..	..
Tuning Voltage	0		4.5	V	1	..	..
Modulation Sensitivity	6	8	10	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	6	8	10	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-89		dBc/Hz	2		..
10 KHz Offset		-114		dBc/Hz	3		..
100 KHz Offset		-134		dBc/Hz	2		..
Pushing				MHz/V	3		..
Pulling				MHz	3		..
Modulation Bandwidth				MHz	4		..
Harmonics			-10	dBc	3		..
Vcc	10.75	11	11.25	V	5		..
Icc		26		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 287327SM8CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2877		3273	MHz	1	..	..
Tuning Voltage	0		15	V	1	..	..
Modulation Sensitivity		40		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	1	3	5	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-81		dBc/Hz	2		..
10 KHz Offset		-106		dBc/Hz	3		..
100 KHz Offset		-126		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		8		V	5		..
Icc		27		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 3050S11CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range		3050		MHz	1	..	..
Tuning Voltage	0		5	V	1	..	..
Modulation Sensitivity		5		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	5	7	9	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-90		dBc/Hz	2		..
10 KHz Offset		-115		dBc/Hz	3		..
100 KHz Offset		-135		dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling			3	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc		11		V	5		..
Icc		24		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.500		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



VCO 364405S7CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	3640		4044	MHz	1	..	..
Tuning Voltage	0		15	V	1	..	..
Modulation Sensitivity	15	25	35	MHz/V	3,6		..
Operates with Vtune = 0V					1	..	..
Output Power							
at +25C	0			dBm	1	..	..
over temperature	0			dBm	3		..
variation over temp	-2		+2	dB	3,7		..
variation over frequency	-2		+2	dB	1	..	..
Phase Noise @							
1 KHz Offset				dBc/Hz	2		..
10 KHz Offset			-99	dBc/Hz	3		..
100 KHz Offset				dBc/Hz	2		..
1 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (12 dB R.L.)			TBD	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		100		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		-20		dBc	3,6		..
Vcc		7		V	5		..
Icc		TBD		mA	3	..	..
Operating Temperature	-35		+70	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection
6. Design goal subject to change
7. -30 to +60C



VCO 475505S7CR

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	4750		5050	MHz	1	..	..
Tuning Voltage	0		15	V	1	..	..
Modulation Sensitivity	15	25	35	MHz/V	3,6		..
Operates with Vtune = 0V					1	..	..
Output Power							
at +25C	0			dBm	1	..	..
over temperature	0			dBm	3		..
variation over temp	-2		+2	dB	3,7		..
variation over frequency	-2		+2	dB	1	..	..
Phase Noise @							
1 KHz Offset				dBc/Hz	2		..
10 KHz Offset			-98	dBc/Hz	3		..
100 KHz Offset				dBc/Hz	2		..
1 MHz Offset				dBc/Hz	2		..
Pushing			3	MHz/V	3		..
Pulling (12 dB R.L.)			TBD	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Tuning Port Capacitance		100		pF	2		..
Harmonics		-10		dBc	3		..
Sub-Harmonics		-20		dBc	3,6		..
Vcc		7		V	5		..
Icc		TBD		mA	3	..	..
Operating Temperature	-35		+70	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection
6. Design goal subject to change
7. -30 to +60C



YRO 248285S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2488		2845	MHz	1	..	..
Tuning Voltage	0		15	V	1	..	..
Modulation Sensitivity		27		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-2	0	+2	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-79		dBc/Hz	2		..
10 KHz Offset		-104		dBc/Hz	3		..
100 KHz Offset		-124		dBc/Hz	2		..
1 MHz Offset		-144		dBc/Hz	2		..
Pushing			3.5	MHz/V	3		..
Pulling			1	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc	11.75	12	12.25	V	5		..
Icc		27		mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



YRO 248285S12_C1

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	<u>Production Test</u>	<u>First Article Test</u>
Frequency Range	2488		2845	MHz	1	..	..
Tuning Voltage	0		30	V	1	..	..
Modulation Sensitivity	12		25	MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	5	7	9	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-82		dBc/Hz	2		..
10 KHz Offset		-107		dBc/Hz	3		..
100 KHz Offset		-127		dBc/Hz	2		..
1 MHz Offset		-147		dBc/Hz	2		..
Pushing			3.5	MHz/V	3		..
Pulling			1	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-10	dBc	3		..
Vcc	11.75	12	12.25	V	5		..
Icc			40	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



YRO 284316S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	2845		3160	MHz	1	..	..
Tuning Voltage	0		18	V	1	..	..
Modulation Sensitivity		20		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-2	0	2	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset			-78	dBc/Hz	2		..
10 KHz Offset			-103	dBc/Hz	3		..
100 KHz Offset			-123	dBc/Hz	2		..
1 MHz Offset			-143	dBc/Hz	2		..
Floor			-158	dBc/Hz	2		..
Pushing			3.5	MHz/V	3		..
Pulling			1	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-20	dBc	3		..
Vcc		12		V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



YRO 319345S12

	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>	<u>NOTES</u>	Production <u>Test</u>	First Article <u>Test</u>
Frequency Range	3193		3447	MHz	1	..	..
Tuning Voltage	0		18	V	1	..	..
Modulation Sensitivity		32		MHz/V	3		..
Operates with Vtune = 0V					3		..
Output Power	-2	0	2	dBm	1	..	..
Phase Noise @ 10 KHz							
1 KHz Offset		-80	-78	dBc/Hz	2		..
10 KHz Offset		-105	-103	dBc/Hz	3		..
100 KHz Offset		-125	-123	dBc/Hz	2		..
1 MHz Offset		-145	-143	dBc/Hz	2		..
Floor		-160	-158	dBc/Hz	2		..
Pushing			3.5	MHz/V	3		..
Pulling			1	MHz	3		..
Modulation Bandwidth		N/A		MHz	4		..
Harmonics			-20	dBc	3		..
Vcc	11.75	12	12.25	V	5		..
Icc			35	mA	5	..	..
Operating Temperature	-40		+85	C	3		..
Package		0.910		inch sq.	5	..	..

Notes

1. Tested in production, and guaranteed
2. Per current design, not a tested parameter
3. Sample tested from production lot
4. Not a tested or guaranteed design goal
5. By inspection



<u>PARAMETER</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
Frequency Range		1260.000		MHz
Step Size		N/A		MHz
Frequency Lock Time			100	ms
External Reference Input Frequency		20		MHz
Reference Input Power		0		dBm
Vcc1				
Supply Voltage		5		V
Supply Current		30		mA
Supply Ripple		100		mV-pp
RF Output Level	-2	0	2	dBm
In-Band Spurious		-80		dBc
Harmonic Suppression		-10		dBc
Sub-Harmonics		N/A		dBc
Output Impedance		50		ohms
Single Sideband Phase Noise				
Offset 100 Hz				dBc/Hz
Offset 1 KHz				dBc/Hz
Offset 10 KHz		-105.0		dBc/Hz
Offset 100 KHz				dBc/Hz
Offset 1 MHz				dBc/Hz
Offset 5 MHz				dBc/Hz
Offset 10 MHz				dBc/Hz
Operating Temperature	-30		+70	C
Physical Dimensions				
Package Dim. (LxW)		0.940		inches
Package Dim. Height		0.220		inches
Connector Options		SURFACE MOUNT		
Programming				3-LINE SERIAL

SYN1416



Parameter	Min	Typ	Max	Units	Conditions
Frequency Range	1400		1600	MHz	
Step Size		100		KHz	
Frequency Lock Time			10	ms	within ± 100 Hz
Reference Input Frequency	5	10	20	MHz	
Reference Input Voltage	1		5	Vp-p	
Supply Voltage Vcc2	19.8	20	20.2	V	
Supply Voltage Vcc1	4.8	5	5.2	V	
Supply Current Icc2			15	mA	
Supply Current Icc1			140	mA	
Output Level	8	10	12	dBm	
Spurious Non-Harmonic Suppression	-60			dBc	
Harmonic Suppression	-10			dBc	
Output Impedance		50		ohms	
Return Loss	12			dB	any phase
VSWR			1.67 : 1		
Single Sideband Phase Noise					
Offset 10 Hz	-72			dBc/Hz	
Offset 100 Hz	-83			dBc/Hz	
Offset 500 Hz	-80			dBc/Hz	
Offset 1.0 KHz	-80			dBc/Hz	
Offset 5.0 KHz	-85			dBc/Hz	
Offset 10.0 KHz	-97			dBc/Hz	
Offset 50.0 KHz	-110			dBc/Hz	
Offset 100.0 KHz	-115			dBc/Hz	calculated
Offset 1 MHz	-135			dBc/Hz	calculated
Integrated D.S.B. Noise	-52.9			dBc	10 KHz-5 Mhz including spurious
Operating Temperature	0		70	C	
Package Dim.		.94x.94x.375		inches	



<u>PARAMETER</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
Frequency Range		2000.000		MHz
Step Size		N/A		MHz
Frequency Lock Time			100	ms
External Reference Input Frequency		20		MHz
Reference Input Power		0		dBm
Vcc1				
Supply Voltage		5		V
Supply Current		70		mA
Supply Ripple		100		mV-pp
RF Output Level	-2	0	2	dBm
In-Band Spurious		-80		dBc
Harmonic Suppression		-10		dBc
Sub-Harmonics		N/A		dBc
Output Impedance		50		ohms
Single Sideband Phase Noise				
Offset 100 Hz				dBc/Hz
Offset 1 KHz				dBc/Hz
Offset 10 KHz		-105.0		dBc/Hz
Offset 100 KHz				dBc/Hz
Offset 1 MHz				dBc/Hz
Offset 5 MHz				dBc/Hz
Offset 10 MHz				dBc/Hz
Operating Temperature	-30		+70	C
Physical Dimensions				
Package Dim. (LxW)		0.940		inches
Package Dim. Height		0.220		inches
Connector Options		SURFACE MOUNT		
Programming				3-LINE SERIAL



<u>PARAMETER</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
Frequency Range	3200.000		3259.000	MHz
Step Size		125		KHz
Loop Bandwidth		2		KHz
Frequency Lock Time			3	ms
External Reference Input Frequency	5	10	100	MHz
Reference Input Power	-5	0	+5	dBm
RF Output Level	-2	0	+2	dBm
Spurious		-70		dBc
Harmonics		-15		dBc
Output Impedance		50		ohms
Single Sideband Phase Noise				
Offset 1K Hz		-73.0	-70	dBc/Hz
Offset 10 KHz		-98.0	-94	dBc/Hz
Offset 25 KHz		-110.0	-104	dBc/Hz
Offset 100 KHz		-126.0	-123	dBc/Hz
Vcc	4.75	5.00	5.25	V
Icc		50		mA
Physical Dimensions				
Package Dim. (LxW)		.866x.630		inches
Package Dim. Height		0.140		inches
Operating Temperature	-40		+70	C
Lock Detect	Active High			
Programming		3-line		ADF4106

SYN3205_3235

PARAMETER	MIN	TYP	MAX	UNITS
Frequency Range	3205.000		3235.000	MHz
Step Size		125		KHz
Loop Bandwidth		2		KHz
Frequency Lock Time			10	ms
External Reference Input Frequency		32		MHz
Reference Input Power	-5	0	+5	dBm
RF Output Level	-3	0	+3	dBm
Spurious			-70	dBc
Harmonics			-15	dBc
Output Impedance		50		ohms
Integrated Phase Noise (1KHz-1MHz)			1.5	degrees rms
Single Sideband Phase Noise				
Offset 1K Hz			-70	dBc/Hz
Offset 10 KHz			-94	dBc/Hz
Offset 25 KHz			-105	dBc/Hz
Offset 100 KHz			-120	dBc/Hz
Offset 1 MHz			-134	dBc/Hz
Vcc	4.75	5.00	5.25	V
Icc			50	mA
Physical Dimensions				
Package Dim. (LxW)		.866x.630		inches
Package Dim. Height		0.140		inches
Operating Temperature	-40		+70	C
Lock Detect	Active High			
Programming		3-line		ADF4106

SYN3264

<u>Parameter</u>	<u>Min</u>	<u>Typ</u>	<u>Max</u>	<u>Units</u>	<u>Conditions</u>
Frequency Range	32		64	MHz	
Step Size		8		KHz	
Frequency Lock Time			10	ms	within ± 500 Hz
Reference Input Frequency		8		KHz	± 100 ppm
Reference Input Voltage, High	2			V	pulse width > 40ns
Reference Input Voltage, Low			0.8	V	pulse width > 40ns
Supply Voltage (PLL)	4.8	5	5.2	V	
Supply Voltage (VCO)	11.8	12	12.2	V	
Supply Voltage (Charge Pump)	19.8	20	20.2	V	
Supply Current (PLL)			75	mA	current= $75\text{mA}+2.5\text{V}/\text{load resistance}$
Supply Current (VCO)			45	mA	
Supply Current (Charge Pump)			10	mA	
Output Level					TTL/CMOS compatible
Spurious Non-Harmonic Suppression	-60			dBc	
Harmonic Suppression				dBc	N/A
Output Impedance				ohms	TTL/CMOS compatible
VSWR		N/A			
Single Sideband Phase Noise					
Offset 1.0 KHz	-90			dBc/Hz	
Offset 10.0 KHz	-106			dBc/Hz	
Offset 100.0 KHz	-128			dBc/Hz	calculated
Operating Temperature	0		70	C	
Package Dim.		1.5x1.5x.475		inches	



<u>PARAMETER</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
Frequency Range	3300.000		3340.000	MHz
Step Size		125		KHz
Loop Bandwidth		2		KHz
Frequency Lock Time			3	ms
External Reference Input Frequency	5	10	100	MHz
Reference Input Power	-5	0	+5	dBm
RF Output Level	-2	0	+2	dBm
Spurious		-70		dBc
Harmonics		-15		dBc
Output Impedance		50		ohms
Single Sideband Phase Noise				
Offset 1K Hz		-73.0	-70	dBc/Hz
Offset 10 KHz		-98.0	-94	dBc/Hz
Offset 25 KHz		-112.0	-105	dBc/Hz
Offset 100 KHz		-128.0	-124	dBc/Hz
Vcc	4.75	5.00	5.25	V
Icc		50		mA
Physical Dimensions				
Package Dim. (LxW)		.866x.630		inches
Package Dim. Height		0.140		inches
Operating Temperature	-40		+70	C
Lock Detect	Active High			
Programming		3-line		ADF4106



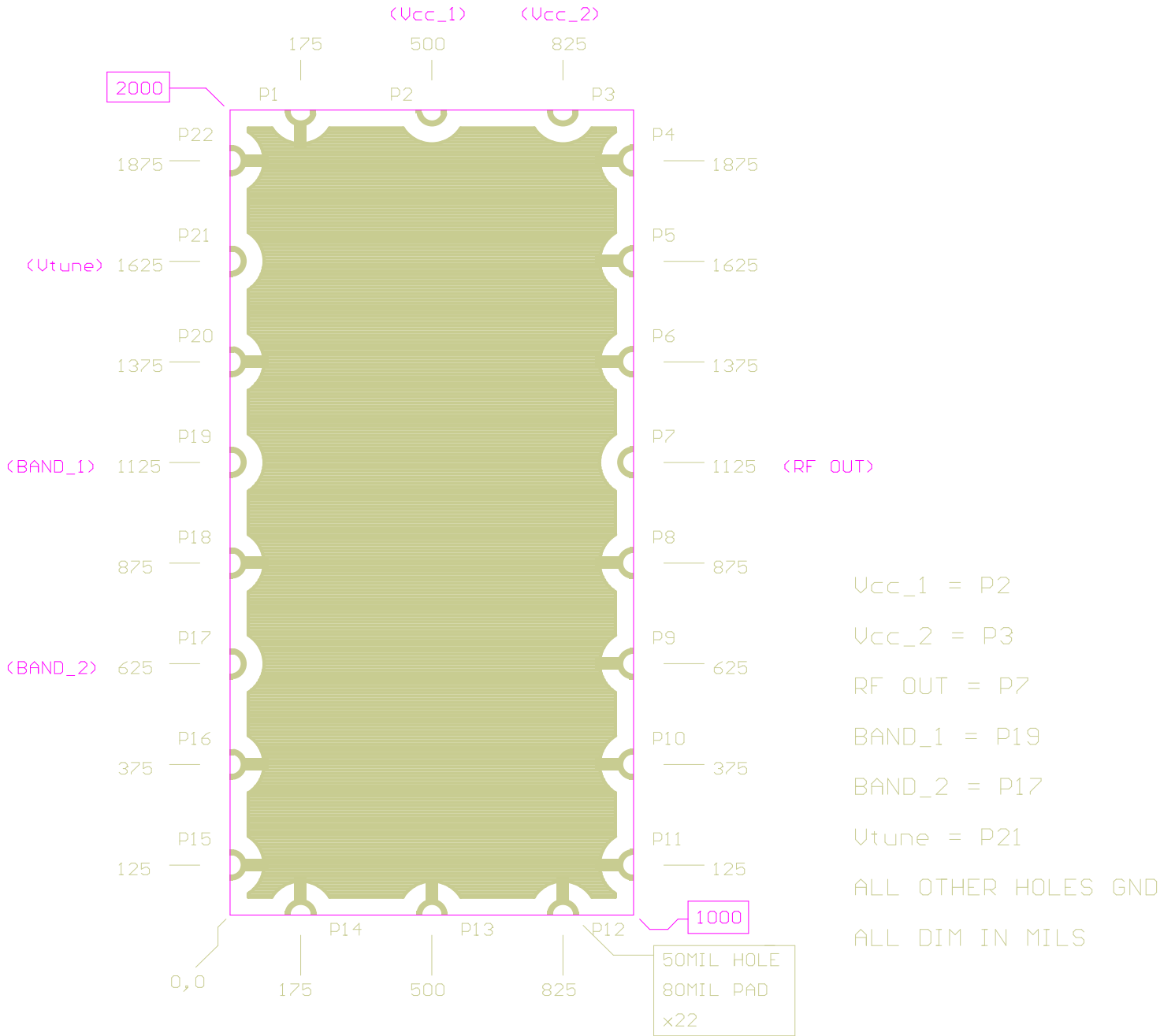
<u>PARAMETER</u>	<u>MIN</u>	<u>TYP</u>	<u>MAX</u>	<u>UNITS</u>
Frequency Range	3305.000		3335.000	MHz
Step Size		125		KHz
Loop Bandwidth		2		KHz
Frequency Lock Time			10	ms
External Reference Input Frequency		32		MHz
Reference Input Power	-5	0	+5	dBm
RF Output Level	-3	0	+3	dBm
Spurious			-70	dBc
Harmonics			-15	dBc
Output Impedance		50		ohms
Integrated Phase Noise (1KHz-1MHz)			1.5	degrees rms
Single Sideband Phase Noise				
Offset 1K Hz			-70	dBc/Hz
Offset 10 KHz			-94	dBc/Hz
Offset 25 KHz			-105	dBc/Hz
Offset 100 KHz			-120	dBc/Hz
Offset 1 MHz			-134	dBc/Hz
Vcc	4.75	5.00	5.25	V
Icc			50	mA
Physical Dimensions				
Package Dim. (LxW)		.866x.630		inches
Package Dim. Height		0.140		inches
Operating Temperature	-40		+70	C
Lock Detect	Active High			
Programming		3-line		ADF4106



SYN950

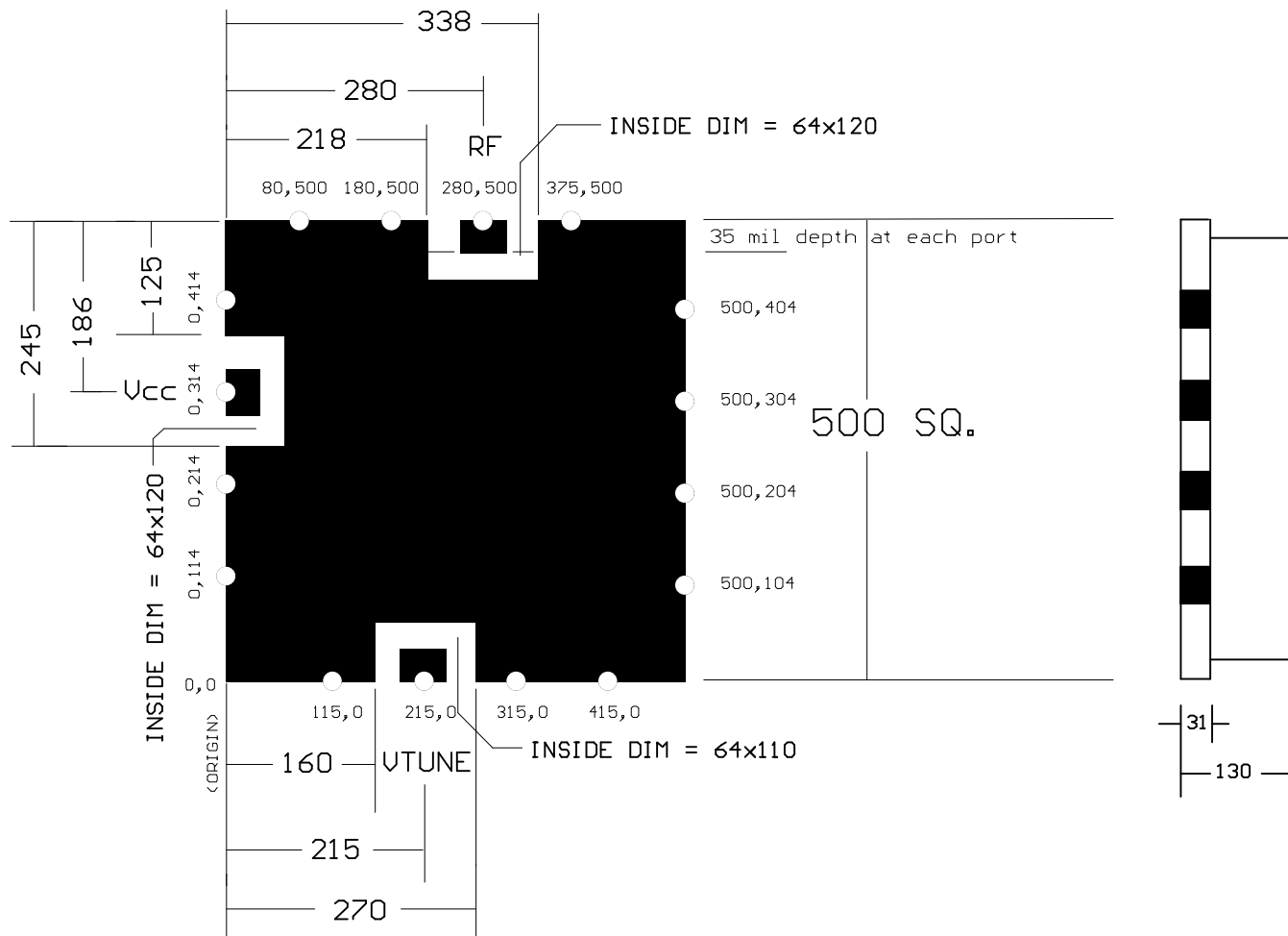
<u>Parameter</u>	<u>Min</u>	<u>Typ</u>	<u>Max</u>	<u>Units</u>	<u>Conditions</u>
Frequency Range	949	950	951	MHz	
Step Size		1		MHz	
Frequency Lock Time			20	ms	within ± 100 Hz
Reference Input Frequency	5	10	20	MHz	
Reference Input Voltage	1		5	Vp-p	
Supply Voltage	4.8	5	5.2	V	
Supply Current			70	mA	
Output Level	7	8	9	dBm	
Spurious Non-Harmonic Suppression	-60			dBc	
Harmonic Suppression	-10			dBc	
Output Impedance		50		ohms	
Return Loss	12			dB	any phase
VSWR			1.67 : 1		
Single Sideband Phase Noise					
Offset 10 Hz	-75			dBc/Hz	
Offset 100 Hz	-85			dBc/Hz	
Offset 1.0 KHz	-90			dBc/Hz	
Offset 10.0 KHz	-105			dBc/Hz	
Offset 100.0 KHz	-125			dBc/Hz	calculated
Offset 1 MHz	-145			dBc/Hz	calculated
Integrated D.S.B. Noise	-61.8			dBc	10 KHz-5 Mhz including spurious
Operating Temperature	0		70	C	
Package Dim.		.94x.94x.375		inches	

MOD0915S12 REV_1



SMLP FOOTPRINT

TOP VIEW, BOT SIDE

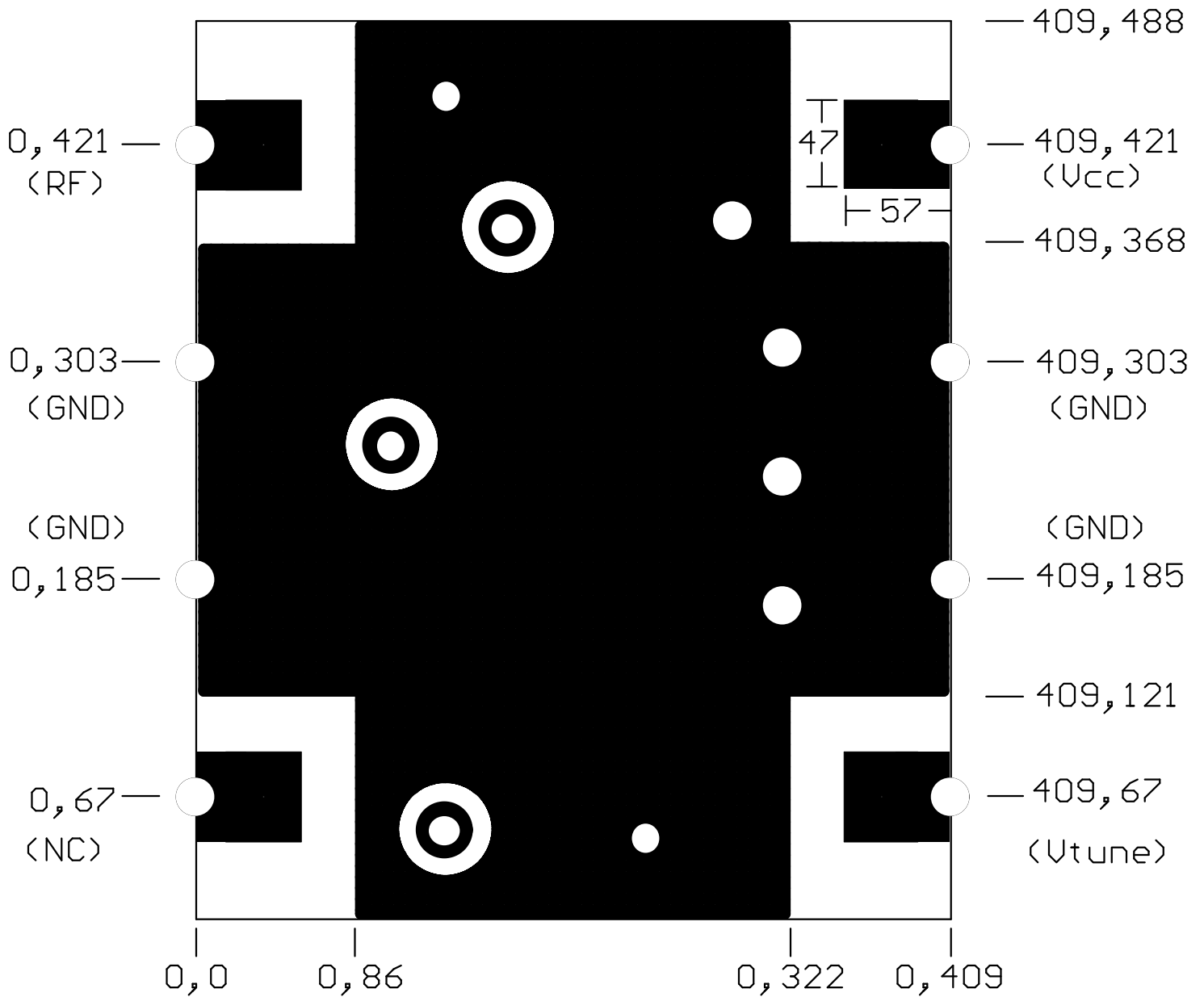


NOTES

1. Except for output pins, bottom is solid ground plane.
2. All dimensions in mils
3. All holes are plated through.

SMK FOOTPRINT

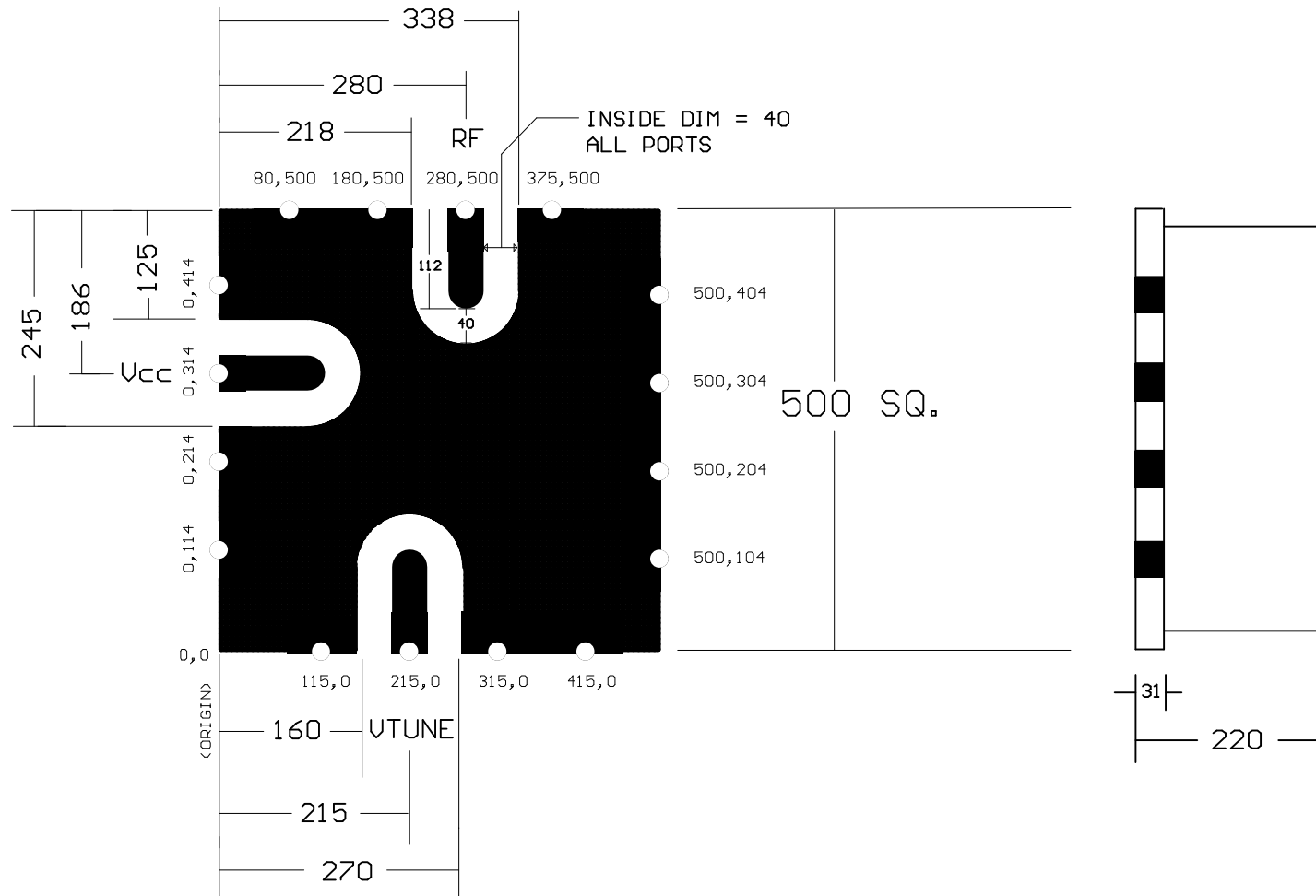
(ALL DIM IN MILS)



(TOP VIEW, BOT SIDE)

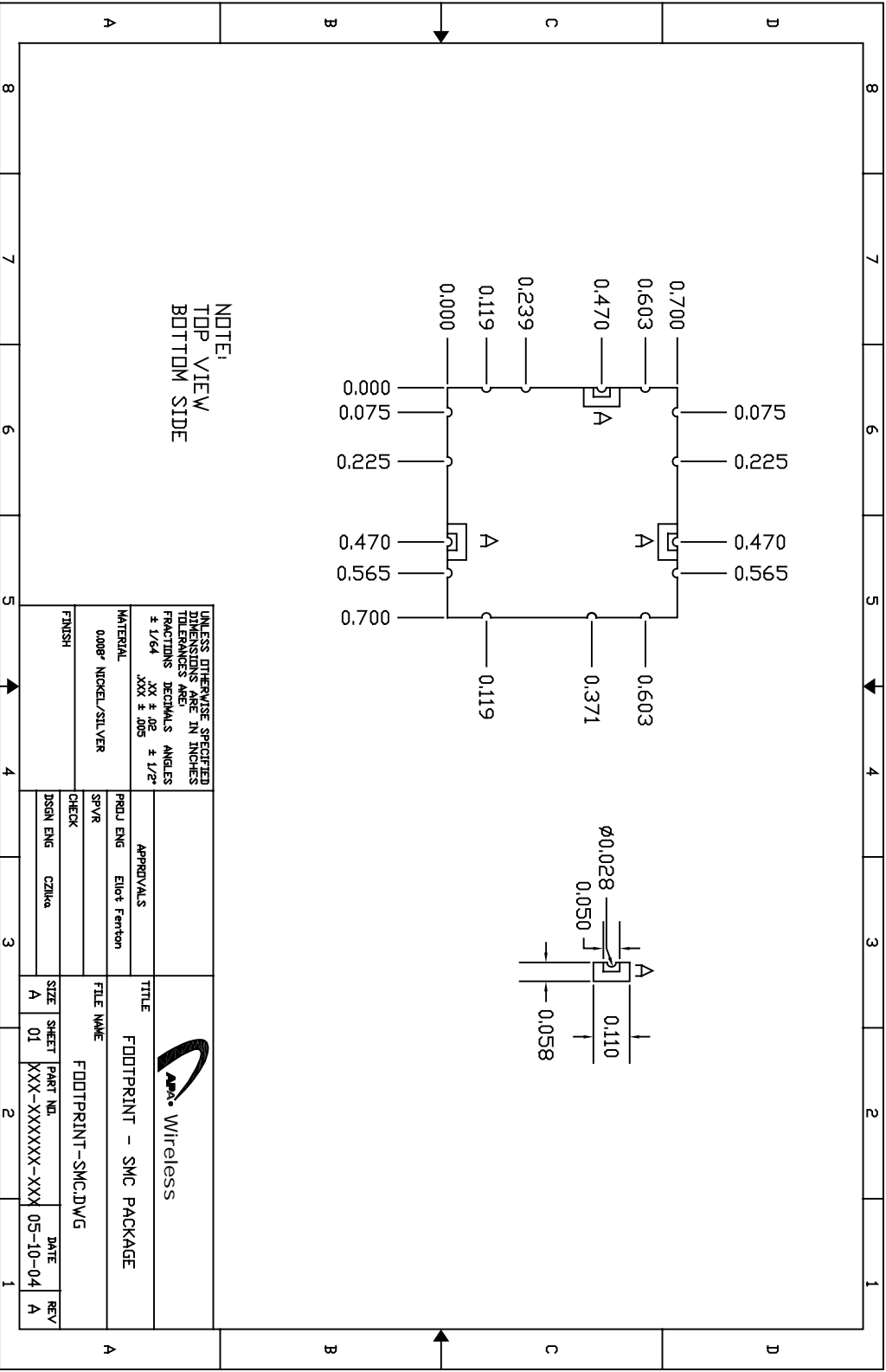
SMi FOOTPRINT

TOP VIEW, BOT SIDE



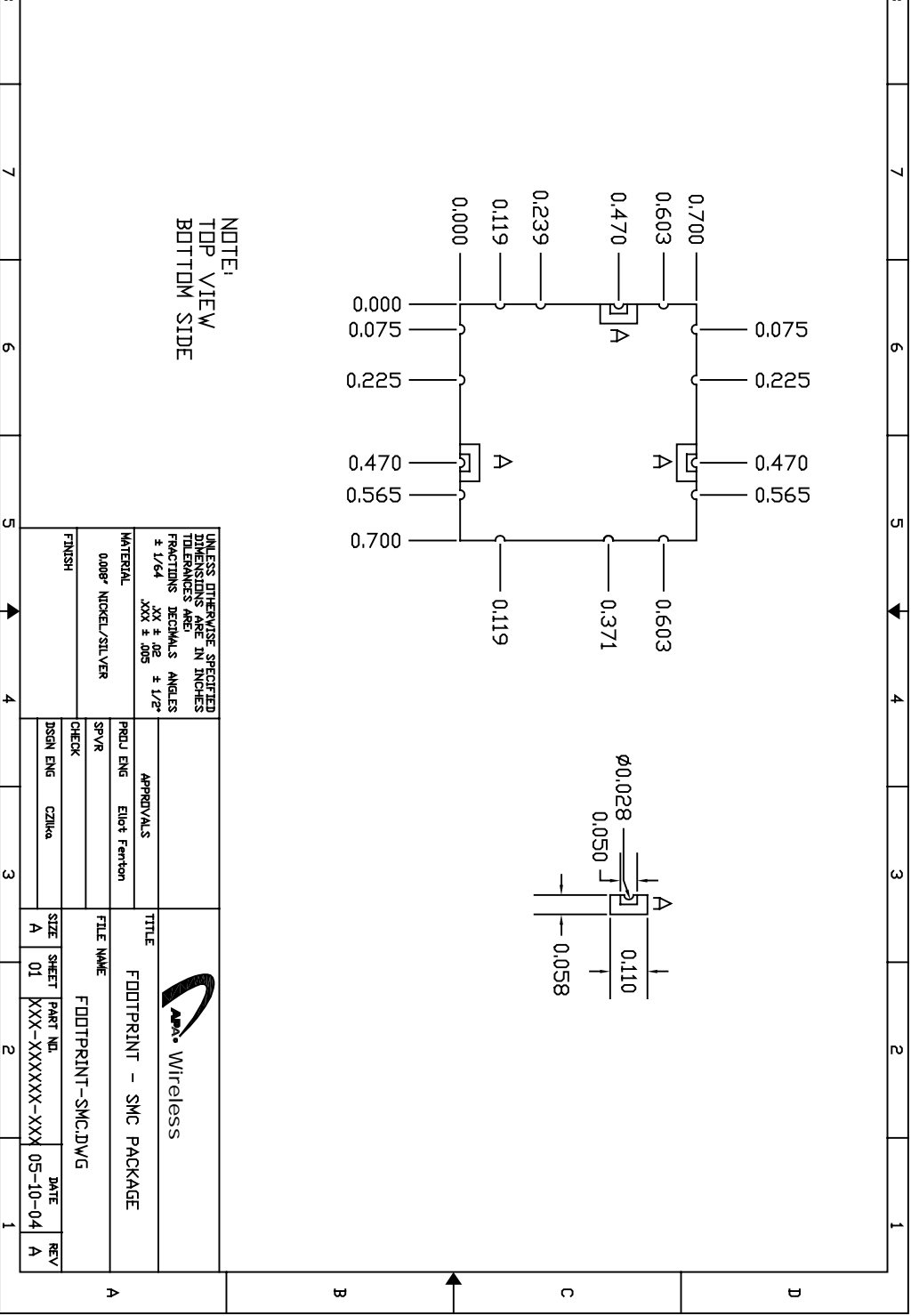
NOTES

1. Except for output pins, bottom is solid ground plane.
2. All dimensions in mils
3. All holes are plated through.



8 7 6 5 4 3 2 1

D
C
B
A

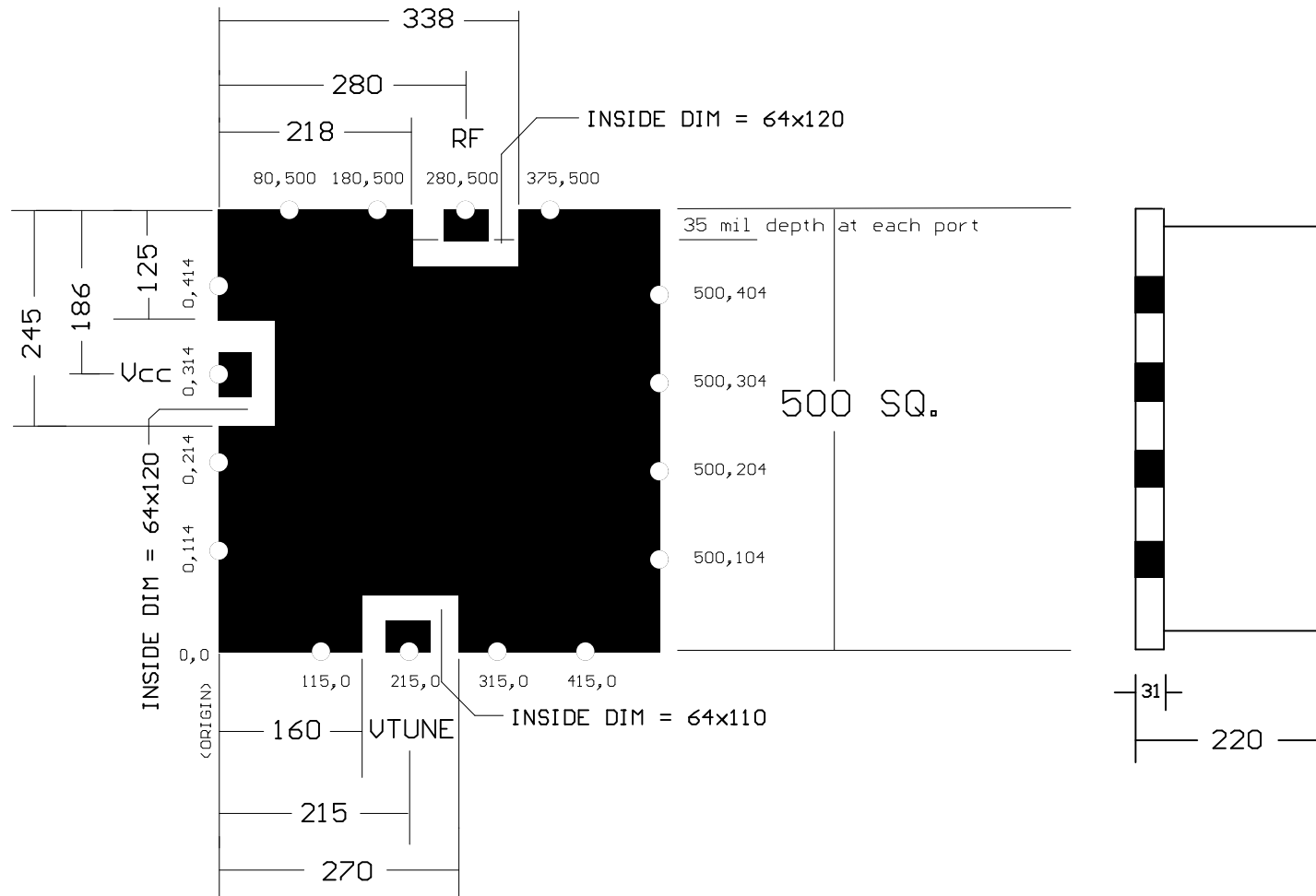


8 7 6 5 4 3 2 1

D
C
B
A

SM FOOTPRINT

TOP VIEW, BOT SIDE

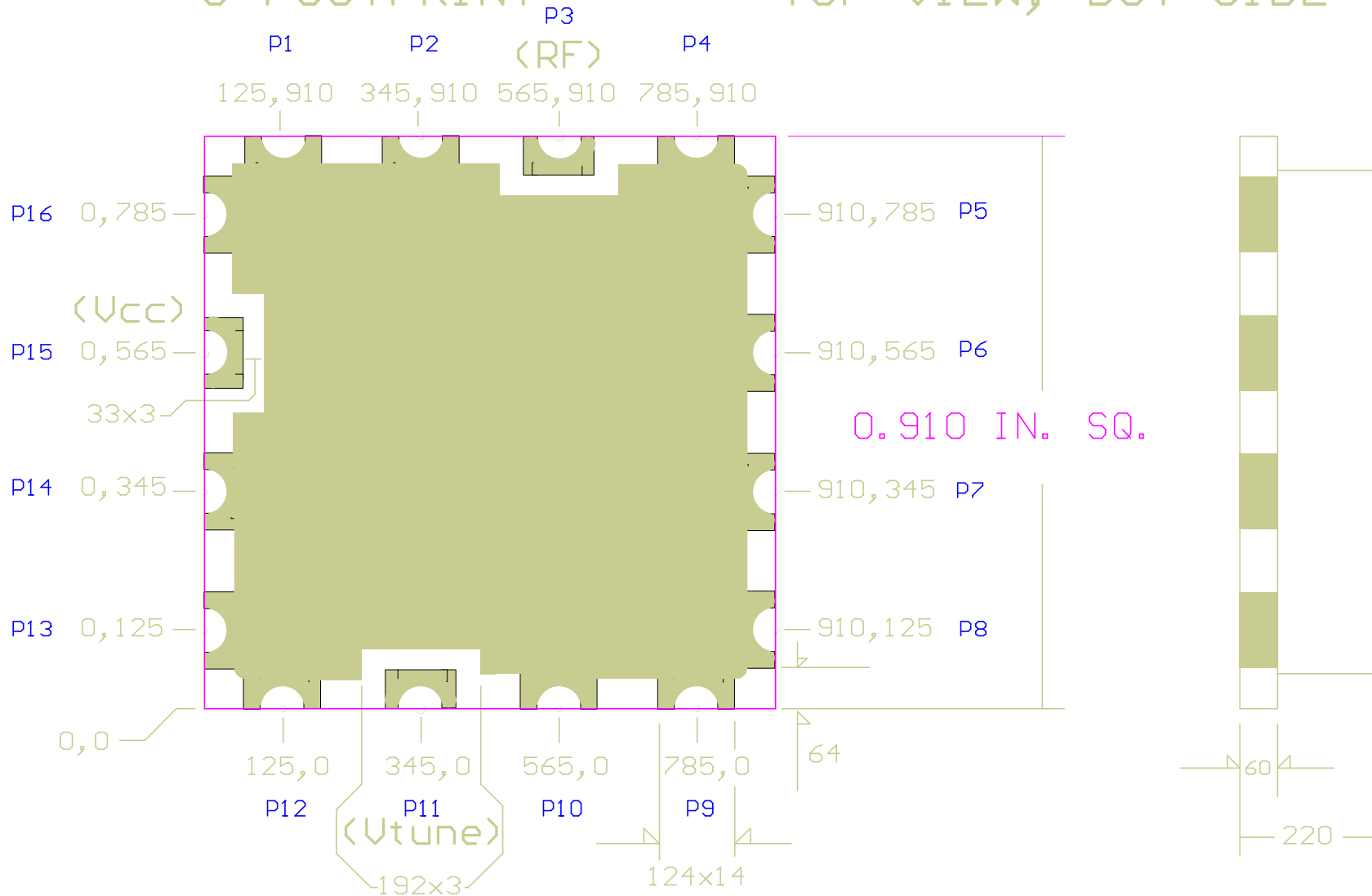


NOTES

1. Except for output pins, bottom is solid ground plane.
2. All dimensions in mils
3. All holes are plated through.

S FOOTPRINT

TOP VIEW, BOT SIDE



NOTES

1. Except for output pins, bottom is solid ground plane.
2. All dimensions in mils
3. All holes are plated through.

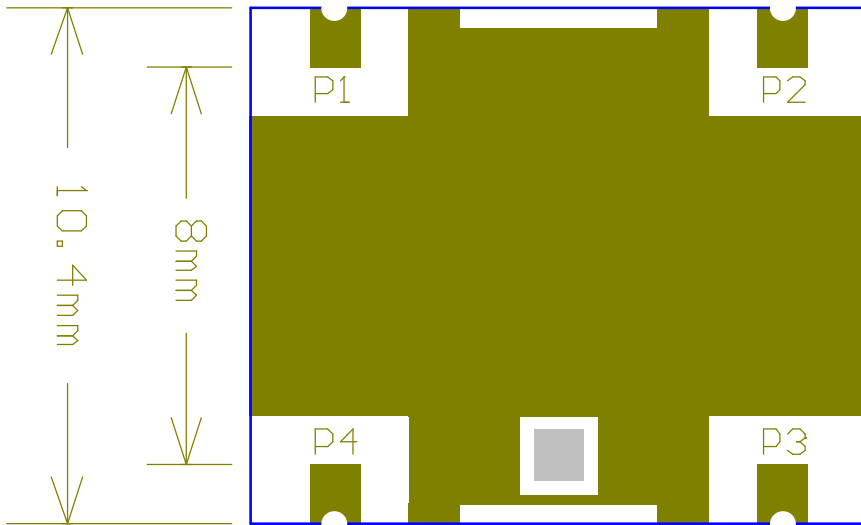
LABEL ARROW POINTS TO RF OUT

PINOUT

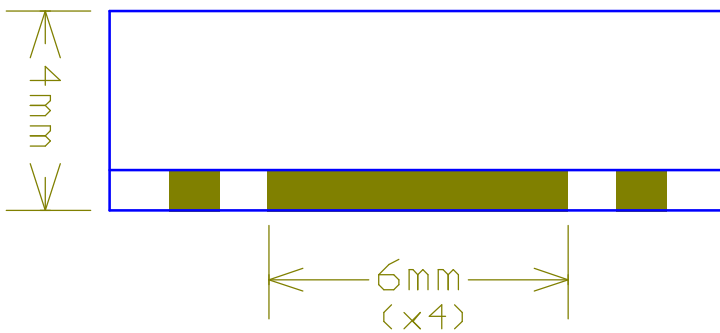
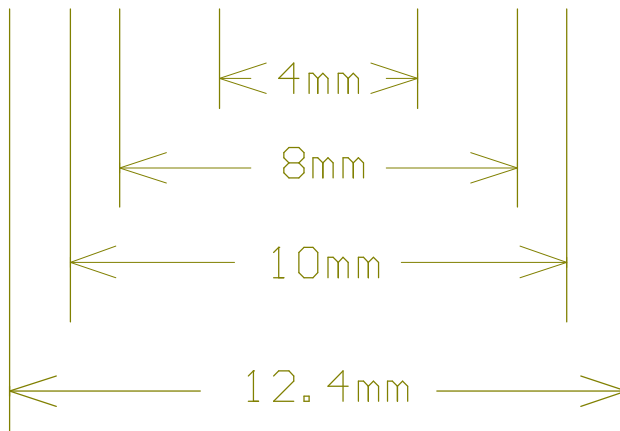
- P3 = RF OUT
- P11 = Utune
- P15 = Vcc
- ALL OTHER PINS = GND

MQE FOOTPRINT

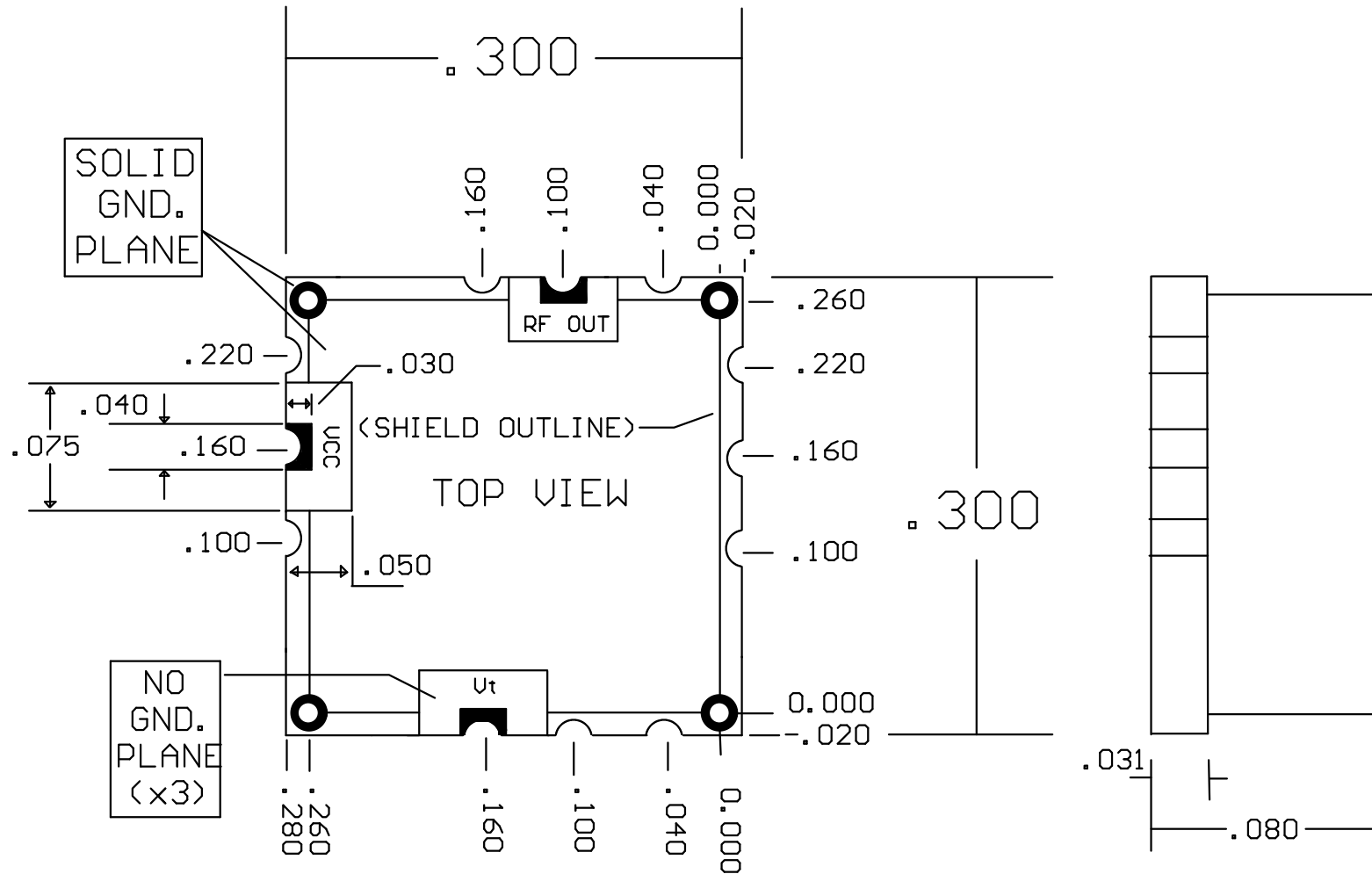
TOP VIEW, BOT SIDE



- P1: MODULATION INPUT
- P2: RF OUT
- P3: VCC
- P4: VTUNE
- P5: GROUND



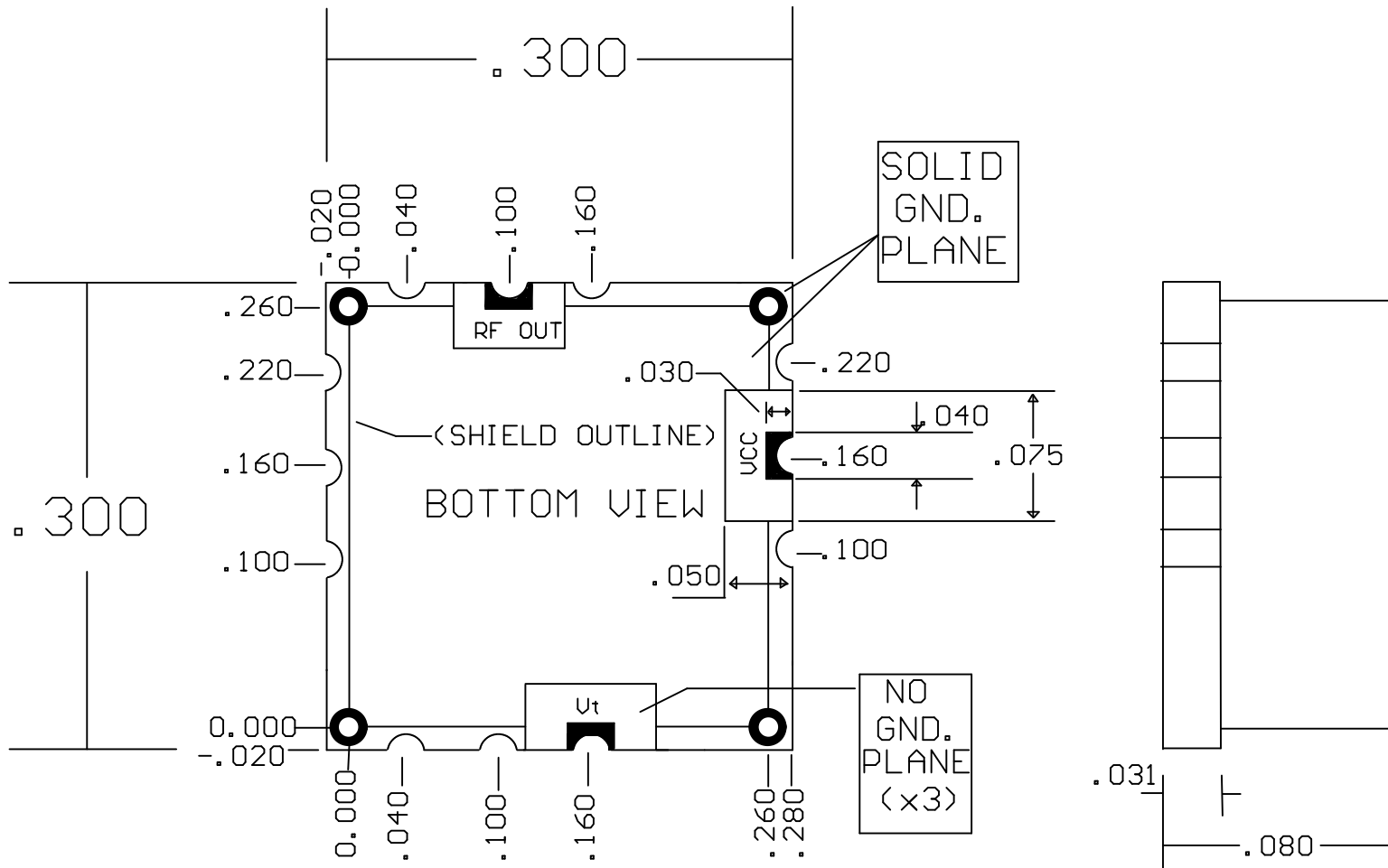
SMM PACKAGE - TOP VIEW, BOT SIDE



NOTES

1. Except for output pins, bottom is solid ground plane except where indicated.
2. All holes are plated through.

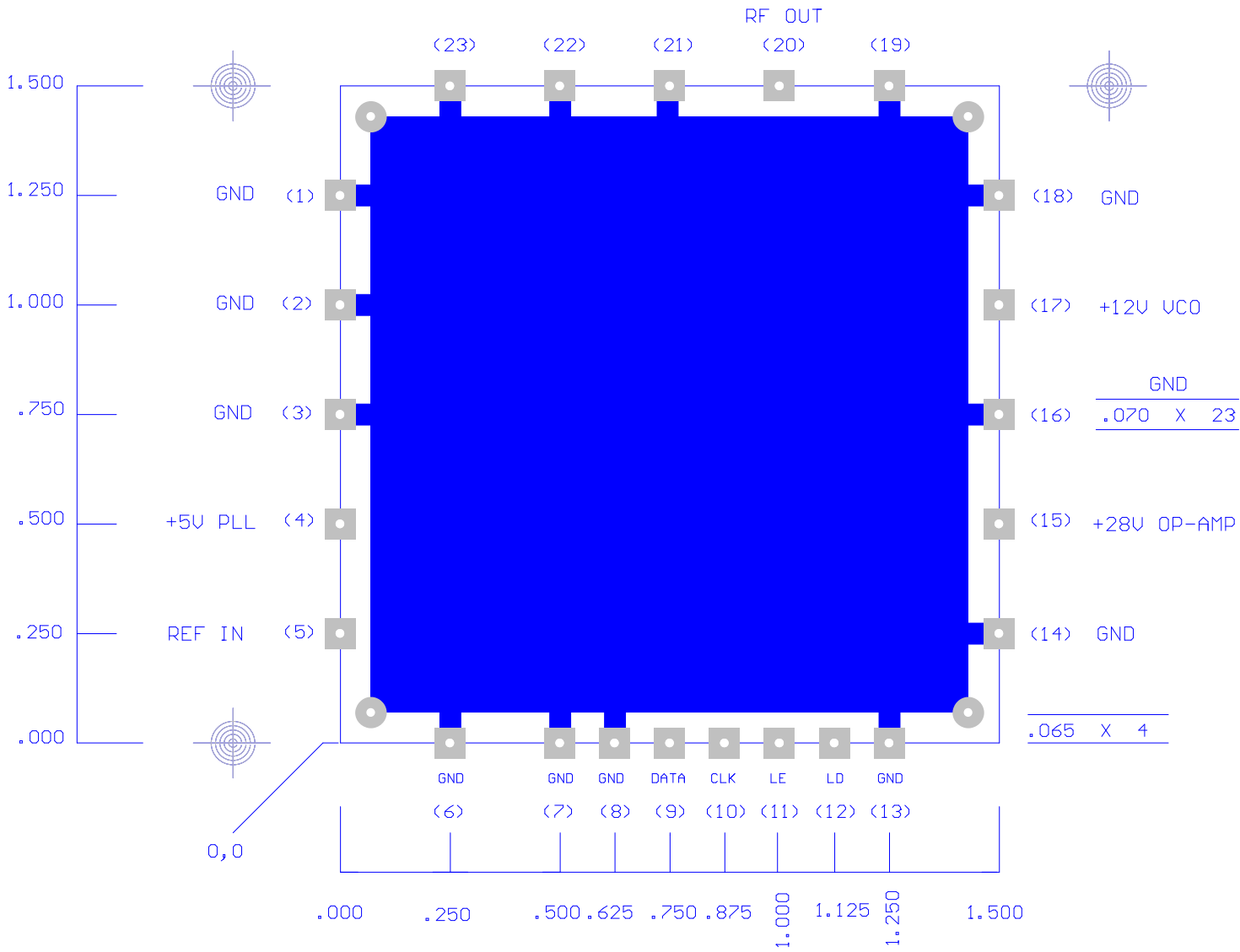
SMM PACKAGE - BOTTOM VIEW, BOT SIDE



NOTES

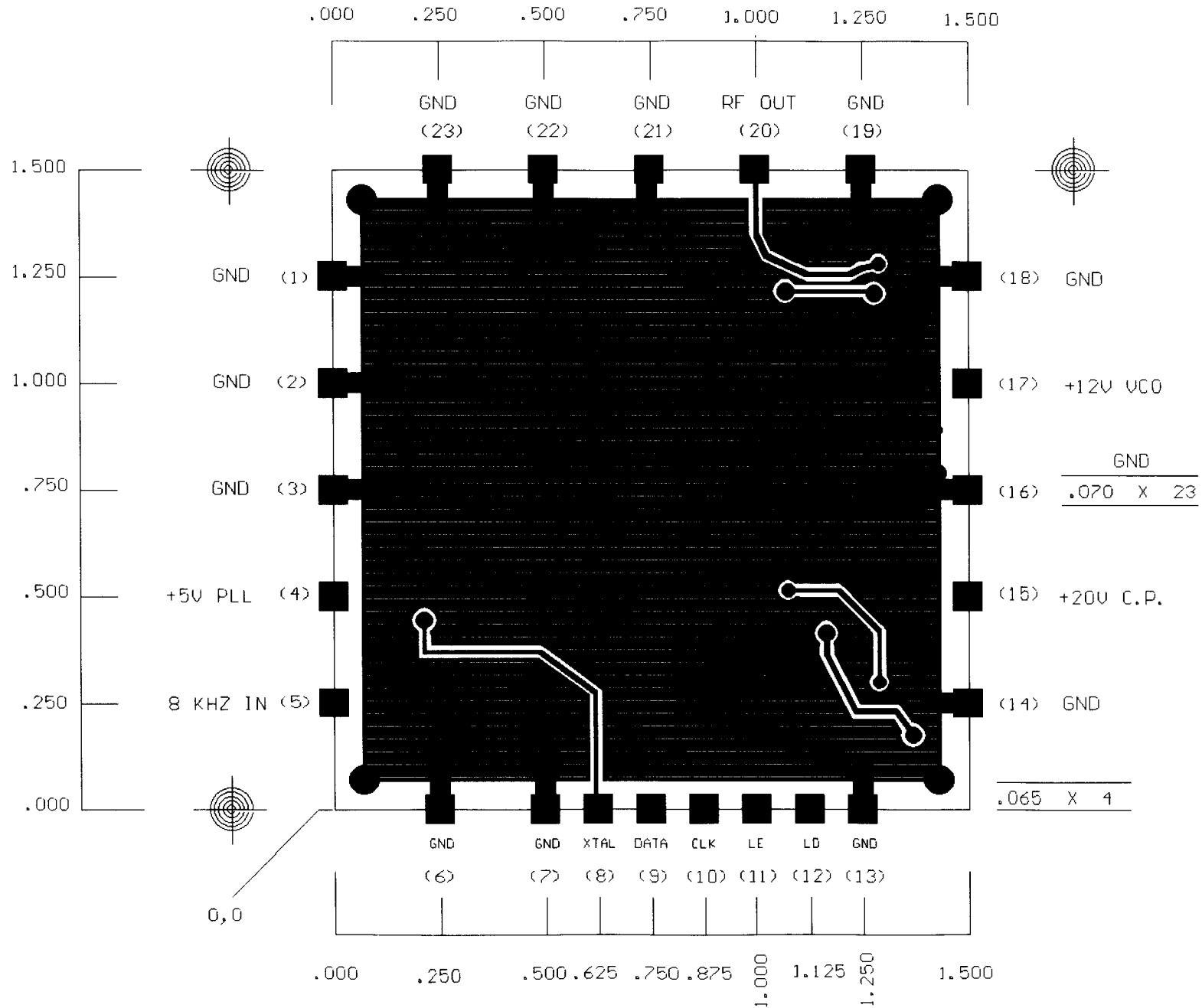
1. Except for output pins, bottom is solid ground plane except where indicated.
2. All holes are plated through.

SYN1380_1920 FOOTPRINT SYN1900_2600 FOOTPRINT

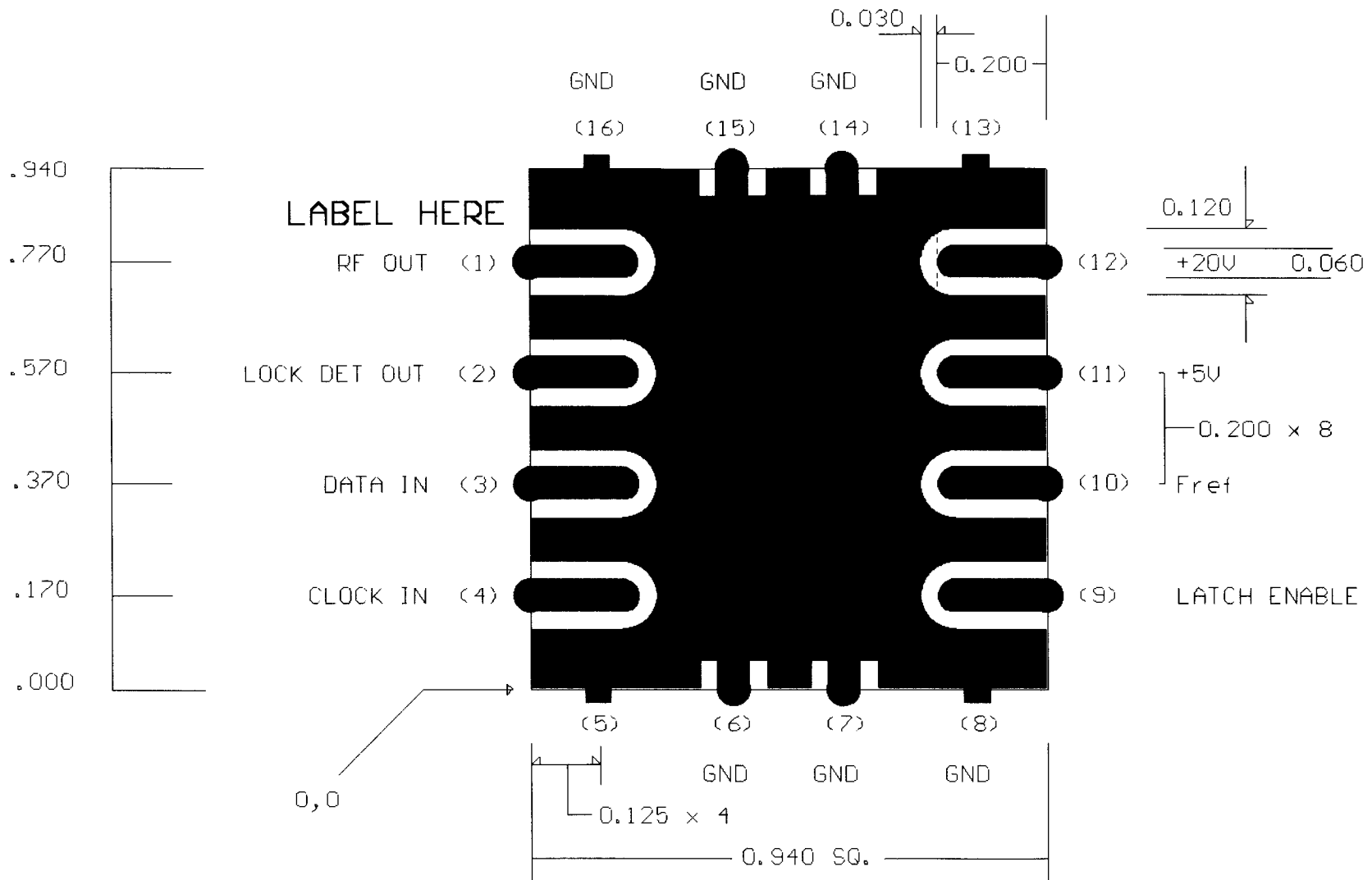


SYN3264

TOP VIEW, BOT SIDE



SYN1416 FOOTPRINT

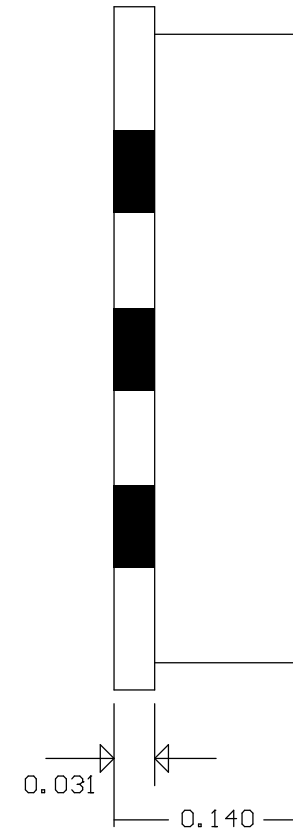
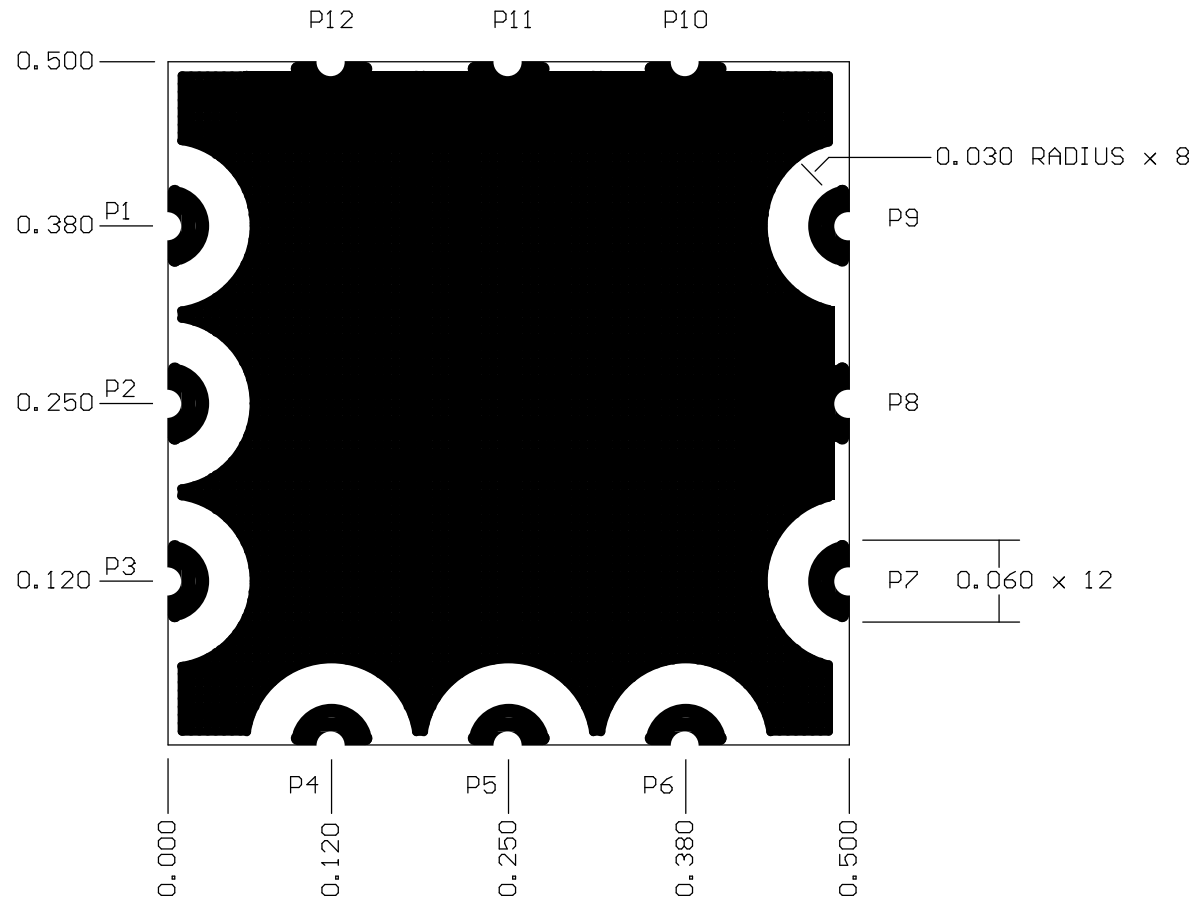


NOTE: ALL DIM IN INCHES
TOP VIEW, BOTTOM SIDE

.000 .125 .370 .570 .815 .940

PLL-SM FOOTPRINT

TOP VIEW, BOT SIDE



P1 = RF OUT

P2 = REF IN

P3 = CLOCK

P4 = DATA

P5 = LOAD ENABLE

P6 = LOCK DETECT

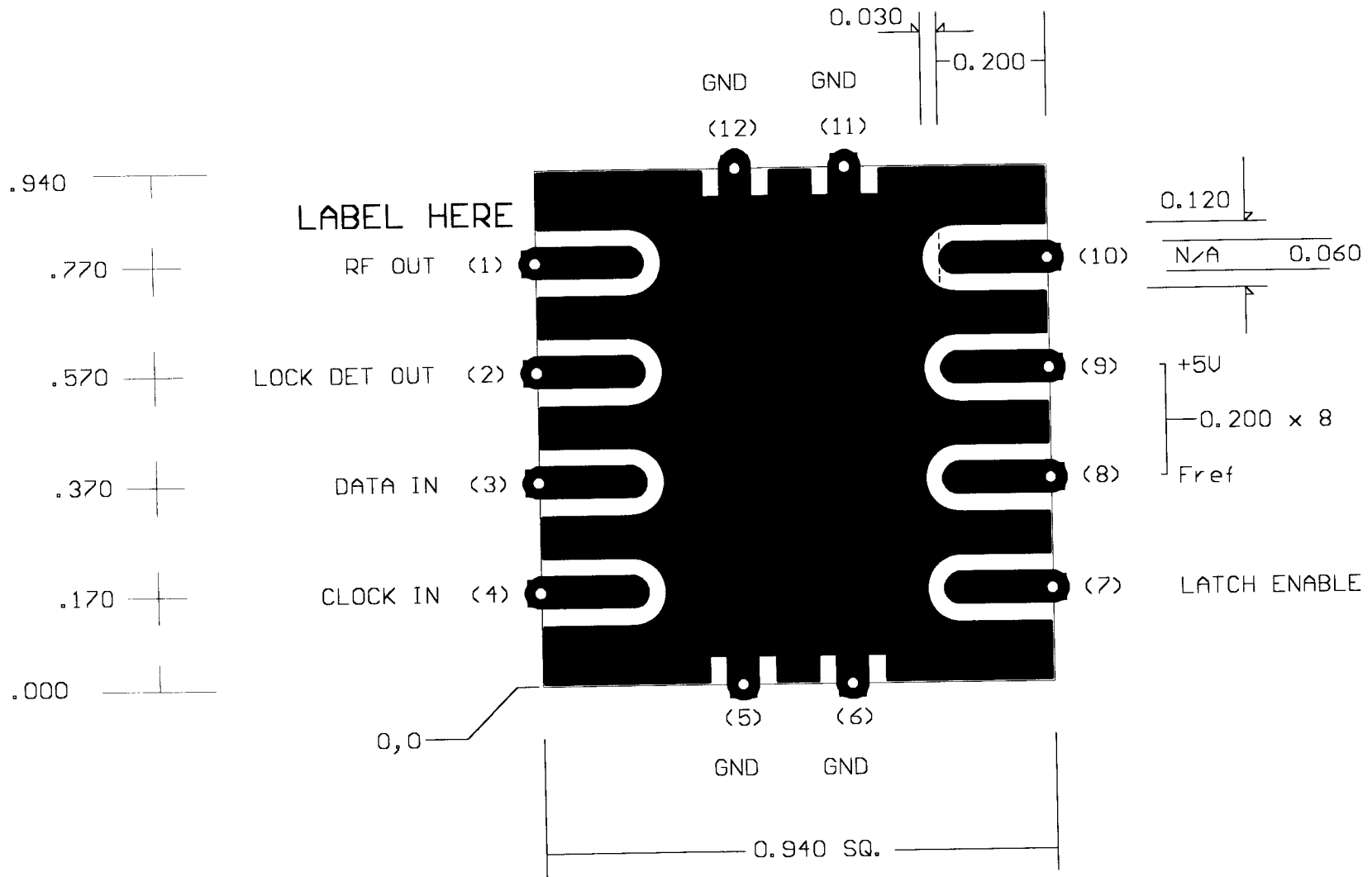
P7 = UCC

P8 = GROUND

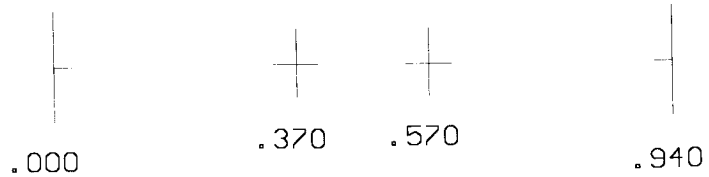
P9 = NO CONNECTION

P10-12 = GROUND

SYN950 FOOTPRINT

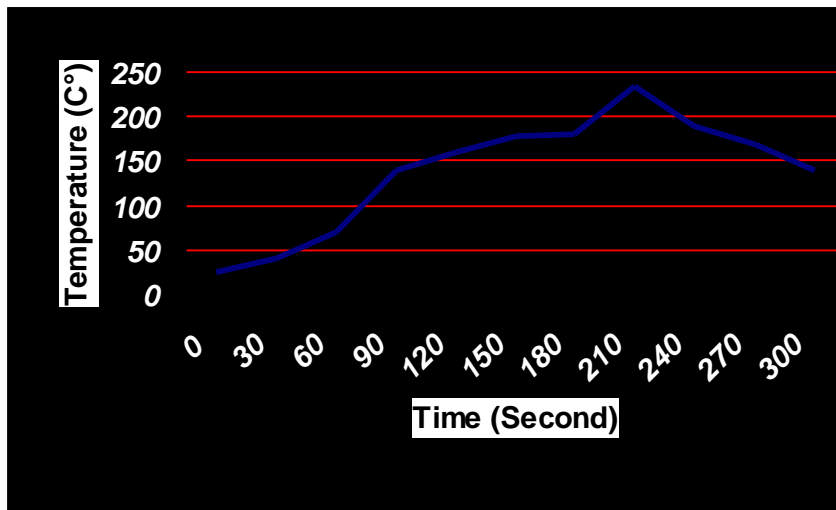


NOTE: ALL DIM IN INCHES
TOP VIEW, BOTTOM SIDE





SAMPLE REFLOW PROFILE



Zone 1: Initial Pre-Heating Stage (25-150°C). Temperature gradient shall be < 2.5 °C/Sec . Time 2.0 to 4.0 min max.

Zone 2: Soak Stage (150-180 °C). Time 2.0 min Max 60-90 sec. Typical.

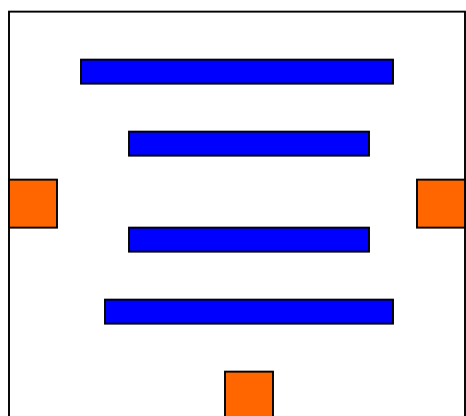
Zone 3: Reflow Stage (180-235°C). Time Approx. 30-60 Sec Typical.

Zone 4: Cool Down Stage (180-25°C). Assembly is cooled evenly so thermal shock to the components or PCB is reduced.



Stencil

1. The stencil should be .005 inch thick.
2. The output pads (red items) should be reduced by 4mils on each axis.
3. The ground plane aperture should be reduced by 10mils each side and divided into four rectangular apertures (blue items), each approx. 50mils apart as shown below:



Print Direction

Reflow

1. A straight ramp profile @ 0.8 °C to 1.2 °C per second ramp rate.
2. High density assemblies may require preheating within the profile.
3. Peak temperature should not exceed 225 °C, and the time above 183 °C should be between 45 to 75 seconds.