Frequency Synthesizer

DSN-2520A-219+

50Ω 1120 to 2520 MHz

The Big Deal

- · Low phase noise and spurious
- Robust design and construction
- Fast settling time
- · Wide bandwidth



CASE STYLE: KL1294

Product Overview

The DSN-2520A-219+ is a Frequency Synthesizer, designed to operate from 1120 to 2520 MHz for wireless sensor application. The DSN-2520A-219+ is packaged in a metal case (size of 1.250" x 1.000" x 0.232") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Low phase noise and spurious: • Phase Noise: -97 dBc/Hz typ. @ 10 kHz offset • Comparison Spurious: -70 dBc typ. • Reference Spurious: -79 dBc typ.	Low phase noise and spurious improve system EVM (Error Vector Magnitude).
Robust design and construction	To enhance the robustness of DSN-2520A-219+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer.
Fast settling time. 0.5mSec typical	Settling time, 0.5mSec typical can be used for settling applications such as jammers etc.



Frequency Synthesizer

1120 to 2520 MHz 50Ω

Features

- Integrated VCO + PLL
- Low phase noise and spurious
- Robust design and construction
- Operating voltage (VCC VCO=+10V, VCC PLL=+22V)
- Fast settling time
- · Wide bandwidth



DSN-2520A-219+

CASE STYLE: KL1294

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

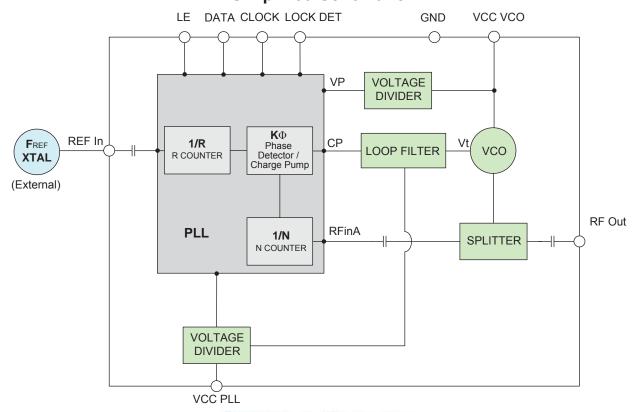
Applications

Wireless sensor

General Description

The DSN-2520A-219+ is a Frequency Synthesizer, designed to operate from 1120 to 2520 MHz for wireless sensor application. The DSN-2520A-219+ is packaged in a metal case (size of 1.250" x 1.000" x 0.232") to shield against unwanted signals and noise. To enhance the robustness of DSN-2520A-219+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer.

Simplified Schematic



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Electrical Specifications (over operating temperature -40°C to +85°C)

Parameters		Test Conditions	Min.	Тур.	Max.	Units
Frequency Range		-	1120	-	2520	MHz
Step Size		-	-	2.5	-	MHz
Settling Time		Within ± 1 deg	-	0.03	-	mSec
Output Power		-	+3.5	+6.5	+9.5	dBm
		@ 100 Hz offset	-	-84	-	
		@ 1 kHz offset	-	-94	-89	
SSB Phase Noise		@ 10 kHz offset	-	-95	-90	dBc/Hz
		@ 100 kHz offset	-	-92	-87	1
		@ 1 MHz offset	-	-119	-114	
Integrated SSB Phase Noise		@ 100Hz - 1MHz	-	-40	-	dBc
Reference Spurious Suppress	sion	Ref. Freq. 20 MHz	-	-75	-60	
Comparison Spurious Suppre	ssion	Step Size 2.5 MHz	-	-70	-55	dD.
Non - Harmonic Spurious Sup	pression	-	-	-90	-	dBc
Harmonic Suppression		-	-	-25	-10	1
VCO Supply Voltage		+10.00	+9.75	+10.00	+10.25	V
PLL Supply Voltage		+22.00	+21.75	+22.00	+22.25]
VCO Supply Current		-	-	74	80	A
PLL Supply Current		-	-	18	24	- mA
	Frequency	20 (square wave)	-	20	-	MHz
Reference Input	Amplitude	1	-	1	-	V _{P-P}
(External)	Input impedance	-	-	100	-	ΚΩ
	Phase Noise @ 1 kHz offset	-	-	-145	-	dBc/Hz
RF Output port Impedance		-	-	50	-	Ω
Input Logic Lovel	Input high voltage	-	2.65	-	-	V
Input Logic Level	Input low voltage	-	-	-	0.65	V
Digital Loak Datast	Locked	-	2.15	-	2.70	V
Digital Lock Detect	Unlocked	-	-	-	0.4	V
Frequency Synthesizer PLL		- ADF4106				
PLL Programming		-	3-wire seria	al 3.3V CMO	S	
	F_Register *	-	(MSB) 0102	XYZ1110000	0000001001	1 (LSB)
Register Map @ 2520 MHz	N_Register	-	(MSB) 001000000011111100000001 (LSB)			
	R_Register	-	(MSB) 000	10000000000	00000100000	(LSB)

* Refer to Charge Pump Settings

FREQ.LOCK [MHz]	Charge Pump Settings					
THE G. ECON [MITE]	X	Υ	Z			
1120	0	0	0			
1122.5 - 1400	0	1	0			
1402.5 - 2100	0	1	1			
2102.5 - 2240	1	0	0			
2242.5 - 2360	1	0	1			
2362.5 - 2460	1	1	0			
2462.5 - 2520	1	1	1			

Absolute Maximum Ratings

Parameters	Ratings							
VCO Supply Voltage	11V							
PLL Supply Voltage	23V							
VCO Supply Voltage to PLL Supply Voltage	N.A							
Reference Frequency Voltage	-0.3Vmin, +3.6Vmax							
Data, Clock, LE Levels	-0.3Vmin, +3.6Vmax							
Operating Temperature	-40°C to +85°C							
Storage Temperature	-55°C to +100°C							

Permanent damage may occur if any of these limits are exceeded



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FREQUENCY	РО	POWER OUTPUT			UT VCO CURRENT			PLL CURENT		
(MHz)		(dBm)			(mA)			(mA)		
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	
1120	6.38	6.19	5.87	73.66	73.86	74.06	17.69	18.77	20.47	
1225	6.48	6.20	5.94	74.20	74.32	74.43	17.82	18.94	20.65	
1375	6.73	6.52	6.32	74.77	74.76	74.75	17.85	18.98	20.70	
1525	7.02	6.84	6.64	75.01	74.95	74.79	17.87	19.03	20.75	
1675	7.21	6.99	6.79	75.05	75.04	74.86	18.02	19.19	20.92	
1825	7.20	7.01	6.78	74.97	75.05	74.91	18.03	19.22	20.96	
1975	7.25	7.00	6.73	74.57	74.79	74.76	18.06	19.25	21.00	
2125	7.22	7.03	6.69	74.15	74.46	74.54	18.08	19.28	21.04	
2275	6.81	6.74	6.33	73.60	74.01	74.20	18.23	19.45	21.21	
2425	6.53	6.27	5.85	73.10	73.62	73.93	18.25	19.48	21.25	
2520	6.55	5.96	5.39	72.91	73.43	73.76	18.18	19.42	21.19	

FREQUENCY	HARMONICS (dBc)							
(MHz)		F2			F3			
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C		
1120	-22.21	-15.04	-17.15	-17.37	-16.75	-17.33		
1225	-14.78	-16.39	-17.74	-20.60	-20.30	-20.79		
1375	-19.08	-19.55	-19.98	-29.82	-29.31	-30.02		
1525	-23.60	-22.55	-21.95	-33.41	-32.78	-33.87		
1675	-25.41	-23.74	-22.76	-28.51	-27.61	-28.36		
1825	-29.07	-27.19	-26.04	-27.41	-27.03	-28.09		
1975	-30.67	-29.16	-28.61	-24.98	-24.47	-25.25		
2125	-35.57	-35.27	-35.49	-22.49	-21.19	-21.99		
2275	-41.39	-49.82	-57.24	-20.39	-19.63	-20.85		
2425	-40.55	-36.94	-34.71	-19.22	-19.53	-21.16		
2520	-35.61	-32.37	-31.07	-18.88	-18.23	-19.40		







EDECHENCY	PH	IASE NOIS	E (dBc/Hz) @OFFSE	TS			
FREQUENCY (MHz)		+25°C						
	100Hz	1kHz	10kHz	100kHz	1MHz			
1120	-90.77	-100.03	-99.22	-94.77	-119.64			
1225	-91.35	-99.88	-100.58	-96.45	-121.11			
1375	-90.76	-99.76	-100.17	-96.04	-121.58			
1525	-91.53	-98.21	-99.38	-96.90	-119.53			
1675	-85.55	-96.75	-98.72	-95.94	-118.99			
1825	-89.02	-97.77	-97.09	-94.45	-119.22			
1975	-86.00	-94.35	-96.41	-92.79	-119.57			
2125	-87.12	-95.30	-94.73	-92.07	-119.07			
2275	-86.20	-94.38	-93.80	-91.36	-119.22			
2425	-88.80	-94.90	-95.68	-92.58	-119.79			
2520	-84.95	-95.17	-94.75	-91.98	-120.82			

FREQUENCY	PHASE NOISE (dBc/Hz) @OFFSETS							
(MHz)	-45°C							
	100Hz	1kHz	10kHz	100kHz	1MHz			
1120	-92.21	-99.15	-99.36	-95.04	-119.05			
1225	-91.98	-99.12	-100.06	-96.63	-120.67			
1375	-88.73	-98.57	-99.69	-95.85	-121.63			
1525	-89.92	-98.20	-99.40	-96.87	-119.67			
1675	-88.83	-98.00	-98.84	-96.21	-119.18			
1825	-87.40	-96.51	-97.69	-94.51	-119.24			
1975	-85.62	-96.53	-96.88	-93.59	-119.30			
2125	-85.75	-94.70	-95.34	-92.32	-118.81			
2275	-86.94	-94.27	-94.16	-90.89	-119.23			
2425	-86.03	-94.74	-95.11	-92.18	-119.98			
2520	-86.27	-94.86	-94.87	-91.91	-120.59			

FREQUENCY	PHASE NOISE (dBc/Hz) @OFFSETS +85°C							
(MHz)								
	100Hz	1kHz	10kHz	100kHz	1MHz			
1120	-93.40	-102.34	-102.03	-97.18	-121.70			
1225	-91.16	-100.59	-101.08	-97.25	-121.97			
1375	-89.67	-99.07	-99.87	-96.67	-120.68			
1525	-89.16	-99.44	-99.36	-97.16	-118.65			
1675	-89.23	-98.49	-98.31	-95.63	-118.18			
1825	-88.32	-96.34	-96.63	-94.34	-118.30			
1975	-88.27	-94.66	-95.75	-92.17	-118.79			
2125	-88.42	-94.23	-95.60	-92.36	-118.85			
2275	-86.89	-95.19	-95.46	-92.65	-119.19			
2425	-88.76	-94.41	-95.57	-93.22	-119.70			
2520	-84.91	-94.41	-94.16	-91.54	-120.24			







COMPARISON SPURIOUS ORDER	COMPARISON SPURIOUS @Fcarrier 1120MHz+(n*Fcomparison) (dBc) note 1			MPARISON SPURIOUS @Fcarrier DMHz+(n*Fcomparison) (dBc) note 1			ARISON SPU @Fcarrier z+(n*Fcom (dBc) no	parison)	
n	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
-5	-100.56	-97.62	-94.59	-84.04	-85.04	-86.17	-89.75	-89.20	-91.42
-4	-93.24	-97.46	-92.81	-86.01	-84.06	-85.07	-85.32	-87.82	-90.28
-3	-94.50	-93.93	-90.53	-80.56	-81.86	-83.24	-85.75	-85.94	-88.56
-2	-90.14	-90.43	-87.40	-76.87	-78.77	-80.48	-82.21	-83.01	-85.71
-1	-79.16	-83.05	-82.24	-69.76	-72.76	-75.68	-74.18	-76.15	-79.64
0 ^{note 2}	-	-	-	-	-	-	-	-	-
+1	-79.26	-82.89	-82.99	-71.27	-75.72	-79.45	-79.36	-82.46	-84.71
+2	-87.71	-88.12	-85.67	-76.72	-78.74	-80.33	-81.29	-82.81	-84.93
+3	-90.72	-90.54	-88.43	-79.47	-81.25	-82.40	-83.12	-84.74	-86.35
+4	-90.64	-92.74	-90.25	-84.73	-83.29	-84.08	-82.90	-86.21	-87.59
+5	-93.75	-93.24	-91.50	-82.58	-84.13	-84.97	-85.99	-87.23	-88.38

Note 1: Comparison frequency 2.5 MHz

Note 2: All spurs are referenced to carrier signal (n=0).

REFERENCE SPURIOUS ORDER		@Fcarrier		1120MHz+(n*Freference) 1820MHz+(n*Freference)		REFERENCE SPURIOUS @Fcarrier 2520MHz+(n*Freference) (dBc) note 3			
n	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
-5	-124.61	-110.80	-119.92	-112.12	-114.01	-112.65	-114.52	-108.00	-112.21
-4	-99.69	-99.49	-101.18	-107.35	-106.99	-106.84	-104.31	-102.71	-105.83
-3	-104.14	-102.38	-103.17	-94.66	-95.57	-96.08	-97.57	-98.47	-97.77
-2	-89.97	-89.97	-89.39	-79.06	-78.70	-79.79	-82.13	-84.04	-85.12
-1	-101.64	-98.58	-96.63	-84.82	-85.71	-86.70	-90.50	-88.97	-92.08
o ^{note 4}	-	-	-	-	-	-	-	-	-
+1	-94.43	-94.22	-92.80	-83.41	-84.69	-85.35	-86.88	-88.39	-88.41
+2	-87.30	-88.34	-88.49	-78.93	-79.56	-80.61	-83.96	-83.93	-84.80
+3	-103.88	-108.95	-111.21	-103.29	-100.83	-103.09	-110.32	-106.46	-103.94
+4	-99.44	-99.18	-103.24	-109.04	-107.71	-109.69	-110.36	-105.14	-110.05
+5	-115.21	-115.52	-112.19	-114.89	-114.69	-111.56	-131.09	-115.20	-114.01

Note 3: Reference frequency 20 MHz

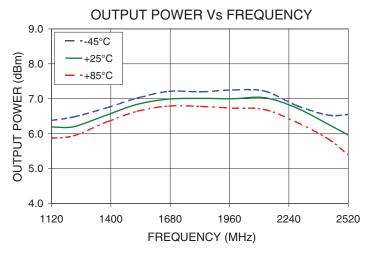
Note 4: All spurs are referenced to carrier signal (n=0).

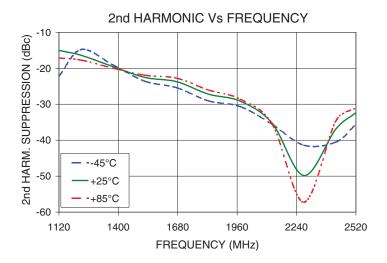


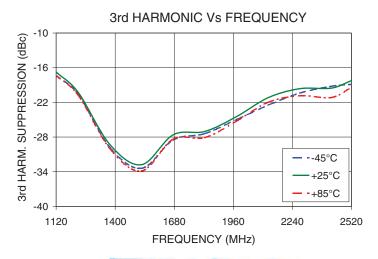




Typical Performance Curves

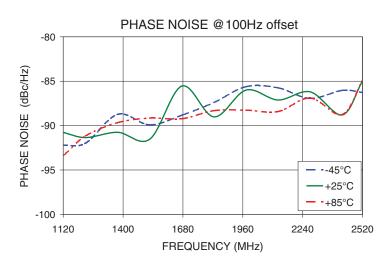


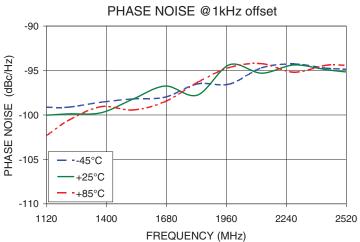


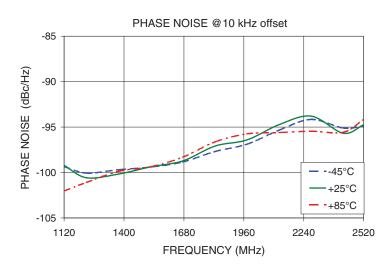


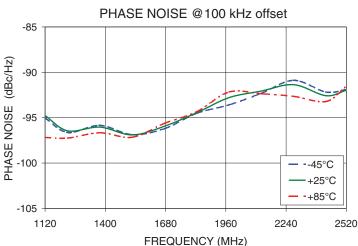
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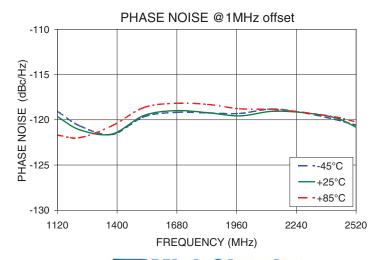












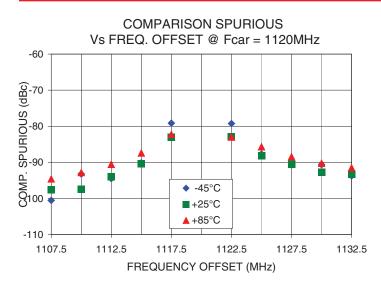
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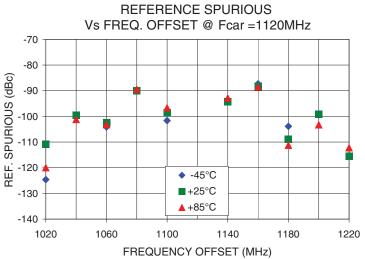
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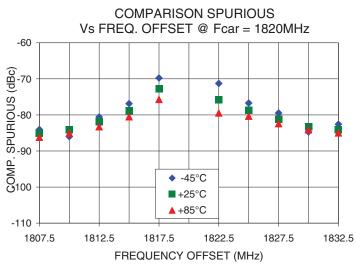
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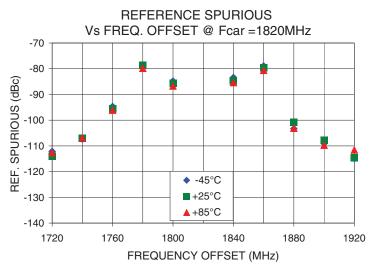
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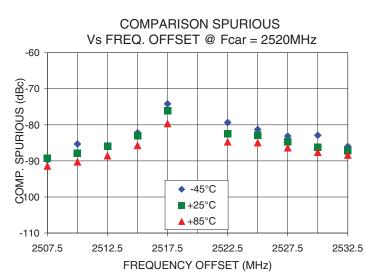
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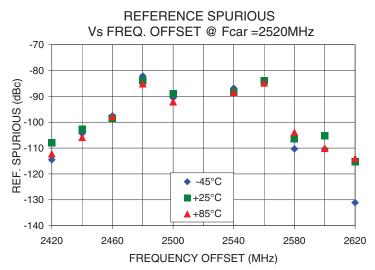












Mini-Circuits

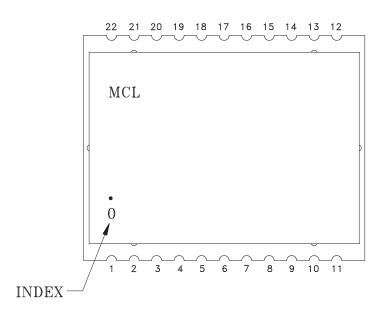
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Pin Configuration

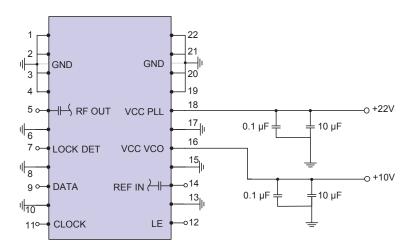


Pin Connection

Pin Number	Function	Pin Number	Function
1	GND	12	LE
2	GND	13	GND
3	GND	14	REF IN
4	GND	15	GND
5	RF OUT	16	VCC VCO
6	GND	17	GND
7	LOCK DET	18	VCC PLL
8	GND	19	GND
9	DATA	20	GND
10	GND	21	GND
11	CLOCK	22	GND

Recommended Application Circuit

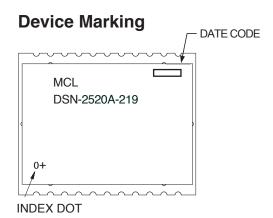
Note: REF IN and RF OUT ports are internally AC coupled.











Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Case Style: KL1294

Tape & Reel: TR-F97

Suggested Layout for PCB Design: PL-318

Evaluation Board: TB-553+

Environment Ratings: ENV03T2



Frequency Synthesizer

Typical Performance Data

FREQ.	PO	WER OUT	PUT	HARMONICS						VCO CURRENT			PLL CURENT		
(MHz)		(dBm)				(d	IBc)			(mA)			(mA)		
(IVITIZ)					F2			F3		l					
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
1120	6.38	6.19	5.87	-22.21	-15.04	-17.15	-17.37	-16.75	-17.33	73.66	73.86	74.06	17.69	18.77	20.47
1225	6.48	6.20	5.94	-14.78	-16.39	-17.74	-20.60	-20.30	-20.79	74.20	74.32	74.43	17.82	18.94	20.65
1375	6.73	6.52	6.32	-19.08	-19.55	-19.98	-29.82	-29.31	-30.02	74.77	74.76	74.75	17.85	18.98	20.70
1525	7.02	6.84	6.64	-23.60	-22.55	-21.95	-33.41	-32.78	-33.87	75.01	74.95	74.79	17.87	19.03	20.75
1675	7.21	6.99	6.79	-25.41	-23.74	-22.76	-28.51	-27.61	-28.36	75.05	75.04	74.86	18.02	19.19	20.92
1825	7.20	7.01	6.78	-29.07	-27.19	-26.04	-27.41	-27.03	-28.09	74.97	75.05	74.91	18.03	19.22	20.96
1975	7.25	7.00	6.73	-30.67	-29.16	-28.61	-24.98	-24.47	-25.25	74.57	74.79	74.76	18.06	19.25	21.00
2125	7.22	7.03	6.69	-35.57	-35.27	-35.49	-22.49	-21.19	-21.99	74.15	74.46	74.54	18.08	19.28	21.04
2275	6.81	6.74	6.33	-41.39	-49.82	-57.24	-20.39	-19.63	-20.85	73.60	74.01	74.20	18.23	19.45	21.21
2425	6.53	6.27	5.85	-40.55	-36.94	-34.71	-19.22	-19.53	-21.16	73.10	73.62	73.93	18.25	19.48	21.25
2520	6.55	5.96	5.39	-35.61	-32.37	-31.07	-18.88	-18.23	-19.40	72.91	73.43	73.76	18.18	19.42	21.19

	1														
FREQ.		PHASE NOISE (dBc/Hz)													
(MHz)		@ OFFSETS													
(IVITIZ)		-45°C						+25°C					+85°C		
	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz
1120	-92.21	-99.15	-99.36	-95.04	-119.05	-90.77	-100.03	-99.22	-94.77	-119.64	-93.40	-102.34	-102.03	-97.18	-121.70
1225	-91.98	-99.12	-100.06	-96.63	-120.67	-91.35	-99.88	-100.58	-96.45	-121.11	-91.16	-100.59	-101.08	-97.25	-121.97
1375	-88.73	-98.57	-99.69	-95.85	-121.63	-90.76	-99.76	-100.17	-96.04	-121.58	-89.67	-99.07	-99.87	-96.67	-120.68
1525	-89.92	-98.20	-99.40	-96.87	-119.67	-91.53	-98.21	-99.38	-96.90	-119.53	-89.16	-99.44	-99.36	-97.16	-118.65
1675	-88.83	-98.00	-98.84	-96.21	-119.18	-85.55	-96.75	-98.72	-95.94	-118.99	-89.23	-98.49	-98.31	-95.63	-118.18
1825	-87.40	-96.51	-97.69	-94.51	-119.24	-89.02	-97.77	-97.09	-94.45	-119.22	-88.32	-96.34	-96.63	-94.34	-118.30
1975	-85.62	-96.53	-96.88	-93.59	-119.30	-86.00	-94.35	-96.41	-92.79	-119.57	-88.27	-94.66	-95.75	-92.17	-118.79
2125	-85.75	-94.70	-95.34	-92.32	-118.81	-87.12	-95.30	-94.73	-92.07	-119.07	-88.42	-94.23	-95.60	-92.36	-118.85
2275	-86.94	-94.27	-94.16	-90.89	-119.23	-86.20	-94.38	-93.80	-91.36	-119.22	-86.89	-95.19	-95.46	-92.65	-119.19
2425	-86.03	-94.74	-95.11	-92.18	-119.98	-88.80	-94.90	-95.68	-92.58	-119.79	-88.76	-94.41	-95.57	-93.22	-119.70
2520	-86 27	-94 86	-94 87	-91 91	-120 59	-84 95	-95 17	-94 75	-91 98	-120.82	-84 91	-94 41	-94 16	-91 54	-120 24

Frequency Synthesizer

Typical Performance Data

COMPARISON SPURIOUS ORDER	@F	PARISON SPUR Carrier 1120M n*Fcomparison (dBc) NOTE 1	Hz± n)	@F	PARISON SPUF Fearrier 1820M n*Feomparison (dBc) NOTE 1	Hz± n)	COMPARISON SPURIOUS @Fcarrier 2520MHz± (n*Fcomparison) (dBc) NOTE 1			
n	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	
-5	-100.56	-97.62	-94.59	-84.04	-85.04	-86.17	-89.75	-89.20	-91.42	
-4	-93.24	-97.46	-92.81	-86.01	-84.06	-85.07	-85.32	-87.82	-90.28	
-3	-94.50	-93.93	-90.53	-80.56	-81.86	-83.24	-85.75	-85.94	-88.56	
-2	-90.14	-90.43	-87.40	-76.87	-78.77	-80.48	-82.21	-83.01	-85.71	
-1	-79.16	-83.05	-82.24	-69.76	-72.76	-75.68	-74.18	-76.15	-79.64	
O ^{note 2}	-	-	-	-	-	-	-	-	-	
+1	-79.26	-82.89	-82.99	-71.27	-75.72	-79.45	-79.36	-82.46	-84.71	
+2	-87.71	-88.12	-85.67	-76.72	-78.74	-80.33	-81.29	-82.81	-84.93	
+3	-90.72	-90.54	-88.43	-79.47	-81.25	-82.40	-83.12	-84.74	-86.35	
+4	-90.64	-92.74	-90.25	-84.73	-83.29	-84.08	-82.90	-86.21	-87.59	
+5	-93.75	-93.24	-91.50	-82.58	-84.13	-84.97	-85.99	-87.23	-88.38	

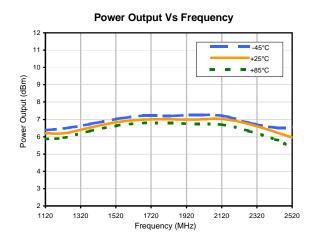
Note 1: Comparison frequency 2.5 MHz

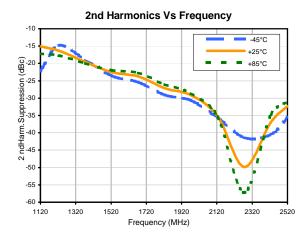
Note 2: All spurs are referenced to carrier signal (n=0).

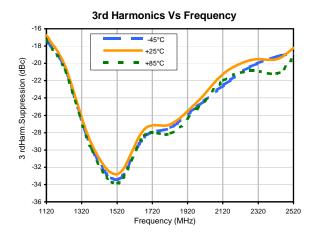
REFERENCE SPURIOUS ORDER	@F	RENCE SPUR carrier 1120M (n*Freference (dBc) NOTE 3	Hz±)	@F	RENCE SPUR carrier 1820M (n*Freference (dBc) NOTE 3	Hz±)	REFERENCE SPURIOUS @Fcarrier 2520MHz± (n*Freference) (dBc) NOTE 3			
n	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	
-5	-124.61	-110.80	-119.92	-112.12	-114.01	-112.65	-114.52	-108.00	-112.21	
-4	-99.69	-99.49	-101.18	-107.35	-106.99	-106.84	-104.31	-102.71	-105.83	
-3	-104.14	-102.38	-103.17	-94.66	-95.57	-96.08	-97.57	-98.47	-97.77	
-2	-89.97	-89.97	-89.39	-79.06	-78.70	-79.79	-82.13	-84.04	-85.12	
-1	-101.64	-98.58	-96.63	-84.82	-85.71	-86.70	-90.50	-88.97	-92.08	
O ^{note 4}	-	-	-	-	-	-	-	-	-	
+1	-94.43	-94.22	-92.80	-83.41	-84.69	-85.35	-86.88	-88.39	-88.41	
+2	-87.30	-88.34	-88.49	-78.93	-79.56	-80.61	-83.96	-83.93	-84.80	
+3	-103.88	-108.95	-111.21	-103.29	-100.83	-103.09	-110.32	-106.46	-103.94	
+4	-99.44	-99.18	-103.24	-109.04	-107.71	-109.69	-110.36	-105.14	-110.05	
+5	-115.21	-115.52	-112.19	-114.89	-114.69	-111.56	-131.09	-115.20	-114.01	

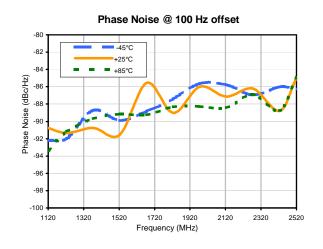
Note 3: Reference frequency 20 MHz

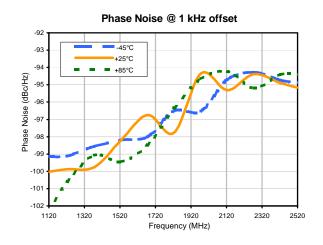
Note 4: All spurs are referenced to carrier signal (n=0).

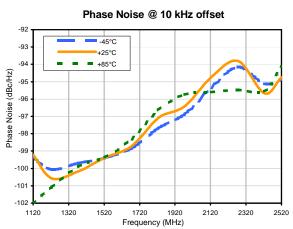


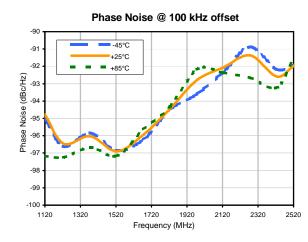


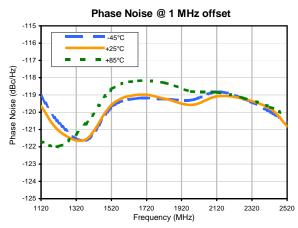


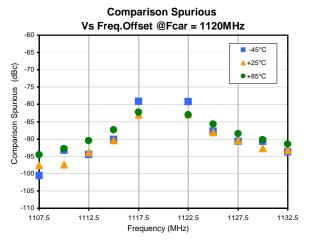


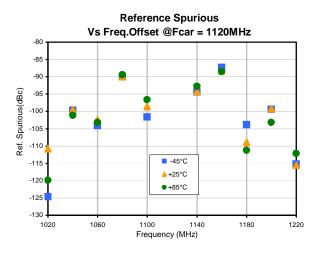


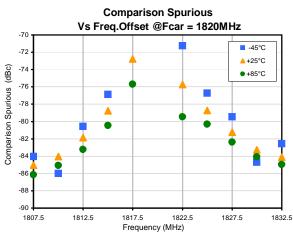


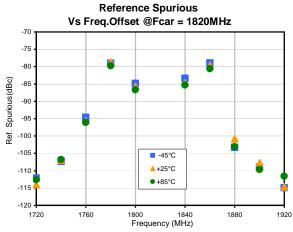


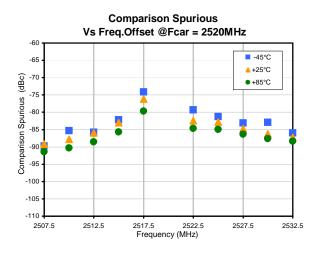


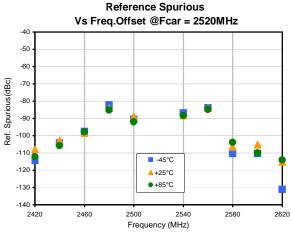












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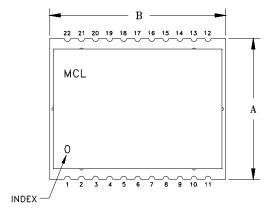
REV. X1 DSN-2520A-219+ 100209 Page 3 of 3

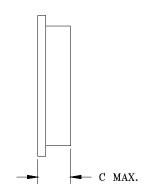
Case Style



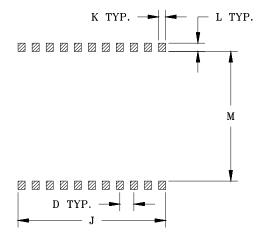
Outline Dimensions

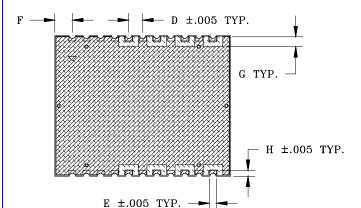
KL1294





Suggested PCB Land Pattern







METALLIZATION



SOLDER RESIST

CASE#	A	В	С	D	Е	F	G	Н	J	K	L	M	WT.GRAM
KL1294	1.000 (25.40)			.100 (2.54)		.125 (3.18)	.080 (2.03)	.040 (1.02)	1.05 (26.67)	.050 (1.27)	.060 (1.52)	.920 (23.37)	6.0

Dimensions are in inches (mm). Tolerances: 2PL. +/- .03; 3PL. +/- .015

Notes:

- 1. Case material: Nickel-Silver alloy.
- 2. Base: Printed wiring laminate.
- 3. Termination finish:

For RoHS Case Styles: $2-5 \mu$ inch (.05-.13 microns) Gold over $120-240 \mu$ inch (3.05-6.10 microns) Nickel plate. All models, (+) suffix.



INTERNET http://www.minicircuits.com

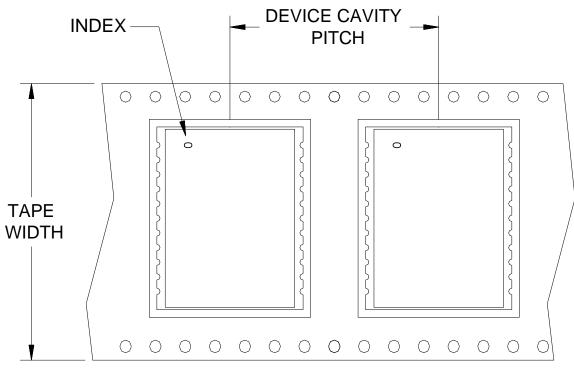
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

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Tape & Reel Packaging TR-F97

DEVICE ORIENTATION IN T&R



DIRECTION OF FEED

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices p	er Reel
			Small	20
44	32	13	quantity standards	50
77	32	13	(see note)	100
			Standard	200

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

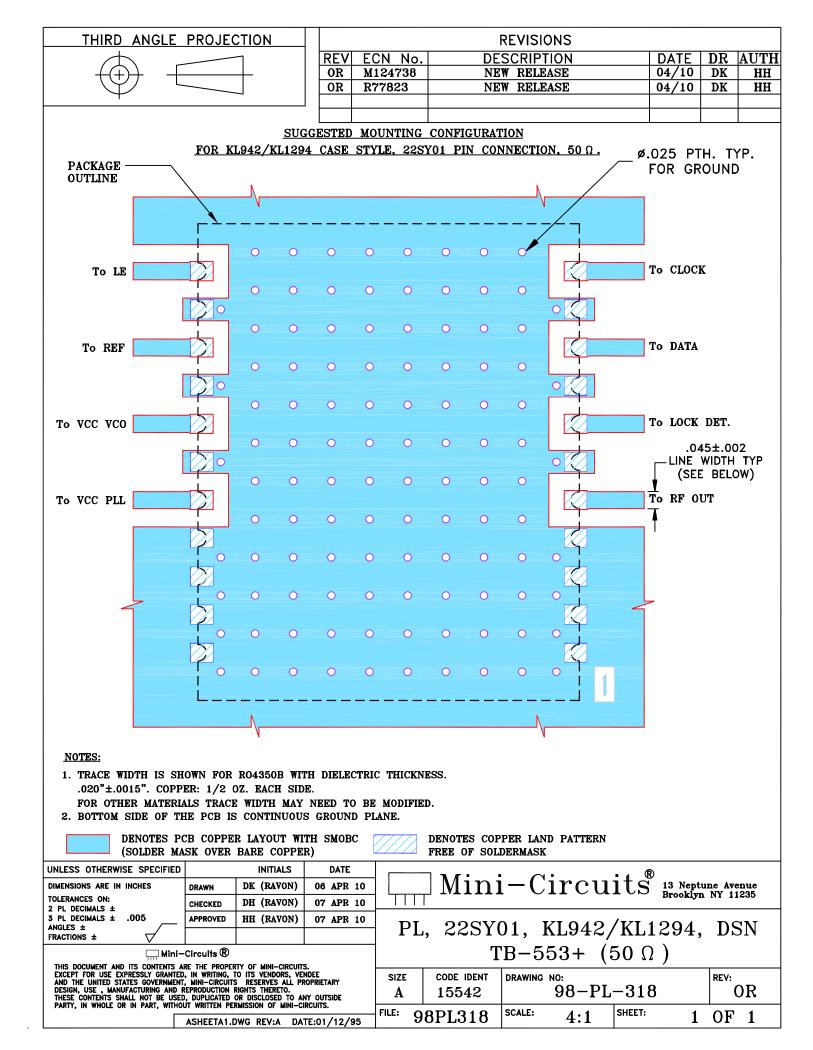


INTERNET http://www.minicircuits.com

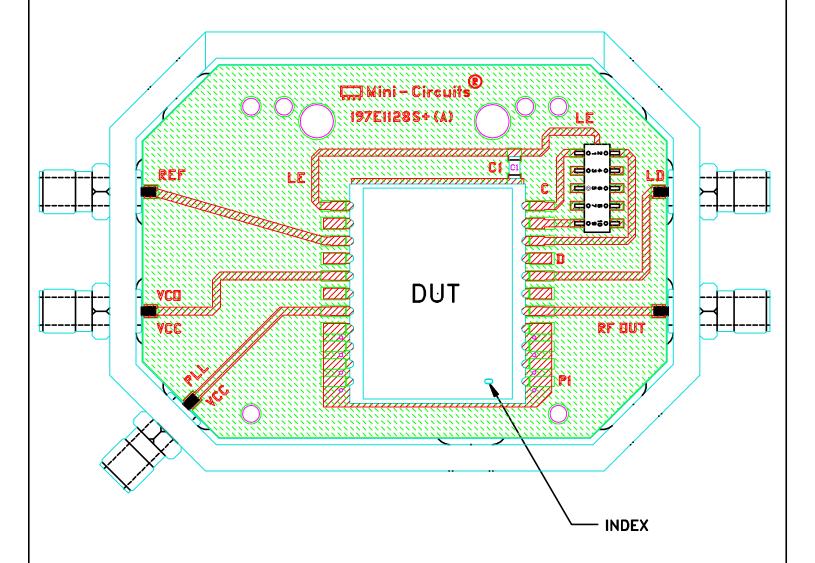
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Evaluation Board and Circuit



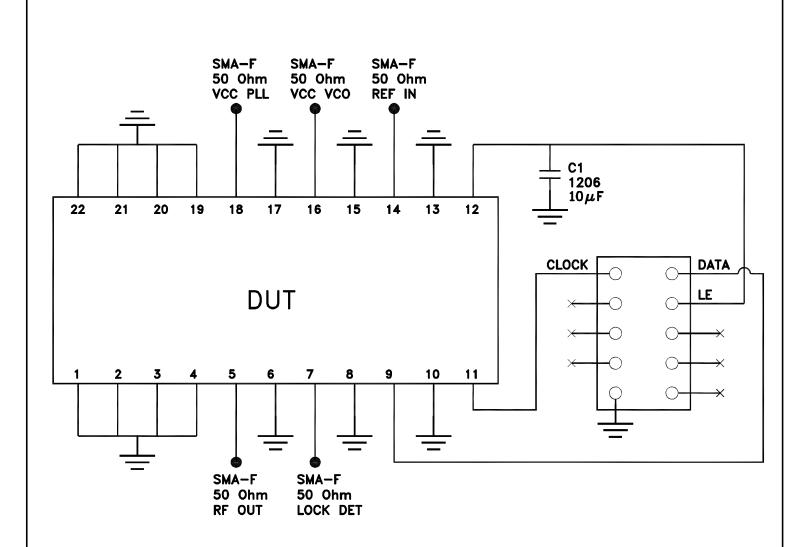
TB-553+

NOTES:

- 1. SMA FEMALE CONNECTORS.
- 2. PCB MATERIAL: RO4350B OR EQUIVALENT, DIALECTRIC CONSTANT=3.5, DIALECTRIC THICKNESS=.020 INCH.

DWG NO: WTB-553+
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REV: B SHEET:1/2



TB-553+ Schematic Diagram

DWG NO: WTB-553+
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REV: B SHEET:2/2



Environmental Specifications

ENV65T2

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process, 245°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
Vibration (High Frequency)	20g peak, 20-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-883, Method 2007.3, Condition A
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215

ENV65T2 Rev: OR

04/25/12

M136912 File: ENV65T2.pdf

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