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Re: Substitution of NTK LDG0UQD-3092A with Soshin HMD881J

Summary.

The manufacturer's specifications for the NTK LDG0UQD-3092A and the Soshin HMD881J have been compared and determined to be equivalent in size, pin-out, and electrical performance, i.e. impedance, insertion loss, pass-band performance, and stop-band performance. Additionally, I have performed comparative tests on samples from both manufacturers in our radio over our operating temperature and voltage and found them to be equivalent.

Data Sheet Comparison.

Dimensional Analysis.

Parameter	NTK LDG0UQD-3092A	Soshin HMD881J
Width (mm)	2.0 ± 0.15	2.0 ± 0.2
Height (mm)	0.95 ± 0.15	1.0 max.
Depth (mm)	1.25 ± 0.15	1.25 ± 0.2
Pin Spacing (mm)	0.30 ± 0.15	0.3 ± 0.2
Pin Width (mm)	0.35 ± 0.15	0.35 ± 0.2

Electrical Analysis.

Low Frequency Port to Common Port.

Parameter	Frequency Range (MHz)	NTK LDG0UQD-3092A	Soshin HMD881J
Insertion Loss (dB)	2450 ± 50	0.5 max.	0.5 max.
Return Loss (dB)	2450 ± 50	10 min.	10 min.
Attenuation (dB)	4800 - 5000	20 min.	20 min.
Attenuation (dB)	7200 - 7500	20 min.	20 min.

High Frequency Port to Common Port.

Parameter	Frequency Range (MHz)	NTK LDG0UQD-3092A	Soshin HMD881J
Insertion Loss (dB)	5425 ± 525	0.8 max.	0.8 max.
Return Loss (dB)	5425 ± 525	9 min.	10 min.
Attenuation (dB)	1800 - 2500	20 min.	25 min.
Attenuation (dB)	9800 - 11900	20 min.	25 min.
Attenuation (dB)	14700 - 17850	10 min.	15 min.



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Common Port.

Parameter	Frequency Range (MHz)	NTK LDG0UQD-3092A	Soshin HMD881J
Return Loss (dB)	2450 ± 50	10 min.	10 min.
Return Loss (dB)	5425 ± 525	9 min.	10 min.

LA-5131 Product Testing.

Transmit Performance Over Temperature (-25°C to +75°C).

	NTK LDG0UQD-3092A		Soshin HMD881J	
	Minimum (dBm)	Maximum (dBm)	Minimum (dBm)	Maximum (dBm)
802.11g 6 Mbps	16.4	18.0	16.3	17.7
802.11g 54 Mbps	13.9	15.4	13.6	15.0
802.11a 6 Mbps	13.8	18.8	14.0	18.7
802.11a 54 Mbps	10.3	14.2	10.5	14.1

Receive Performance at Room Temperature (+25°C).

	NTK LDG0UQD-3092A	Soshin HMD881J
802.11g 6 Mbps	-90 dBm	-90 dBm
802.11g 54 Mbps	-71 dBm	-71 dBm
802.11a 6 Mbps	-91 dBm	-91 dBm
802.11a 54 Mbps	-72 dBm	-72 dBm

Conclusion.

The NTK LDG0UQD-3092A can be successfully replaced by the Soshin HMD881J with no adverse performance issues.