REPLACEMENT PART REFERENCE GUIDE, ZHL-5W-202X-S+ and ZHL-5W-202-S+

Replacement Part has been judged by Mini-Circuits Engineering as a suitable replacement to Original Part[a]

ORIGINAL PART:	ZHL-5W-202X-S+ ZHL-5W-202-S+	
REPLACEMENT PART:	ZHL-10M2G0005X+ ZHL-10M2G0005+	

Note: This replacement part reference guide is applicable for the ZHL-5W-202X-S+ (amplifier without heatsink) and the ZHL-5W-202-S+ (amplifier with heatsink). The heatsink properties and dimensions for the original part and the replacement part are the same.

MECHANICAL DIMENSIONS

Case Style: BT1689-1
Replacement part uses same case style as original part.

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CONCLUSION:

1) FORM-FIT-FUNCTIONAL ANALYSIS$_a$:

The Replacement Part is Form, Fit compatible.

Following is a summary of changes/improvements in the electrical specification:

Parameter	Original Part ZHL-5W-202X-S+	Replacement Part ZHL-10M2G0005X+
Gain	+44 dB, Min +56 dB, Max	+45 dB, Min +55 dB, Max
Gain Flatness	±2.7 dB, Max	±2.5 dB, Max
PSat	+36 dBm, Min	+37 dBm, Min
Input Return Loss	No Min Spec Specified	7.4 dB, Min
Output Return Loss	No Min Spec Specified	3.9 dB, Min
DC Supply Voltage	No Min Spec Specified +30 V, Max	+27 V, Min +32 V, Max
DC Supply Current with Fan	No Max Spec Specified	3.4 A, Max

For typical performance and graphs: See paragraphs 2 and 3

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2) TYPICAL PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

MODEL: ZHL-5W-202X-S+ (Original), ZHL-10M2G0005X+ (Replacement) (RF Parameters)

ZHL-10M2G0005X+ Parameter	Frequency MHz		Original Design @ 9 Units ZHL-5W-202(X)-S+			Replacement Design @ 5 Units ZHL-10M2G0005(X)+		
	From	To	Min	Avg	Max	Min	Avg	Max
Gain (dB)	10	2000	49.57	51.40	52.78	50.30	51.35	52.88
Gain Flatness (dB)	10	2000	1.14	1.32	1.56	0.94	0.99	1.07
Isolation (dB)	10	2000	58.52	95.94	131.00	61.87	88.94	125.12
P1dB (dBm)	10	2000	35.25	36.58	38.59	34.06	35.63	37.34
P3dB (dBm)	10	2000	37.85	39.36	40.18	37.65	39.08	41.02
Psat (dBm)	10	2000	40.03	40.98	42.09	39.58	41.13	42.44
Input Return Loss (dB)	10	2000	15.81	27.42	38.16	17.65	24.54	51.56
Output Return Loss (dB)	10	2000	5.90	10.30	25.03	6.29	9.65	18.96
DC Current (A)	10	2000	1.15	1.17	1.18	0.95	0.96	0.98

Please note that data compiled above and plotted on next page is for ZHL-5W-202X-S+ and ZHL-10M2G0005X+ (models without heatsink). Similar performance can be expected between the model supplied without heatsink and the model supplied with heatsink.

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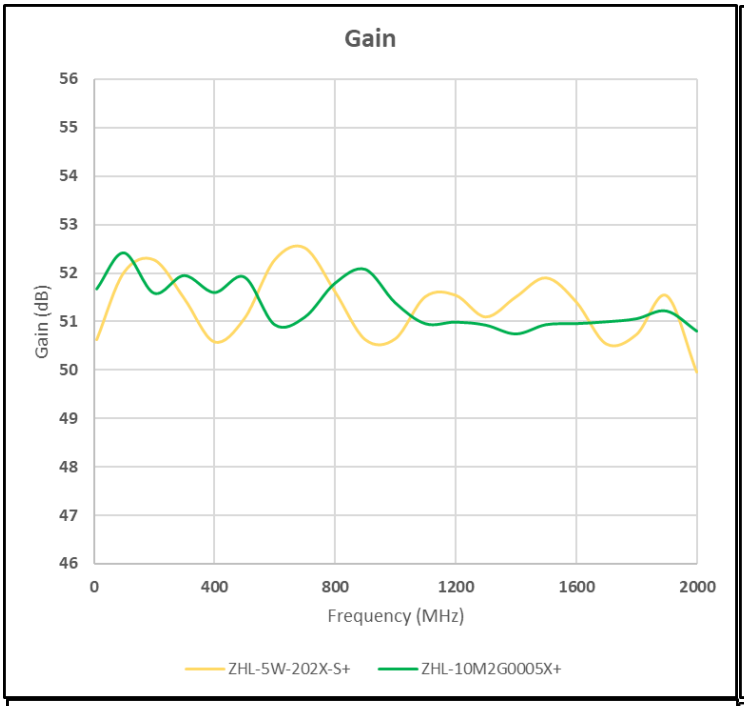
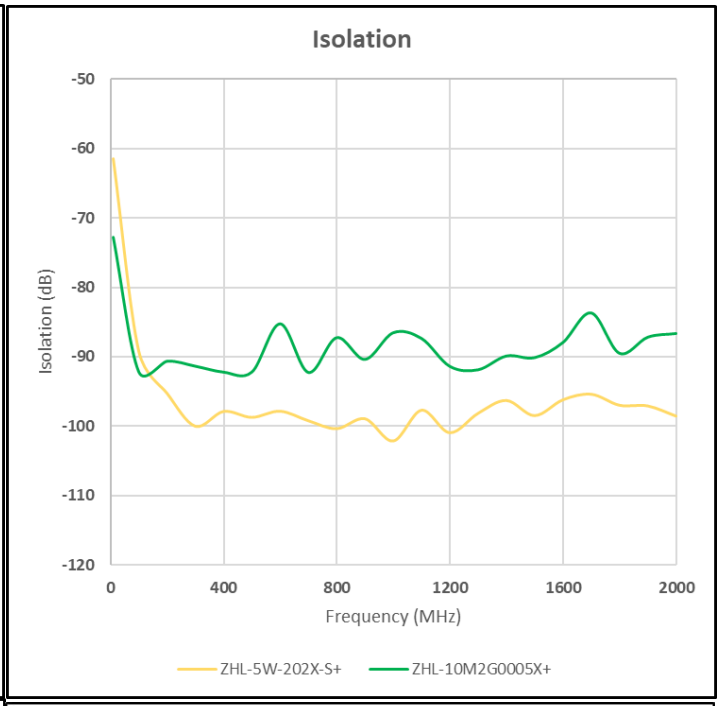
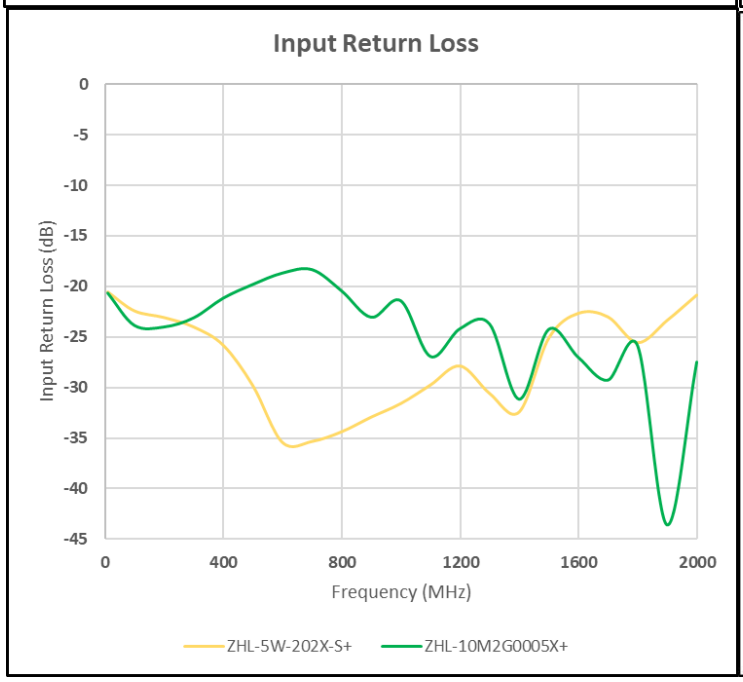
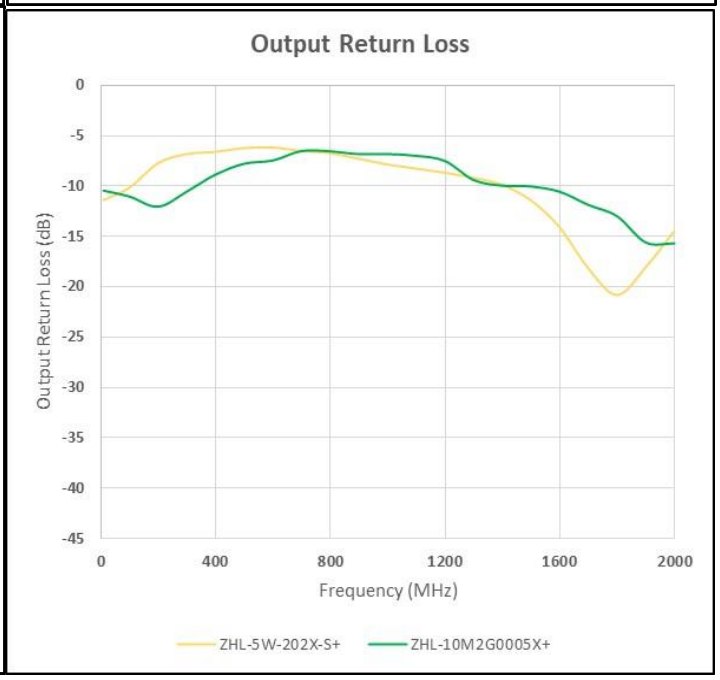
3) TYPICAL PERFORMANCE GRAPHS AT ROOM TEMPERATURE:









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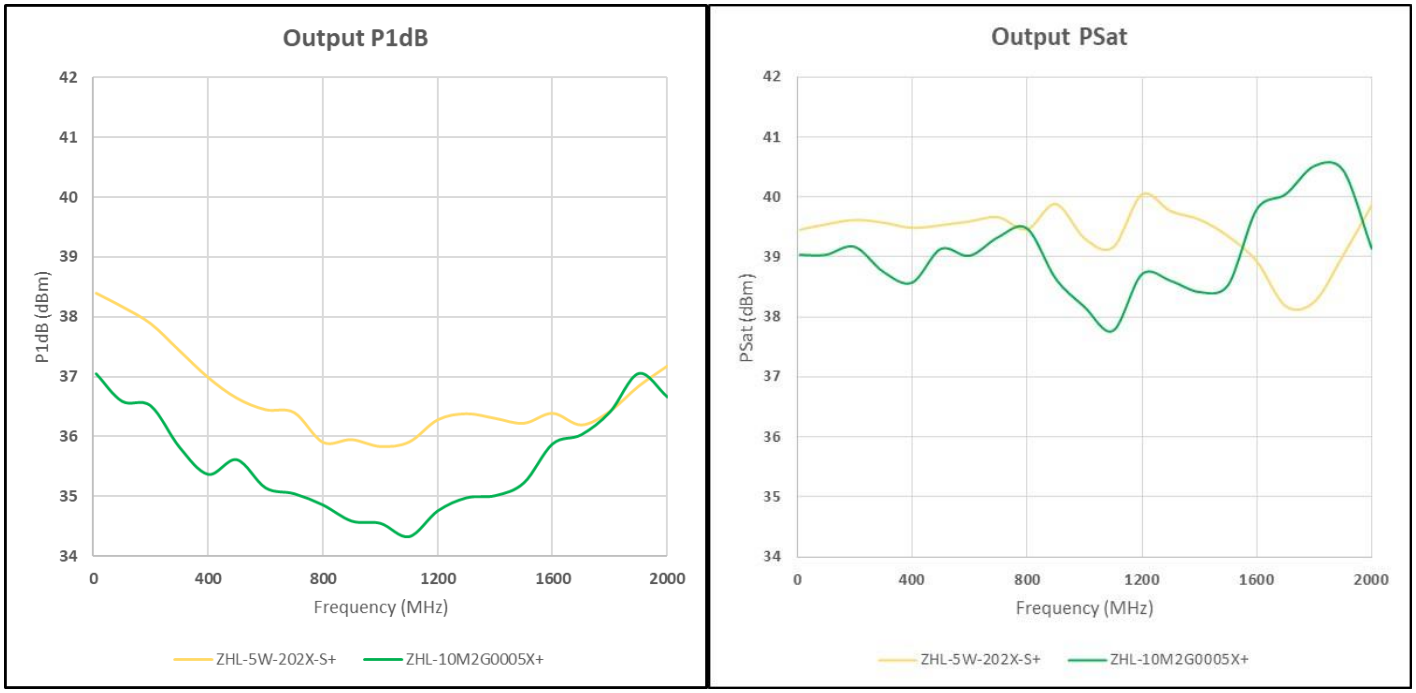

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