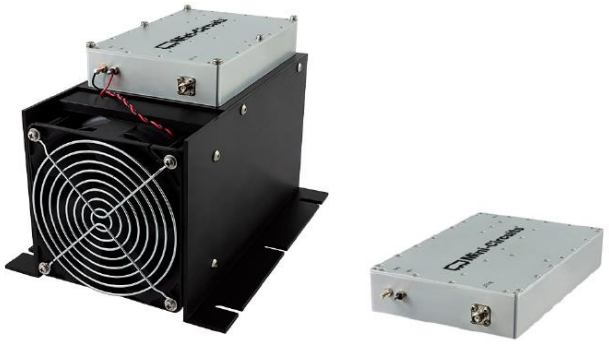
REPLACEMENT PART REFERENCE GUIDE, ZHL-25W-272X + and ZHL-25W-272 +

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

ORIGINAL PART:	ZHL-25W-272X + ZHL-25W-272+	
REPLACEMENT PART:	ZHL-20M2G7025X+ ZHL-20M2G7025+	

Note: This replacement part reference guide is applicable for the ZHL-25W-272X + (amplifier without heatsink) and the ZHL-25W-272+ (amplifier with heatsink). The heatsink properties and dimensions for the original part and the replacement part are the same.

MECHANICAL DIMENSIONS

Case Style: BT2119
Replacement part uses same case style as original part.

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-25W-272X +	Replacement Part ZHL-20M2G7025X+
Gain	+44 dB, Min +56 dB, Max	+45 dB, Min +55 dB, Max
Gain Flatness	±2.2 dB, Max	±2.0 dB, Max
P1dB	+35 dBm, Min	+36 dBm, Min
P3dB	No Min Spec Specified	+40 dBm, Min
OIP3	+44 dBm, Min	+40 dBm, Min
Input Return Loss	No Min Spec Specified	7.7 dB, Min
Output Return Loss	No Min Spec Specified	7.7 dB, Min
DC Supply Current	6.5 A, Max	5 A, Max
DC Supply Current with Fan	6.7 A, Max	5.4 A, Max

For typical performance and graphs: See paragraphs 2 and 3

2) TYPICAL PERFORMANCE COMPARISON AT ROOM TEMPERATURE:

MODEL: ZHL-25W-272X + (Original), ZHL-20M2G7025X+ (Replacement) (RF Parameters)

RF Parameter	Frequency MHz		Original Design @ 2 Units ZHL-25W-272(X)+			Replacement Design @ 5 Units ZHL-20M2G7025(X)+		
	From	To	Min	Avg	Max	Min	Avg	Max
Gain (dB)	20	2700	46.96	48.73	50.87	49.06	50.39	51.41
Gain Flatness (dB)	20	2700	1.21	1.51	1.80	0.64	0.79	0.92
Isolation (dB)	20	2700	77.39	103.47	127.65	77.54	96.94	130.05
P1dB (dBm)	20	2700	37.22	40.65	43.59	38.35	39.77	41.33
P3dB (dBm)	20	2700	41.21	44.38	47.53	41.51	43.54	45.37
OIP3 Lower Sideband (dBm)	20.0001	2700	45.61	48.72	50.82	47.12	48.57	50.88
OIP3 Upper Sideband (dBm)	20.0001	2700	45.40	49.26	52.13	46.50	48.94	51.53
OIP3 (dBm) (Worse of Lower/Upper)	20.0001	2700	45.40	48.72	50.82	46.50	48.57	50.88
Noise Figure (dB)	20	2700	9.17	10.02	13.78	9.16	9.53	10.86
Input Return Loss (dB)	20	2700	14.59	23.95	44.83	18.54	23.23	28.37
Output Return Loss (dB)	20	2700	3.22	7.32	38.49	5.00	9.69	22.87
DC Current (A)	20	2700	3.02	3.02	3.03	2.21	2.24	2.25

Please note that data compiled above and plotted on the next two pages is for ZHL-25W-272X + and ZHL-20M2G7025X+ (models without heatsink). Similar performance can be expected between the model supplied without heatsink and the model supplied with heatsink.

3) TYPICAL PERFORMANCE GRAPHS AT ROOM TEMPERATURE: