

AMPLIFIER/QUADRUPLER/AMPLIFIER

AQA-2050

The AQA-2050 is a specially designed high efficiency amplified quadrupler that can provide a high output power suitable for driving an intermediate level millimeter wave mixer from 20-50 GHz. It uses banded amplifiers with doublers in stages to maximize the 4th harmonic output power. It simultaneously minimizes the first, second, and third harmonics, allowing filtering requirements to be relaxed. It is an excellent alternative to expensive millimeter wave synthesizers for lab use.



Features

- Input 5.0 to 12.5 GHz
- Output 20.0 to 50.0 GHz
- +20 dBm Typical Output Power
- 40 dBc Typical Fundamental Suppression
- 25 dBc Typical 2nd Harmonic Suppression
- 20 dBc Typical 3rd Harmonic Suppression

Electrical Specifications - Specifications guaranteed from -30 to +70°C, measured in a 50-Ohm system.

Parameter	INPUT (GHz)	OUTPUT (GHz)	Min	Typ	Max
Input (dBm) F(in)	5.0-12.5		+5		+8
Output Converted Power (dBm) 4F(out)		20.0-47.0 47.0-50.0	+13 +9	See Plot	
Suppressions (dBc) F(in) Fundamental 2F(out) Second Harmonic 3F(out) Third Harmonic		5.0-12.5 10.0-25.0 15.0-37.5		See Plots	
Bias Requirements (mA) ¹ +5 Volts DC -5 Volts DC				400 15	500 30

¹The negative bias must be applied before or concurrent with the positive bias to avoid damage. A heat sink is required. Amplifier is NOT guaranteed to be unconditionally stable. Broadband 50 Ω loading conditions without feedback are required to prevent irreparable damage.

Part Number Options

<i>Please specify package style by adding to model number.</i>	
Package Style(s)	Example
CMV , CMMV	AQA-2050 CMV

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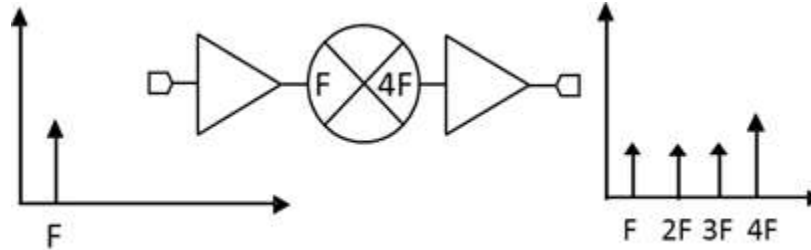
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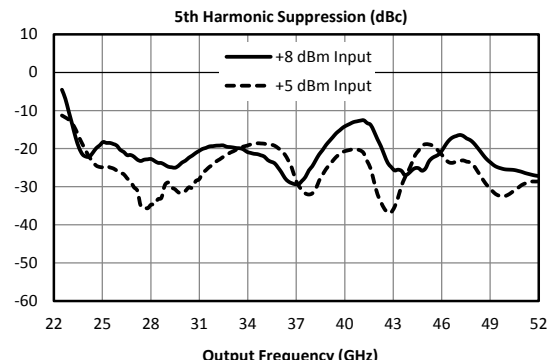
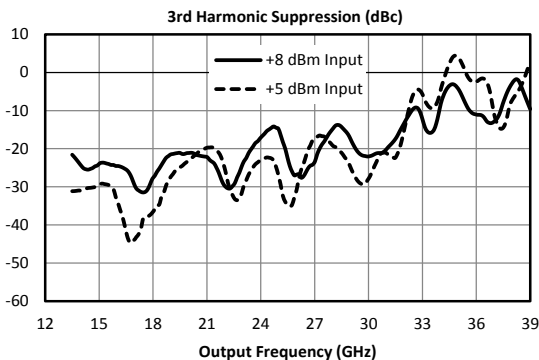
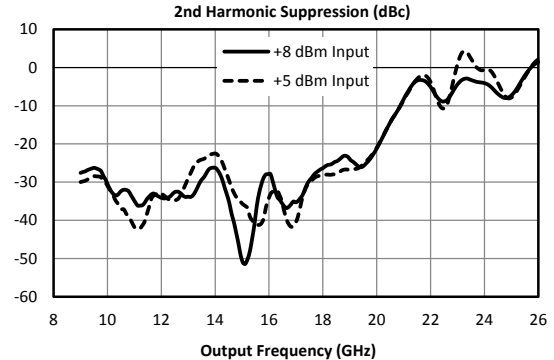
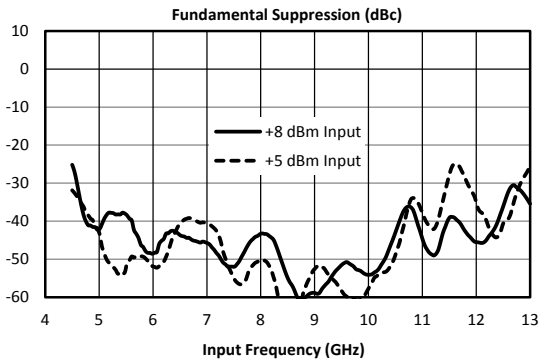
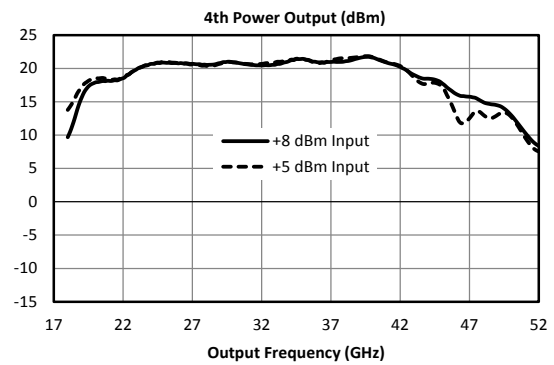
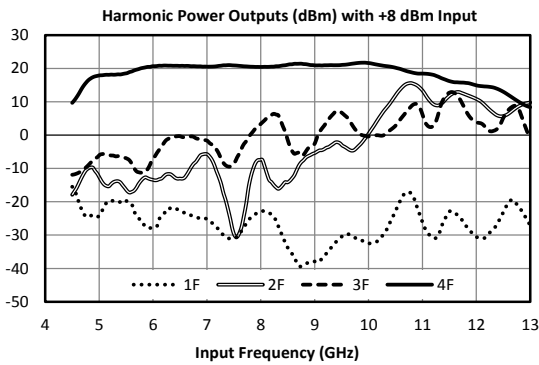
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Input 5.0 to 12.5 GHz
Output 20.0 to 50.0 GHz

Schematic



Typical Performance



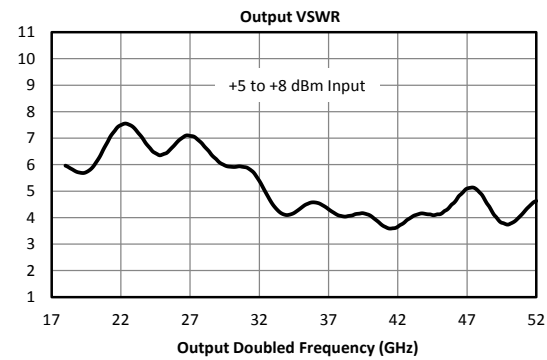
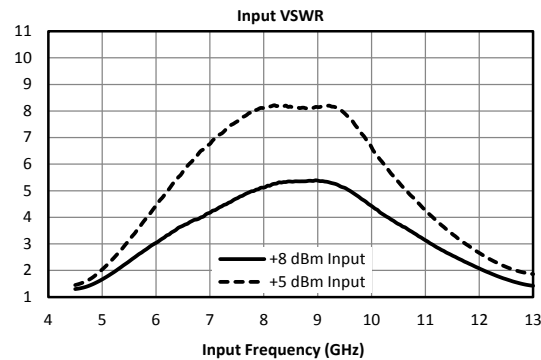
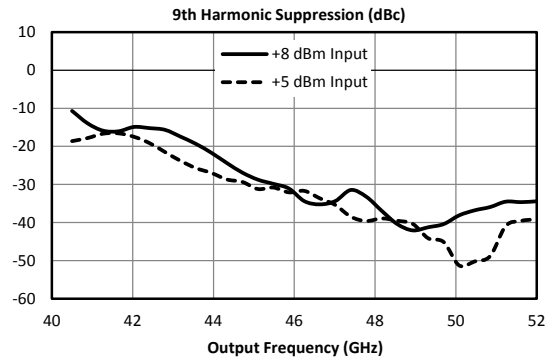
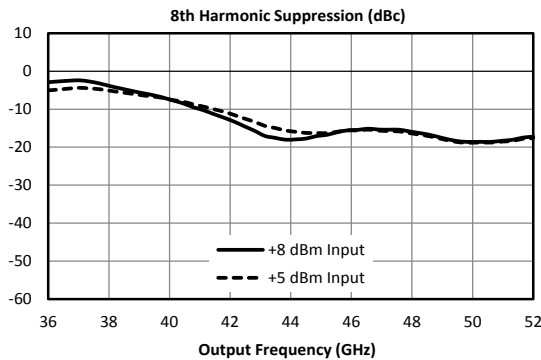
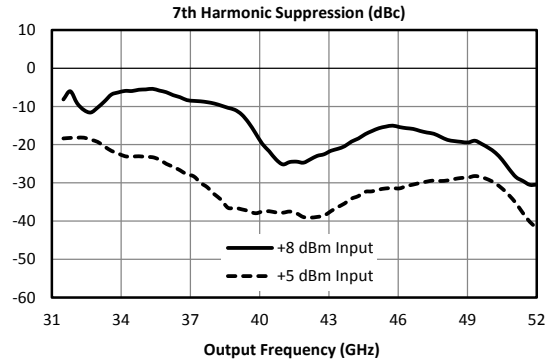
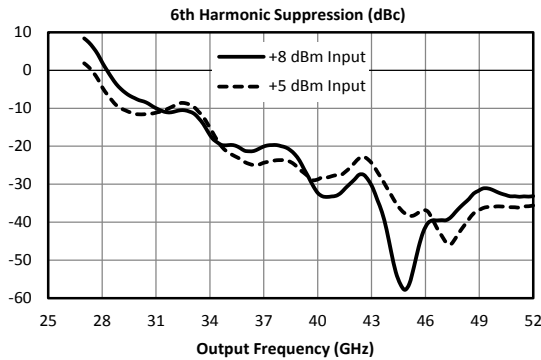
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Input 5.0 to 12.5 GHz
Output 20.0 to 50.0 GHz

Typical Performance (cont.)



DATA SHEET NOTES:

1. Maximum input power without damage is +13 dBm at +70°C.
2. A heat sink is required for sustained operation.
3. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.

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