AL7 / SMAL7

Cascadable Amplifier 50 to 500 MHz



- SYMMETRICAL CLIPPING: GOOD EVEN-ORDER SUPPRESSION
- HIGH GAIN: 13 dB (TYP.)
- LOW VSWR: < 1.5:1 (TYP.)
- FAST PULSE RECOVERY TIME: < 50 NSEC (TYP.)

Description

The AL7 limiting amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

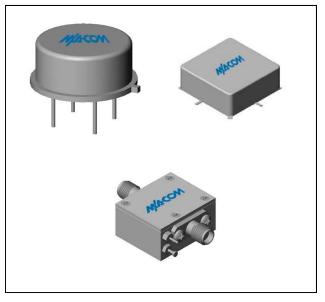
This design uses a Schottky diode limiter circuit at the output, and a single stage bipolar transistor feedback amplifier at the output. An RF choke is used for DC power supply decoupling. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

| Part Number | Package | | |
|-------------|-------------------|--|--|
| AL7 | TO-8 | | |
| SMAL7 | Surface Mount | | |
| CAL7 ** | SMA Connectorized | | |

** The connectorized version is not RoHs compliant.

Product Image



Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +15 V_{DC}$

Absolute Maximum Ratings

| Parameter | Units | Typical | Guaranteed | | Parameter | Absolute Maximum |
|--|----------|--------------|--------------|----------------|---|------------------------|
| | | 25ºC | 0º to 50ºC | -54º to +85ºC* | Storage Temperature | -62°C to +125°C |
| Frequency | MHz | 20-550 | 50-500 | 50-500 | Case Temperature | +125°C |
| | | | | | DC Voltage | +17 V |
| Small Signal Gain (min) | dB | 13.0 | 12.0 | 11.0 | Continuous Input Power | +13 dBm |
| Gain Flatness (max) | dB | ±0.2 | ±0.5 | ±0.7 | Short Term Input power (1 minute max.) | 50 mW |
| Noise Figure (max) | | | | | Peak Power (3 µsec max.) | 0.5 W |
| 50-300 MHz 300-500 MHz | dB dB | 5.0 5.5 | 6.0 6.5 | 6.5 7.0 | "S" Series Burn-In Temperature (case) | 125°C |
| Power Output @ 1 dB comp. (min) | dBm | -1.5 | -5.0 | -7.0 | Thermal Data: V _{CC} = +15 V _{DC} | |
| Output Limiting Level (max) Pin = +10 dBm | dBm | +0.5 | +1.5 | +2.5 | Parameter | Rating |
| | | | | | Thermal Resistance θ_{jc} | 45°C/W |
| VSWR Input / Output (max) | | 1.1:1/<1.5:1 | 1.7:1/ 2.0:1 | 1.8:1 / 2.1:1 | Transistor Power Dissipation | P _d 0.560 W |
| DC Current @ 15 Volts (max) | mA | 54 | 57 | 59 | Junction Temperature Rise Above Case T _{jc} | ° 25.2℃ |

* Over temperature performance limits for part number CAL7, guaranteed from 0°C to +50°C only.

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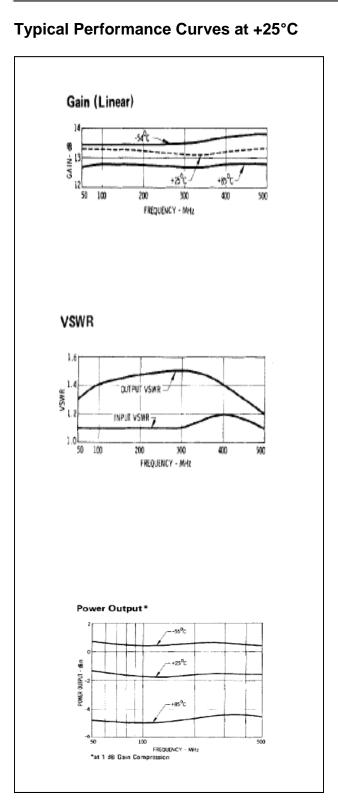
Rev. V3

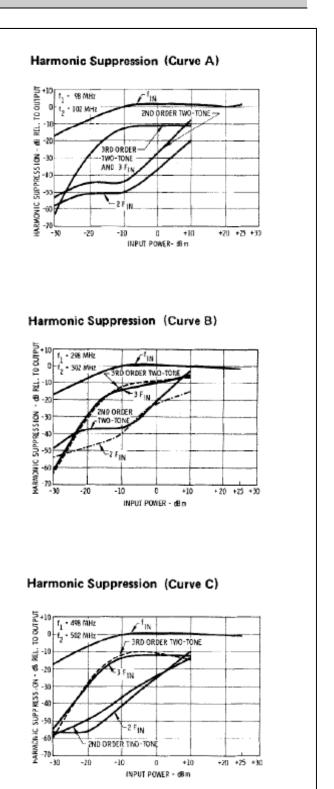
AL7 / SMAL7

Cascadable Amplifier 50 to 500 MHz



Rev. V3





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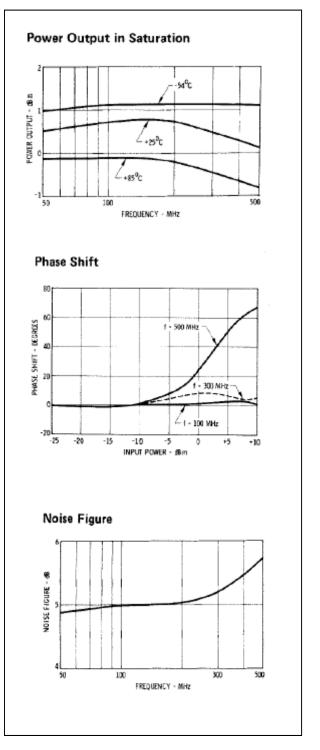
AL7 / SMAL7



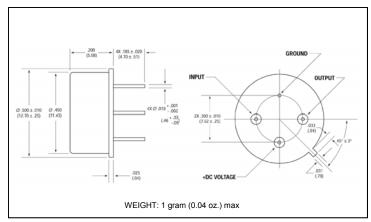
Rev. V3

Cascadable Amplifier 50 to 500 MHz

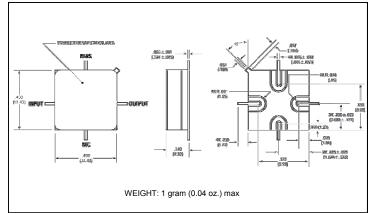
Typical Performance Curves at +25°C



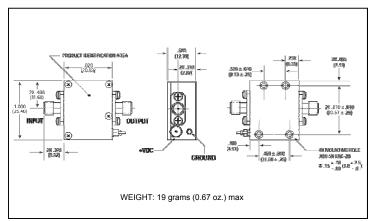
Outline Drawing: TO-8^{*}



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized *



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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