



## Flex Max<sup>®</sup>601e 1GHz Bridger Amplifier Technical Specification

### Flex Max601e Specifications

	<b>FORWARD Bridger (ea)</b>	<b>RETURN Bridger (ea)</b>
<b>General</b>		
Pass Band, MHz	54–1002 (42/54 split), 70–1002 (55/70 split), 85–1002 (65/85 split)	5–42 (42/54 split), 5–55 (55/70 split), 5–65 (65/85 split),
Housing, MHz	1002	—
AC Current PAssing, Amp	15	15
<b>Typical Operating Conditions</b>		
Operational Gain, dB (–0, +1.0dB) <sup>1,2</sup>	43	18
Full Gain, dB (without EQ and ALC)	48	19
Channels, Number of NTSC <sup>3</sup>	79	6
Channels, 60 PAL Performance	60 (65/85 split)	6 (65/85 split)
Operating Levels, Recommended (42/54MHz split)		
Frequency, MHz	1002/870/750/550/54	42/5
Input,dBmV Minimum <sup>4</sup>	9/8.2/8/7.7/10.5	17/17
Output, dBmV <sup>5,6</sup>	52/49.5/47.5/44/35	35/35
Operating Levels, Recommended (55/70MHz split)		
Frequency, MHz	1002/870/750/550/70	55/5
Input,dBmV Minimum <sup>4</sup>	9/8.2/8/7.7/10.5	17/17
Output, dBmV <sup>5,6</sup>	52/49.5/47.5/44/35.3	35/35
Operating Levels, Recommended (65/85MHz split)		
Frequency, MHz	1002/870/750/550/85	65/5
Input,dBmV Minimum <sup>4</sup>	9/8.2/8/7.7/10.5	17/17
Output, dBmV <sup>5,6</sup>	52/49.5/47.5/44/35.5	35/35
<b>Performance Characteristics at Recommended Levels (Temperature Range: –40°C to 60°C)</b>		
Carrier-to-Interference Ratio, dB <sup>7</sup>		
Composite Triple Beat	75	80
Second Order Beat (F1 ± F2)	—	—
Cross Modulation <sup>8</sup> (per NCTA std.)	69	74
Third Order Beat (F1 ± F2 ± F3)	—	—
Composite 2IM <sup>9</sup>	73 (all splits)	82
Comp. Intermodulation Noise CIN <sup>10</sup>	73 (76 for 42/54MHz split)	—
Comp. Intermodulation Noise CIN <sup>11</sup>	79 (all splits)	—

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Noise, 4 MHz, 75 Ohms <sup>2</sup>	58/57.2/57/57.7/58.5 58/57.2/57/57.7/57.7 (42/54 split)	60.5
Noise Figure, dB (Without EQ) <sup>12</sup>	9/9/9/8/10.8	15.5
<b>Factory Alignment, With ALC Reserve, Without EQ</b>		
Cable Loss, dB @ 1002MHz	24	—
Flat Loss, dB	20	19
Gain Slope, dB	± 1.0	± 0.75
Flatness (@ Gain Slope), dB	± 1.0	± 0.75
Return Loss, dB Minimum, All Entry Ports	16	16
<b>Testpoint Accuracy<sup>13</sup></b>		
-20dB Forward Input Testpoint, dB	± 0.5 (54/70/85 to 550MHz) ± 1.0 (550 to 1002MHz)	—
-20dB Forward Output Testpoint(s), dB	± 0.5 (54/70/85 to 550MHz) ± 1.0 (550 to 1002MHz)	—
-20dB Reverse Input & Output Testpoint, dB	—	± 0.75
<b>Powering Requirements<sup>14</sup></b>		
AC Voltage, 60V, 60Hz	VIN is between 43 and 60VAC, then IAC = IDC x 0.62 VIN is between 36 and 43VAC, then IAC = (IDC x 27.5)/VAC	
AC Voltage, 90V, 60Hz	VIN is between 67 and 90VAC, then IAC = IDC x 0.41 VIN is between 36 and 67VAC, then IAC = (IDC x 27.5)/VAC	
DC Current, A @ 24 ± 0.5, max./typ.	1.65	
<b>Level Control</b>		
Range, dB @ 1002 MHz	+3.3/-4.0	—
Accuracy, dB (-40°C to 60°C/-40°F to 140°F)	± 1.0	—
Operating Level Range, dBmV (423.25MHz) <sup>15</sup>	30 to 45	—
Operating Range, Analog Pilot, dBmV (423.25 MHz)	35 to 45	—
Operating Range, QAM Pilot, dBmV (423.25 MHz)	30 to 40	—
Operating Level Range, dBmV (427.25MHz) <sup>15</sup>	31 to 47	—
Operating Range, Analog Pilot, dBmV (427.25 MHz)	37 to 47	—
Operating Range, QAM Pilot, dBmV (427.25 MHz)	31 to 41	—
Operating Level Range, dBmV (499.25MHz) <sup>15</sup>	31 to 48	—
Operating Range, Analog Pilot, dBmV (499.25 MHz)	38 to 48	—
Operating Range, QAM Pilot, dBmV (499.25 MHz)	31 to 41	—
Operating Level Range, dBmV (609MHz) <sup>15</sup>	34 to 50	—
Operating Range, Analog Pilot, dBmV (609MHz)	40 to 50	—
Operating Range, QAM Pilot, dBmV (609MHz)	34 to 44	—
Operating Level Range, dBmV (645MHz) <sup>15</sup>	35 to 51	—
Operating Range, Analog Pilot, dBmV (645 MHz)	41 to 51	—
Operating Range, QAM Pilot, dBmV (645 MHz)	35 to 45	—
Operating Level Range, dBmV (711 MHz) <sup>15</sup>	37 to 52	—
Operating Range, Analog Pilot, dBmV (711 MHz)	42 to 52	—
Operating Range, QAM Pilot, dBmV (711 MHz)	37 to 47	—
<b>Gain Control</b>		
Plug-In Pad	10-A-WC	10-A-WC

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	<b>FORWARD Bridger (ea)</b>	<b>RETURN Bridger (ea)</b>
<b>Equalization</b> To Compensate For Cable Loss		
Plug-in Equalizers for Additional Equalization	PEQ-1G-xx	7-REF-WC
<b>Chrominance, Luminance Delay</b> , Maximum (42/54MHz split)		
Channel 2, ns/3.58 MHz	28	—
Channel 3, ns/3.58 MHz	11	—
Channel 4, ns/3.58 MHz	7	—
Channel 5, ns/3.58 MHz	3.6	—
<b>Chrominance, Luminance Delay</b> , Maximum (55/70MHz split)		
77.25 to 80.83 MHz, ns/3.58 MHz	28	—
83.25 to 86.83 MHz, ns/3.58 MHz	11	—
<b>Chrominance, Luminance Delay</b> , Maximum (65/85MHz split)		
85 to 86.5MHz, ns	11.5	—
86.5 to 88MHz, ns	8	—
91.25 to 94.83MHz, ns	7.5	—
97.25 to 100.83MHz, ns	4.5	—
<b>Return Group Delay</b> , Maximum (42/54MHz split)		
5.5–7MHz, ns	—	55
10–11.5MHz, ns	—	11
35–36.5MHz, ns	—	10
38.5–40MHz, ns	—	30
<b>Return Group Delay</b> , Maximum (55/70MHz split)		
5.5–7MHz, ns	—	55
10–11.5MHz, ns	—	11
53.5–55MHz, ns	—	30
<b>Return Group Delay</b> , Maximum (65/85MHz split)		
5.5–7MHz, ns	—	55
10–11.5MHz, ns	—	10
62–63.5MHz, ns	—	12
63.5–65MHz, ns	—	15
<b>Hum Modulation</b> (Time Domain at 15 A)		
5–10MHz, –dBc	—	55
11–750MHz, –dBc	65	65
751–1002MHz, –dBc	60	—

Specification Document Number 1503444 Rev K, 1505414 Rev C, 1505413 Rev D

1. Spacing at highest frequency with Equalizer installed. Return spacing includes losses due to housing, duplex filters, and Return EQ.
2. The specifications are based on the amplifier configured (with two NPB–0) as a 2–output bridger with distribution outputs on Ports 2 and 4. When using output selectors 7-DC-4/8/12, levels should be derated accordingly based on the accessory specifications.
3. NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
4. Recommended minimum forward input levels at 1002MHz including loss due to equalizer.
5. Recommended return output level at 42/55/65MHz including loss due to equalizer.
6. At specified operational tilt, maximum output level for 1GHz or 870MHz loading is 56.5dBmV @ HF.
7. Distortion performance is derated accordingly to take into account the influence of the digitally compressed channels operating at levels 6dB below equivalent video channels.
8. Cross modulation specification number indicates typical cascade performance.
9. Composite second order (CSO) distortion performance reflects typical cascaded performance derating at 15log.
10. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 1002MHz at levels 6dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54/70/85 to 550MHz frequency spectrum.
11. Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 870MHz at levels 6dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54/70/85 to 550MHz frequency spectrum.
12. The Noise Figure and C/N specifications are typical within specified passband.
13. All testpoints are directional and referenced to their associated RF port.
14. Powering requirements. See 333995-37 power curves for additional information.
15. Total combined range. Denotes range of operating levels at pilot frequency where ALC will set up and operate.

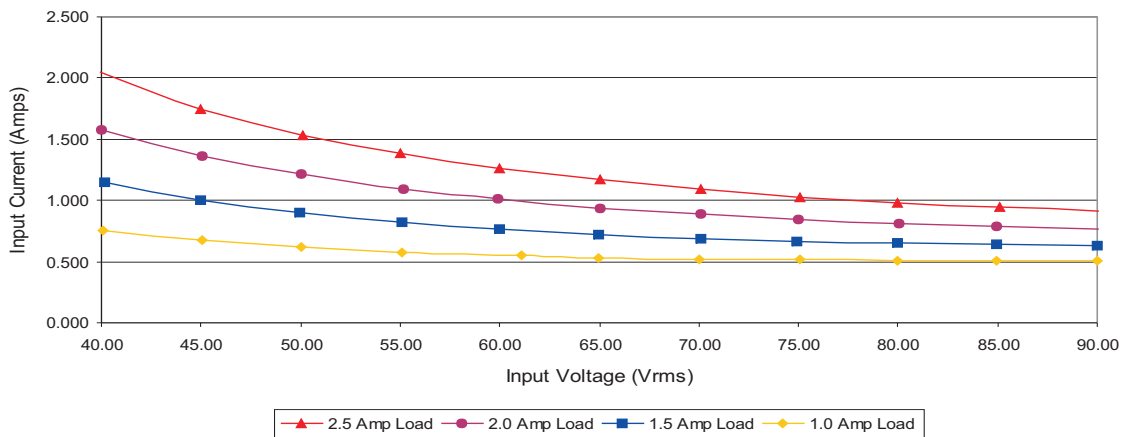
## Power Supply Specifications

Characteristic	Specification
Input Voltage Range, 50/60Hz, Quasi-square wave	40 to 90V RMS
Input Frequency	50/60Hz
Output Voltage, VDC	24 ± 0.5
DC Output Current, max., A	2.5
Output Voltage Ripple, mVRMS, 0 to 100kHz	8
Output Voltage Ripple, mVp-p, 100MHz	150
Output Voltage Protection, max., VDC	33
Efficiency, typ.	85%
Short Circuit Current, max., ADC	4.2
Hold up Time @ 2.5ADC 40V, min., msec	7
Hold up Time @ 2.5ADC 60V, min., msec	25
Continuous Operation Input Voltage, min., VRMS	40
Re-start Voltage, min., VRMS	38
Low Voltage Turn Off, VRMS	20
Operating Temperature, °C (°F) <sup>1</sup>	-40 to 60 (-40 to 140)

Specification Document Number 1503595 Rev B

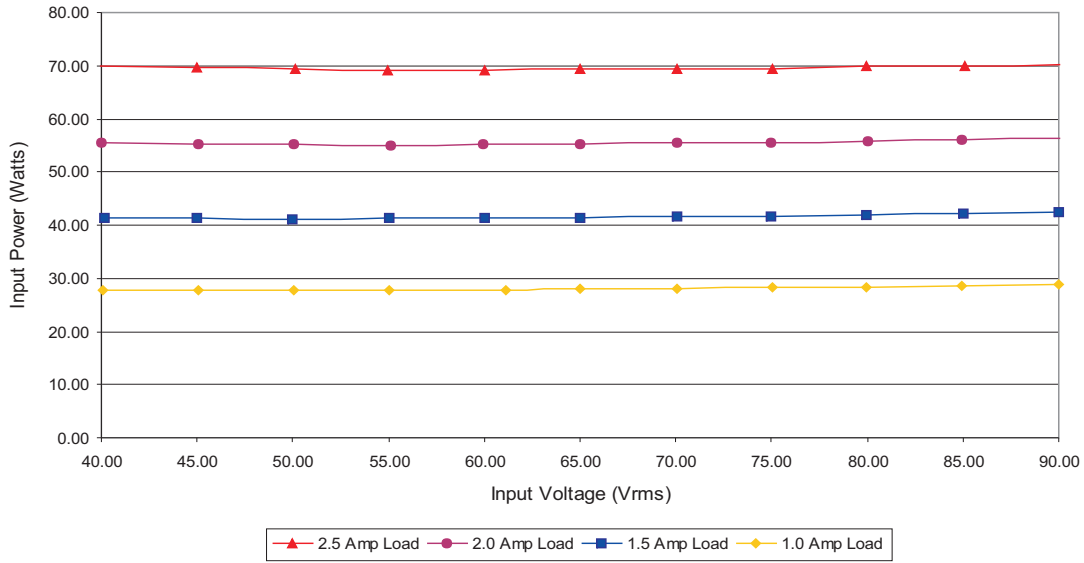
1. Reflects an external ambient temperature range.

### Flex Max601 Bridger



Flex Max601/601e/DL

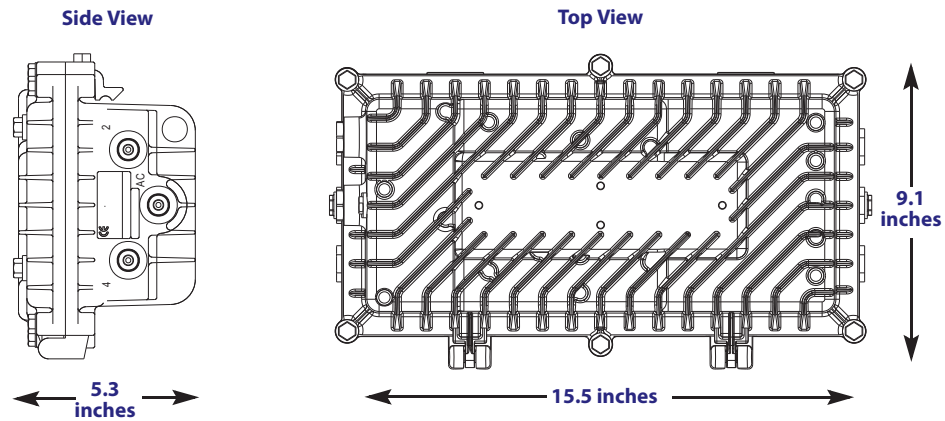
### Flex Max601 Bridger



Flex Max601/601e/DL

### Flex Max601e Bridger Dimensions

Characteristic	Specification
Uncrated (W x H x D)	15.5 x 5.3 x 9.1 inches (39.4 x 13.5 x 23.1 cm)
Crated (W x H x D)	18.2 x 8.5 x 13.1 inches (46.3 x 21.6 x 33.3 cm)
Crated weight, approx.	17.6 lbs. (7.98 kg)



### Ordering Information

To configure a product that meets your specific needs, or for any questions, please contact your ARRIS Sales Professional. You may also use our Product Wizard, located at [support.arrisi.com](http://support.arrisi.com) (User ID and password required). If you do not have a user ID and password or have forgotten your password, please use the Sign In Help section indicated.

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