



## Flex Max™ 601e 1GHz Trunk Amplifier Technical Specification

### Flex Max601e Trunk Amplifier Specifications

Characteristic	FORWARD		RETURN
	Trunk (Port 2) 42–54 / 65–85 MHz	Bridger (Ports 3 and 4) 42–54 / 65–85 MHz	42–54 / 65–85 MHz
<b>General</b>			
Pass Band, MHz	54–1002/85–1002	54–1002/85–1002	5–42/5–65
Housing, MHz	1002		—
AC Current PAssing, Amp	15		15
<b>Typical Operating Conditions</b>			
Operational Gain, dB (–0, +1.0dB) <sup>1</sup>	32	41	18
Channels, Number of NTSC <sup>2</sup>	79/60		6
Operating Levels, Recommended			
Frequency, MHz	1002/870/750/550/54	1002/870/750/550/85	42 or 65/5
Input, dBmV Minimum <sup>3</sup>	8.5/8/8/7/8.5		17/17
Output, dBmV <sup>4,5</sup>	40.5/39/37/34/27 (42/54MHz) 40.5/39/37/34/27.5 (65/85MHz)	49.5/48/46/43/36 (42/54MHz) 49.5/48/46/43/36.5 (65/85)	35/35
<b>Performance Characteristics at Recommended Levels (Temperature Range: –40° C to 60° C)</b>			
Carrier-to-Interference Ratio <sup>6</sup>			
Composite Triple Beat, –dBc	81	72	80
Cross Modulation <sup>7</sup> (per NCTA std.), –dB	76	67	74
Composite 2IM, –dBc <sup>8</sup>	78	73	82
Comp. Intermodulation Noise CIN, dB <sup>9</sup>	79	68	—
Comp. Intermodulation Noise CIN, dB <sup>10</sup>	85	74	—
Noise, 4 MHz, 75 Ohms	58.5/58/58/57.5/57 (42/54) 58.5/58/58/57.5/57.5 (65/85)		60.5
Noise Figure, dB (Without EQ) <sup>11</sup>	9/9/9/8.5/10.5		15.5
<b>Full Gain, dB (without EQ and ALC)</b>	36	45	19
<b>Factory Alignment, with ALC Reserve, Without EQ</b>			
Cable Loss, dB @ 1002MHz	17.5	17.5	—
Flat Loss, dB	15.5	24.5	19
Gain Slope, dB	±1.0	±1.0	±0.75
Flatness (@ Gain Slope), dB	±0.75	±1.0	±0.75
Return Loss, dB Minimum, All Entry Ports	16	16	16

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<b>Testpoint Accuracy</b> <sup>12</sup>			
–20dB Forward Input Test Point, dB	± 0.5 (54/85 to 550 MHz)		—
	± 1.0 (550 to 1002 MHz)		
–20dB Forward Output Testpoint(s), dB	± 0.5 (54/85 to 550 MHz)		—
	± 1.0 (550 to 1002 MHz)		
–20dB Return Input & Output Testpoint, dB	—		± 0.75
<b>Powering Requirements</b> , Maximum/Typical <sup>13</sup>			
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 @ 24V ± 0.5	1.65		
<b>Level Control</b>		<b>Trunk Levels</b>	
Range, dB @ 1002 MHz	+3.3/–4.0		—
Accuracy, dB (–40°C to 60°C)	± 1.0		—
Operating Level Range, dBmV (423.25 MHz) <sup>14</sup>	22 to 37		—
Range with ALC switch in Analog position, dBmV	27 to 37		
Range with ALC switch in Digital position, dBmV	22 to 32		
Operating Level Range, dBmV (427.25 MHz) <sup>14</sup>	22 to 37		—
Range with ALC switch in Analog position, dBmV	27 to 37		
Range with ALC switch in Digital position, dBmV	22 to 32		
Operating Level Range, dBmV (499.25 MHz) <sup>14</sup>	23 to 39		—
Range with ALC switch in Analog position, dBmV	29 to 39		
Range with ALC switch in Digital position, dBmV	23 to 33		
Operating Level Range, dBmV (609 MHz) <sup>14</sup>	24 to 40		—
Range with ALC switch in Analog position, dBmV	30 to 40		
Range with ALC switch in Digital position, dBmV	24 to 34		
Operating Level Range, dBmV (645 MHz) <sup>14</sup>	25 to 41		—
Range with ALC switch in Analog position, dBmV	31 to 41		
Range with ALC switch in Digital position, dBmV	25 to 35		
Operating Level Range, dBmV (711 MHz) <sup>14</sup>	27 to 42		—
Range with ALC switch in Analog position, dBmV	32 to 42		
Range with ALC switch in Digital position, dBmV	27 to 37		
<b>Gain Control</b>			
Plug-In Pad	10-A-WC		10-A-WC
<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			
Channel 2, ns/3.58 MHz	28 (42/54 MHz)		—
Channel 3, ns/3.58 MHz	11 (42/54 MHz)		—
Channel 4, ns/3.58 MHz	7 (42/54 MHz)		—
Channel 5, ns/3.58 MHz	3.6 (42/54 MHz)		—
85–86.5 MHz, ns	11.5 (65/85 MHz)		—
86.5–88 MHz, ns	8 (65/85 MHz)		—
91.25–94.83 MHz, ns	7.5 (65/85 MHz)		—
97.25–100.83 MHz, ns	3.6 (65/85 MHz)		—

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	Trunk (Port 2) 42–54 / 65–85 MHz	Bridger (Ports 3 and 4) 42–54 / 65–85 MHz	42–54 / 65–85 MHz
<b>Return Group Delay, Maximum</b>			
5.5–7 MHz, ns	—		55
10–11.5 MHz, ns	—		11
35–36.5 MHz/62–63.5 MHz, ns	—		10/12
38.5–40 MHz/63.5–65 MHz, ns	—		30/20
<b>Hum Modulation (Time Domain at 15 A)</b>			
5–10 MHz, –dBc	—		55
11–750 MHz, –dBc	65		65
751–1002 MHz, –dBc	60		—

Specification Document Number 1506089 Rev B (42/54 MHz), 1506260 Rev A (65/85 MHz)

- Spacing at highest frequency with Equalizer installed. Return spacing includes losses due to housing, diplex filters, and return EQ.
- NTSC video channels occupying the appropriate frequency spectrum per specified number of channels.
- Recommended minimum forward input levels at 1002 MHz including loss due to equalizer.
- Recommended maximum return output level at 42 MHz (42/54 MHz split) or 65 MHz (65/85 MHz split) including loss due to equalizer.
- At specified operational tilt, maximum output level for 1 GHz or 870 MHz loading is 43.5 dBmV @ HF.
- Distortion performance is derated accordingly to take into account the influence of the digitally compressed channels operating at levels 6 dB below equivalent video channels.
- Cross modulation specification number indicates typical cascade performance.
- Composite second order (CSO) distortion performance reflects typical cascaded performance derating at 15 log.
- Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 1002 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 frequency spectrum (42/54 MHz split) or in the 85 to 550 frequency spectrum (65/85 MHz split).
- Systems operating with digitally compressed channels or equivalent broadband noise from 550 to 870 MHz at levels 6 dB below equivalent video channels will experience a composite distortion (CIN) appearing as noise in the 54 to 550 frequency spectrum (42/54 MHz split) or in the 85 to 550 frequency spectrum (65/85 MHz split).
- The Noise Figure and C/N specifications are typical within specified passband.
- All forward testpoints are directional and referenced to their associated RF port. Port 1 return testpoint is directional and referenced to its specific port. Ports 2, 3, and 4 are resistive and referenced to its associated port.
- Referenced from 871586 performance specification of 0910592-903 power supply.
- 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, 50/60 Hz, Quasi-square wave	40 to 90V RMS
Input Frequency	50/60 Hz
Output Voltage, VDC	24 ± 0.5
DC Output Current, max., A	2.5
Output Voltage Ripple, mVRMS, 0 to 100 kHz	8
Output Voltage Ripple, mVp-p, 100 MHz	150
Output Voltage Protection, max., VDC	33
Efficiency, typ.	85%
Short Circuit Current, max., ADC	4.2
Hold up Time @ 2.5 ADC 40V, min., msec	7
Hold up Time @ 2.5 ADC 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)

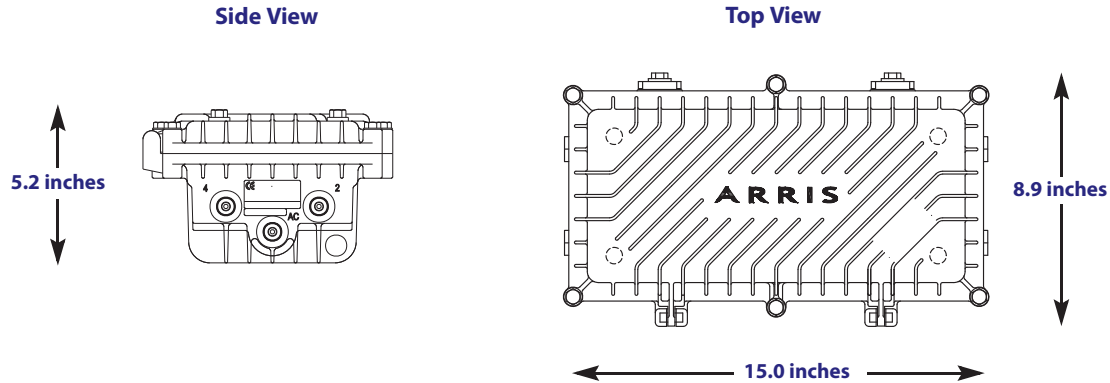
Specification Document Number 1503595 Rev B

- Reflects an external ambient temperature range.

Refer to the Flex Max601e Trunk Amplifier Equipment Manual (P/N 1506232) for complete specifications.

## Flex Max601e Trunk Dimensions

Characteristic	Specification
Uncrated (W x H x D)	15.0 x 5.2 x 8.9 inches (38.1 x 13.2 x 22.6 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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