AMKU16-XXXXX



GaAs + GaN Technology

THE WORLD's SMALLEST OUTDOOR up to + 70°C 16W Ku-Band BUC

Features:

- Hyper-Light Package Design Only 3.1lbs (1.4kg)
- Extreme Stability, Reliability and Performance
- Built-in HPA Overdrive Circuit Protection
- ♦ High Temperature Mode up to + 70°C
- Built-in Optimized Linearization
- Built-in Ultra Receive Band Reject Filter
- Built-in Anti Vibration Technology
- Built-in DC Input Noise Suppression Filter
- Extreme GaN Linearity and Efficiency
- Exceeds ALL IESS-308/309 Phase Noise Standards
- Triple protection sealed waveguide output
- Field Replaceable IP69K Rated Fans
- Fully Assembled and Rigorously Tested in the USA
- ♦ 3 Year Warranty

Design Overview:

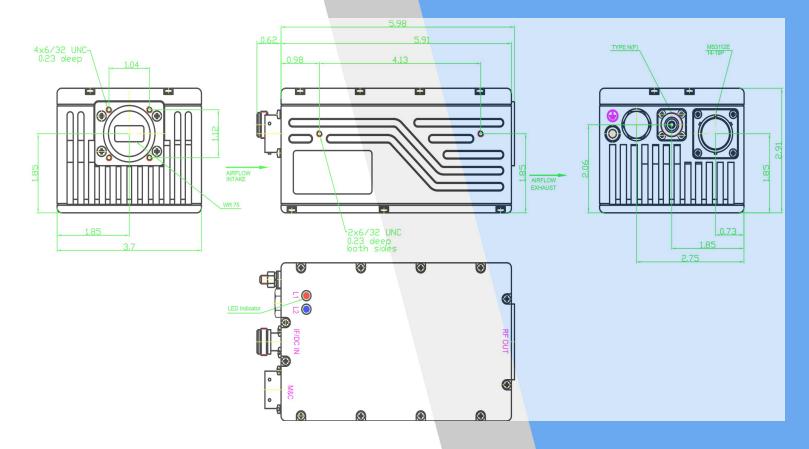
The "MINI BRICK" series Extended (13.75 - 14.5GHz) Ku-Band BUCs are the next generation of the World's Smallest feed-horn & boom-arm mountable BUCs in the industry, weighing-in only at 3.1lbs (1.4kg) and handling output power of 16W PSAT (min) at the Extended Ku-Band frequencies. We've picked the best of both worlds as we implemented the most mature, proven efficient and reliable GaAs + GaN High Power Amplifiers with internal overdrive protection. We've chosen an absolute and "No Corner Cutting" concept in our design. Its weatherproof and robust Hyper-Light package is constructed with the most advanced mechanical precision engineering in mind. We've taken absolutely no compromises during each of the design stages using only the toughest aerospace grade aluminum based metal with the most efficient heat disposal properties. Each unit is vigorously tested at our California facility according to our ATP (acceptance testing procedure).



Request A Quote

Operating RF Frequency 13.75 - 14.50 GHz Operating IF frequency 950 to 1700 MHz Local Oscillator 12.80 GHz Rated Output Power [Linear Power SR @ -26dBc 16W 42dBm PSAT (min)] 13W 41 dBm PLIN (min) IF Connector N-type (50 Ohm) [F-type (75 Ohm) Prime Power via IF or MS Connector (Universal) + 16 - 55 VDC 110W PSAT & 85W @ P-LINEAR 10MHz External Ref. 10MHz External Ref. (Internal High Stability Optional) 0utput Interface Output Interface 0448(min) 68 dB(typ.) TX Gain variation 500MHz ± 0.5 dB TX Gain ration 500MHz ± 0.5 dB TX Gain Flatness ± 0.75 dB max. over 40 MHz IMD3 (two tones) 3dB off rated Power -25 dBc max. 1.01 Stealth Linear Operation Mode (optional) LED Shut-Off [Silenced fans Input VSWR 1.5:1 0utput VSWR 1.5:1 Output VSWR 1.5:	TECHNICAL SPECIFICATIONS		
Local Oscillator12.80 GHzRated Output Power [Linear Powers S@ -26dBc16W 42dBm PSAT (min) 13W 41 dBm PLIN (min)IF ConnectorN-type (50 Ohm) F-type (75 Ohm)Prime Power via IF or MS Connector (Universal)+ 16 - 55 VDC 110W PSAT & 85W @ P-LINEAR10MHz External Ref.10MHz External Ref.(Internal High Stability Optional)WR75 GroovedOutput InterfaceWR75 GroovedGain (Temperature Compensated)644B(min) 68 dB(typ.)TX Gain variation500MHz± 1.5 dBBuilt-in Receive Reject FliterSuppression by +60dB (min)Steath Linear Operation Mode (optional)LED Shut-Off [Silenced fansTX Gain Flatness± 0.75 dB max. over 40 MHzInput VSWRInput VSWROutput VSWROutput VSWROutput VSWROutput VSWROutput VSWRNoise Power Density (TX)-85 dBc/Hz @ 10 HzNoise Power Density (TX)-85 dBc/Hz @ 10 HzNoise Power Density (TX)-55 dBc/Hz @ 10 HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 Hz-55 dBc/Hz @ 10 Hz-150 Complant with ML-STDComplant with ML-STDOperating Temperature Range-40° C to + 70°CStorage Temperature Range<	Operating RF Frequency	13.75 - 14.50 GHz	
Rated Output Power Linear Power SR @ -26dBc 16W 42dBm PSAT (min) 13W 41 dBm PLIN (min) IF Connector N-type (50 Ohm) [F-type (75 Ohm) Prime Power via IF or MS Connector (Universal) + 16 - 55 VDC 110W PSAT & 85W @ P-LINEAR 10MHz External Ref. 10MHz Reference Level: 0dBm +/- 5dBm (Internal High Stability Optional) 00tput Interface WR75 Grooved Gain (Temperature Compensated) 64dB(min) 68 dB(typ.) TX Gain variation 500MHz ± 0.5 dB TX Gain variation 500MHz ± 1.5 dB 10MJz 2 ± 1.5 dB 10MJz 2 ± 0.5 dB TX Gain variation 500MHz ± 0.75 dB max. over 40 MHz 10MJ3 (two tones) 3dB off rated Power -25 dBc max. 2 signal 5MHz apart at P-LINEAR InD3 (two tones) 3dB off rated Power -25 dBc max. 2 signal 5MHz apart at P-LINEAR -60dBc max. Input VSWR 1.3:1 5pectral Regrowth Linearized at PLINEAR -30 dBc Group Delay Ripple 1 nsec point to point max. -40MPM Conversion -30 dBc Set with 2dB back-off from rated power) -55 dBc/Hz @ 10 Hz -115dBc/Hz -55 dBc/Hz @ 10 Hz -153dBc/Hz -55 dBc/Hz @ 10 Hz -153dBc/Hz Noise Power Density (TX) -55 dBc/Hz @ 10 Hz -153dBc/Hz -85 dBc/Hz @ 10 Hz -150dBc/Hz -85 dBc/Hz @ 10 Hz -150dBc/Hz -85 dBc/Hz @ 10 Hz	Operating IF frequency	950 to 1700 MHz	
IF Connector N-type (50 Ohm) F-type (75 Ohm) Prime Power via IF or MS Connector (Universal) + 16 - 55 VDC 110W PSAT & 85W @ P-LINEAR 10MHz External Ref. 10MHz Reference Level: 0dBm +/- 5dBm (Internal High Stability Optional) 0utput Interface WR75 Grooved Gain (Temperature Compensated) 64dB(min) 68 dB(typ.) ± 0.5 dB TX Gain variation 50MHz ± 0.5 dB TX Gain variation 50MHz ± 1.5 dB Built-in Receive Reject Filter Suppression by +60dB (min) Stealth Linear Operation Mode (optional) LED Shut-Off Silenced fans TX Gain Flatness ± 0.75 dB max. over 40 MHz IMD3 (two tones) 3dB off rated Power -25 dBc max. 2 signal SMHz apart at P-LINEAR In-Band/Out-band Spurious -60dBc max. Input VSWR 1.3:1 Output VSWR 1.3:1 Spectral Regrowth Linearized at PLINEAR -30 dBc set with 2dB back-off from rated power) -55 dBc/Hz @ 10 Hz -1150Bc/Hz Group Delay Ripple 1 nsec point to point max. AM/PM Conversion 1.0'/dB max. at 3dB output backoff Noise Power Density (TX) -85dBc/Hz @ 10 Hz -1150Bc/Hz -55 dBc/Hz @ 10 Hz -155	Local Oscillator	12.80 GHz	
Prime Power via IF or MS Connector (Universal) + 16 - 55 VDC 110W PSAT & 85W @ P-LINEAR 10MHz External Ref. (Internal High Stability Optional) 10MHz Reference Level: 0dBm +/- 5dBm Output Interface WR75 Grooved Gain (Temperature Compensated) 64dB(min) 66 dB(typ.) TX Gain variation 500MHz ± 0.5 dB TX Gain variation 500MHz ± 1.5 dB Built-in Receive Reject Filter Suppression by +60dB (min) Stealth Linear Operation Mode (optional) LED Shut-Off Silenced fans TX Gain Flatness ± 0.75 dB max. over 40 MHz IMD3 (two tones) 3dB off rated Power -25 dBc max. 2 signal 5MHz apart at P-LINEAR In-Band/Out-band Spurious -60dBc max. Input VSWR 1.5:1 Output VSWR 1.3:1 Spectral Regrowth Linearized at Puneae -30 dBc (QPSK at 1.5x and OQPSK at 1.0x symbol rate off-set with 2dB back-off from rated power) -35 dBc/Hz @ 10 Hz -115dBc/Hz Noise Power Density (RX) -155 dBc/Hz @ 10 Hz -115dBc/Hz Noise Power Density (RX) -55 dBc/Hz @ 10 Hz -155dBc/Hz -85 dBc/Hz @ 10 Hz -155dBc/Hz -85 dBc/Hz @ 10 KHz -155dBc/Hz -85 dBc/Hz @ 10 KHz -155dBc/Hz -85 dBc/Hz @ 10 KHz -155dBc/Hz	Rated Output Power Linear Power SR @ -26dBc	16W 42dBm PSAT (min) 13W 41 dBm PLIN (min)	
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Output VSWR1.3:1Spectral Regrowth Linearized at PLINEAR (QPSK at 1.5x and OQPSK at 1.0x symbol rate off- set with 2dB back-off from rated power)-30 dBcGroup DelayRipple 1 nsec point to point max.AM/PM Conversion1.0"/dB max. at 3 dB output backoffNoise Power Density (TX)-85dBm/HzNoise Power Density (RX)-155dBr/Hz @ 10 Hz -115dBc/Hz-65 dBc/Hz @ 10 Hz -115dBc/Hz-65 dBc/Hz @ 10 Hz -115dBc/HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHz -155dBr/HzPhase Noise (Up Converter) (Ext. Ref.)Ethernet Web Page Based, R5232/485 (opt.)Environmental MIL-STDCompliant with MIL-STDB10E Vibration MIL-STDVibration MIL-STDCompliant with MIL-STDB10E MIL-STDB10F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	In-Band/Out-band Spurious	-60dBc max.	
Spectral Regrowth Linearized at PLINEAR (QPSK at 1.5x and OQPSK at 1.0x symbol rate off- set with 2dB back-off from rated power) -30 dBc Group Delay Ripple 1 nsec point to point max. AM/PM Conversion 1.0°/dB max. at 3 dB output backoff Noise Power Density (TX) -85dBm/Hz Noise Power Density (RX) -155dBm/Hz (10.95 - 12.75 GHz) -55 dBc/Hz @ 10 Hz -115dBc/Hz -65 dBc/Hz @ 10 Hz -155dBc/Hz Phase Noise (Up Converter) (Ext. Ref.) -55 dBc/Hz @ 10 Hz -155dBc/Hz -75 dBc/Hz @ 10 kHz -155dBc/Hz -65 dBc/Hz @ 10 kHz -155dBc/Hz Phase Noise (Up Converter) (Ext. Ref.) -55 dBc/Hz @ 10 kHz -155dBc/Hz -75 dBc/Hz @ 10 kHz -155dBc/Hz -85 dBc/Hz -85 dBc/Hz -95 dBc/Hz @ 10 kHz -155dBc/Hz -85 dBc/Hz -95 dBc/Hz -85 dBc/Hz -95 dBc/Hz @ 10 kHz -155dBc/Hz -95 dBc/Hz	Input VSWR	1.5:1	
(QPSK at 1.5x and OQPSK at 1.0x symbol rate off- set with 2dB back-off from rated power)-30 dBcGroup DelayRipple 1 nsec point to point max.AM/PM Conversion1.0°/dB max. at 3 dB output backoffNoise Power Density (TX)-85dBm/HzNoise Power Density (RX)-155dBc/Hz @ 10 HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Ext. Ref.)-76 dBc/Hz @ 100 kHzPhase Noise (Up Converter) (Dimension MIL-STDCompliant with M	Output VSWR	1.3:1	
AM/PM Conversion1.0°/dB max. at 3 dB output backoffNoise Power Density (TX)-85dBm/HzNoise Power Density (RX)-155dBm/Hz (10.95 - 12.75 GHz)-55 dBc/Hz @ 10 Hz -115dBc/Hz-55 dBc/Hz @ 10 Hz -115dBc/HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 Hz -135dBc/Hz-75 dBc/Hz @ 10 Hz -155dBc/Hz-55 dBc/Hz @ 10 Hz -155dBc/Hz-85 dBc/Hz @ 10 KHz -155dBc/Hz-95 dBc/Hz @ 10 KHz -155dBc/Hz-95 dBc/Hz @ 10 kHz -155dBc/Hz-95 dBc/Hz @ 10 kHz -160dBc/HzMonitor & Control (Optional)Ethernet Web Page Based, RS232/485 (opt.)Environmental MIL-STDCompliant with MIL-STD810EVibration MIL-STDCompliant with MIL-STD810EVibration MIL-STDMIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm)Not including connectors-	(QPSK at 1.5x and OQPSK at 1.0x symbol rate off-	-30 dBc	
Noise Power Density (TX)-85dBm/HzNoise Power Density (RX)-155dBm/Hz (10.95 - 12.75 GHz)-55 dBc/Hz @ 10 Hz -115dBc/Hz-55 dBc/Hz @ 10 Hz -115dBc/Hz-65 dBc/Hz @ 100 Hz -135dBc/Hz-65 dBc/Hz @ 100 Hz -135dBc/HzPhase Noise (Up Converter) (Ext. Ref.)-75 dBc/Hz @ 100 Hz -150dBc/Hz-75 dBc/Hz @ 10 kHz -150dBc/Hz-85 dBc/Hz @ 10 kHz -150dBc/Hz-95 dBc/Hz @ 100 kHz -155dBc/Hz-95 dBc/Hz @ 100 kHz -160dBc/HzMonitor & Control (Optional)Ethernet Web Page Based, RS232/485 (opt.)Environmental MIL-STDCompliant with MIL-STD810EVibration MIL-STDMIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	Group Delay	Ripple 1 nsec point to point max.	
Noise Power Density (RX)-155dBm/Hz (10.95 - 12.75 GHz)Phase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 Hz -115dBc/HzPhase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 Hz -135dBc/Hz-75 dBc/Hz @ 1 kHz -150dBc/Hz-75 dBc/Hz @ 10 kHz -150dBc/Hz-85 dBc/Hz @ 10 kHz -155dBc/Hz-95 dBc/Hz @ 10 kHz -155dBc/Hz-95 dBc/Hz @ 100 kHz -160dBc/Hz-95 dBc/Hz @ 100 kHz -160dBc/HzMonitor & Control (Optional)Ethernet Web Page Based, RS232/485 (opt.)Environmental MIL-STDCompliant with MIL-STD810EVibration MIL-STDMIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range-40° C to + 70°CStorage Temperature Range-60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	AM/PM Conversion	1.0°/dB max. at 3 dB output backoff	
Phase Noise (Up Converter) (Ext. Ref.)-55 dBc/Hz @ 10 Hz -115dBc/Hz -65 dBc/Hz @ 100 Hz -135dBc/Hz -135dBc/Hz @ 10 kHz -150dBc/Hz -85 dBc/Hz @ 10 kHz -150dBc/Hz -95 dBc/Hz @ 100 kHz -160dBc/HzMonitor & Control (Optional)Ethernet Web Page Based, RS232/485 (opt.)Environmental MIL-STD Vibration MIL-STDCompliant with MIL-STD810E MIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range-40° C to + 70°CStorage Temperature Range-60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sine 21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	Noise Power Density (TX)	-85dBm/Hz	
Phase Noise (Up Converter) (Ext. Ref.)-65 dBc/Hz @ 100 Hz -135dBc/Hz -75 dBc/Hz @ 1 kHz -150dBc/Hz -85 dBc/Hz @ 10 kHz -155dBc/Hz -95 dBc/Hz @ 100 kHz -160dBc/HzMonitor & Control (Optional)Ethernet Web Page Based, RS232/485 (opt.)Environmental MIL-STD Vibration MIL-STDCompliant with MIL-STD810E MIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	Noise Power Density (RX)	-155d <mark>Bm/Hz</mark> (10.95 - 12.75 GHz)	
Environmental MIL-STD Vibration MIL-STDCompliant with MIL-STD810E MIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	Phase Noise (Up Converter) (Ext. Ref.)	-65 dBc/Hz @ 100 Hz -135dBc/Hz -75 dBc/Hz @ 1 kHz - 150dBc/Hz -85 dBc/Hz @ 10 kHz -155dBc/Hz	
Vibration MIL-STDMIL-STD810F, Method 514.5 C-2 TransportOperating Temperature Range- 40° C to + 70°CStorage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors	Monitor & Control (Optional)	Ethernet Web Page Based, RS232/485 (opt.)	
Storage Temperature Range- 60°C to + 85°CFan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6″ x 3.7″ x 2.91″ (152x94x74 mm) Not including connectors		•	
Fan Rating / Field ReplaceableIP 69K, Field InterchangeableHumidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	Operating Temperature Range	- 40° C to + 70°C	
Humidity100% Condensing, IP67 RatedShock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	Storage Temperature Range	- 60°C to + 85°C	
Shock20 g peak, 11 msec, 1/2 sineAltitude21,500ft, 6,500mDimensions6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	Fan Rating / Field Replaceable	IP 69K, Field Interchangeable	
Altitude21,500ft, 6,500mDimensions6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	Humidity	100% Condensing, IP67 Rated	
Dimensions 6" x 3.7" x 2.91" (152x94x74 mm) Not including connectors	Shock	20 g peak, 11 msec, 1/2 sine	
Not including connectors	Altitude	21,500ft, 6,500m	
Weight 3.1lbs (1.4kg)	Dimensions		
	Weight	3.1lbs (1.4kg)	

MECHANICAL DRAWING



PART NUMBERING SYSTEM

- AM "MINI BRICK" MODEL SERIES
- KU Universal Ku-Band 13.75 14.50 GHz
- KS Standard Ku-Band 14.0 14.50 GHz
- KL Low Ku-Band 12.75 13.25 GHz
- 16 | 20 | 25 | 30 Rated PSAT Power in Watts
- N 50 Ohm IF Input Connector Type | F 75 Ohm IF Input Connector Type
- M M&C Option RS232/485 + Ethernet
- S Stealth Linear Mode
- **E** Ethernet Only
- R 10 MHz Ref. Auto Sense | Internal Reference
- C Custom option availability

Example: AMKU16NMR

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