

X2 Frequency Multiplier

50Ω Output 0.1 to 300 MHz

Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C

RF Input Power 200mW

Permanent damage may occur if any of these limits are exceeded.

Features

- low insertion loss, 11 dB typ.
- rugged shielded case

Applications

- synthesizers
- local oscillators

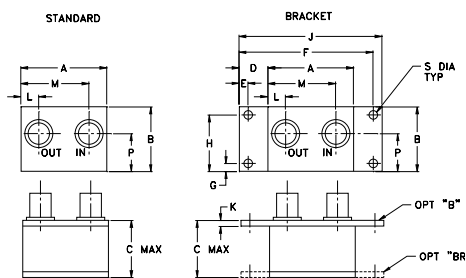
GK-3



CASE STYLE: L20

Connectors	Model	Price	Qty.
BNC	GK-3	Contact Sales Dept.	
BRACKET (OPTION "B")			
BRACKET (OPTION "BR")			

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	
2.25	1.38	1.24	.50	.150	3.100	.138	1.238
57.15	35.05	31.50	12.70	3.81	78.74	3.51	31.45
J	K	L	M	N	P	S	wt
3.25	.10	.40	1.86	--	.64	.150	grams
82.55	2.54	10.16	47.24	--	16.26	3.81	74.0

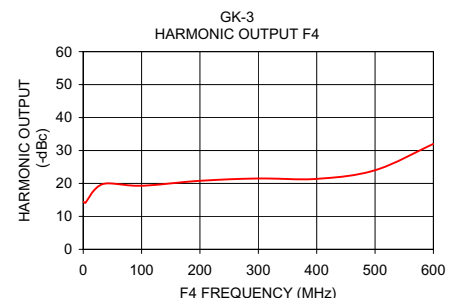
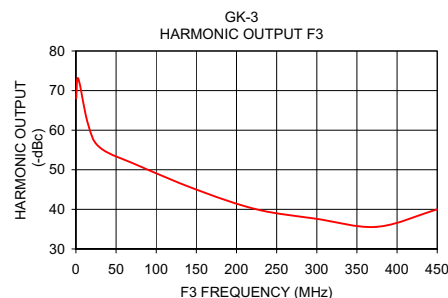
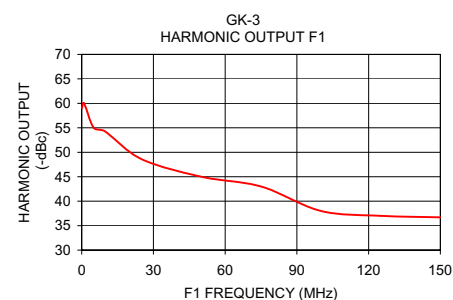
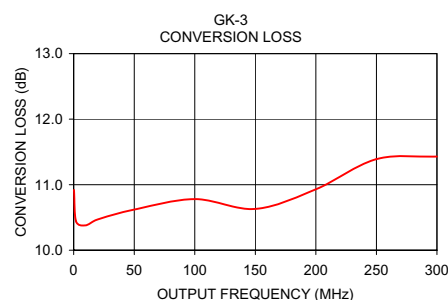
Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (MHz)	INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
		Min.	Max.	Typ.	Max.	F1	F3	F4	Typ.	Min.	Typ.
2	0.05-50	—	13	11.0	13.0	40	30	45	30	16	12
	50-150	—	—	11.5	15.0	35	20	40	20	16	12

* Harmonics of input frequency below the power level of F2

Typical Performance Data

Input Frequency (MHz)	Conversion Loss (dB) F2	F1	Harmonic Output (-dBc) F3	F4
0.10	10.92	59.00	68.00	14.40
1.00	10.44	60.00	73.00	14.20
5.00	10.38	55.00	61.60	18.20
10.00	10.47	54.20	55.60	20.00
25.00	10.62	48.60	51.30	19.30
50.00	10.78	45.00	45.00	20.80
75.00	10.63	43.00	40.00	21.50
100.00	10.93	38.00	37.60	21.40
125.00	11.39	37.00	35.60	24.00
150.00	11.43	36.70	40.00	32.00



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I/F/R/F MICROWAVE COMPONENTS

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REV. OR
M129450
GK-3
ENG/CP/AM
101104

Frequency Multiplier (Doublers)

GK-3

Typical Performance Data

Frequency (MHz)				Conversion Loss (dB)	Harmonic Output* (-dBc)		
X1 Output	X2 Output	X3 Output	X4 Output	X2 Output	X1 Output	X3 Output	X4 Output
0.1	0.2	0.3	0.4	10.92	59.00	68.00	14.40
1.0	2.0	3.0	4.0	10.44	60.00	73.00	14.20
5.0	10.0	15.0	20.0	10.38	55.00	61.60	18.20
10.0	20.0	30.0	40.0	10.47	54.20	55.60	20.00
25.0	50.0	75.0	100.0	10.62	48.60	51.30	19.30
50.0	100.0	150.0	200.0	10.78	45.00	45.00	20.80
75.0	150.0	225.0	300.0	10.63	43.00	40.00	21.50
100.0	200.0	300.0	400.0	10.93	38.00	37.60	21.40
125.0	250.0	375.0	500.0	11.39	37.00	35.60	24.00
150.0	300.0	450.0	600.0	11.43	36.70	40.00	32.00

*Harmonic Output below power level of X2 Output .



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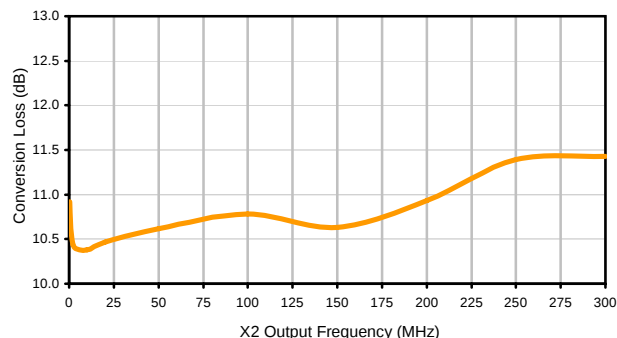
IF/RF MICROWAVE COMPONENTS



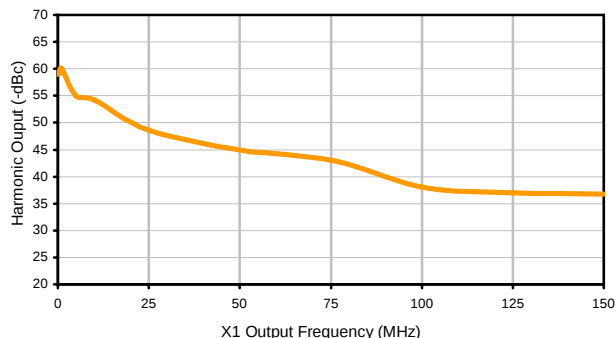
REV. X1
GK-3
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Typical Performance Curves

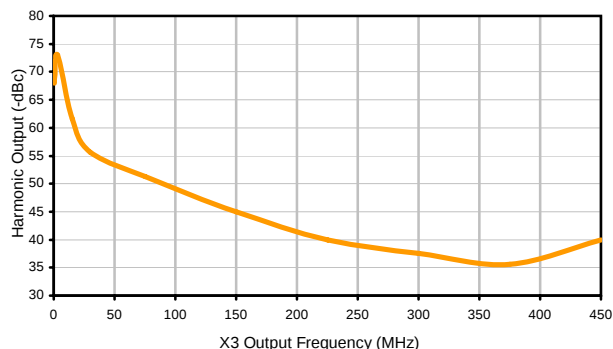
Conversion Loss X2 Output



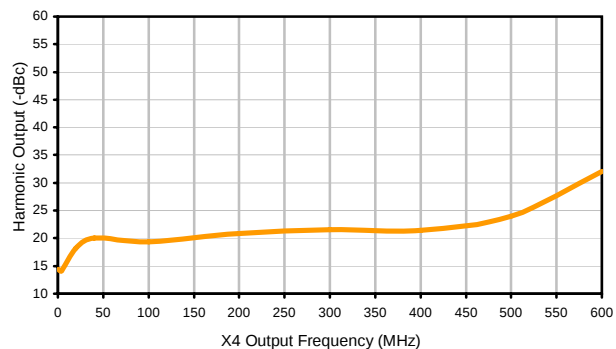
Harmonic X1 Output



Harmonic X3 Output



Harmonic X4 Output



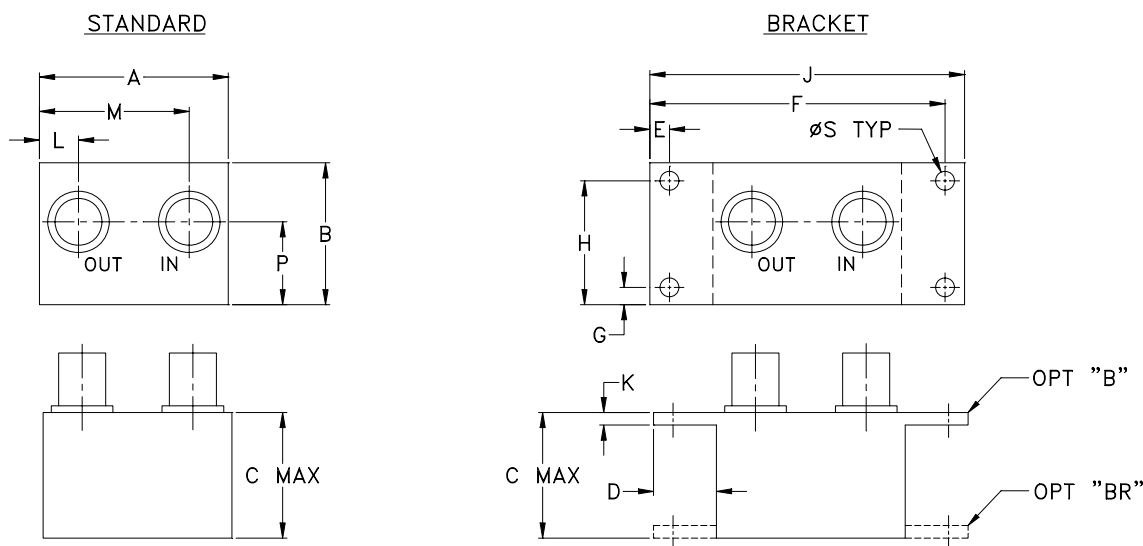
Case Style

L

L19

L20

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
L19	1.50 (38.10)	1.13 (28.70)	1.00 (25.40)	.50 (12.70)	.155 (3.94)	2.345 (59.56)	.138 (3.51)	.987 (25.07)	2.50 (63.50)	.10 (2.54)	.31 (7.87)	1.19 (30.23)	--
L20	2.25 (57.15)	1.38 (35.05)	1.24 (31.50)		.150 (3.81)	3.100 (78.74)		1.238 (31.45)	3.25 (82.55)		.40 (10.16)	1.86 (47.24)	--

CASE#	P	Q	R	S	WT. GRAMS
L19	.66 (16.76)	--	--	.150 (3.81)	37.0
L20	.64 (16.26)	--	--		74.0

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish:
 - For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
 - For Non-RoHS Case Styles: Yellow hexavalent chrome based conversion coating.
- Mounting bracket available on request. For bracket mounted on connector end add suffix B to part number and add \$5.00 to unit cost. For bracket mounted on the rear, add suffix BR to part number and add \$1.50 to unit cost.



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Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I