

# FREQUENCY MIXERS

Standard Size

## High IP3, NARROW BAND (up to 37 dBm) 140 to 1910 MHz



HJK

MODEL NO. ◆	FREQUENCY (MHz)			IP3 (dBm)	LO level (dBm)	RF @ 1dB compr. (dBm)	CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		E FACTOR	CASE STYLE	CONNECTION	PCB LAY-OUT PL-	PRICE \$
	RF	LO	IF				Typ.	σ	Max.	Typ.	Min.	Typ.	Min.					
HJK-9	818-853	753-778	40-100	22	7	10	7.1	0.3	8.7	36	24	26	20	1.5	TT167	x	079	10.95
HJK-19	1850-1910	1780-1840	70-130	21	7	10	8.0	0.2	9.5	30	20	24	16	1.4	TT167	x	079	10.95
HJK-21	1850-1910	2090-2150	180-300	22	7	10	7.5	0.3	9.5	28	18	19	13	1.5	TT167	x	079	10.95
HJK-9LH	818-853	753-778	40-100	27	10	13	6.7	0.2	8.0	37	24	27	20	1.7	TT167	x	079	12.95
HJK-19LH	1850-1910	1780-1840	70-130	25	10	13	7.5	0.2	9.4	30	20	23	15	1.5	TT167	x	079	12.95
HJK-21LH	1850-1910	2090-2150	180-300	25	10	13	7.2	0.3	8.9	28	20	19	13	1.5	TT167	x	079	12.95
HJK-9MH	818-853	753-778	40-100	31	13	16	6.7	0.2	8.0	37	24	27	20	1.8	TT167	x	079	14.95
HJK-19MH	1850-1910	1780-1840	70-130	30	13	16	7.4	0.2	8.9	30	20	23	15	1.7	TT167	x	079	14.95
HJK-21MH	1850-1910	2090-2150	180-300	29	13	16	7.2	0.2	8.9	29	20	19	13	1.6	TT167	x	079	14.95
HJK-3H*	140-180	160	0.5-20	37	16	19	8.0	0.1	9.2	44	35	44	30	2.1	TT167	x	079	16.95
HJK-9H	818-853	753-778	40-100	33	17	20	6.7	0.2	8.0	35	24	31	23	1.6	TT167	x	079	16.95
HJK-19H	1850-1910	1780-1840	70-130	34	17	20	7.7	0.2	8.9	28	20	22	16	1.7	TT167	x	079	16.95
HJK-21H	1850-1910	2090-2150	180-300	36	17	20	7.6	0.2	8.9	28	20	25	18	1.9	TT167	x	079	16.95

E= [IP3(dBm)-LO Power(dBm)]/10

## Low DISTORTION

MODEL NO.	FREQUENCY (MHz)			IP3 (dBm)	LO level (dBm)	RF @ 1dB compr. (dBm)	CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		SECOND <sup>1</sup> ORDER I.M. (dBc) Max.	E FACTOR	CASE STYLE	CONNECTION	PRICE \$
	RF	LO	IF				Typ.	σ	Max.	Typ.	Min.	Typ.	Min.					
HJK-20VH	1090	1167-1950	77-870	30	20	15	7.2	0.2	8.5	32	26	34	28	0.9	TT167 (PL-079)	x	24.95	
	1090	1183-1590	93-500															
	1090	1590-1800	500-710															
	1090	1800-1900	710-810															
	1090	1900-1950	810-860															

E= [IP3(dBm)-LO Power(dBm)]/10

<sup>1</sup> Measured at -14dBm RF. High order spurious 3RF-2LO, 4RF-2LO, 4RF-3LO, 3RF-2LO, (dBc) typ. <-80 dBc

### NOTES:

- ̄ Average of conversion loss at center of mid-band frequency ( $f_L+f_U/4$ )
- σ Standard deviation
- ◆ Aqueous washable
- \* Patent pending
- A. Environmental specifications and re-flow soldering information available in General Information Section.
- B. Units are non-hermetic unless otherwise noted. For details on case dimensions & finishes see "Case Styles & Outline Drawings".
- C. Prices and Specifications subject to change without notice.
- 1. Absolute maximum power, voltage and current ratings:
  - 1a. LO & RF power: 16 dBm for level 7,10,13  
19 dBm for level 16  
20 dBm for level 17  
22 dBm for level 20
- 2. For MCA models:
  - operating temperature: -55°C to 100°C
  - storage temperature: -55°C to 100°C

### applications

- base stations
- communication systems, cellular, PCS
- HJK-20VH for cable tv up converter second mixer

## Miniature Size Ceramic

# High IP3, NARROW BAND (up to 35 dBm) 1850 to 3600 MHz

**BLUE CELL™**



MCA

**NEW!**

MODEL NO.	FREQUENCY (MHz)			IP3 (dBm)	LO level (dBm)	RF @ 1dB compr. (dBm)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		E FACTOR	CASE STYLE	CONNECTION	PCB LAY-OUT PL-	PRICE \$
	RF	LO	IF				Typ.	Max.	Typ.	Min.	Typ.	Min.					
MCA-19FLH*	1850-1910	1760-1820	70-130	25	10	10	6.9	8.8	40	22	39	20	1.5	DZ883	Id	045	9.95
MCA-30FLH*	2960-3060	2780-2880	130-230	25	10	10	7.5	8.9	35	20	27	15	1.5	DZ883	Id	045	9.95
MCA-36FLH*	3500-3600	3070-3170	380-480	25	10	10	8.4	9.4	40	20	28	15	1.5	DZ883	Id	045	9.95
MCA-19FMH*	1850-1910	1760-1820	70-130	30	13	13	6.9	8.4	40	22	39	20	1.7	DZ883	Id	045	10.95
MCA-30FMH*	2960-3060	2780-2880	130-230	30	13	13	7.4	8.9	35	20	27	15	1.7	DZ883	Id	045	10.95
MCA-36FMH*	3500-3600	3070-3170	380-480	30	13	13	8.3	9.3	42	20	27	15	1.7	DZ883	Id	045	10.95
MCA-19FH*	1850-1910	1760-1820	70-130	35	17	17	6.9	8.5	40	22	39	20	1.8	DZ883	Id	045	11.95
MCA-30FH*	2960-3060	2780-2880	130-230	34	17	17	7.4	8.9	37	20	27	15	1.7	DZ883	Id	045	11.95
MCA-36FH*	3500-3600	3070-3170	380-480	33	17	17	8.3	9.2	44	20	29	15	1.6	DZ883	Id	045	11.95

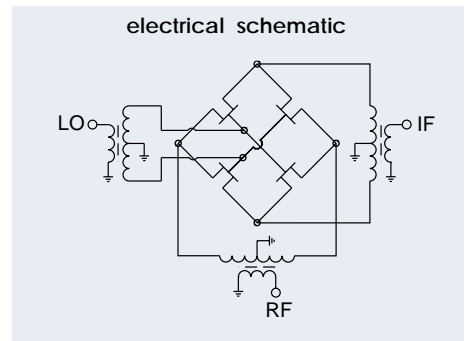
E = [IP3(dBm)-LO Power(dBm)]/10

### features

- excellent IP3, up to 35 dBm
- excellent compression, 1 dB compr, RF>LO power
- industry standard foot print
- LTCC design for excellent temperature stability
- performance repeatability

### applications

- GSM 1800
- DECT
- line of sight links
- satellite communications



### pin connections

see case style outline drawings

PORT	x	Id
LO	2	10
RF	1	5
IF	3	3
GND EXT.	4,5,6	all others
DEMO BOARD	TB-12	TB-144