

SINGLE SIDEBAND 1-18 GHz GENERATOR

MODEL CC

GENERAL INFORMATION:

KDI/Triangle mixers are frequency converting devices that provide state of the art performance in different sizes and package styles.

KDI/Triangle offers a full line of upconverter mixers covering frequency ranges from 1 GHz to 18 GHz in different RF_{in}, RF_{out} and IF frequencies. Wide band devices such as 6-18 GHz with IF frequencies extended up to 2 GHz are available. Narrow band converters with optimized conversion loss, VSWR and suppression are also offered, covering satellite bands, for example.

GENERAL SPECIFICATIONS:

Frequency Coverage:	1.0 to 18.0 GHz
Storage Temperature:	-65°C to +95°C
Operating Temperature:	-54°C to +85°C
RF Input Power:	200 mW @ 25°C
(Non-Destruct)	100 mW @ 85°C
Environment:	MIL-E-5400, MIL-STD-202, MIL-E-16400
Connectors:	SMA female
1 dB Compression:	+5 dBm typ.
3rd Order IIP:	+15 dBm typ.

ELECTRICAL PERFORMANCE

Model No.	RF _{in} /RF _{out} Frequency GHz (Note 1,2)	IF Frequency GHz (Note 1,2,3)	Conversion Loss, dB Typ - Max (Note 4,5)	Supp. All Unwanted Sidebands dB Typ - Max (Note 6)	Carrier Supp, dB Typ - Min (Note 6)	VSWR Typ - Max (Note 7)			Mechanical Outline
						R _{in}	R _{out}	I	
CC-12	1 - 2	0 - 0.32	6 7	20 15	21 16	1.5 2.0	1.5 2.0	1.5 2.0	B1
CC-24	2 - 4	0 - 1	6 7	20 15	21 16	1.5 2.0	1.5 2.0	1.5 2.0	B2
CC-48	4 - 8	0 - 2	7 8	20 15	21 16	1.5 2.0	1.5 2.0	1.5 2.0	B3
CC-68	6 - 18	0 - 2	8.5 10	18 11	18 11	1.9 2.8	1.9 2.8	1.5 2.0	A
CC-86	8 - 16	0 - 2	7 9	20 13	20 12	1.8 2.5	1.8 2.5	1.5 2.0	A
CC-88	8 - 18	0 - 2	8 10	19 12	19 12	1.9 2.7	1.9 2.7	1.5 2.0	A
CC-98	9 - 18	0 - 2	8 10	20 13	20 12	1.8 2.5	1.8 2.5	1.5 2.0	A

* Single Sideband Generation is possible by applying high power at RF_{in} instead of IF. If RF_{in} is selected as the LO, odd harmonic suppression is improved by approximately 5 dB. Optimum RF_{in} power is +5 dBm

* The sideband to be suppressed should be specified when ordering. If the upper sideband is to be suppressed, add suffix U to the model number. If the lower sideband is to be suppressed, add the suffix L to the model number (i.e., upper sideband suppression would be specified as CC-12U; lower sideband suppressed and IF Band F is ordered as CC-12FL).

NOTES:

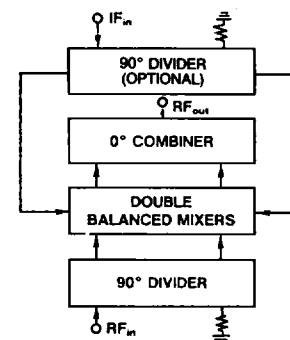
- Other frequencies are available.
- When ordering specify the RF, LO and IF (or RF_{in}, RF_{out}, and IF) frequencies of operation, if different from standard model, so that performance can be optimized. A special part number will be assigned.
- IF band is divided into octave subbands:

Band	Coverage (GHz)
A	0.02 - 0.04
B	0.04 - 0.08
C	0.08 - 0.16
D	0.16 - 0.32
E	0.32 - 0.64
F	0.50 - 1.00
G	1.00 - 2.00

When ordering specify IF Band by adding suffix (i.e. For Band A: CC-12A) Single Sideband Generators are available without IF power divider if specified at time of ordering. Two equal amplitude IF signals must be supplied in phase quadrature if unit is ordered without power divider.

- Conversion loss flatness over octave IF frequency range is ±0.5 dB measured with IF power of +5 dBm.
- Conversion loss data is for IF power of +5 dBm. Single Sideband Generators are available with IF power of 0 dBm. Conversion loss will degrade by 1 dB. Units are also available to operate with LO power up to +16 dBm. Conversion loss will degrade by 0.5 dB at +16 dBm.
- Minimum values listed for Sideband and Carrier Suppression are valid over 30% of the IF Band and will degrade by 1 dB over the full octave band.
- If required, the VSWR can be improved over narrow bands.
- Test condition: P_{RF_{in}} = 0 dBm, P_{IF} = +5 dBm, I.F. = 30 MHz.
- Conversion loss will improve by approximately 0.5 dB at -54°C, and degrade by 1 dB maximum at +85°C.
- For F_{RFout} > F_{RFin}: F_{RFout} = F_{RFin} + F_{IF1} and IF2 should be terminated. See next page.
- For F_{RFout} < F_{RFin}: F_{RFout} = F_{RFin} - F_{IF2} and IF1 should be terminated. See next page.
- Dimension to be 0.51 with IF power divider in package and 0.38 without IF power divider in package. See next page.
- Different types of connectors are available.
- Hermetically sealed units are available.

SCHEMATIC DIAGRAM

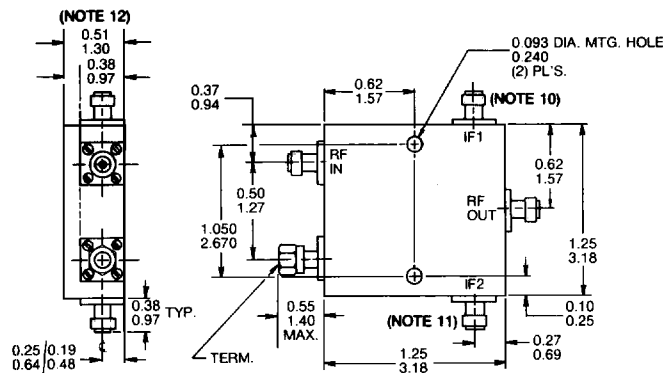


**KDI/triangle
ELECTRONICS**

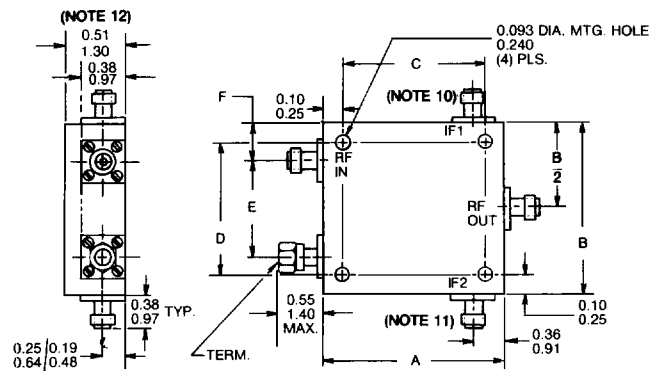
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OUTLINE A
(weight: 2.3 oz/65 grams)



OUTLINE B

OUTLINE B MECHANICAL DIMENSIONS

	A	B	C	D	E	F	
B1	2.50	2.50	2.30	2.30	0.85	0.82	inches
	6.35	6.35	5.842	5.842	2.16	2.08	cm
B2	2.25	2.00	2.05	1.80	1.30	0.35	inches
	5.72	5.08	5.207	4.57	3.30	0.88	cm
B3	1.58	1.50	1.38	1.30	0.78	0.36	inches
	4.01	3.81	3.51	3.30	1.98	0.91	cm