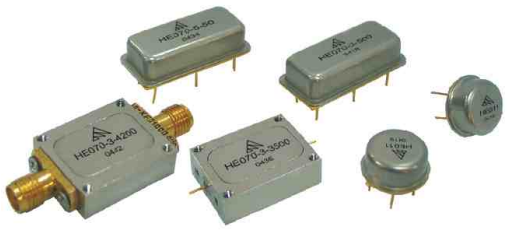
Features

- ●Hermetic or small case package
- ●Thin-Thick film construction
- ●Can be ascadabed as multiplier
- ●Operating temperature:-55℃～+85℃



Ordering Information

Model	Description	Package	
HE011	Broadband doubler	Hermetic TO-8A package	
HE011H	Broadband doubler	Removable SMA connectors	
HE070-3-xxx	Miniature Tripler	Hermetic DIP-18B package	"***"Indicates the center frequency of Input signal
HE070H-3-xxx	Tripler	Removable SMA connectors	
HE070-5-xxx	Miniature Quintapler	Hermetic DIP-18B package	

Specifications(P_{in}=+13dBm, Harmonic suppression>45dB, T_A=25℃)

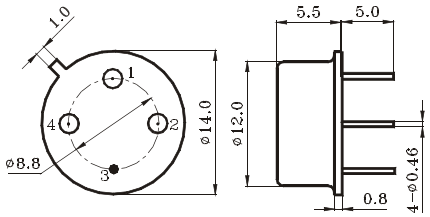
Model	Input Frequen cy Range (MHz)	Relative Bandwidth	Frequency Output	Conversion Loss (dB)		Power Level (dBm)	Harmonic Suppression[1] (dB)			
				Max	Typ		Min		Typ[5]	
HE011	10～1000	–	$2f_{in}$[4]	13. 0	12. 0	10～14	20(F1)	20(F3)	25(F1)	25(F3)
	1000～1500			14. 0	13. 0		17(F1)	17(F3)	20(F1)	20(F3)
HE011H	2000～6000			11. 0	9. 0		20(F1)	20(F3)	30(F1)	30(F3)
HE070-3	20～100	10%[2]	$3f_{in}$	17. 0	14. 0	11～15	20(F2)	20(F4)	40(F2)	40(F4)
	100～500				12. 0				35(F2)	40(F4)
	500～1500				14. 0	12～15			30(F2)	35(F4)
HE070H-3	1200～4200	10%[2]	$3f_{in}$	17. 0	14. 0	12～15	17(F2)	17(F4)	25(F2)	30(F4)
HE070-5	20～100	6 %[3]	$5f_{in}$	28. 0	24. 0	11～15	20(F4)	20(F6)	40(F4)	40(F6)
	100～400				21. 0				35(F4)	40(F6)

1)F1 is input at frequency F1 Fn(n=2, 3, …) is harmonic output(n×F1)
2)HE070-3. HE070H-3Custom relative bandwidth is available up to 20%
while deteriorating loss 2~4 dB
3)HE070-5Custom relative bandwidth is available up to 12%
while deteriorating loss 2~4 dB
4)Harmonic rejection is subject to the harmonic outputs. The typical suppression was
Taken at the condition that harmonic rejection>45dB

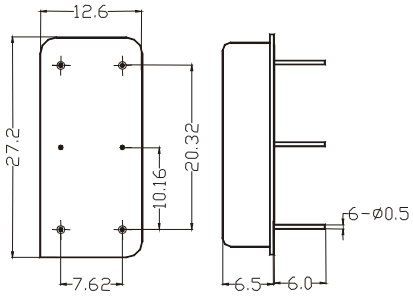
Absolute Maximum Ratings

Input power : 200mW
Storage Temp:+ 125℃

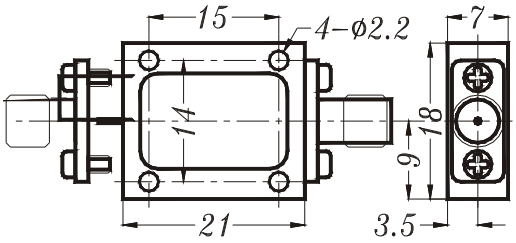
Outline Drawings



TO-8A



DIP-18B



HE070H

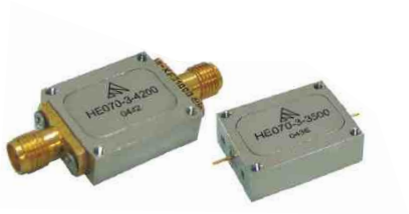
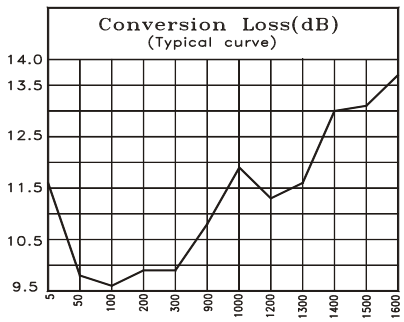


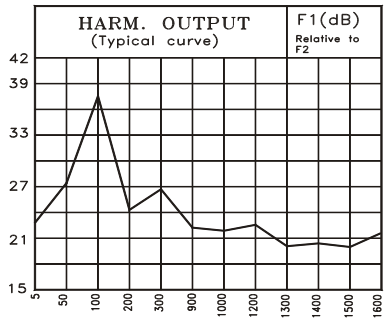
Photo of HE070H

Typical Performance-1 (P_{in}=+13dBm, tfarnuonic suppression>45dB, T_A=25℃)

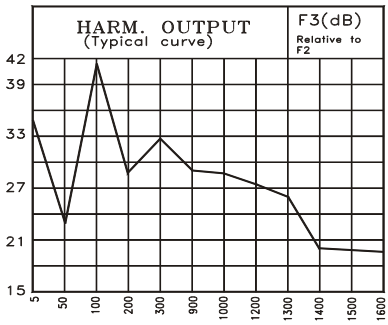
Conversion loss vs. Input Frequency(HE011)



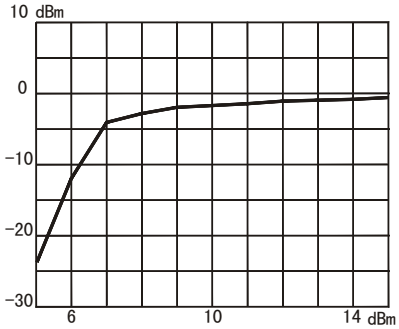
F1 rejection Vs. Input Frequency(HE011)



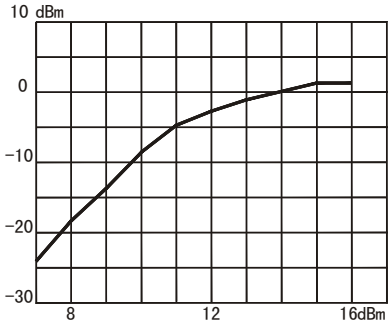
F3 rejection Vs. Input Frequency(HE011)



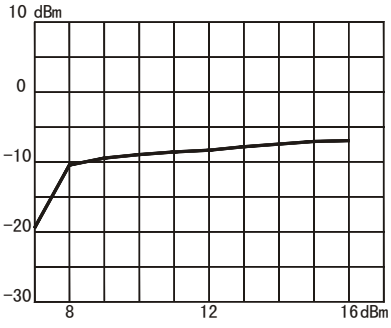
Input power vs. Output Power (HE070-3-100)



Input power vs. Output Power(HE070-3-500)

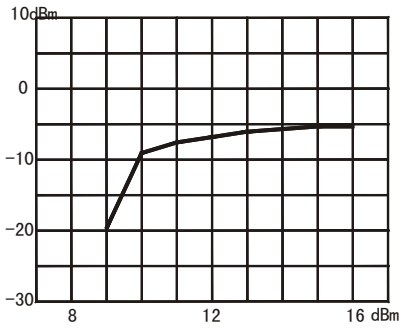


Input power vs. Output Power (HE070-5-50)

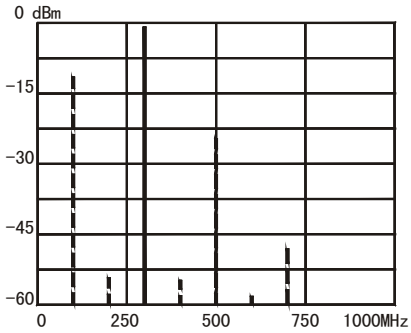


Typical Performance-2 (P_{in}=+13dBm, Harmonic suppression>45dB, T_A=25℃)

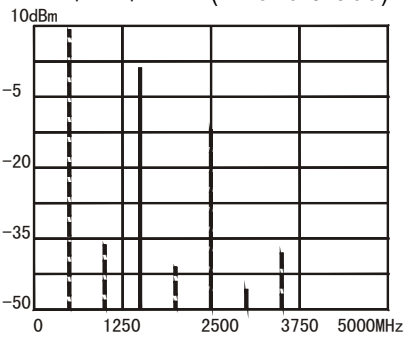
Input frequency vs. Output Frequency (HE070-5-200)



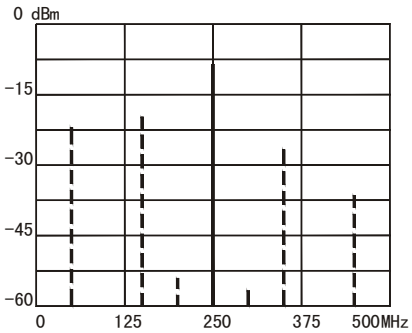
Output spectrum (HE070-3-100)



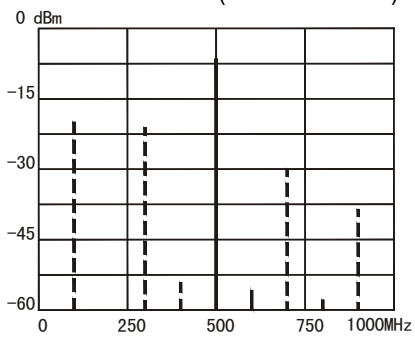
Output Spectrum(HE070-3-500)



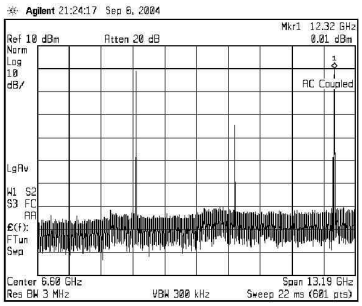
Output spectrum (HE070-5-50)



Output spectrum (HE070-5-200)

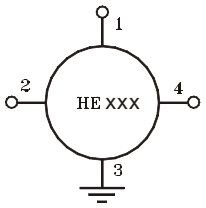


Output spectrum(HE070H-3-4080)



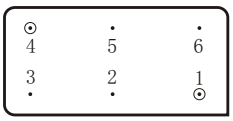
Application Notes:

1.Functional diagram shown as right.The package should be place as close to PCB as possible.
2.There is no internal decoupling capacitor on the input output ports. Decoupling capacitor(1000PF) is required if necessary.
3.2~4dB attenuator is recommed when HE070 series is connected to filter or other resonance circait.
4.Castom SMA connectered doubler is available. Input frequency up to 8GHz.
5.Please contact the factory for custom multipliers module Integrated with amplifier, filter and doubler.



1.N/C or GND
2.RF Input
3.GND
4.RF Output

HE070



1.RF Input
4.RF Output
2,3,5,6. GND