

LA1017 10 to 1000 MHz TO-8 Limiting Amplifier

(Typical Values)

LA1017

High Output Level + 13.5 dBm
 High Third Order I.P. + 28 dBm
 Fast Pulse Recovery Time < 50 nsec
 Symmetrical Clipping; High Even-Order Suppression
 High Performance Thin Film

Specifications

Parameter	Typical	Guaranteed*	
		0 to 50 °C	-55 to 85 °C
Frequency (Min.)	10-1000 MHz	10-1000 MHz	10-1000 MHz
Small Signal Gain (Min.)	12.5 dB	11.5 dB	11.0 dB
Gain Flatness (Max.)	< ± 0.3 dB	± 0.5 dB	± 0.7 dB
Noise Figure (Max.)	5.5 dB	6.7 dB	7.2 dB
SWR (Max.) Input /Output	1.5:1	1.7:1	1.8:1
Output Limiting Level (Max.) P _{in} = +20 dBm	15.5 [^] dBm	16.5 [^] dBm	17.0 [^] dBm
Power Output (Min.) @ 1dB comp.	+ 13.5 dBm	+ 12.5 dBm	+ 12.0 dBm
DC Current (Max.)	45 mA	48 mA	52 mA

*Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

^2.0 dBm higher above 800 MHz.

Intermodulation Performance

(Typical at 25 °C) Linear Region Only

LA1017

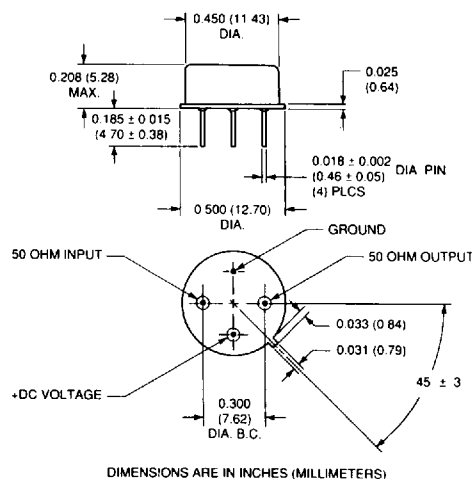
Second Order Harmonic Intercept Point +48 dBm
 Second Order Two Tone Intercept Point +42 dBm
 Third Order Two Tone Intercept Point +28 dBm

Absolute Maximum Ratings

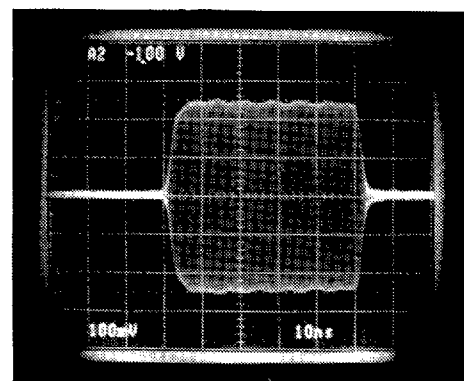
Ambient Operating Temperature -55 to 100° C
 Storage Temperature -62 to 125° C
 Maximum Case Temperature +125° C
 Maximum DC Voltage +17 Volts
 Maximum Continuous RF Input Power +23 dBm
 Maximum Short Term Input Power (1 Minute Max.) 400 Milliwatts
 Maximum Peak Power (3 µsec Max.) 1 Watt
 Q Series Burn-in Temperature +125° C

Outline Drawings

TO-8 Package for Amplifiers



Typical Response Time at 25° C



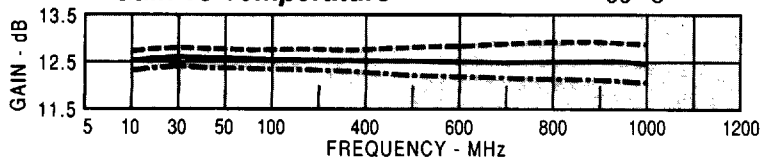
Frequency = 140 MHz

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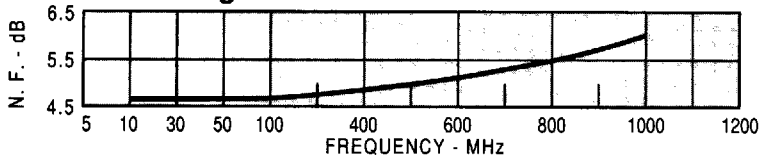
Typical Performance

KEY: +25 °C —
+85 °C - - -
-55 °C - - -

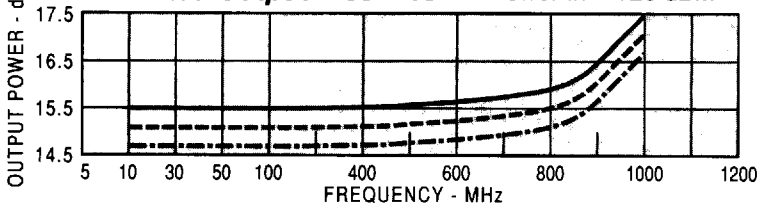
Gain vs Temperature



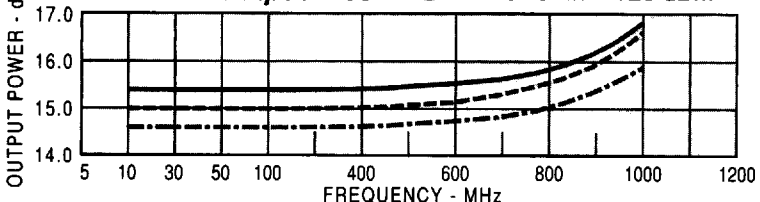
Noise Figure $V_{CC} = 15$ & 12



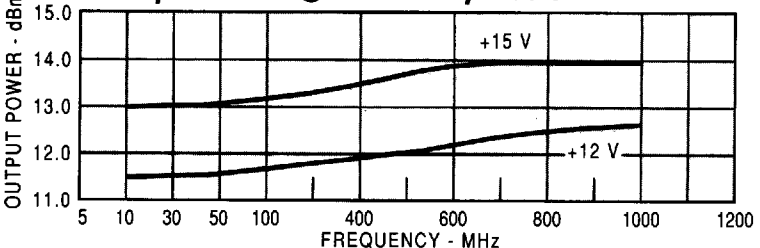
Limited Output $V_{CC} = 15$ Power In = +20 dBm



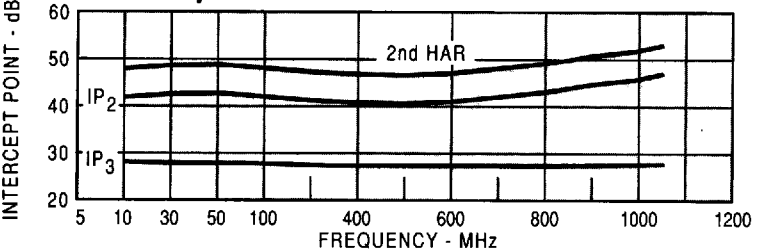
Limited Output $V_{CC} = 12$ Power In = +20 dBm



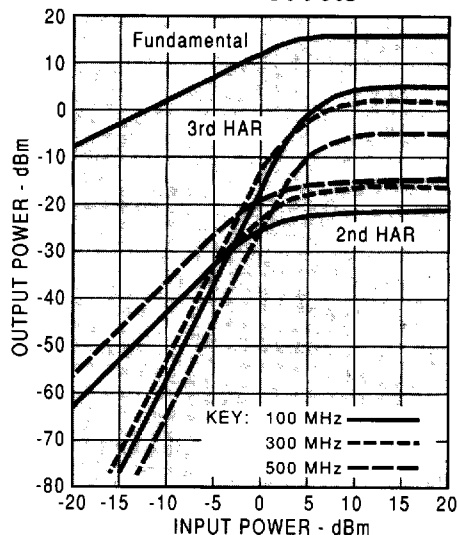
Output Power @ 1 dB Compression



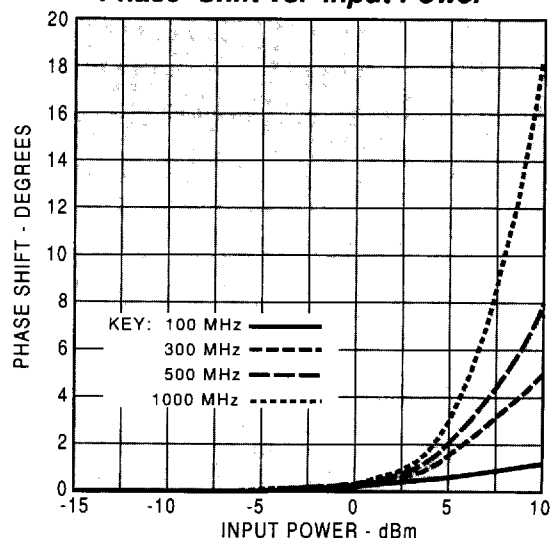
Intercept Point $V_{CC} = 15$



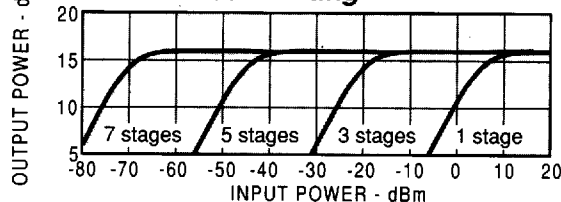
Distortion Products



Phase Shift vs. Input Power



Cascaded Limiting



Typical Automatic Test Data

MODEL: LA1017

$V_{CC} = +15V$ $I_{CC} = 44.73$ mA

FREQUENCY	VSWR	VSWR	GAIN	GROUP DELAY	REV/ISO
MHZ	IN	OUT	DB	NSEC	DB
10.0	1.48	1.48	12.5		-19.8
20.0	1.22	1.31	12.5		-19.5
50.0	1.10	1.24	12.6	.971	-19.4
100.0	1.10	1.23	12.6	.625	-19.4
200.0	1.14	1.24	12.5	.532	-19.5
300.0	1.20	1.27	12.5	.538	-19.5
400.0	1.25	1.29	12.5	.526	-19.6
500.0	1.27	1.29	12.5	.526	-19.5
600.0	1.28	1.27	12.5	.545	-19.5
700.0	1.31	1.23	12.6	.547	-19.5
800.0	1.34	1.20	12.6	.578	-19.4
900.0	1.39	1.22	12.7	.599	-19.5
1000.0	1.47	1.33	12.5	.626	-19.5
1100.0	1.61	1.52	12.2	.654	-19.5

