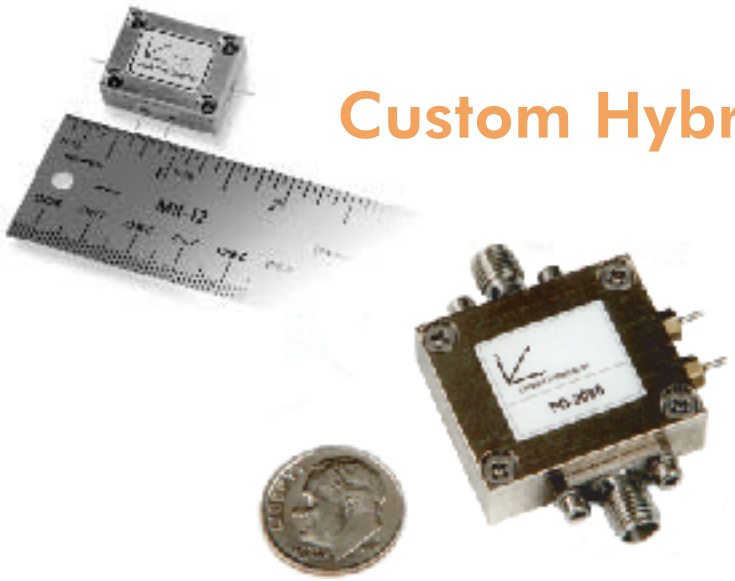
Solid State Power Amplifiers: **Development Program for SSPAs**

LINEARIZER SSPA

Custom Hybrid Predistortion Modules

Provide 6 dB and Greater C/I Improvement



- Available in VHF, UHF & Microwave Bands
- For Bipolar, FET, MESFET, HEMT & HBT Amplifiers
- Class A, AB & B Applications
- 100% Support from Development Through Production

SSPA **PREDISTORTER PRODUCTION SCHEDULE**

ID	TASK NAME	WEEK1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11
1	Characterize SSPA Non-Linearity											
2	Model and Design Predistorter											
3	Fabricate/Test Brass Board #1											
4	Deliver Predistorter Evaluate											
5	Modify/Redesign As Needed											
6	Fabricate/Test Brass Board #2											
7	Deliver Predistorter/Evaluate											
8	Design/Review Final Specs											
9	Produce Pilot Assemblies											

Linearizer Technology, Inc.™

Solid State Power Amplifiers vary greatly from one design to another. Amplifiers operating on the same frequency band and using similar devices can have significantly different non-linear characteristics. Because of these differences, one predistortion module can not normally be used for multiple amplifier types.

It is known that the more non-linear an amplifier is, the greater the benefit of linearization. In addition, the higher the linearity requirement, the more advantageous is the use of linearization. Transfer response and C/I improvements achieved by Linearizer Technology a class A MESFET power amplifier are shown in Figures 1 and 2. Except for very special requirements, linearization is usually not economical for low power amplifiers (<10 watts).

To provide for these differences, Linearizer Technology Inc. (LTI) has developed the PD-X linearized amplifier program. This innovative program partners LTI and an amplifier manufacturer for the customized development of predistorter modules for a desired solid state amplifier design. Under the guidance of LTI, the amplifier manufacturer provides detailed information on the non-linear characteristics of the amplifier. Using proprietary modeling software, LTI provides an estimate of the potential performance improvement of linearization. Linearizer Technology Inc. then develops a breadboard module, which is sent to the amplifier manufacturer for test with the amplifier. Modification of the module and/or amplifier design is completed based on the results of testing. Outstanding results are achieved through this unique partnership of LTI and the manufacturer. Upon the completion of the final design, a hybrid engineering model is created for multiple module production. LTI works closely with the amplifier manufacturer through the entire production phase to insure high quality linearized amplifier performance.

Due to the customized nature of the predistortion modules, a minimum order of 50 to 100 units is usually required for cost effectiveness. The development cycle and pilot production schedule is reflected in the time line chart.

CLASS A MESFET **SOLID STATE POWER AMPLIFIER**

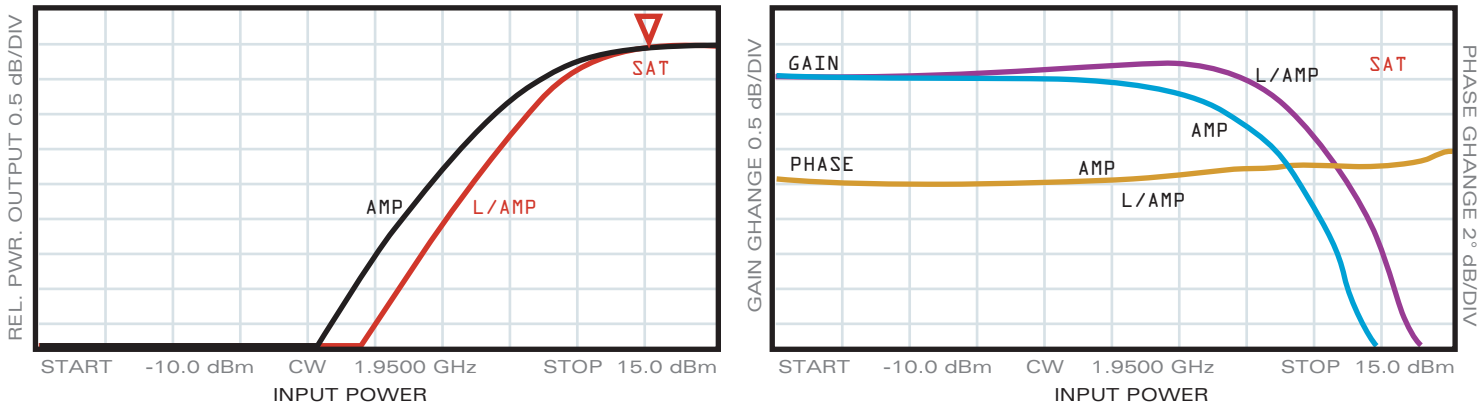


FIGURE 1: Example of Transfer Response Achieved by Linearization of a Class A MESFET SSPA

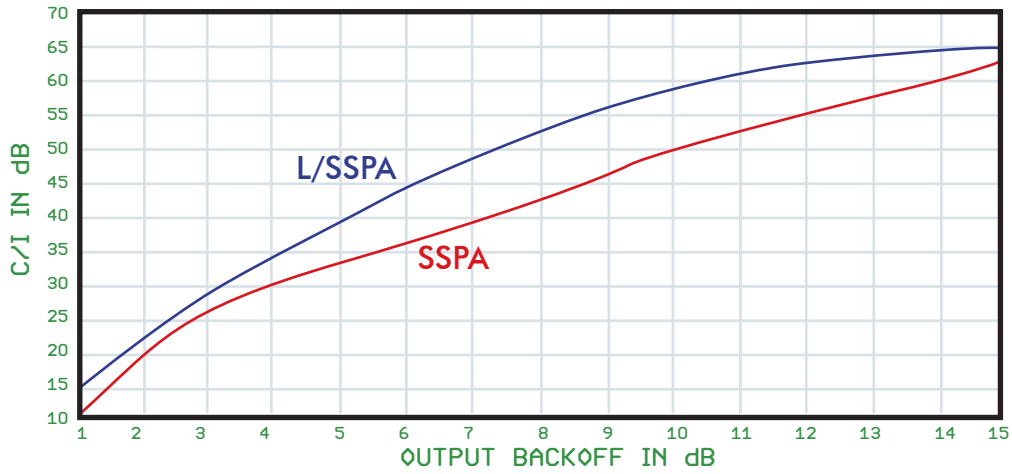


FIGURE 2: Example of C/I Improvement Achieved by Linearization of a Class A MESFET SSPA