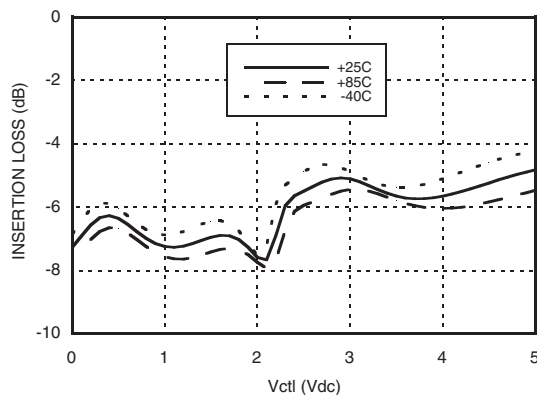
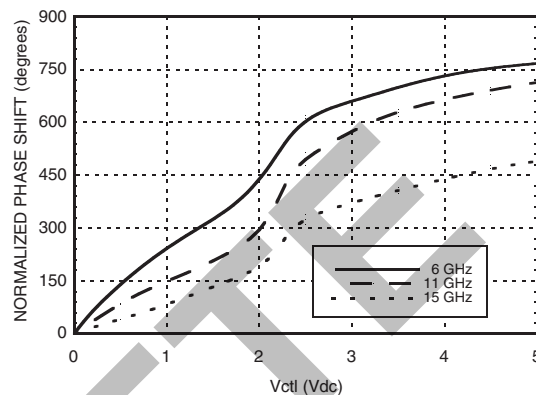


600° ANALOG PHASE SHIFTER, 6 - 15 GHz

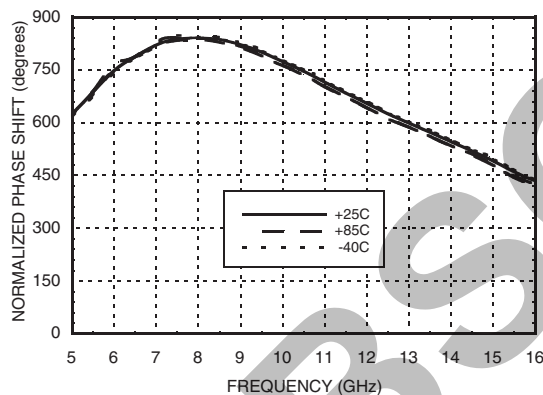
Insertion Loss vs. Control Voltage @ 11 GHz



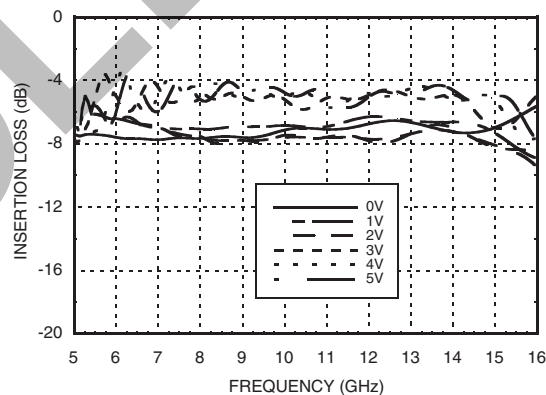
Phase Shift vs. Control Voltage



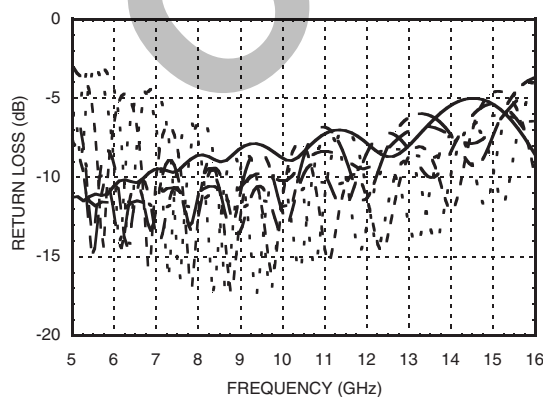
**Phase Shift vs. Frequency @ V_{ctl} = 5V
(Relative to V_{ctl} = 0V)**



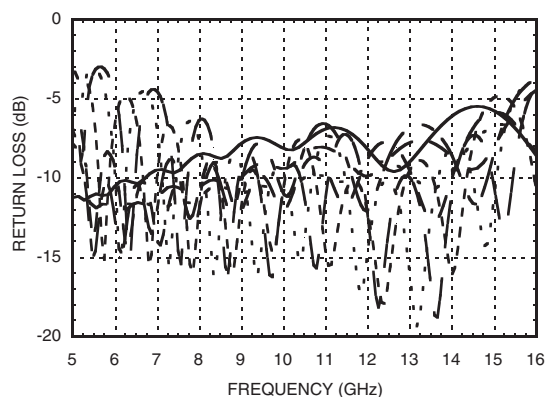
Insertion Loss vs. Frequency



**Input Return Loss vs. Frequency,
V_{ctl} = 0 to +5V**

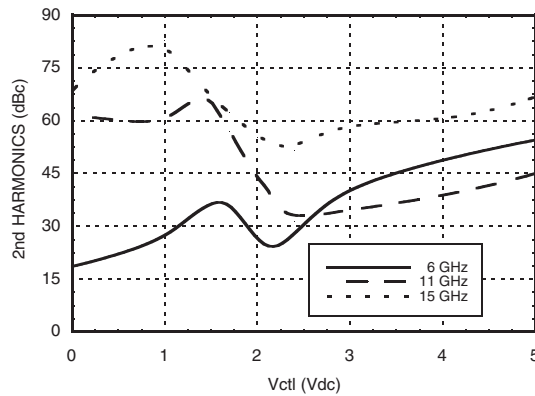


**Output Return Loss vs. Frequency,
V_{ctl} = 0 to +5V**

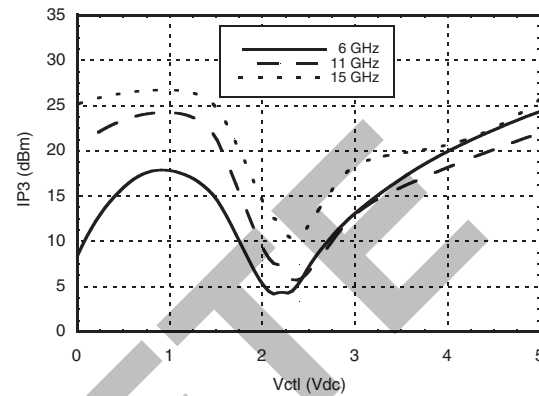


600° ANALOG PHASE SHIFTER, 6 - 15 GHz

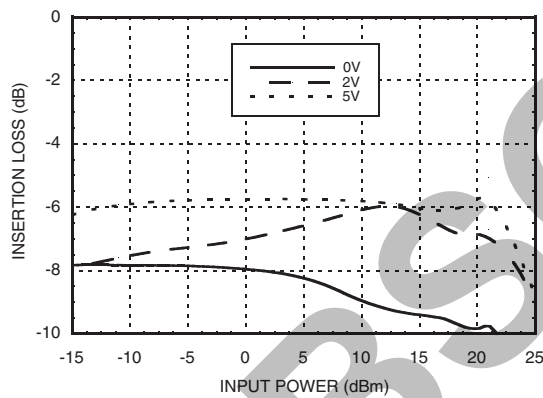
**Second Harmonics vs. Control Voltage,
Pin = -10 dBm**



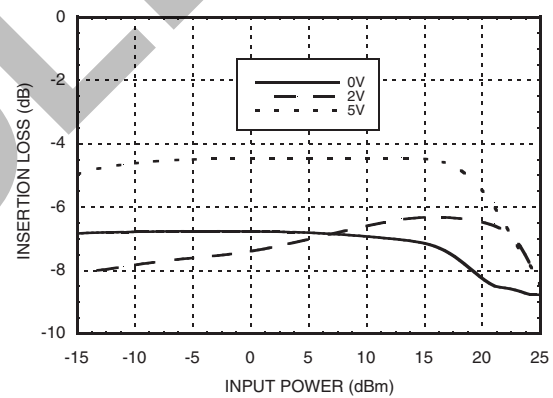
Input IP3 vs. Control Voltage



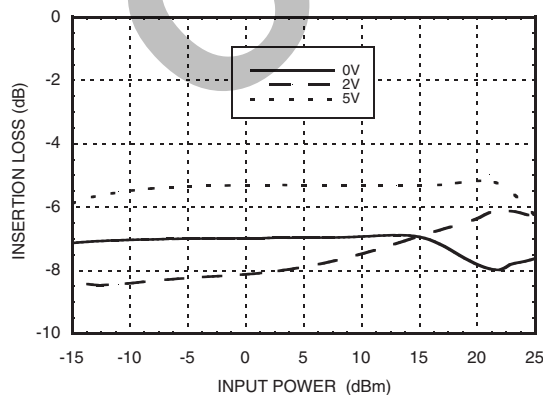
Insertion Loss vs. Pin @ 7 GHz



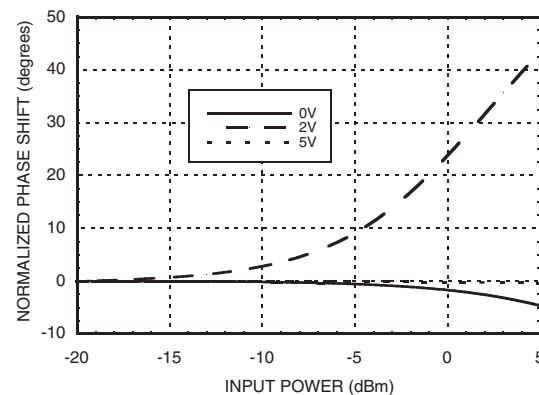
Insertion Loss vs. Pin @ 11 GHz



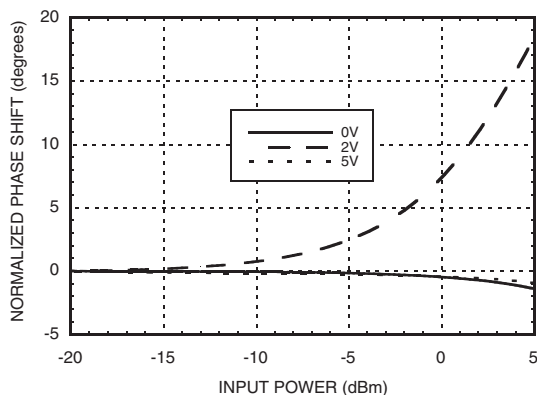
Insertion Loss vs. Pin @ 15 GHz



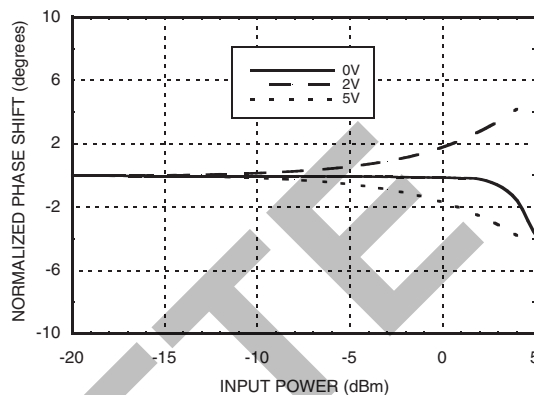
Phase Shift vs. Pin @ 7 GHz



Phase Shift vs. Pin @ 11 GHz



Phase Shift vs. Pin @ 15 GHz



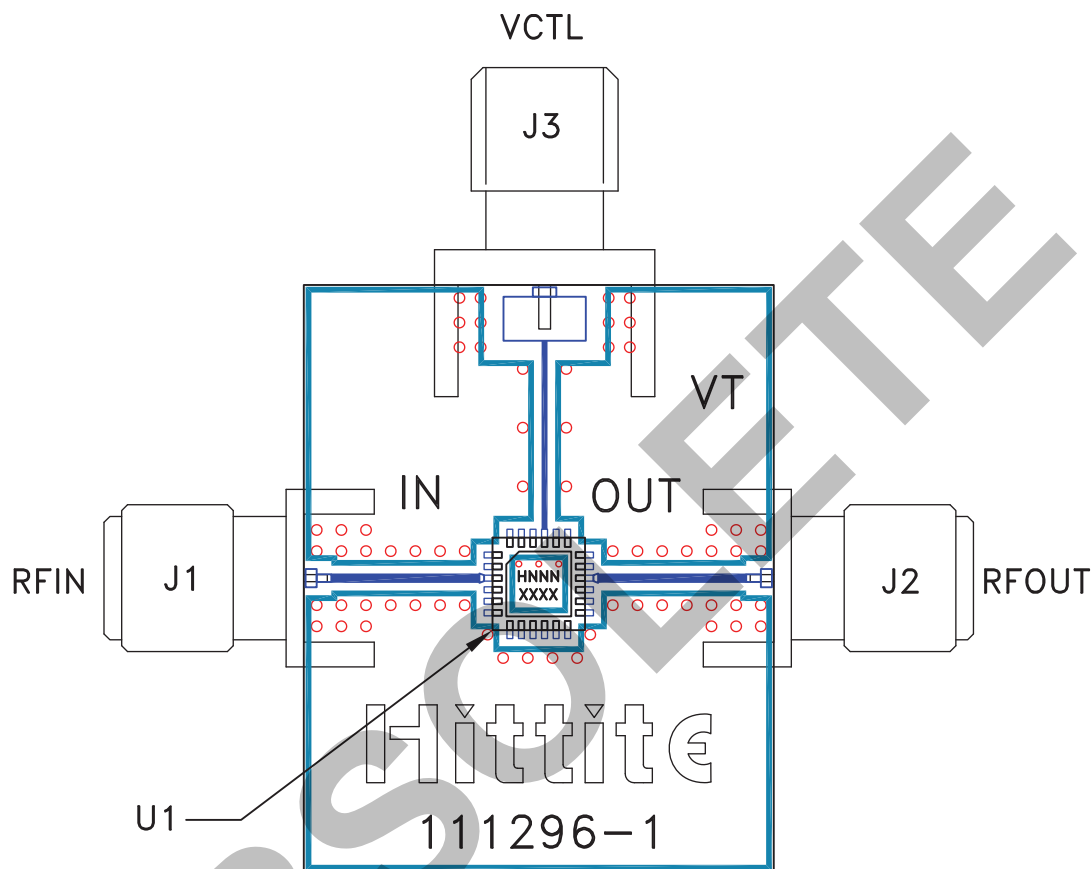
Absolute Maximum Ratings

Control Voltage (Vctl)	-1 Vdc to +8 Vdc
Input Power (RFIn)	+25 dBm
Channel Temperature (Tc)	150 °C
Continuous P _{diss} (T = 85 °C) (derate 21 mW/°C above 85 °C)	1.36 W
Thermal Resistance (junction to ground paddle)	48 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Evaluation PCB



List of Materials for Evaluation PCB 108812 ^[1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
U1	HMC538LP4 / HMC538LP4E Analog Phase Shifter
PCB [2]	111296 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the final application should use RF circuit design techniques. Signal lines should have 50 ohm impedance while the package ground leads and exposed paddle should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation board should be mounted to an appropriate heat sink. The evaluation circuit board shown is available from Hittite upon request.