DIGITALLY CONTROLLED PHASE SHIFTERS

G.T. Microwave Features:

**** Monotonic Phase Shift Performance ****

Frequency Ranges: From 250 MHz to 20 GHz any optimized bandwidth is available.

TTL Compatable Logic: G.T.M.I.'s binary logic Digital to Analog Converter with 8 inputs; Logic '1'/BIT = 256 discrete phase shifts with a 1.4? Resolution (L.S.B.) or all Logic '0' = 0? Reference state.

Optional Models: Linearized Voltage controlled Analog or Switched Line Digital phase shifters are available, please consult factory.

High Speed Switching: Phase Shifters listed are measured from any set value to any value.

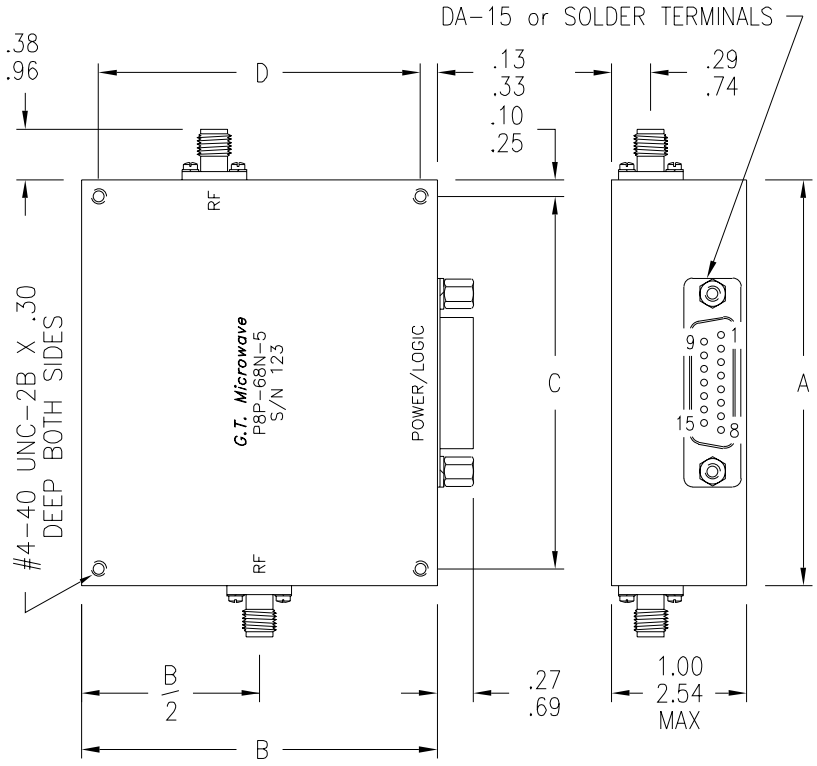
Low DC Power Consumption: Phase Shifters require ?15VDC, ?1% @ +100/−250mA.

Stable Phase Shifts: Variation vs Temperature from −55? to 85?C is typically ?10% of the set value. Temperature Compensated models are ?2%, upon request.

High RF Power Handling: For power levels greater than listed, please consult factory.

Standard Interfaces: RF port connectors are 'SMA', female per MIL−C−39012.

Life Time Integrity: G.T.M.I.'s phase shifters are designed to meet MIL−E−16400, Range 1 and MIL−E−5400, Class 2 environments operating within the −55? to +85?C temperature range. Upon request; MIL−STD−883 screening, −90 dBc RFI/EMI shielding, video filtering and 10^{-6}cc/SEC hermeticity.



FOR SIZES SEE PAGE 7

DIMENSIONS ARE EXPRESSED IN / CM TOLERANCES ? .02 / .05 ? .010 / .025

POWER/LOGIC Connections

No. of BITS	LOGIC PIN ASSIGNMENTS	+15V PIN	−15V PIN	GND PIN
8	L.S.B. @ 1 to M.S.B. @ 8	13	14	15

ALL UN−USED PINS HAVE NO INTERNAL CONNECTIONS

Electrical Specifications for DIGITALLY CONTROLLED 360? phase shifters

G.T.M.I.'s MODEL NUMBER	FREQUENCY RANGE GHz	PHASE ERROR MAX	AMPLITUDE BALANCE MAX	INSERTION LOSS MAX	V.S.W.R. MAX	SWITCHING SPEED nSEC MAX	RF INPUT POWER dBm CW	RF INPUT POWER dBm MAX	OUTLINE SIZE
P8P−39N−5	0.5−2.0	?10.0?	?1.50 dB	13.0 dB	1.70:1	500	+15	+20	1
P8P−48N−5	2.0−6.0			11.0 dB	1.80:1				2
P8P−68N−5	6.0−18.0			12.0 dB	1.90:1				3

For substantial improvement in performance; ask for OPTIMIZED NARROWBAND models

Environmental Ratings for pin diode Phase Shifters & Modulators

EXPOSURE	MIL−STD−202	TEST CONDITION
ALTITUDE	METHOD 105C	C
HUMIDITY	METHOD 106E	
THERMAL SHOCK	METHOD 107D	A
LIFE TEST	METHOD 108A	D

EXPOSURE	MIL−STD−202	TEST CONDITION
SINE VIBRATION	METHOD 204D	D
RANDOM VIBRATION	METHOD 214	11D 15 min/axis
MECHANICAL SHOCK	METHOD 213B	G
TERMINAL STRENGTH	METHOD 211A	A, 2 lbs

For higher environmental levels; consult factory