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6 Bit TTL Programmble Phase Shifter, 2 GHz to 4 GHz, 360 degree Phase Range, 5.625 degree Control Step Size, +27 dBm Max Pin, SMA

Phase Shifters and Trimmers Technical Data Sheet PE82P5018

Features

- Progammable Phase Shifter
- 2 GHz to 4 GHz
- Phase Shift 0° to 360° typ
- TTL Digital Control
- 6 Control Bits
- Step Size 5.625° typ
- Insertion Loss 4 dB typ
- Phase Flatness +/- 5° typ
- Switching Speed 500 usec typ
- Input P1dB +27 dBm typ
- Maximum RF Input Power +27 dBm
- 50 Ohm Design
- DC Bias +5V @ < 60 mA
- Micro-D9 Female Connector
- Field Replaceable Female SMA RF Connectors
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Nickel Plated Package Design
- Environmental Test Conditions Altitude, Vibration, Humidity, Shock

Applications

- Test & Measurement
- Military & Commercial Communications
- Military Electronic Systems
- Research & Development

Description

The PE82P5018 is a 6 Bit Digitally Controlled Programmable Phase Shifter that operates across a frequency band from 2 GHz to 4 GHz. The 50 Ohm design has a phase shift range from 0° to 360° with 6 control bits and a step size of 5.625°. Impressive typical performance includes 5 dB insertion loss, +/-5° phase flatness, 500 usec switching speed, an input 1 dB compression point of +27 dBm, and a maximum RF input power level of +27 dBm. The unit requires +5Vdc bias voltage with < 60 mA DC current. The low profile pin package is aluminum with Nickel plating and supports field replaceable SMA RF connectors and a Micro-D9 female connector for DC Bias and Command Control functions. The module has an operational temperature range from -40°C to +85°C and is guaranteed to meet a series of environmental test conditions for Altitude, Vibration, Humidity, and Shock.

Electrical Specifications (Values at +25° C, Sea Level)

Description	Minimum	Typical	Maximum	Units
Frequency Range	2		4	GHz
Impedance		50		Ohms
Phase Shift		360		Degrees
Phase LSB Step		5.625		Degrees
Input VSWR		2:1	3:1	
Insertion Loss*		4.8	6	dB
Phase Flatness		±10	±30	Degrees
IL Temperature Coefficient		0.003		dB/deg C
Input 1 dB Compression Point		27		dBm
Switching Speed		500		ns
DC Voltage		5		Volts
DC Current			60	mA
Input Power, CW			27	dBm
Control Bits		6		

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*at 0V DC Control

Absolute Maximum Rating

Parameter	Rating
Bias Voltage	+5V±10%
RF Input power	+27dBm

Mechanical Specifications

Size

Length	1.772 in [45.01 mm]
Width/Diameter	1.693 in [43 mm]
Height	0.551 in [14 mm]
Weight	0.14 lbs [63.5 g]
Body Material and Plating	Aluminum, Nickel

Configuration

Input Connector	SMA Female
Input Connector Specification	Field Replaceable
Output Connector	SMA Female
Output Connector Specification	Field Replaceable

Environmental Specifications

Temperature

Operating Range	-40 to 85 deg C
Storage Range	-50 to 105 deg C
Humidity	100% RH at 35°C, 95% RH at 40°C
Shock	20G for 11 msec half sine wave, 3 axis both directions
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Altitude	30,000 Feet

Compliance Certifications (see product page for current document)

Plotted and Other Data

Notes:

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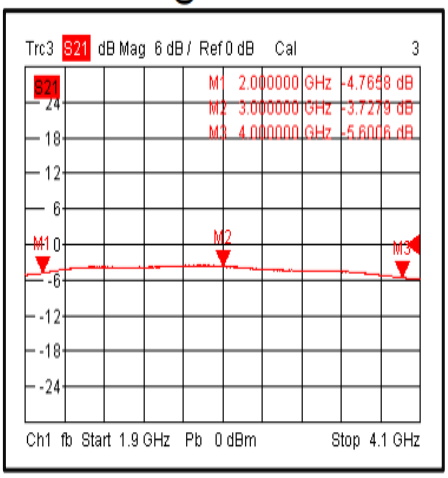
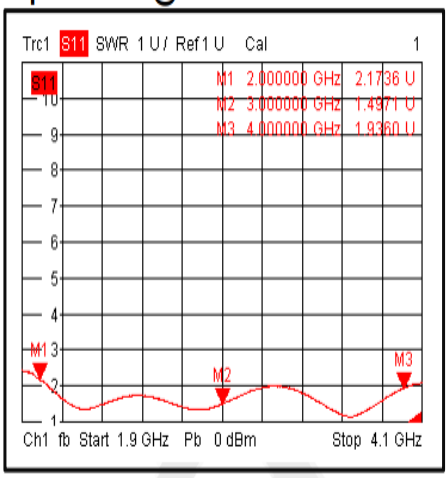
Typical Performance Data

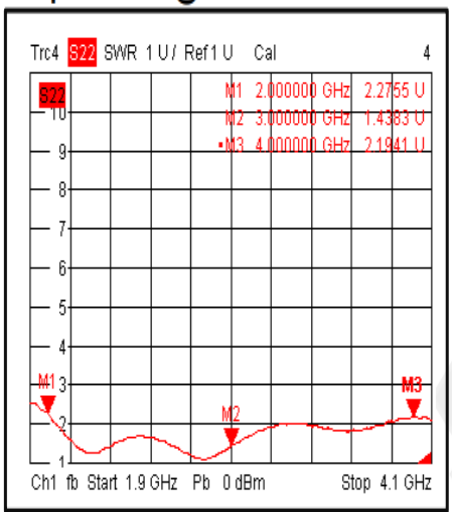
Insertion Loss@+25°C



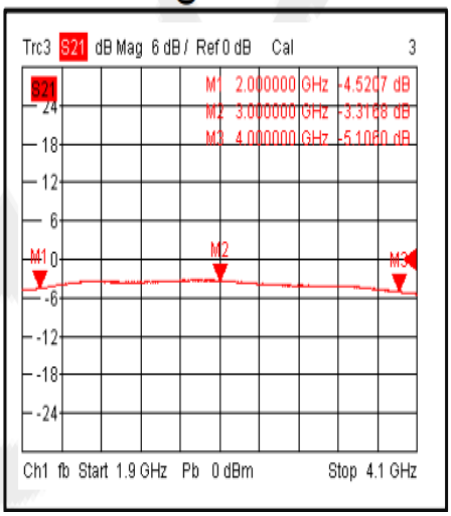
Input VSWR @+25°C



Output VSWR @+25°C



Insertion Loss@-40°C



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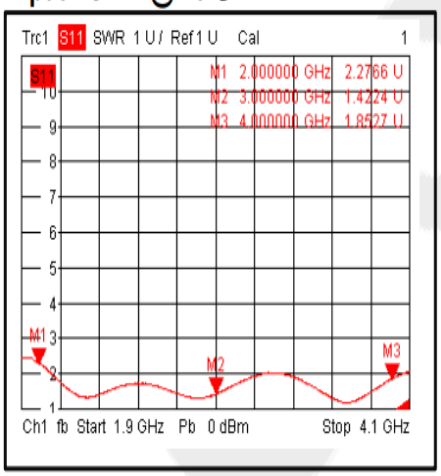
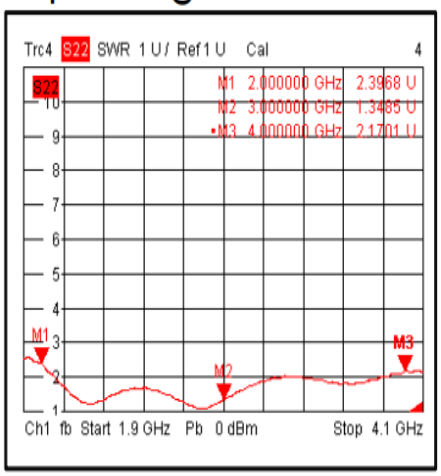
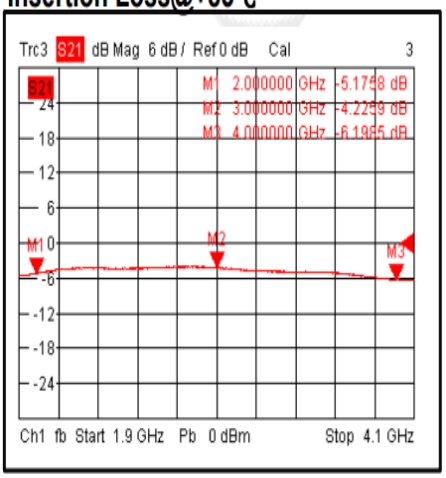
Input VSWR @-40°C



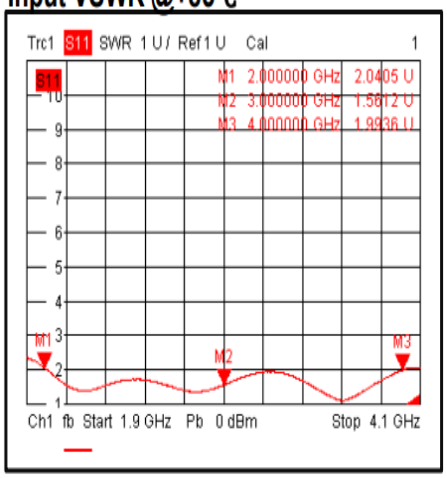
Output VSWR @-40°C



Insertion Loss@+85°C



Input VSWR @+85°C



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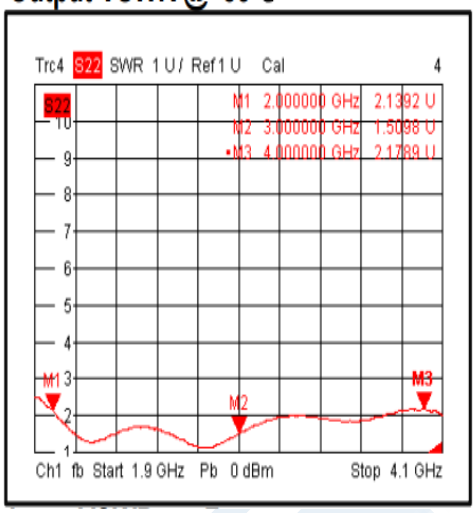
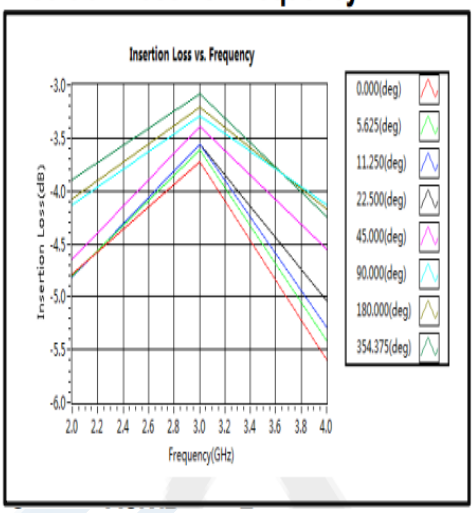
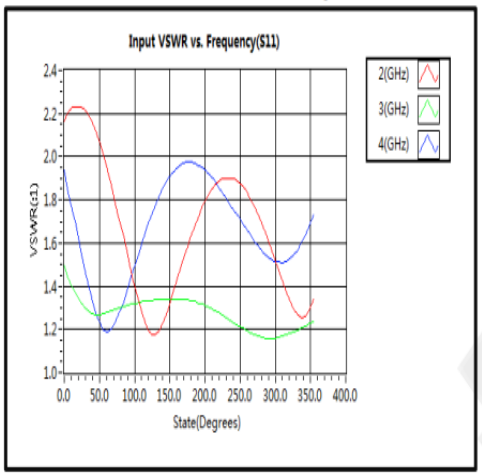
Output VSWR @+85°C



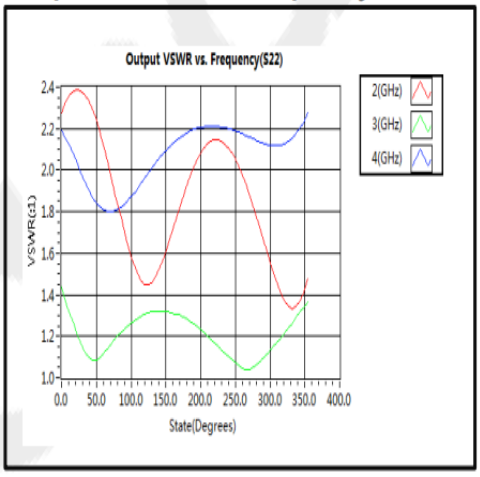
Insertion Loss vs. Frequency



Input VSWR vs. Frequency



Output VSWR vs. Frequency



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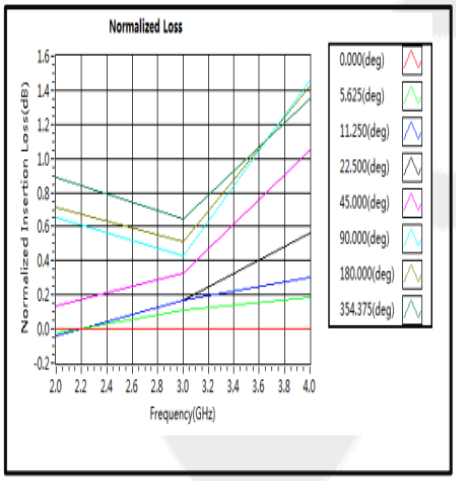
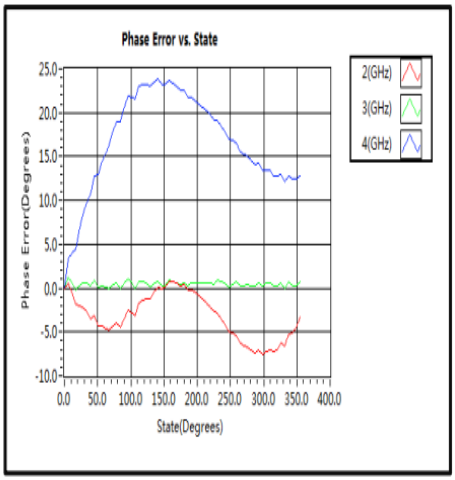
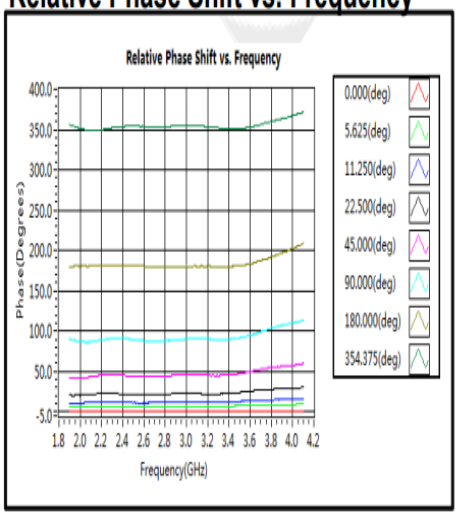
Normalized Loss . All States



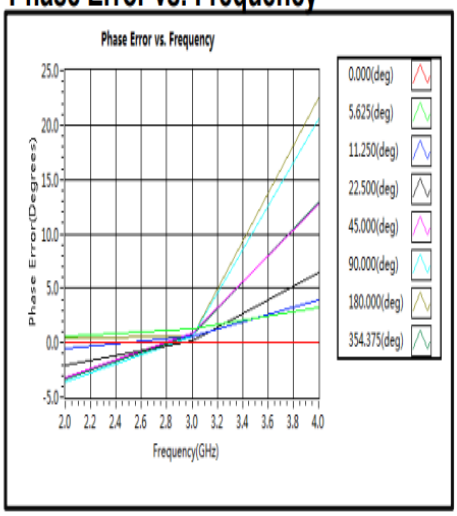
Phase Error vs. State



Relative Phase Shift vs. Frequency



Phase Error vs. Frequency



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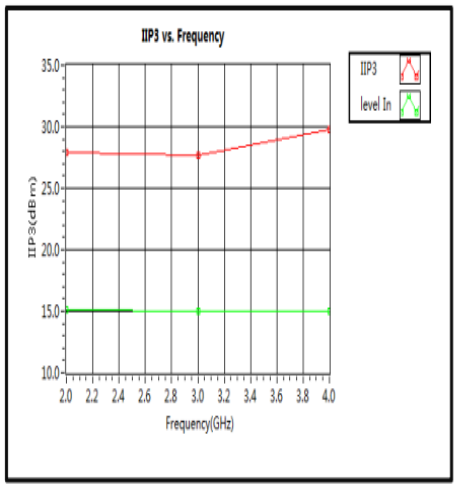
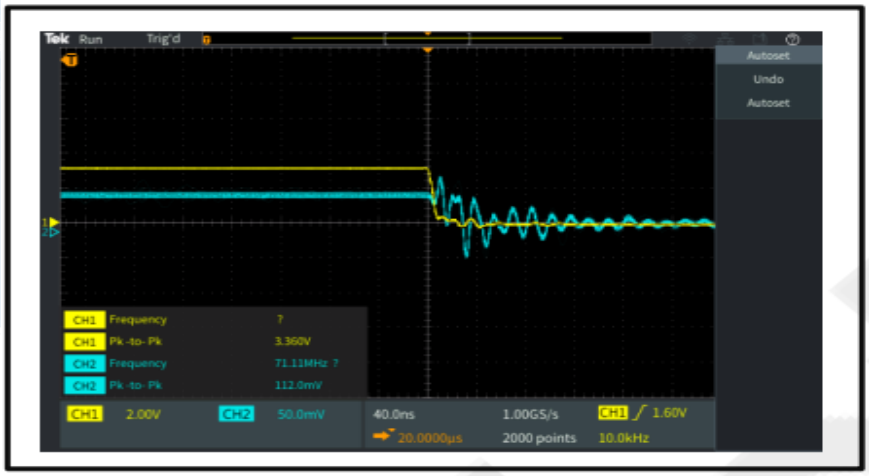
IIP3



Speed

Speed



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URL: https://www.pasternack.com/programmable-phase-shifter-4-ghz-0-0-degrees-sma-pe82p5018-p.aspx

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PE82P5018 CAD Drawing

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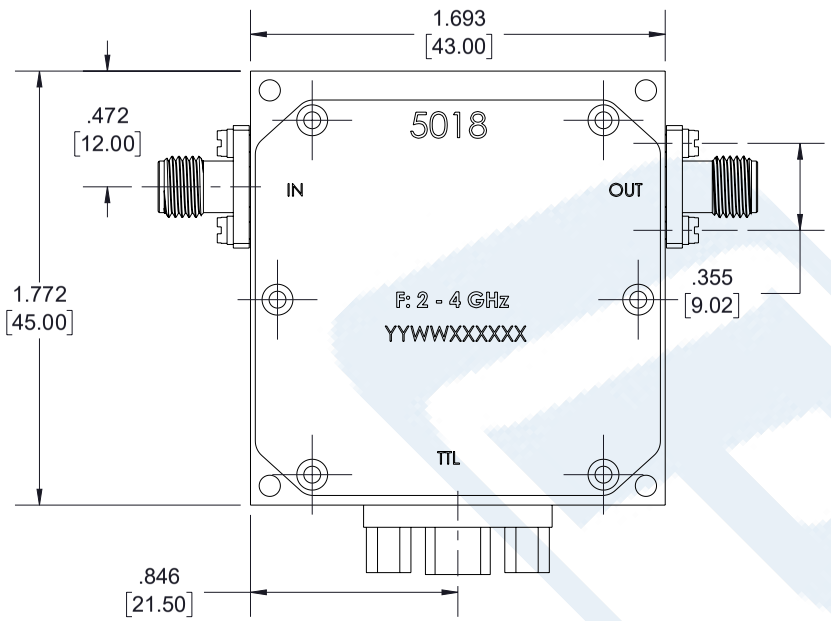
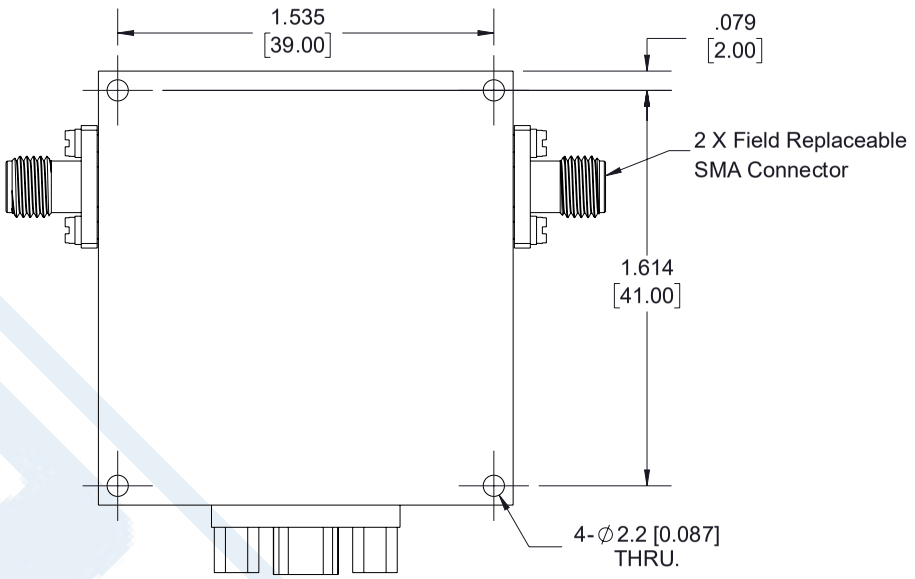
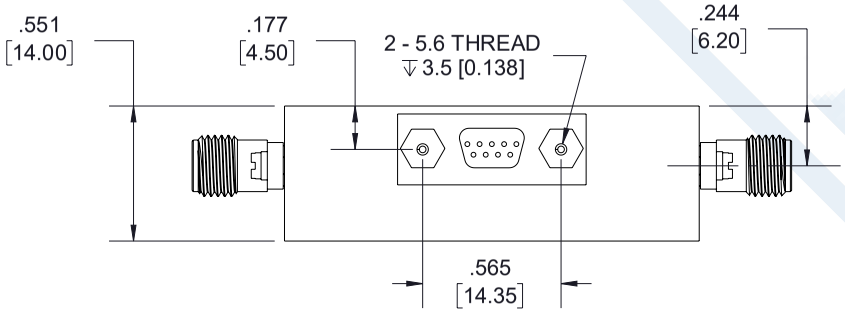
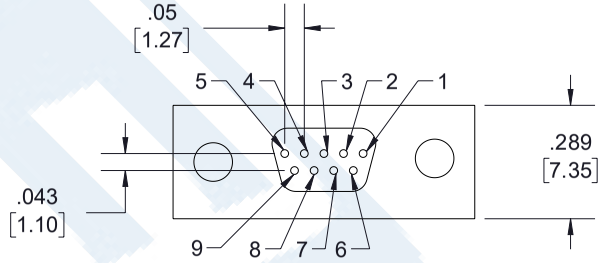
REVISION					
ZONE	REV.	DESCRIPTION	DATE	CHANGED BY	APPROVED BY
	A	INITIAL RELEASE	03/02/2023	PSRINIVAS	TGALLA



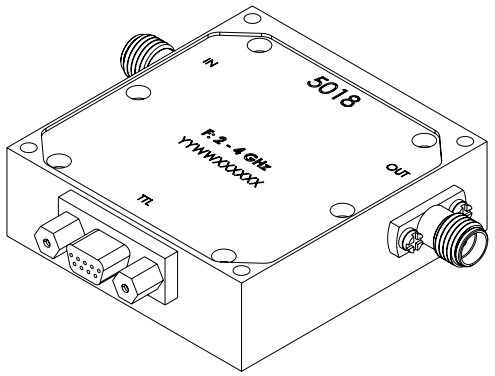






MICRO D9 (Female)

1	2	3	4	5	6	7	8	9
+5 V	GND	C1	C2	C3	C4	C5	C6	NC



UNLESS OTHERWISE SPECIFIED
LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:

.X = ± .2 [5]	FRACTIONS ± 1/32
.XX = ± .02 [.5]	ANGLES ± 1°
.XXX = ± .005 [.13]	

CABLE LENGTH TOLERANCES:

≤12 [305] = +1 [25] / -0
>12 [305] ≤ 60 [1524] = +2 [51] / -0
>60 [1524] ≤ 120 [3048] = +4 [102] / -0
>120 [3048] ≤ 300 [7620] = +6 [152] / -0
>300 [7620] = +5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5

SCALE	SHEET
NONE	1 OF 1

DESCRIPTION

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SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	53919	PSRINIVAS	PE82P5018	A