



WR28 SPDT/DPDT Failsafe, Ka Band Waveguide Electromechanical Relay Switch, 26.5 GHz to 40 GHz, 0.55 kW, O-Ring Groove, TTL, 28V

Waveguide Electromechanical Relay Switches Technical

PEWGS6059

Features

- 26.5 to 40 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR28 Waveguide with UG O-Ring Grooves
- Failsafe Actuator and Position Indicator
- Insertion Loss: 0.07 dB typ
- Isolation: 69 dB typ
- Switching Time: <80 msec typ
- +28 Vdc Nominal Voltage
- Input Power Rating up to 0.55 kW CW max
- Unpressurized Peak Power Rating up to 13.3 kW
- Manual Override Access
- Fully Weatherized Package
- Quick Connect Circular DC Connector with Mate
- -40°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development

Description

The PEWGS6059 WR28 waveguide electromechanical switch operates across a wide frequency range from 26.5 GHz to 40 GHz and is configured for single pole double throw (SPDT) operation. A shorting plate on port 3 can be removed for optional double pole double throw (DPDT) operation. This innovative design features a failsafe actuator and patented motor drive with arc suppression. The motor drive housing supports a viewable position indicator window and a cover that can be removed for manual override access. Impressive typical performance includes 0.07 dB typ insertion loss, 69 dB typ Isolation and 1.05:1 typ VSWR. The design operates across a temperature range of -40°C to +85°C, requires +28Vdc nominal bias voltage, and has an input power rating of up to 0.55 kW CW maximum, and an unpressurized peak power rating up to 13.3 kW. Operating life is 250K cycles minimum. The waveguide ports have UG O-Ring grooves with O-Rings included for pressurized operation. The rugged package design is fully weatherized for up to 100% humidity exposure and supports a quick connect circular 6 pin MIL-SPEC DC bias connector with mate included.

Electrical Specifications

Switch Type	SPDT/DPDT
Actuator Type	Failsafe
Actuator Options	TTL Logic, Window Indicator, Manual Override
TTL Control	on: 2.4 to 5.5 Volts
	off: 0 to 0.8 Volts
TTL Control Current	5 mA at 5.5 Volts
	5 mA at 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	26.5		40	GHz
Impedance		50		Ohms
Operating Voltage	25.2	28	30.8	Volts
Actuating Current @ 28 Volts		140	300	mA
VSWR		1.05:1	1.15:1	
Insertion Loss		0.07	0.15	dB
Isolation	55	69		dB

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Switching Time	<80	ms
Input Power (CW)	550	Watts
Input Power (Peak/Unpressurized)	13.3	kWatts

Electrical Specification Notes:

Active logic switch command duration must be maintained to keep switch in energized position.

Maximum switching rate not to exceed 30 per minute.

Mechanical Specifications

Size

Length	2.11 in [53.59 mm]
Width/Diameter	2.11 in [53.59 mm]
Height	3.35 in [85.09 mm]
Weight	0.89 lbs [403.7 g]
Operating Life	250,000 Cycles
Operating Pressure	30 psig

Configuration

Waveguide Size	WR-28
Flange Type	UG O-Ring
Body Material and Plating	Aluminum, Black
Body Plating Specification	MIL-DTL-5541

Environmental Specifications

Temperature

Operating Range	-40 to +85 deg C
Storage Range	-55 to +100 deg C
Humidity	0 to 100% Fully Weatherized IAW IP67

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

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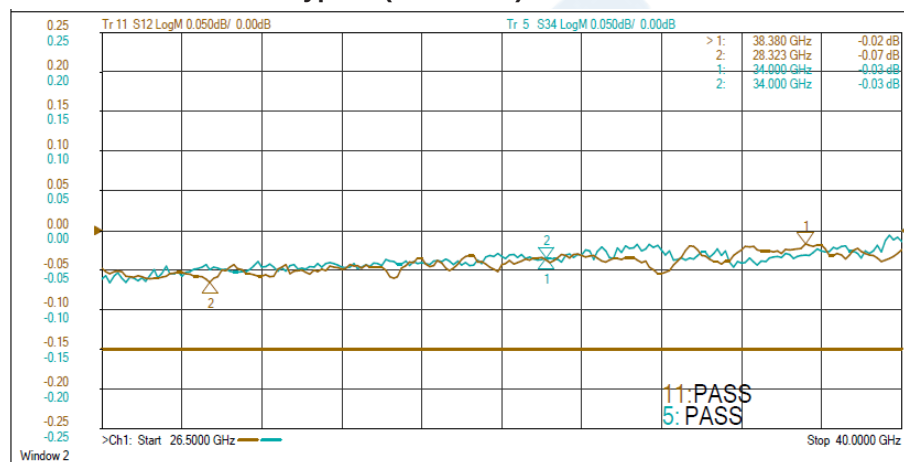


Waveguide Electromechanical Relay Switches Technical

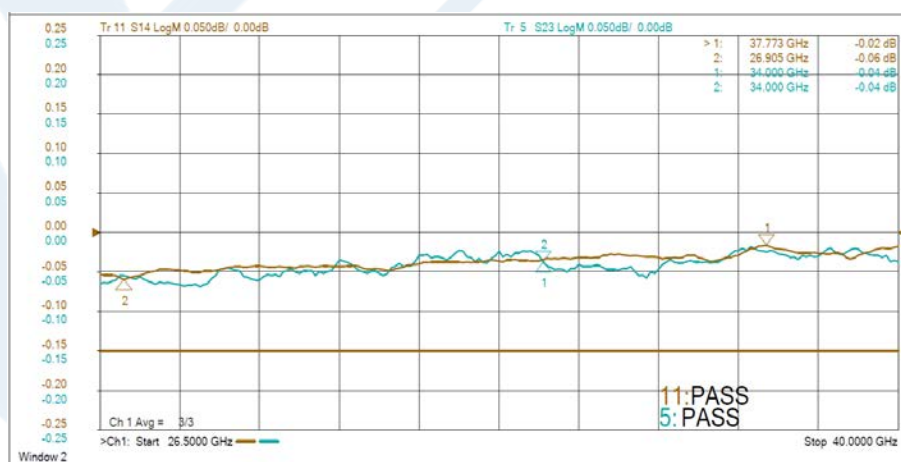
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Typical Performance Data

Typical (Position 1) Insertion Loss



Typical (Position 2) Insertion Loss



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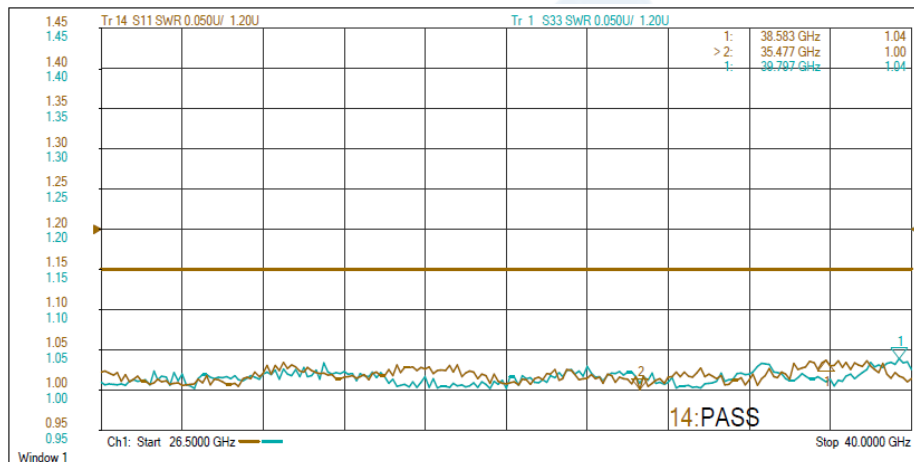


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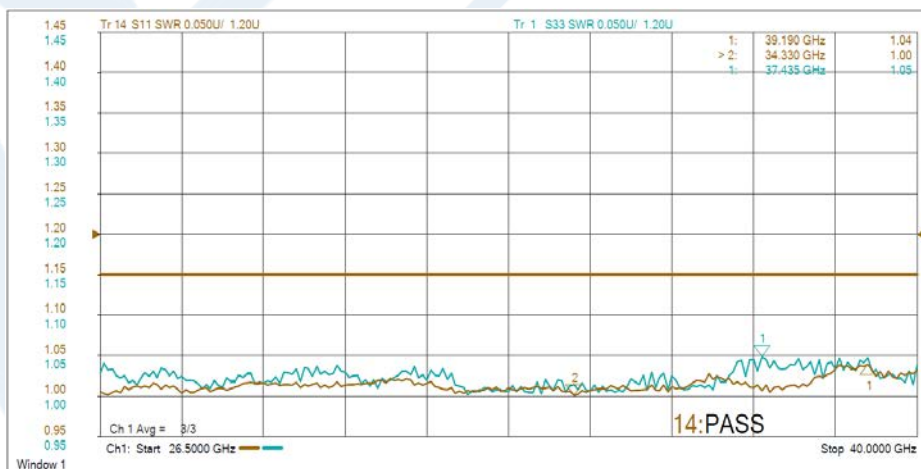
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**Typical (Position 1)
VSWR**



**Typical (Position 2)
VSWR**



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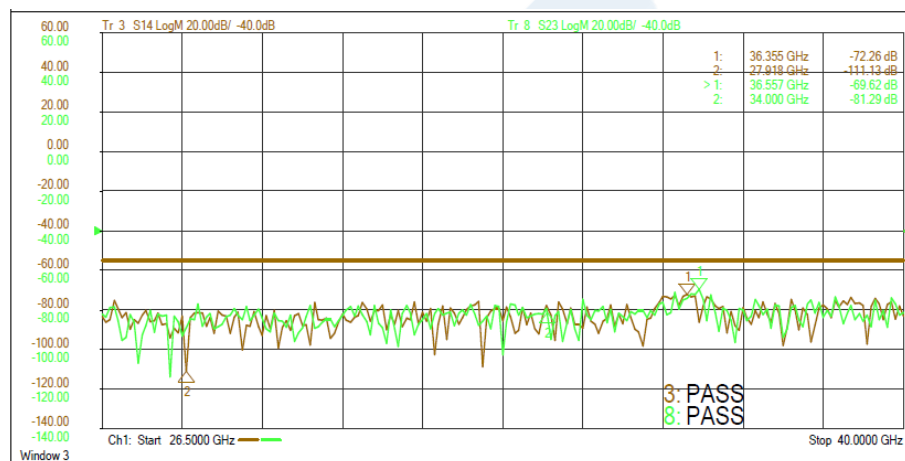
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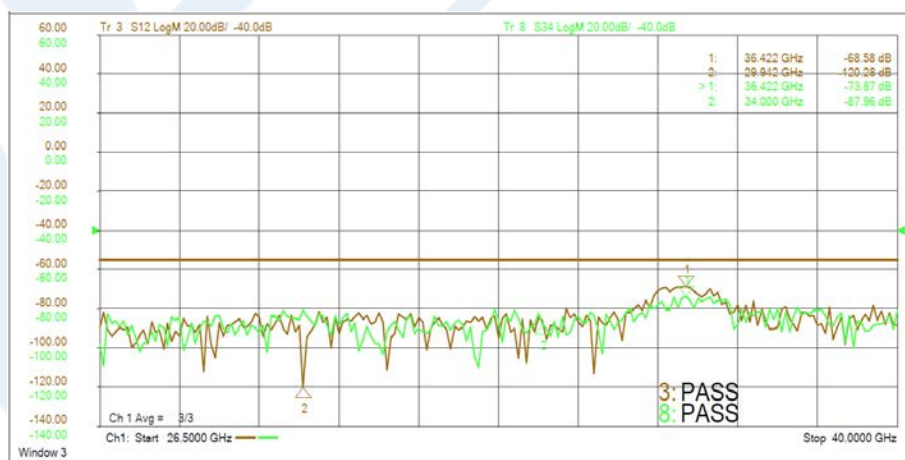
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Typical (Position 1)
Isolation



Typical (Position 2)
Isolation



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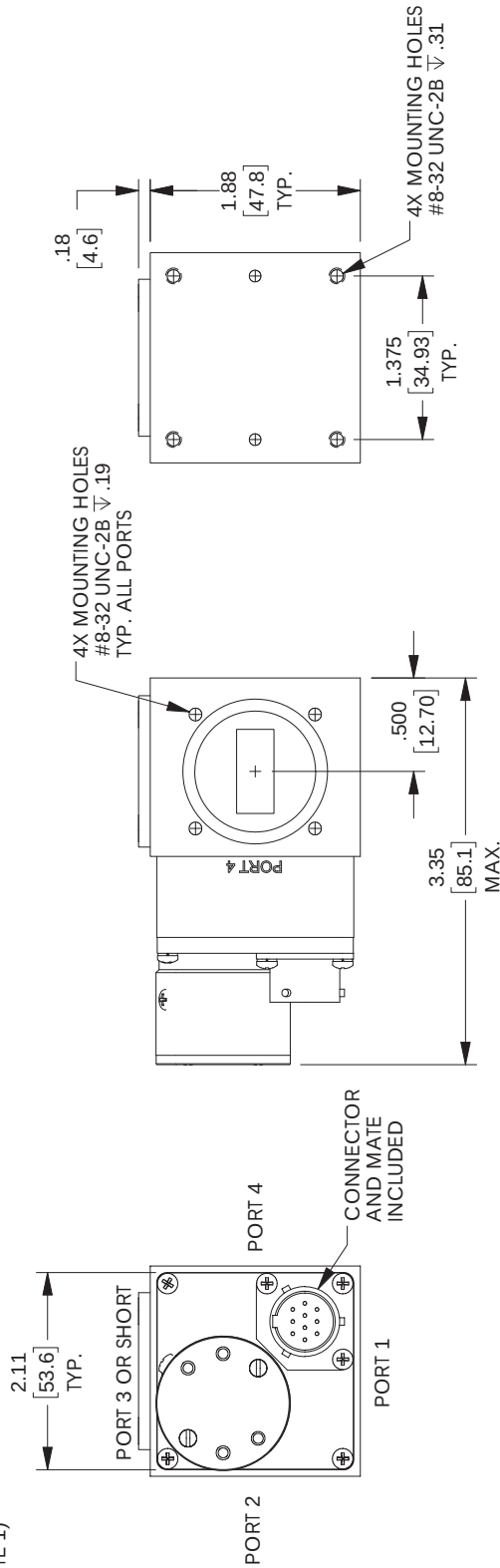
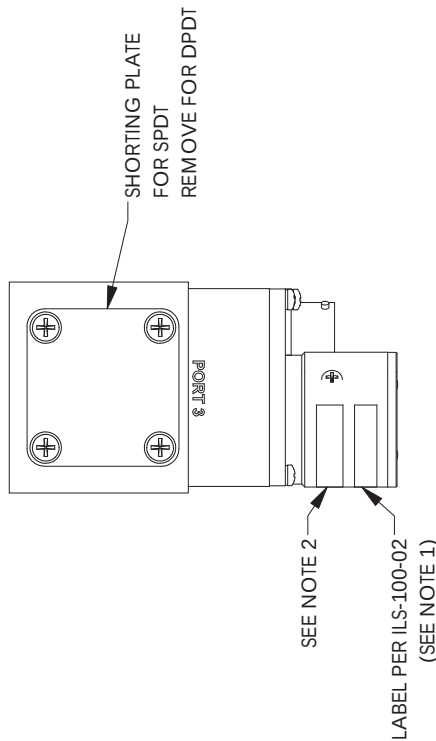
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PEWGS6059 CAD Drawing

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/26/2021	TGALLA



UNLESS OTHERWISE SPECIFIED
LEADING DIMENSIONS ARE IN INCHES
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TOLERANCES:

FRACTIONS	DECIMALS
X = +.2	[.008]
XX = +.02	[.51]
XXX = ±.005	[.13]

ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

L ≤ 12 [305]	± 1 [25] / -0
12 [305] < L ≤ 60 [1524]	± 2 [51] / -0
60 [1524] < L ≤ 120 [3048]	± 4 [102] / -0
120 [3048] < L ≤ 300 [7620]	± 6 [152] / -0
300 [7620] < L	± 9% / -0

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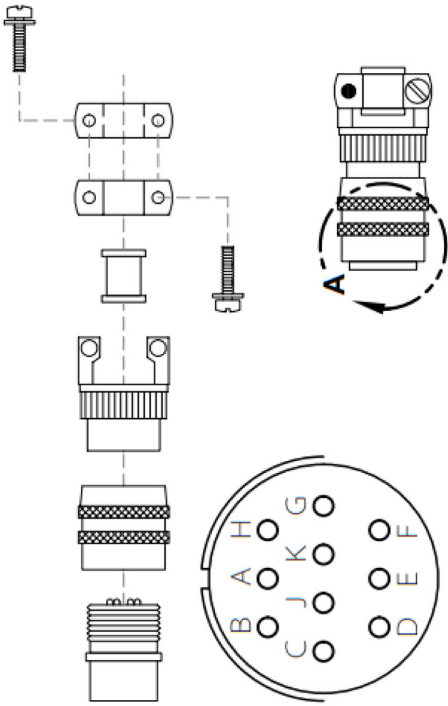
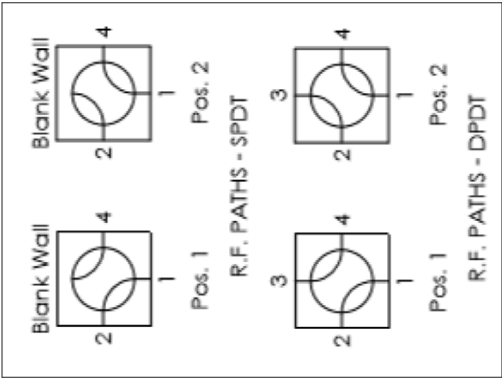
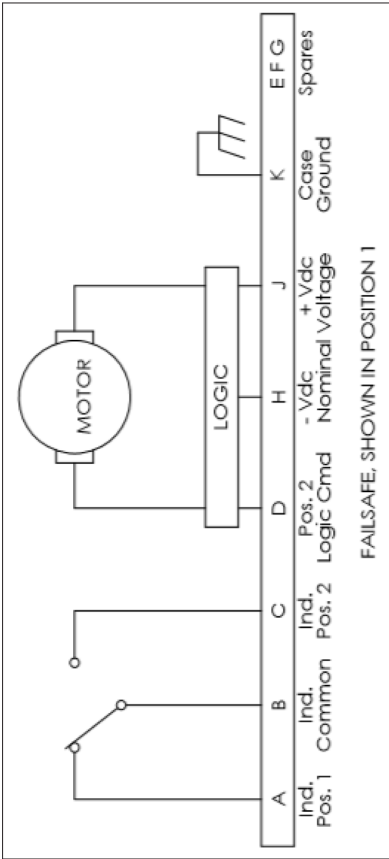
SHEET 1 OF 2

SCALE N/A

SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	53919	DFRISIELLO	PEWGS6059
REV	A		

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 2. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 2020040500001

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XX = +.02	[.51]		
XXX = ±.005	[.13]	ANGLES ±1°	
CABLE LENGTH (L) TOLERANCES:		SHEET	2 OF 2
L ≤ 12 [305] = +1 [25] / -0		SCALE	N/A
12 [305] < L ≤ 60 [1524] = +2 [51] / -0		REV	A
60 [1524] < L ≤ 120 [3048] = +4 [102] / -0		ITEM NO.	PEWGS6059
120 [3048] < L ≤ 300 [7620] = +6 [152] / -0		SIZE	A
300 [7620] < L = +9% / -0		CAGE CODE	53919
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