

SP4T, IP64 Rated Electromechanical Relay Latching Switch, Terminated, DC to 18 GHz, 90W, 12VDC, SMA

The FMSW6531 is a Ruggedized SP4T electromechanical relay switch that operates across a broadband frequency range from DC to 18 GHz and can handle up to 90W of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specifically designed to operate reliably in harsh usage environments and conditions, such as over extreme temperatures and wet or dusty environments. Intrusion protection offers full protection against dust and other particulates. Moisture protection enables resistance to splashes in all directions. The switch has a Latching Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. The output ports are terminated in 50 ohms when switched in the isolation (off) state. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 80 dB. This switch requires +12Vdc bias voltage, operates over a temperature range of -54°C to +85°C, and is rated for 5 million lifecycles. The rugged and compact package assembly supports SMA female connectors and a 15 pin D-Sub connector for DC control. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

Electrical Specifications (TA = +25°C, DC Voltage = 12 Vdc)

Switch Type SP4T
 Actuator Type Latching

Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			280	mA
Actuating Reset Current			1.12	A
VSWR		1.2:1	1.5:1	
Insertion Loss		0.2	0.5	dB
Isolation	80	90		dB
Switching Time		20		ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18			GHz
VSWR, Max	1.25:1	1.4:1	1.5:1			
Insertion Loss, Max	0.2	0.4	0.5			dB
Isolation, Min	80	80	80			dB

Mechanical Specifications

Size	
Length	1.95 in [49.53 mm]
Width/Diameter	2.75 in [69.85 mm]
Height	0.92 in [23.37 mm]
Weight	0.172 lbs [78.02 g]



Features:

- SP4T Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Latching Actuator
- Internal 50 Ohm Terminations
- 5M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 80 dB typ
- VSWR as low as 1.25:1 max
- SMA Female Connectors
- +12 Volt DC Bias
- 15 Pin D-Sub Connector for DC Control
- -54°C to +85°C Operating Temperature
- Up to 90 Watt Average Power Handling
- 50 Ohm Design
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request
- Rugged Design meets Mil-STD-202 Test Conditions
- Actuating Set/Reset Feature

Applications:

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications
- Enterprise
- IoT

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Connectors

RF Connector Type
Control Connector

SMA Female
D-Subminiature

Environmental Specifications

Temperature

Operating Range
Storage Range

-54 to +85 deg C
-55 to +100 deg C

Ingress Protection (IP) Rating

IP64

Shock

MIL-STD-202 Method 213, Condition D, 500 G (non oper)

Vibration

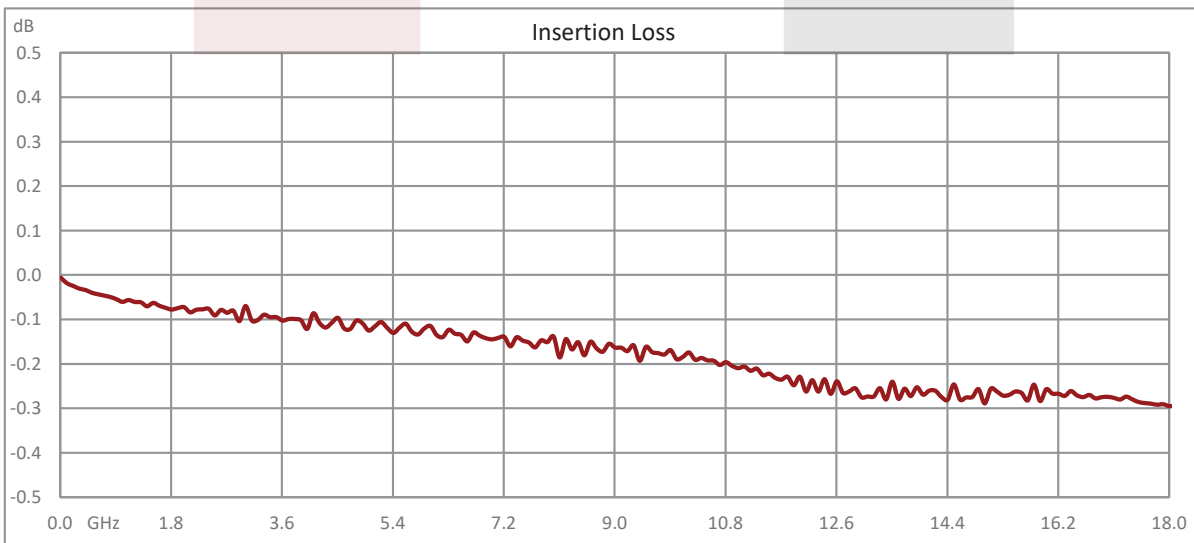
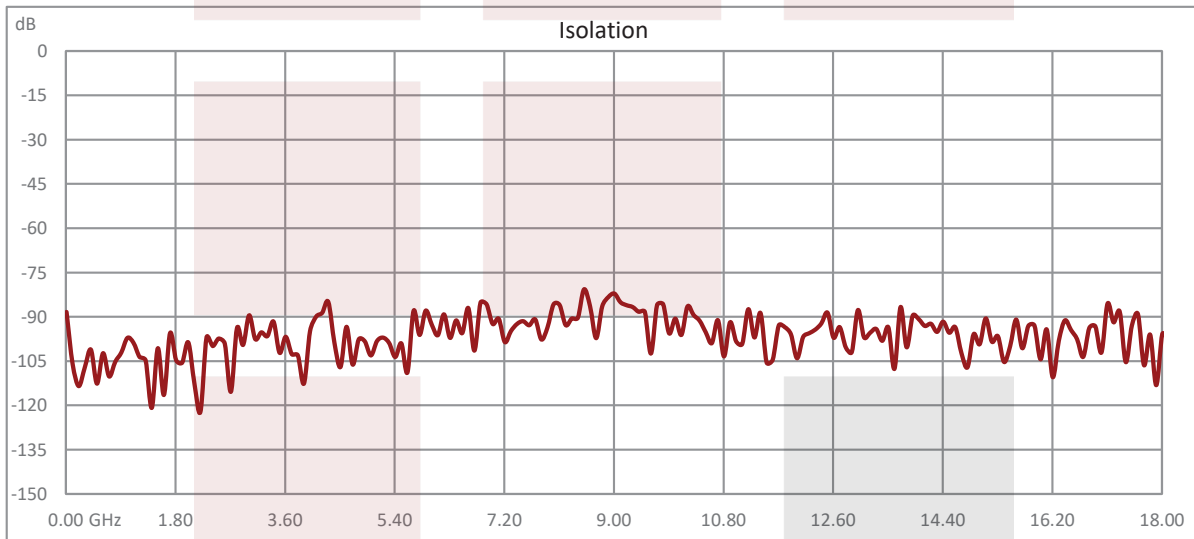
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

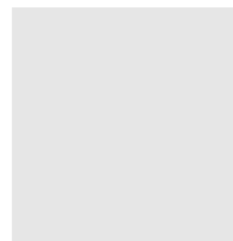
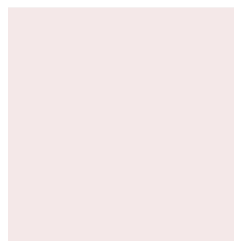
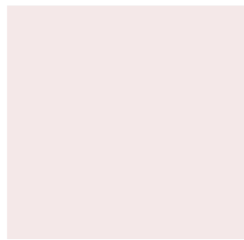
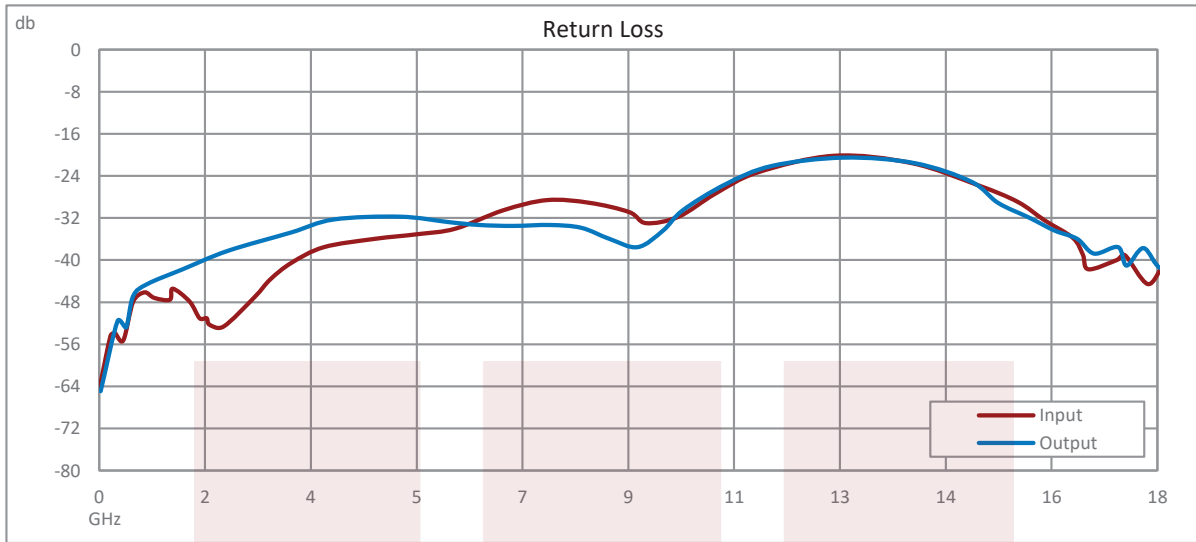
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

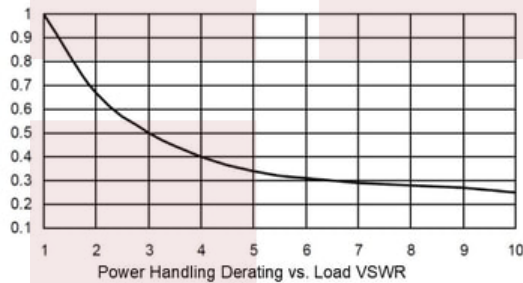
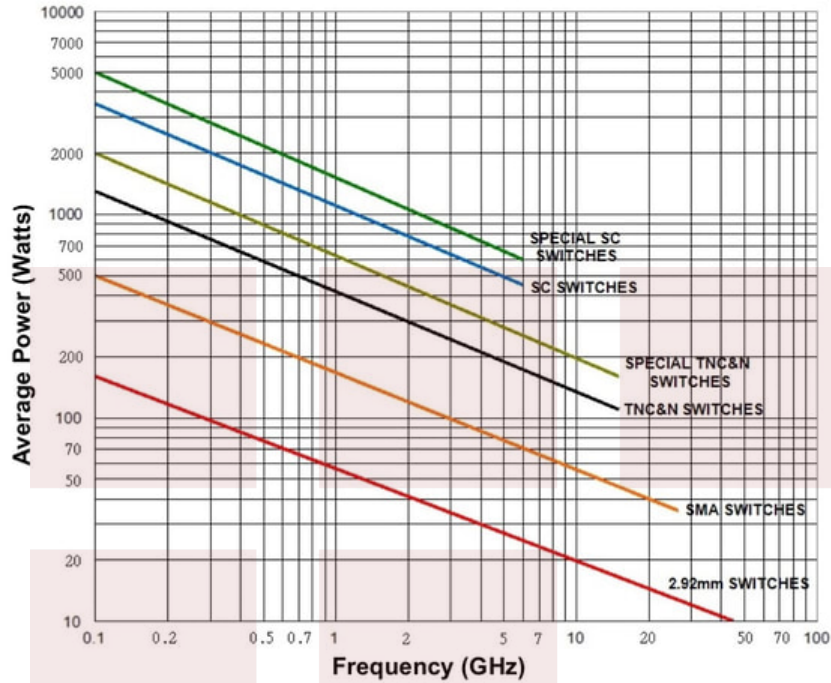
Typical Performance Data





Power Handling vs. Frequency

Power Handling vs. Frequency



Power handling chart and derating curves based on the following conditions:

- Ambient temperature: 40°C or less
- Altitude: Sea level
- Load VSWR: 1.20:1 Maximum
- Relative Humidity: 40-50%
- Cold switching: RF signal off

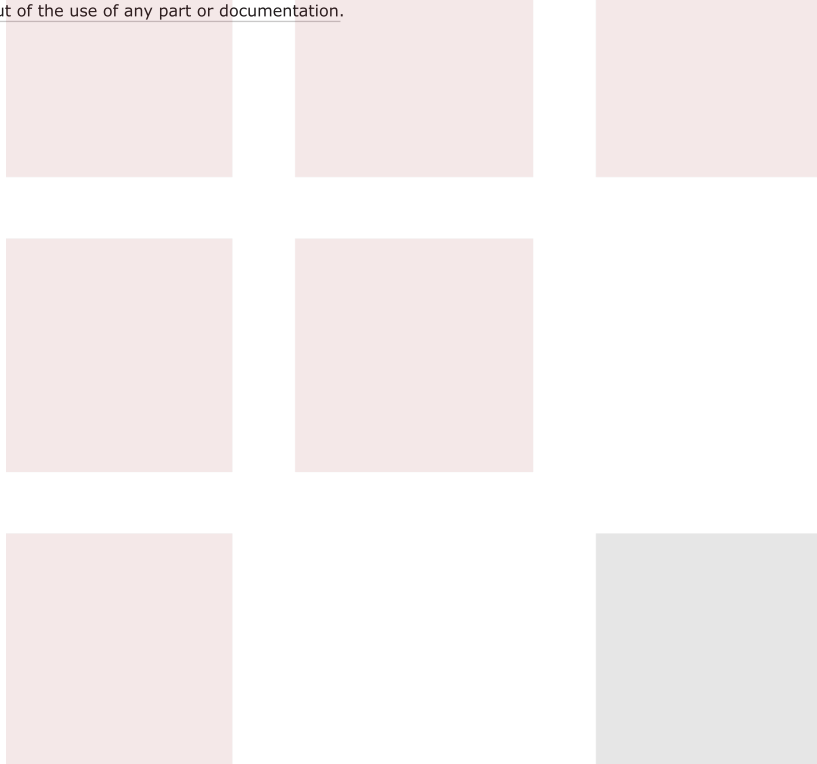
Note: specifications subject to change without notice

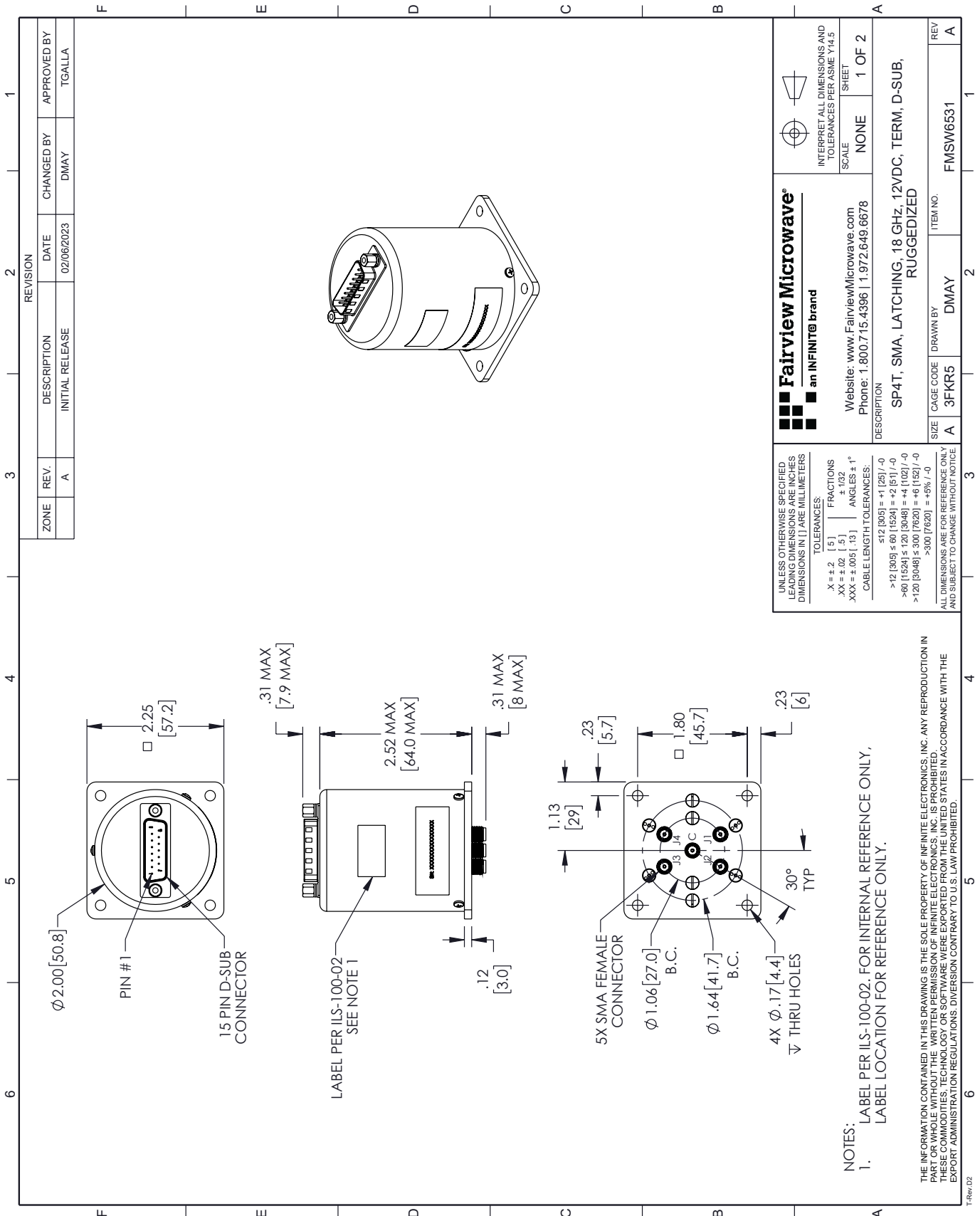
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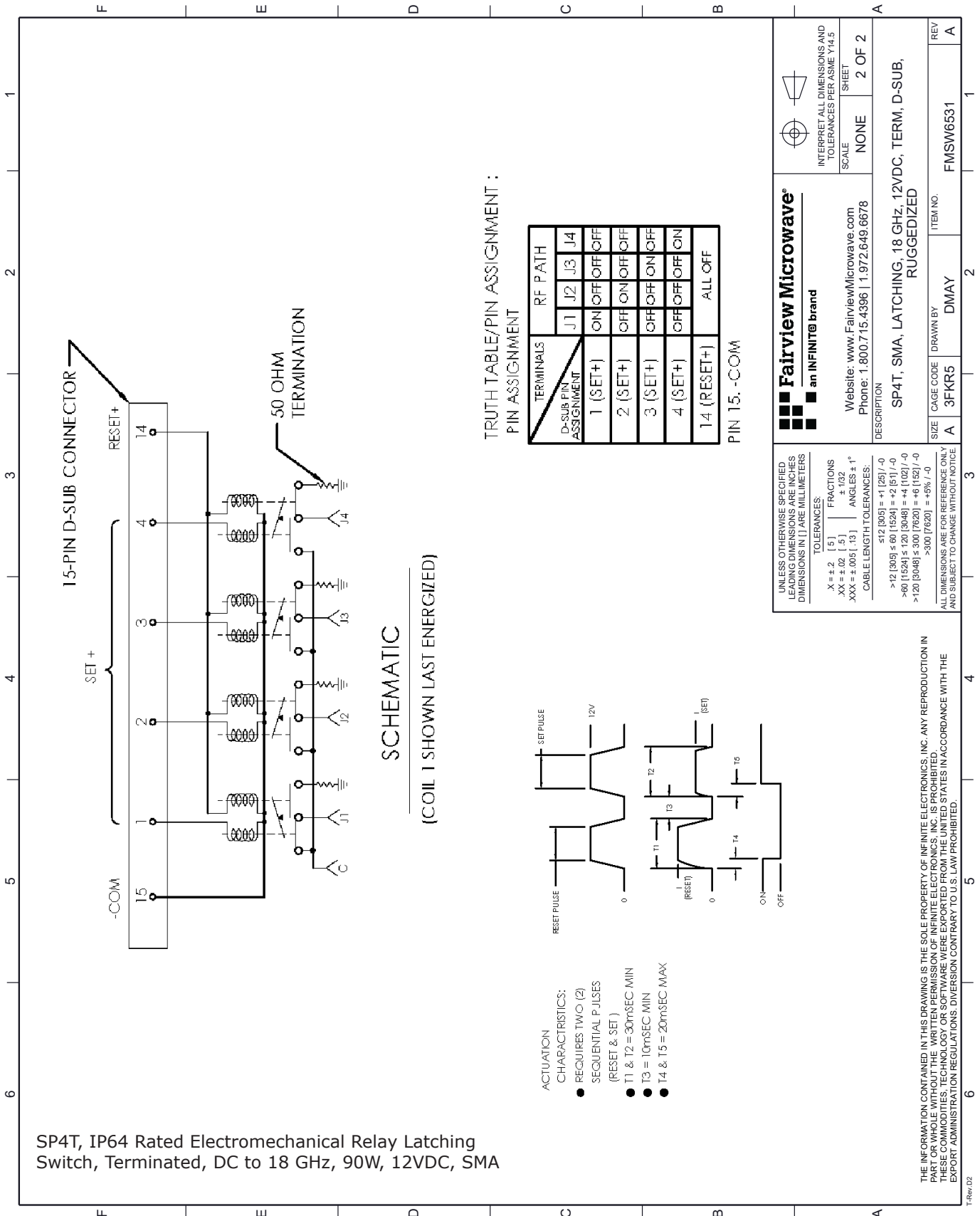
For additional information on this product, please click the following link: [SP4T, IP64 Rated Electromechanical Relay Latching Switch, Terminated, DC to 18 GHz, 90W, 12VDC, SMA FMSW6531](#)

URL: <https://www.fairviewmicrowave.com/sp4t-latching-18-ghz-electro-mechanical-relay-switch-sma-fmsw6531-p.aspx>

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