

SP6T, IP64 Rated Electromechanical Relay Latching Self Cut-Off Switch, +COM, DC to 26.5 GHz, Diodes, 90W, 12VDC, SMA

The FMSW6533 is a Ruggedized SP6T electromechanical relay switch that operates across a broadband frequency range from DC to 26.5 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 Self Cut-Off Actuator that magnetically latches in place after the control voltage is removed. DC Current is required to change positions. For power sensitive applications, this is the best actuator option. Additional features include positive common (+COM) configuration, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.3 dB insertion loss and isolation greater than 70 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	SP6T
Actuator Type	Latching
Actuator Options	Diodes, Self Cut Off, + COM

Description	Min	Typ	Max	Units
Frequency Range	DC		26.5	GHz
Impedance		50		Ohms
Operating Voltage	11	12	13	Volts
Actuating Current @ 12 Volts			280	mA
Actuating Reset Current			1.68	A
VSWR		1.3:1	1.8:1	
Insertion Loss		0.3	0.8	dB
Isolation	50	90		dB
Switching Time		20		ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 6	6 - 12	12 - 18	18 - 26.5		GHz
VSWR, Max	1.25:1	1.4:1	1.5:1	1.8:1		
Insertion Loss, Max	0.2	0.4	0.5	0.8		dB
Isolation, Min	70	60	60	50		dB



Features:

- SP4T Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 26.5 GHz Frequency Range
- Latching Self Cut-Off Actuator
- 5M Lifecycle Rating
- +COM
- Suppression Diodes
- Insertion Loss 0.3 dB typ
- Isolation > 70 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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Mechanical Specifications

Size	
Length	1.75 in [44.45 mm]
Width/Diameter	1.75 in [44.45 mm]
Height	1.75 in [44.45 mm]
Weight	0.198 lbs [89.81 g]

Connectors

RF Connector Type	SMA Female
Control Connector	D-Subminiature

Environmental Specifications

Temperature

Operating Range	-54 to +85 deg C
Storage Range	-55 to +100 deg C

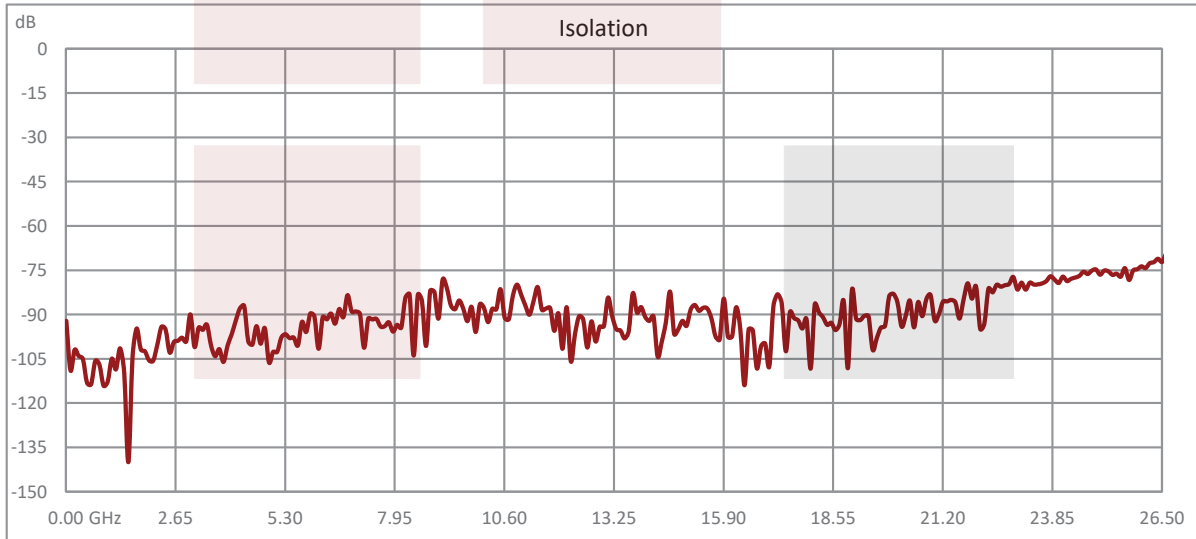
Ingress Protection (IP) Rating	IP64
Shock	MIL-STD-202 Method 213, Condition D, 500 G (non oper)
Vibration	MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

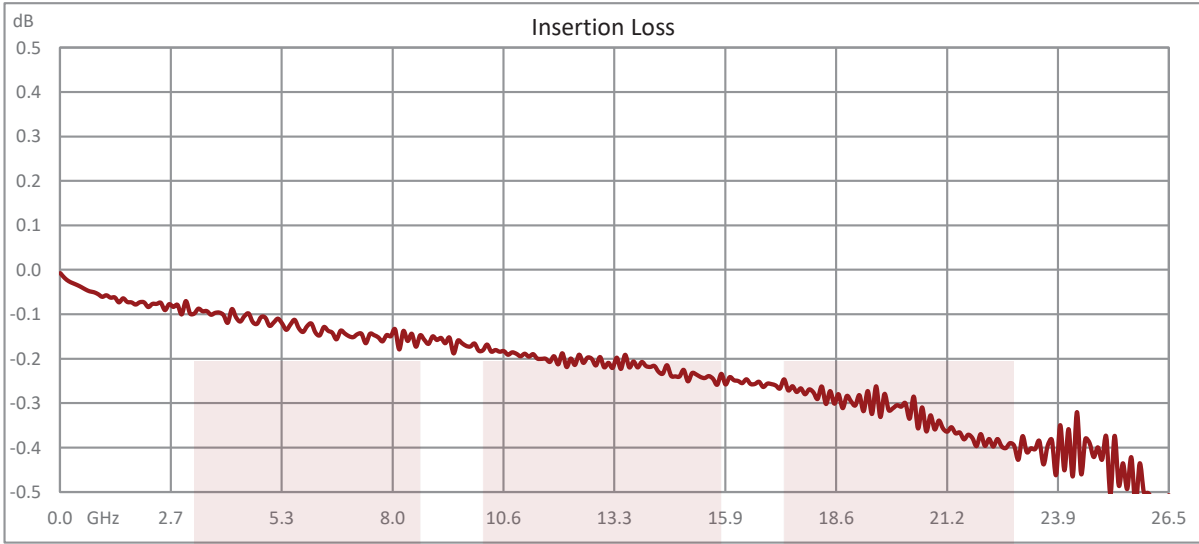
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

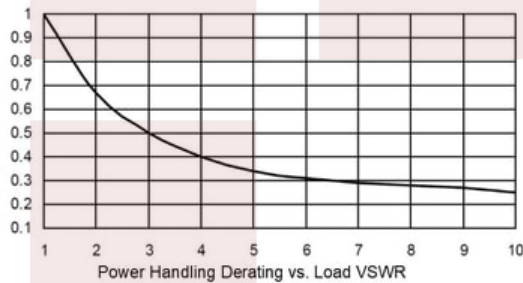
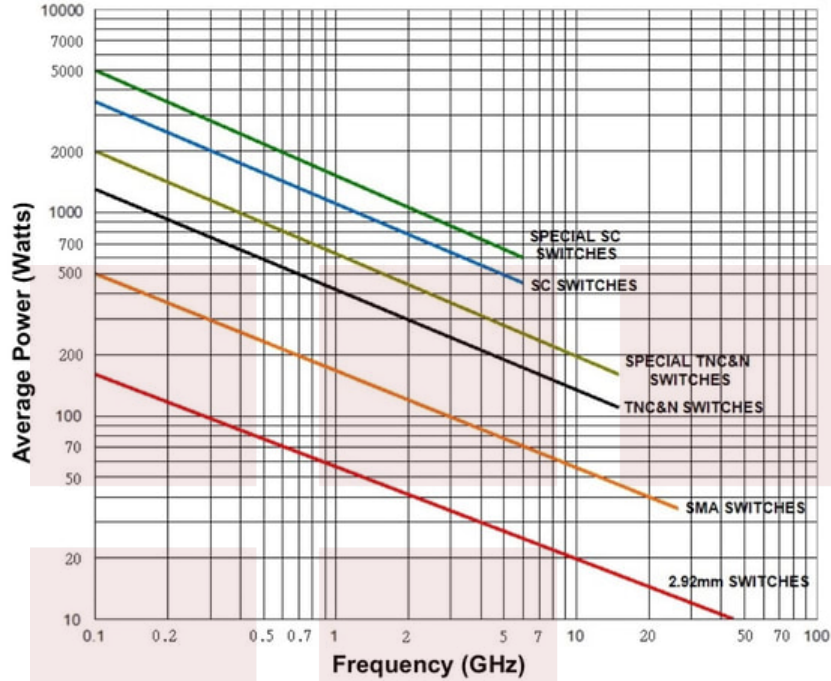
Typical Performance Data





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

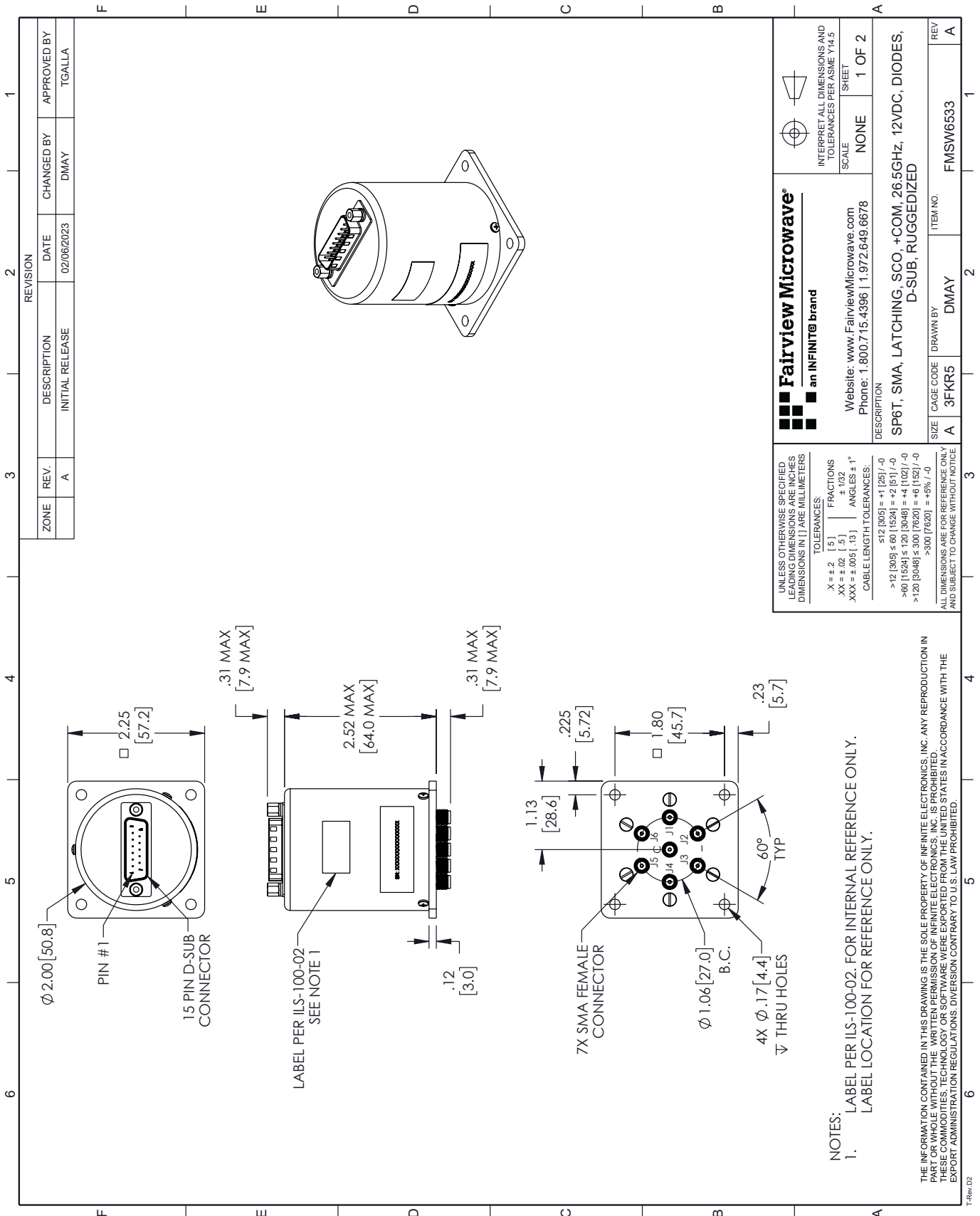
SP6T, IP64 Rated Electromechanical Relay Latching Self Cut-Off Switch, +COM, DC to 26.5 GHz, Diodes, 90W, 12VDC, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

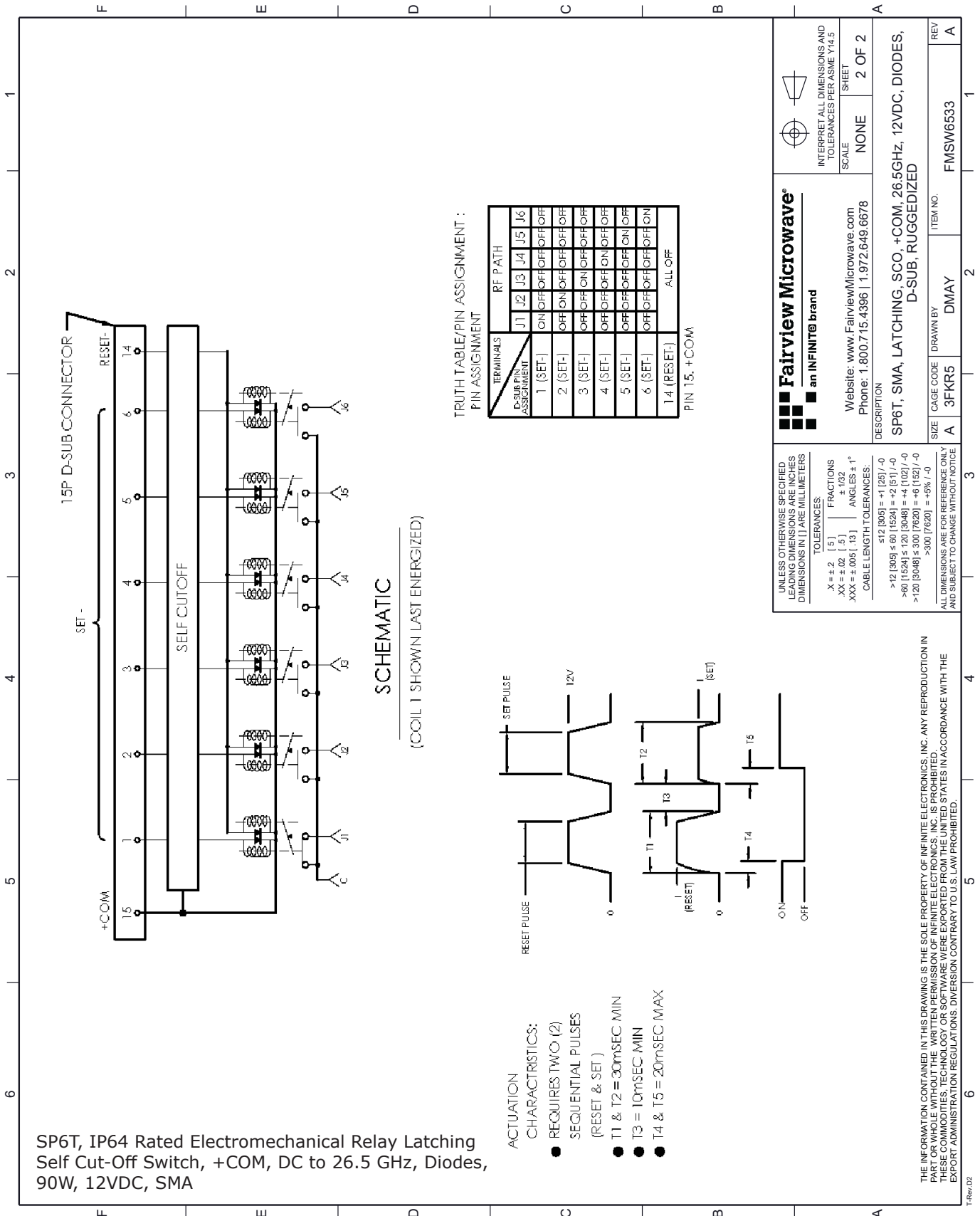
For additional information on this product, please click the following link: [SP6T, IP64 Rated Electromechanical Relay Latching Self Cut-Off Switch, +COM, DC to 26.5 GHz, Diodes, 90W, 12VDC, SMA FMSW6533](#)

URL: <https://www.fairviewmicrowave.com/sp6t-latching-26.5-ghz-electro-mechanical-relay-switch-diodes-com-sma-fm-sw6533-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Fairview Microwave reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Fairview Microwave does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Fairview Microwave does not assume any liability arising out of the use of any part or documentation.





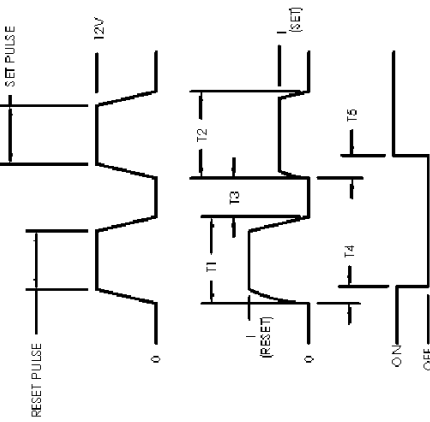


SP6T, IP64 Rated Electromechanical Relay Latching Self Cut-Off Switch, +COM, DC to 26.5 GHz, Diodes, 90W, 12VDC, SMA

TRUTH TABLE/PIN ASSIGNMENT :

TERMINALS	RF PATH					
	J1	J2	J3	J4	J5	J6
D-SUB PIN ASSIGNMENT	1 (SET)	ON/OFF	OFF/OFF	OFF/OFF	OFF/OFF	OFF/OFF
2 (SET)	OFF	ON/OFF	OFF/OFF	OFF/OFF	OFF/OFF	OFF/OFF
3 (SET)	OFF	OFF	ON/OFF	OFF/OFF	OFF/OFF	OFF/OFF
4 (SET)	OFF	OFF	OFF	ON/OFF	OFF/OFF	OFF/OFF
5 (SET)	OFF	OFF	OFF	OFF	ON/OFF	OFF/OFF
6 (SET)	OFF	OFF	OFF	OFF	OFF	ON/OFF
14 (RESET)	OFF	OFF	OFF	OFF	OFF	OFF/ON
PIN 15, +COM	ALL OFF					

SCHEMATIC
(COIL 1 SHOWN LAST ENERGIZED)



- ACTUATION CHARACTERISTICS:**
- REQUIRES TWO (2) SEQUENTIAL PULSES (RESET & SET)
 - T1 & T2 = 30mSEC MIN
 - T3 = 10mSEC MIN
 - T4 & T5 = 20mSEC MAX

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

TOLERANCES:
 .X ± .2 [.5] FRACTIONS
 .XX ± .02 [.5] ANGLES ± 1°
 .XXX ± .005 [.13]
 CABLE LENGTH TOLERANCES:
 >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.

DESCRIPTION: SP6T, SMA, LATCHING, SCO, +COM, 26.5GHz, 12VDC, DIODES, D-SUB, RUGGEDIZED

INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5 SHEET SCALE NONE 2 OF 2

REV A

ITEM NO. FMSW6533

DRAWN BY DMAY

CAGE CODE 3FKR5

SIZE A

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