

SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 28VDC, SMA

The FMSW6518 is a Ruggedized Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a broadband frequency range from DC to 18 GHz and can handle up to 90 Watts of average power in a break before make condition. The 50 Ohm design is IP64 compliant with a Level 1 moisture seal and specially 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 Failsafe actuator and is rated for 2 million lifecycles. Impressive typical performance includes 0.25 dB insertion loss and isolation greater than 85 dB. The switch requires +28 Vdc bias voltage and operates over a wide temperature range of -54°C to +85°C. The rugged and compact package assembly supports SMA female connectors and a 9 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 = 28 Vdc)

Switch Type SPDT
 Actuator Type Failsafe

Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Current @ 28 Volts			90	mA
VSWR		1.2:1	1.4:1	
Insertion Loss		0.25	0.4	dB
Isolation	65	85		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	1.2:1	1.3:1	1.4:1			
Insertion Loss, Max	0.15	0.25	0.4			dB
Isolation, Min	85	70	65			dB

Mechanical Specifications

Size	
Length	2.05 in [52.07 mm]
Width/Diameter	1.5 in [38.1 mm]
Height	0.52 in [13.21 mm]
Weight	0.056 lbs [25.4 g]



Features:

- Single Pole Double Throw (SP2T) Ruggedized Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 18 GHz Frequency Range
- Failsafe Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.25 dB typ
- Isolation > 85 dB typ
- VSWR as low as 1.2:1 max
- D-Sub Connector for DC Control
- +28 Volt DC Bias
- SMA Female Connectors
- -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

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

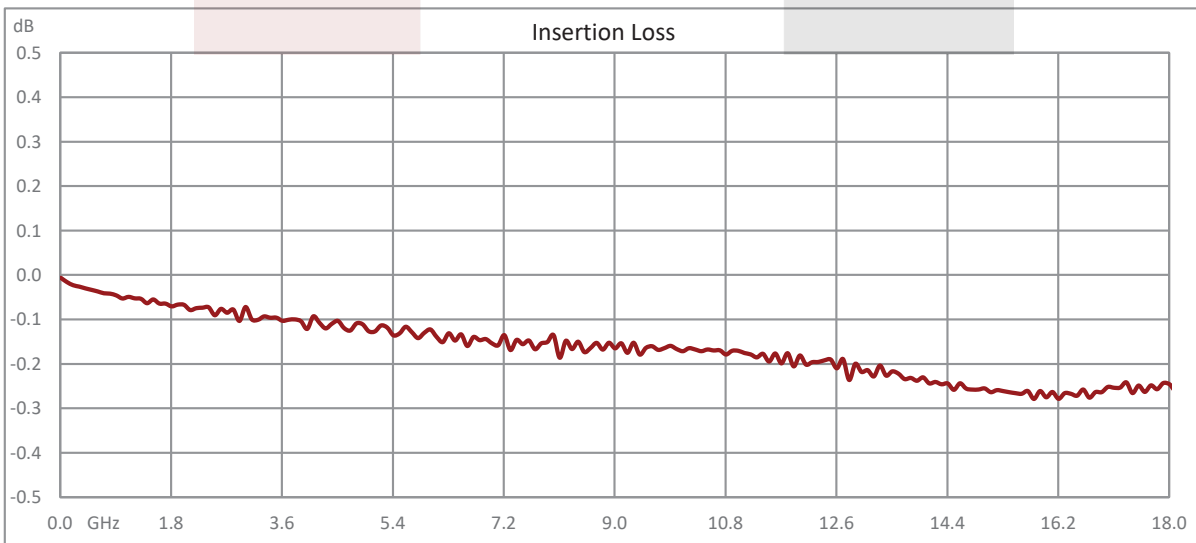
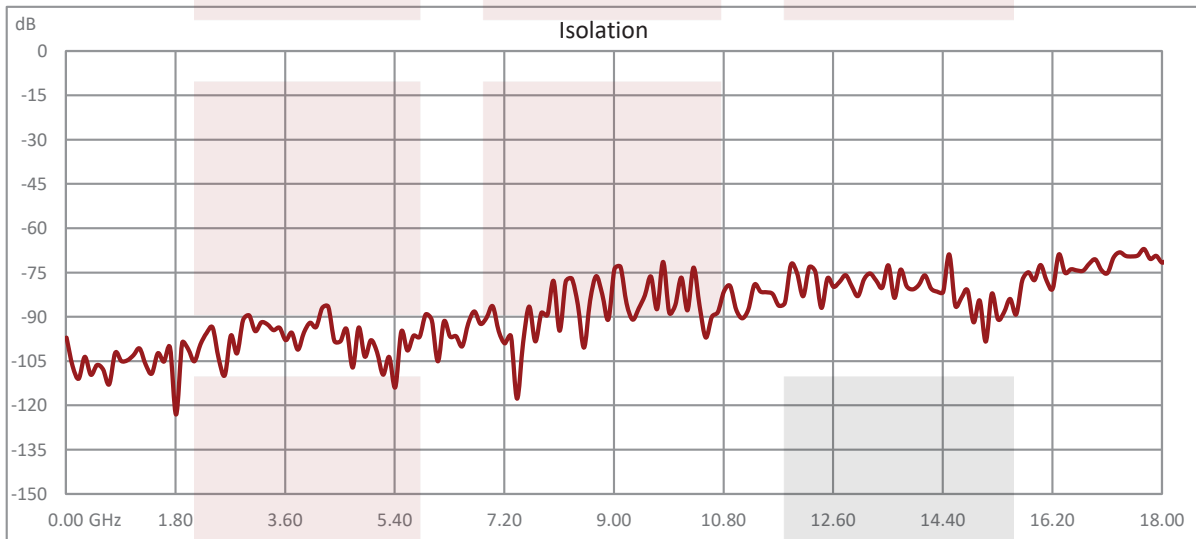
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

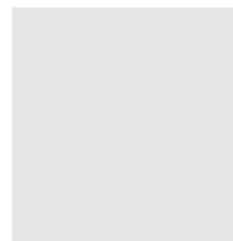
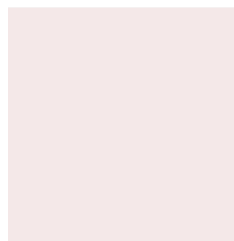
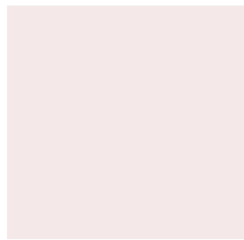
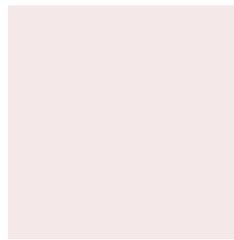
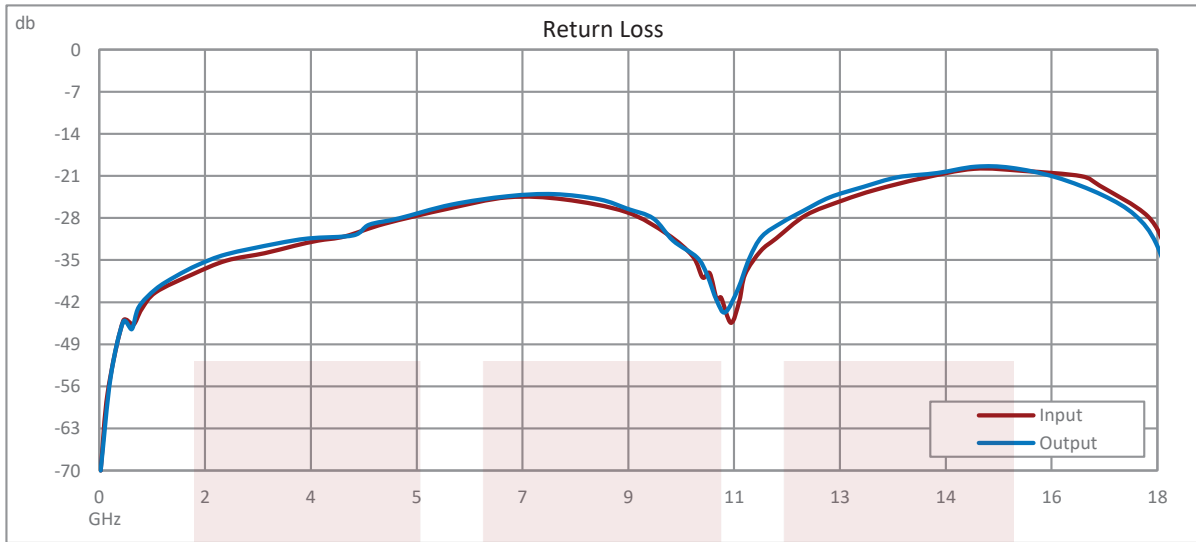
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

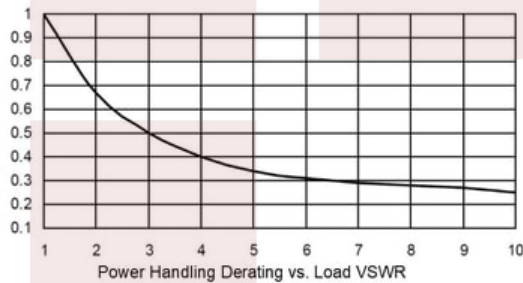
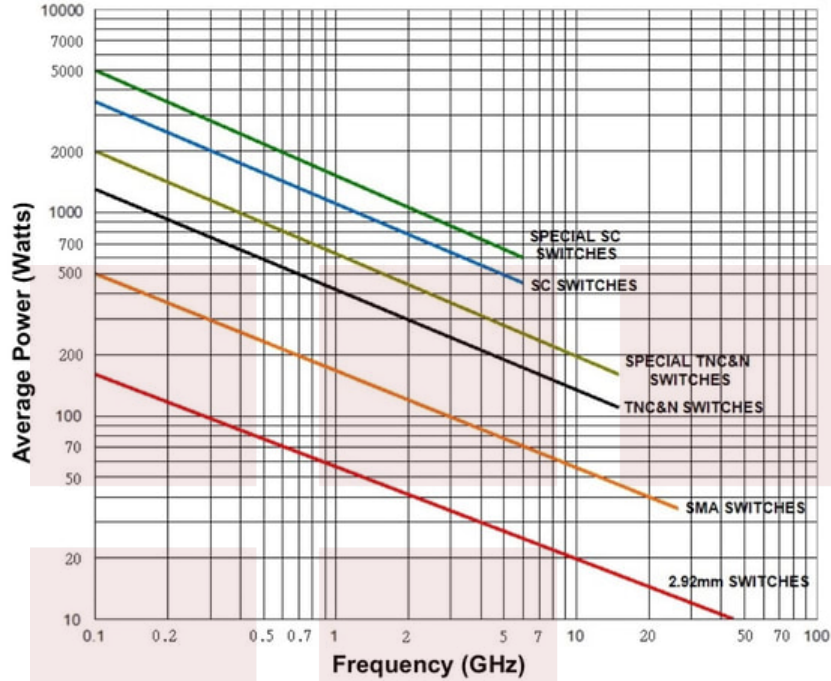
Typical Performance Data





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

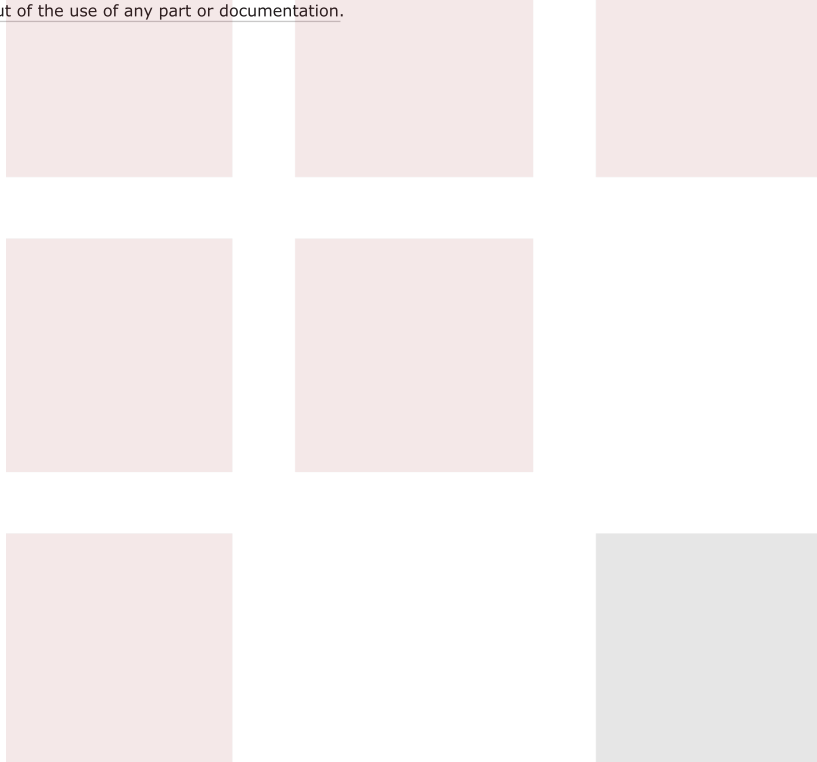
Note: specifications subject to change without notice

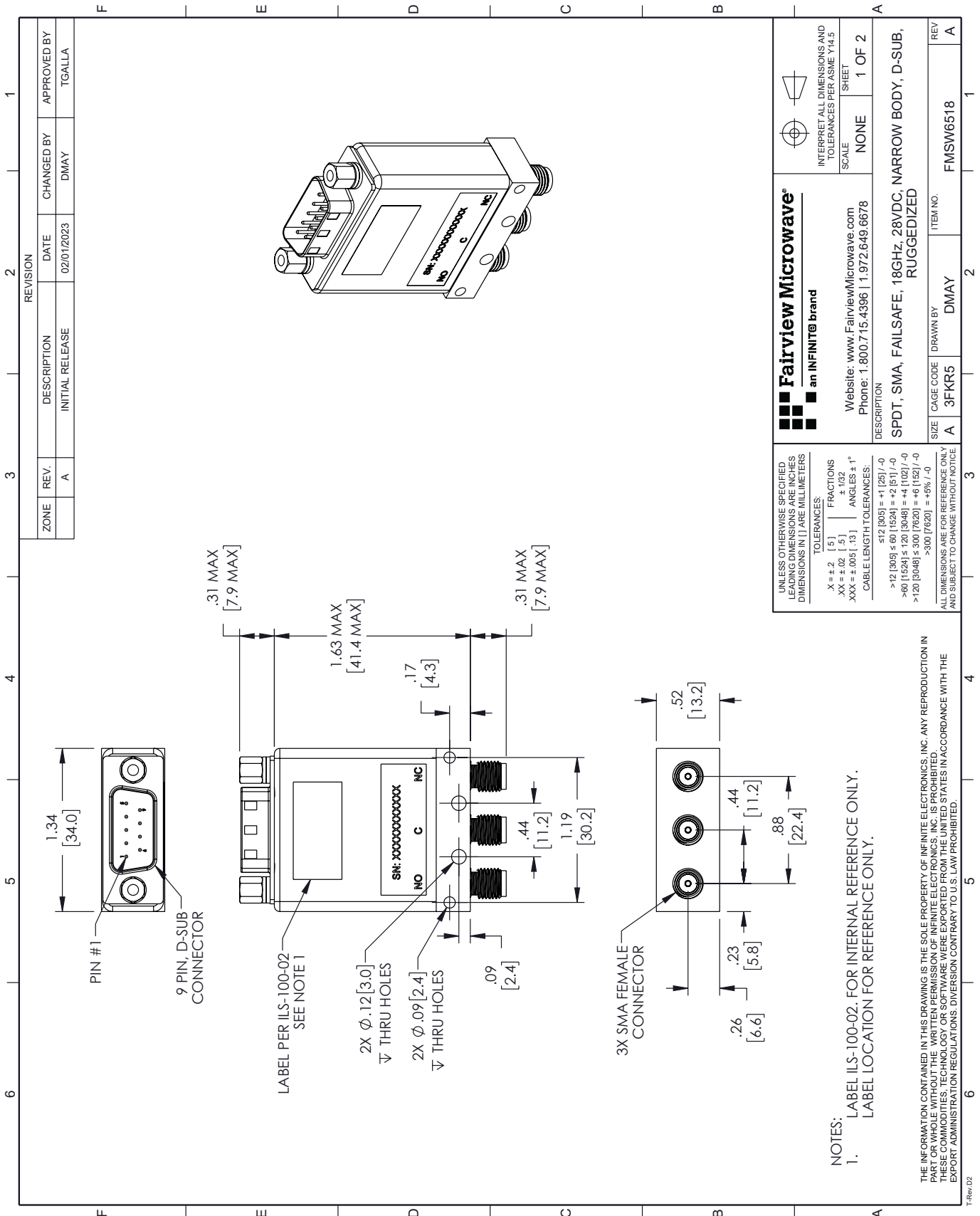
SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 28VDC, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 18 GHz, 90W, 28VDC, SMA FMSW6518](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-18-ghz-electro-mechanical-relay-switch-sma-fmsw6518-p.aspx>

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REVISION		CHANGED BY		APPROVED BY	
ZONE	REV.	DESCRIPTION	DATE	DMAY	TGALLA
	A	INITIAL RELEASE	02/01/2023		

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE NONE SHEET 1 OF 2

DESCRIPTION
SPDT, SMA, FAILSAFE, 18GHZ, 28VDC, NARROW BODY, D-SUB, RUGGEDIZED

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

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

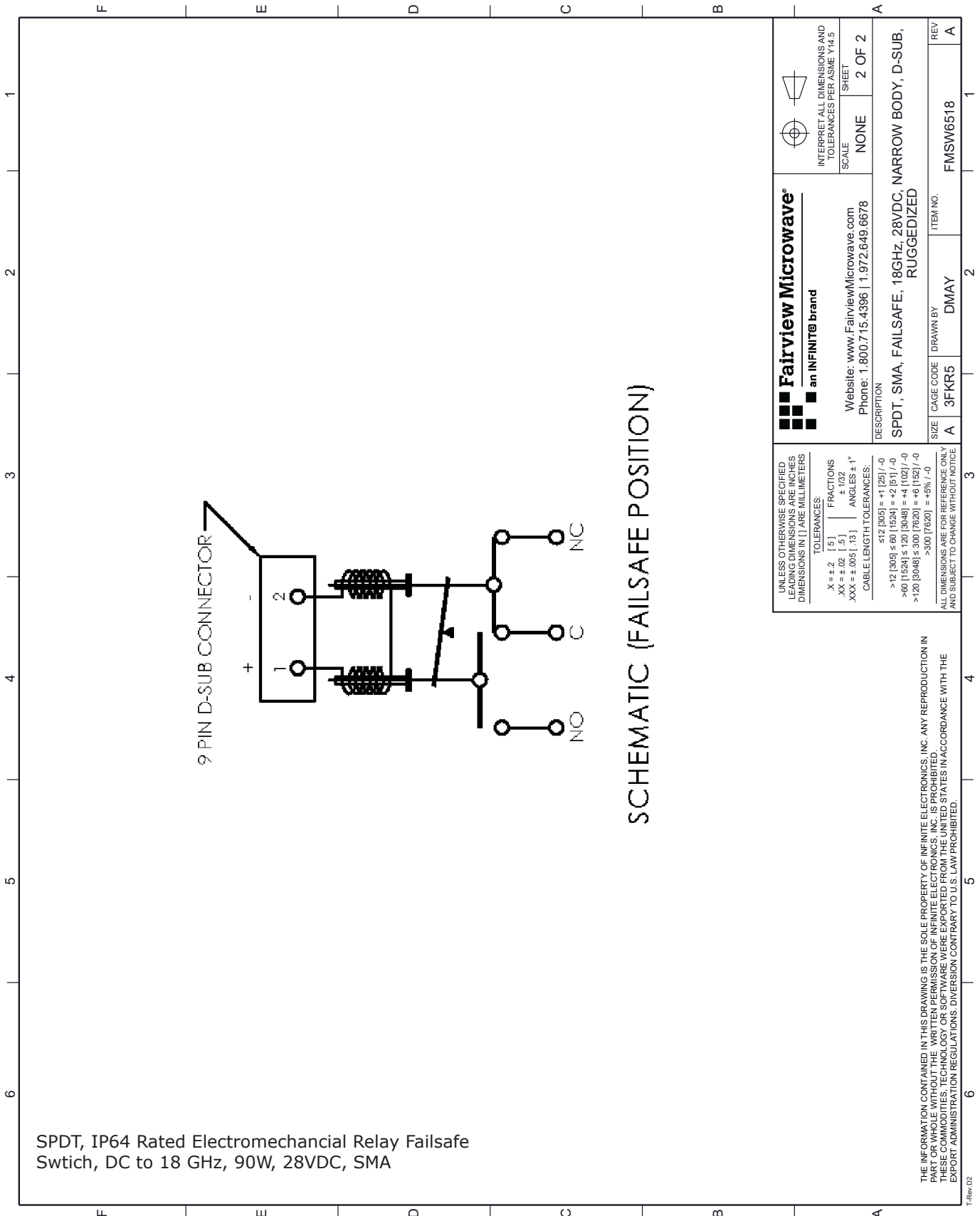
CABLE LENGTH TOLERANCES:
 ≤ 12 [305] = +1 [25] / -0
 > 12 [305] ≤ 60 [1524] = +2 [51] / -0
 > 60 [1524] ≤ 120 [3048] = +4 [102] / -0
 > 120 [3048] ≤ 300 [7620] = +6 [152] / -0
 > 300 [7620] = +5% / -0

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

SIZE	CAGE CODE	DRAWN BY	ITEM NO.	REV
A	3FKR5	DMAY	FMSW6518	A

NOTES:
1. LABEL ILS-100-02. FOR INTERNAL REFERENCE ONLY. LABEL LOCATION FOR REFERENCE ONLY.

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<p>UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE IN INCHES AND DIMENSIONS IN [] ARE MILLIMETERS.</p> <p>TOLERANCES:</p> <table border="0"> <tr> <td>.X = ±.2</td> <td>[.5]</td> <td>FRACTIONS</td> </tr> <tr> <td>.XX = ±.02</td> <td>[.5]</td> <td>± 1/32</td> </tr> <tr> <td>.XXX = ±.005</td> <td>[.13]</td> <td>ANGLES ± 1°</td> </tr> </table> <p>CABLE LENGTH TOLERANCES:</p> <table border="0"> <tr> <td>>12 [305]</td> <td>± 1/2 [125]</td> <td>/ -0</td> </tr> <tr> <td>>60 [1524]</td> <td>± 1/2 [125]</td> <td>/ -0</td> </tr> <tr> <td>>120 [3048]</td> <td>± 1/2 [125]</td> <td>/ -0</td> </tr> <tr> <td>>300 [7620]</td> <td>± 1/2 [125]</td> <td>/ -0</td> </tr> </table> <p>ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.</p>				.X = ±.2	[.5]	FRACTIONS	.XX = ±.02	[.5]	± 1/32	.XXX = ±.005	[.13]	ANGLES ± 1°	>12 [305]	± 1/2 [125]	/ -0	>60 [1524]	± 1/2 [125]	/ -0	>120 [3048]	± 1/2 [125]	/ -0	>300 [7620]	± 1/2 [125]	/ -0
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