

SPDT, 1P64 Rated Electromechanical Relay Latching Switch, DC to 12 GHz, 600W, 28Vdc, N

The FMSW6541 is a Ruggedized Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a broadband frequency range of DC to 12 GHz and can handle up to 600W 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 features a Latching Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Impressive typical performance includes 0.15 dB insertion loss and isolation greater than 90 dB. This switch requires +12Vdc bias voltage, operates over a wide temperature range of -54°C to +85°C, and is rated for 1 million lifecycles. The rugged and compact package assembly supports female N-Type connectors and terminal solder pins 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		Latching		
Description	Min	Typ	Max	Units
Frequency Range	DC		18	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Current @ 28 Volts			160	mA
VSWR		1.2:1	1.4:1	
Insertion Loss		0.15	0.5	dB
Isolation	60	90		dB
Switching Time		20		ms

Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC - 1	1 - 4	4 - 8	8 - 12		GHz
VSWR, Max	1.25:1	1.3:1	1.4:1	1.4:1		
Insertion Loss, Max	0.3	0.4	0.4	0.5		dB
Isolation, Min	90	80	70	60		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	0.18 lbs [81.65 g]



Features:

- Single Pole Double Throw (SP2T) Ruggedized Electromechanical Relay Switch
- IP64 Level 1 Rated
- DC to 12 GHz Frequency Range
- Latching Actuator
- 1M Lifecycle Rating
- Insertion Loss 0.15 dB typ
- Isolation > 90 dB typ
- VSWR as low as 1.25:1 max
- Solder Terminal Pins for DC Control
- +28 Volt DC Bias
- N-Type Female Connectors
- -54°C to +85°C Operating Temperature
- Up to 600 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

Fairview Microwave
 301 Leora Ln., Suite 100
 Lewisville, TX 75056
 Tel: 1-800-715-4396 / (972) 649-6678
 Fax: (972) 649-6689
www.fairviewmicrowave.com
sales@fairviewmicrowave.com

Connectors

RF Connector Type
Control Connector

N Female
Solder Terminals

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

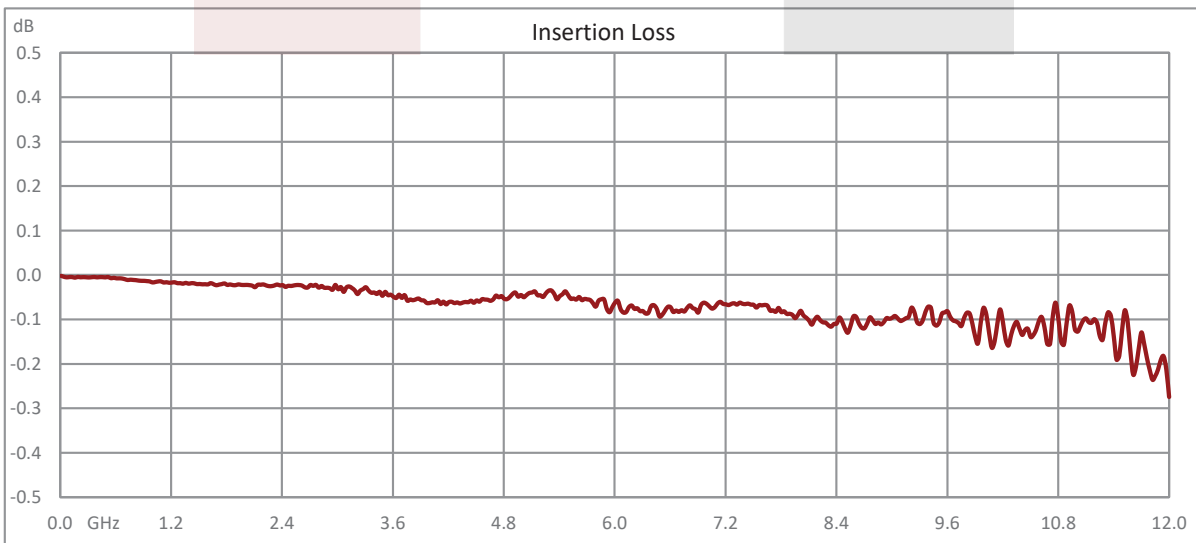
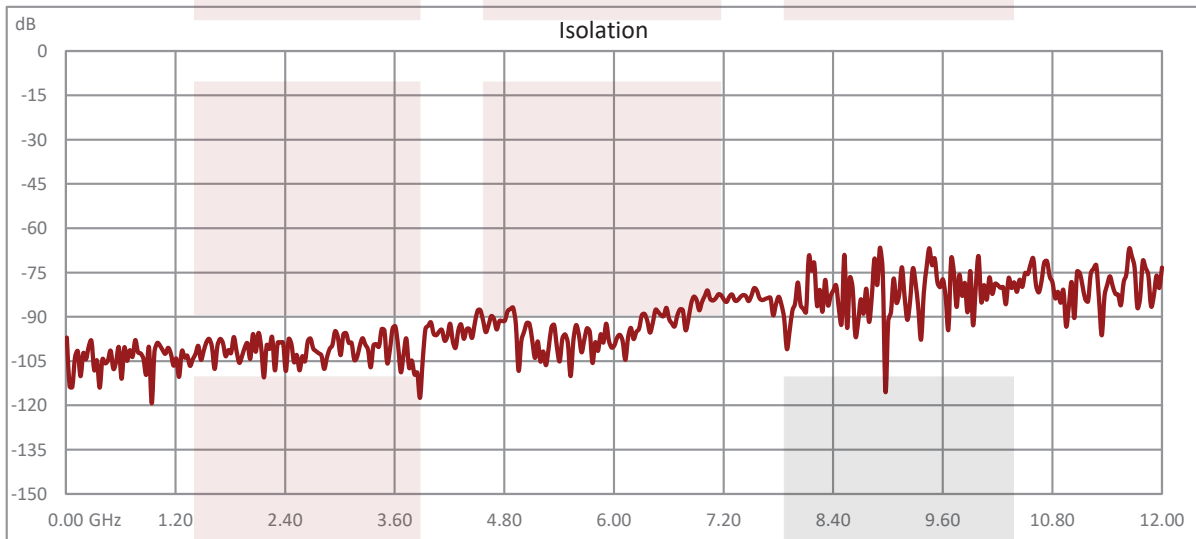
MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

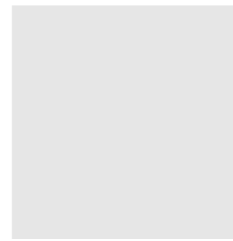
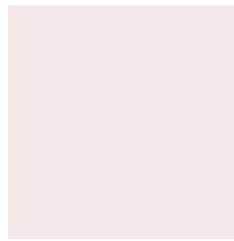
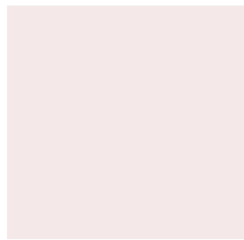
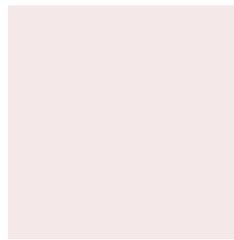
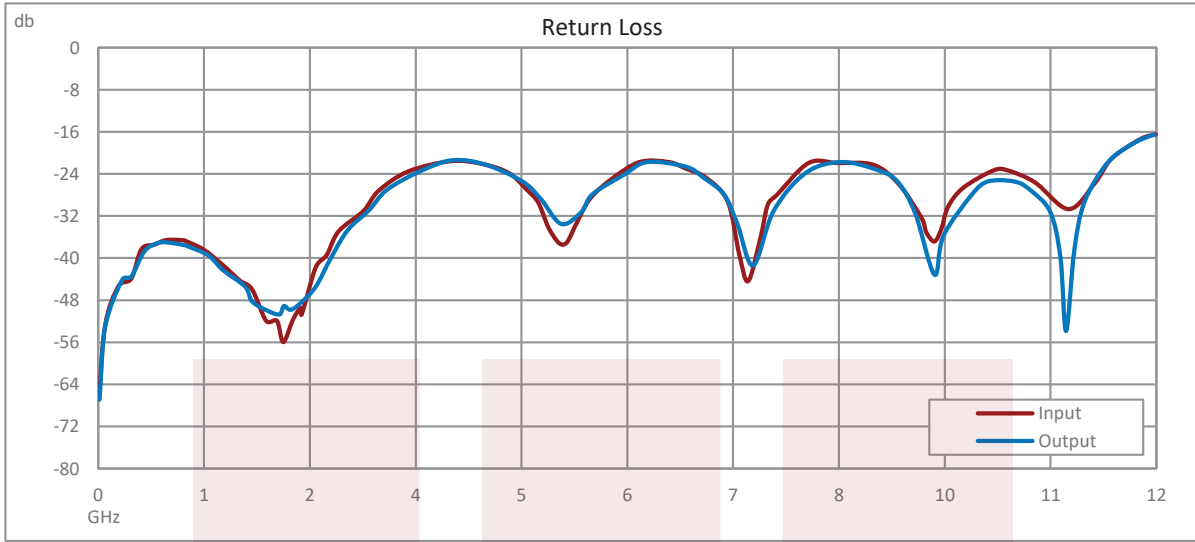
Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

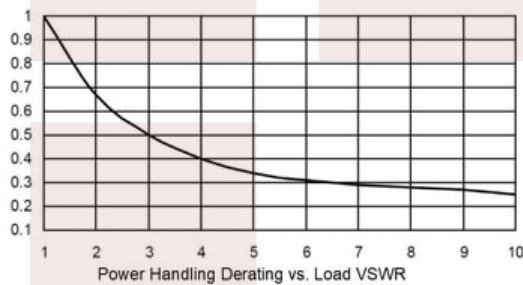
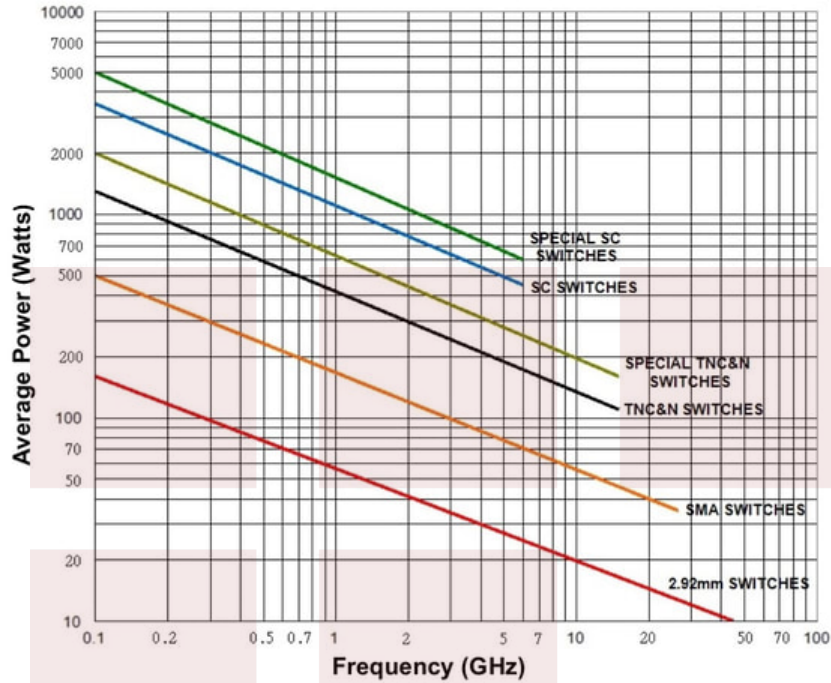
Typical Performance Data





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

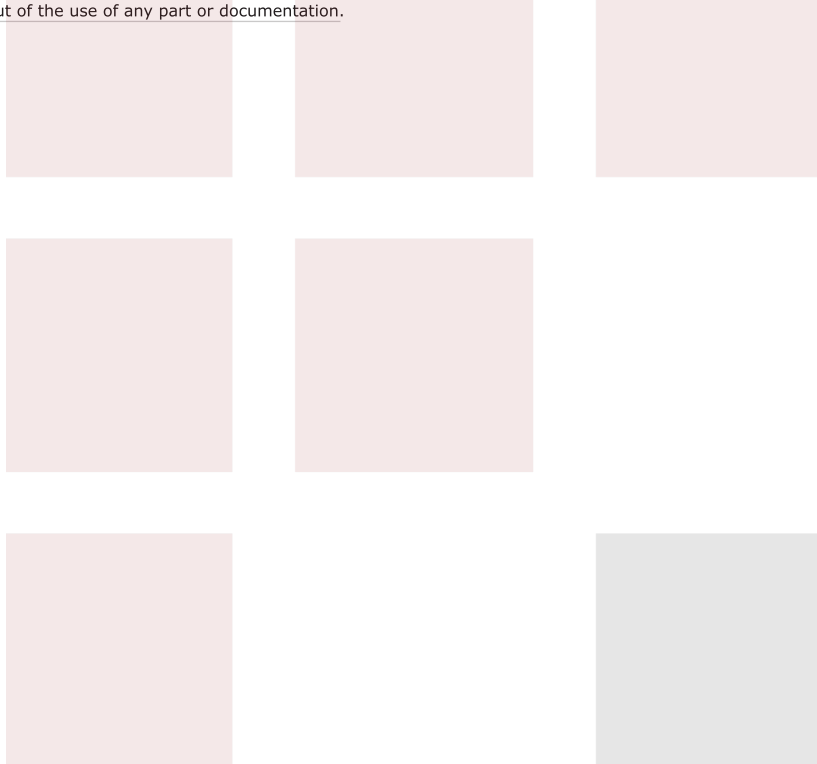
Note: specifications subject to change without notice

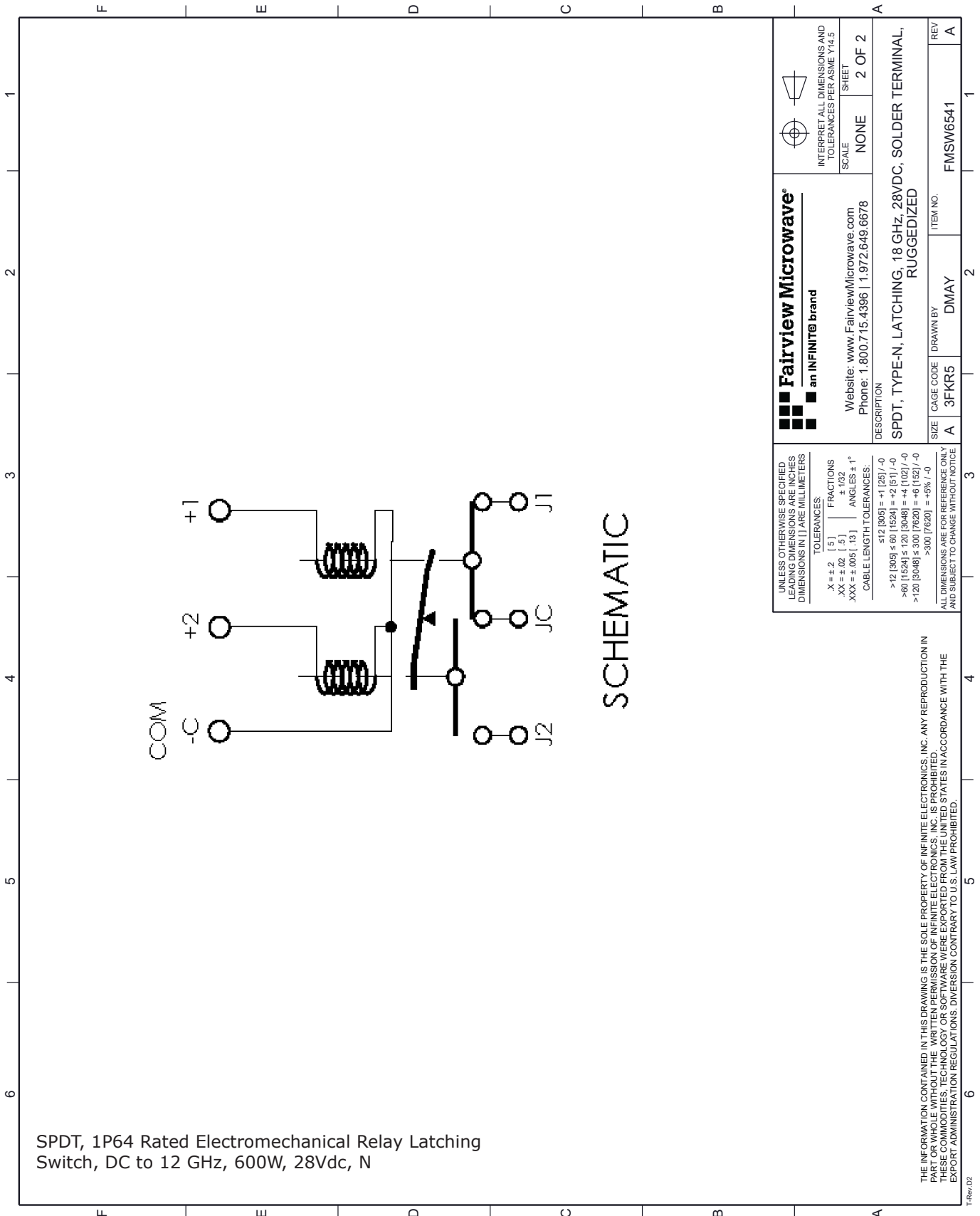
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For additional information on this product, please click the following link: [SPDT, 1P64 Rated Electromechanical Relay Latching Switch, DC to 18 GHz, 600W, 28Vdc, N FMSW6541](#)

URL: <https://www.fairviewmicrowave.com/spdt-latching-12-ghz-electro-mechanical-relay-switch-n-fmsw6541-p.aspx>

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<p>DESCRIPTION</p> <p>SPDT, TYPE-N, LATCHING, 18 GHz, 28VDC, SOLDER TERMINAL, RUGGEDIZED</p>			
<p>UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES AND DIMENSIONS IN [] ARE MILLIMETERS</p> <p>TOLERANCES:</p> <p>.X = ±.2 [.5] FRACTIONS ± .132</p> <p>.XX = ±.02 [.5] ANGLES ± 1°</p> <p>.XXX = ±.005 [.13]</p> <p>CABLE LENGTH TOLERANCES:</p> <p>≤ 12 [305] = ±1 [25] / -0</p> <p>> 12 [305] ≤ 60 [1524] = +2 [51] / -0</p> <p>> 60 [1524] ≤ 120 [3048] = +4 [102] / -0</p> <p>> 120 [3048] ≤ 300 [7620] = +6 [152] / -0</p> <p>> 300 [7620] = +5% / -0</p>	<p>SIZE: A</p> <p>CAGE CODE: 3FKR5</p> <p>DRAWN BY: DMAY</p> <p>ITEM NO.: FMSW6541</p>	<p>REV: A</p>	<p>1</p>
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