

## SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 12 GHz, 600W, 28VDC, N

The FMSW6520 is a Ruggedized Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a frequency range from DC to 12 GHz and can handle up to 600 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 1 million lifecycles. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 90 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 female N-Type connectors and solder terminal 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 Failsafe

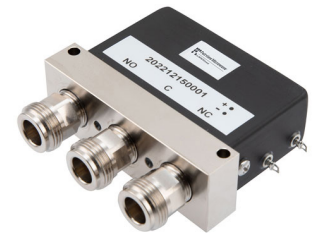
Description	Min	Typ	Max	Units
Frequency Range	DC		12	GHz
Impedance		50		Ohms
Operating Voltage	26	28	30	Volts
Actuating Current @ 28 Volts			220	mA
VSWR		1.2:1	1.4:1	
Insertion Loss		0.2	0.5	dB
Isolation	60	90		dB
Switching Time		20		ms

### 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

<b>Size</b>	
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
- Failsafe Actuator
- 1M Lifecycle Rating
- Insertion Loss 0.2 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

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**Connectors**

RF Connector Type N Female  
Control Connector Solder Terminals

**Environmental Specifications**

**Temperature**

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

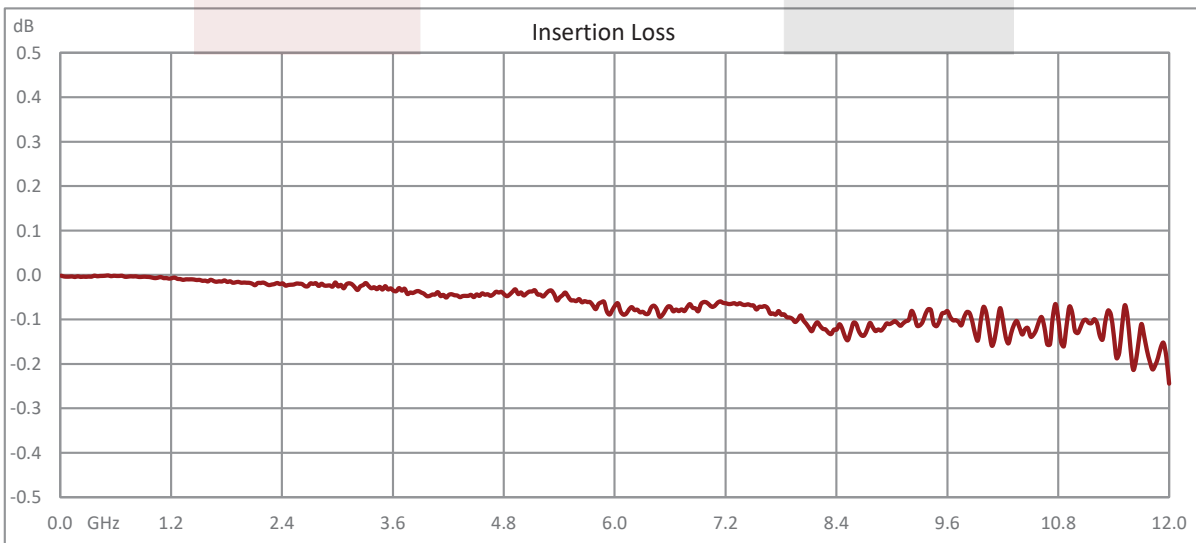
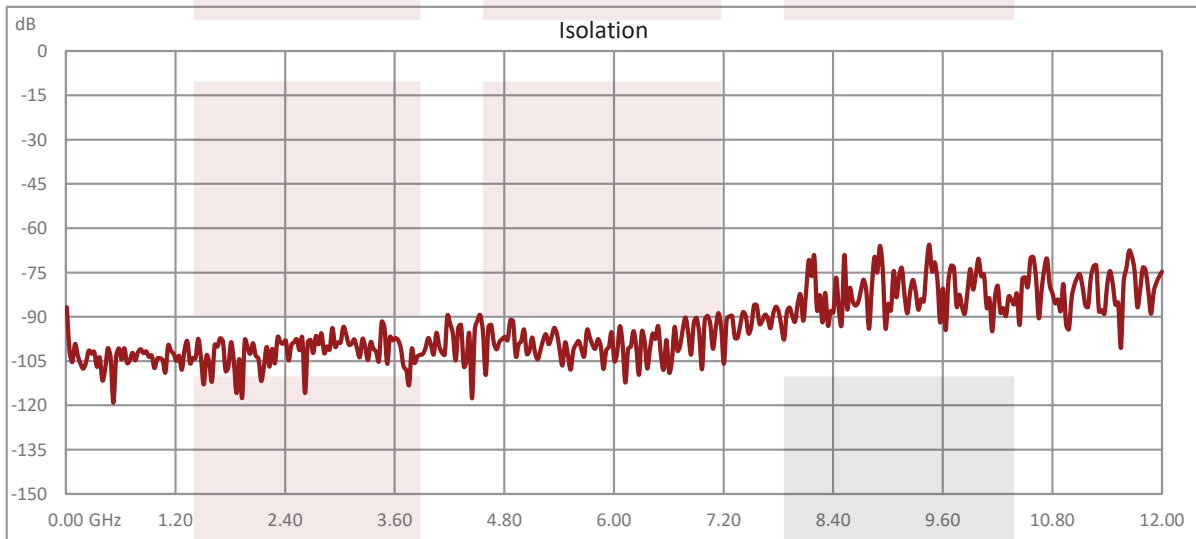
Ingress Protection (IP) Rating IP64  
Shock MIL-STD-202 Method 213, Condition D, 500 G (non oper)  
Vibration MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

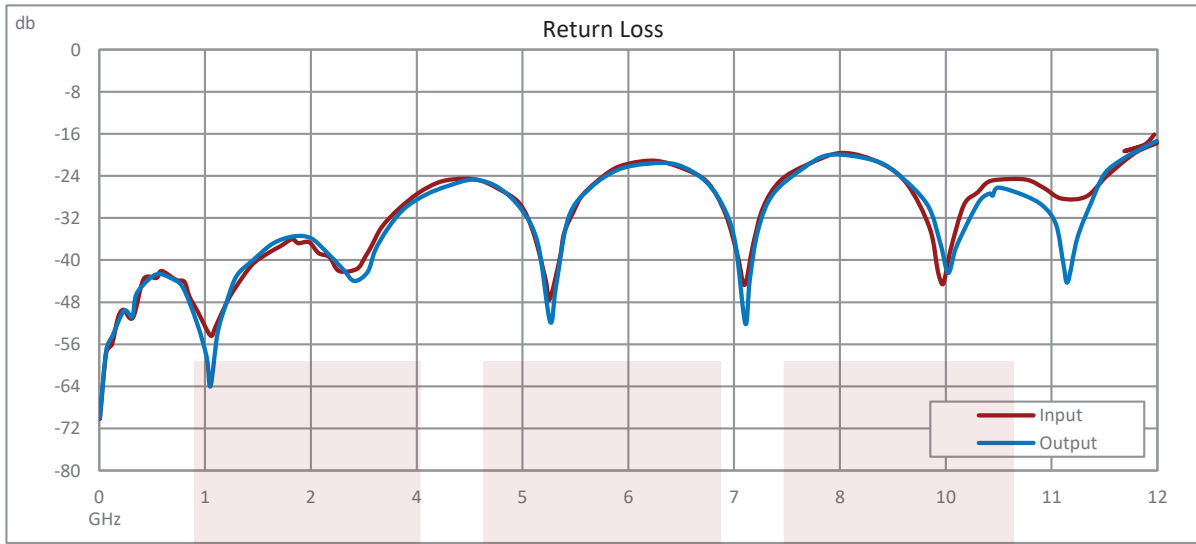
**Compliance Certifications** (see [product page](#) for current document)

**Plotted and Other Data**

Notes:

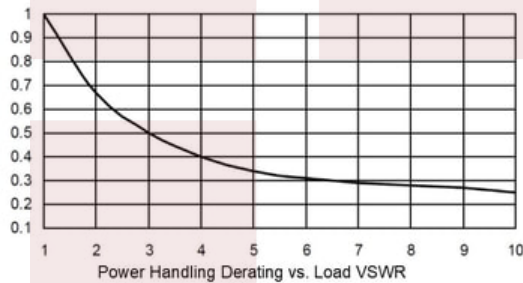
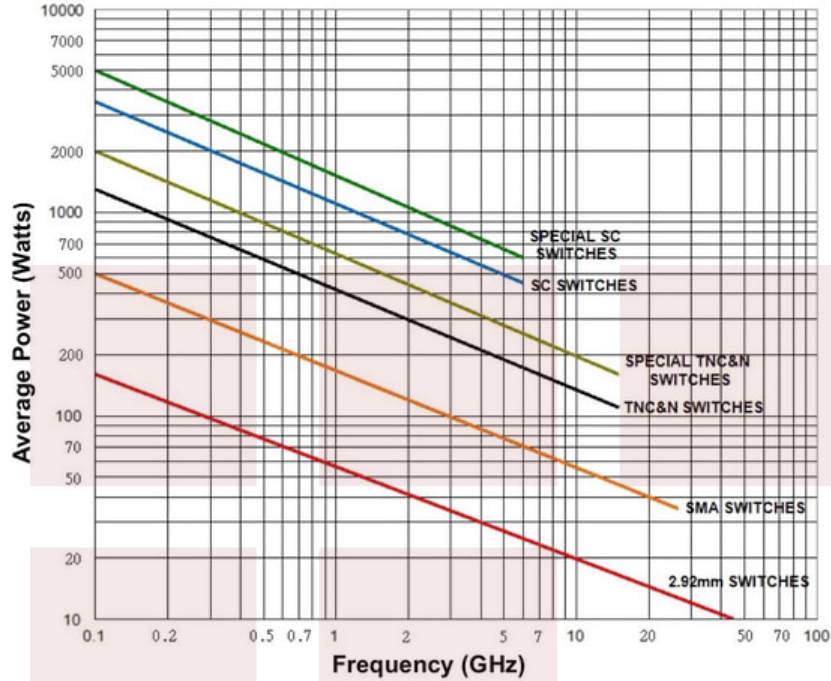
**Typical Performance Data**





**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

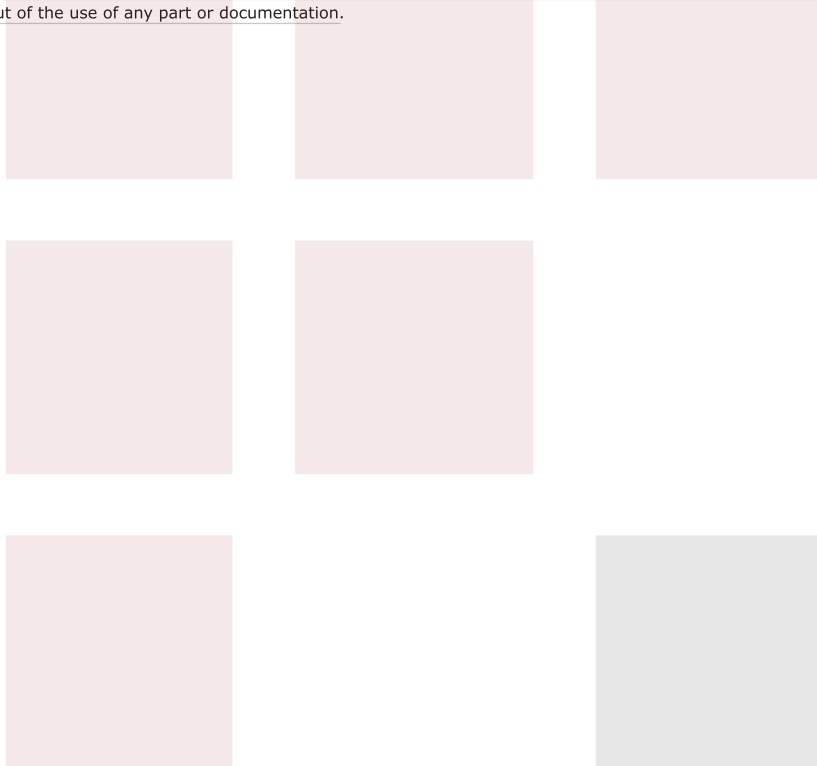
Note: specifications subject to change without notice

SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 12 GHz, 600W, 28VDC, N 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.

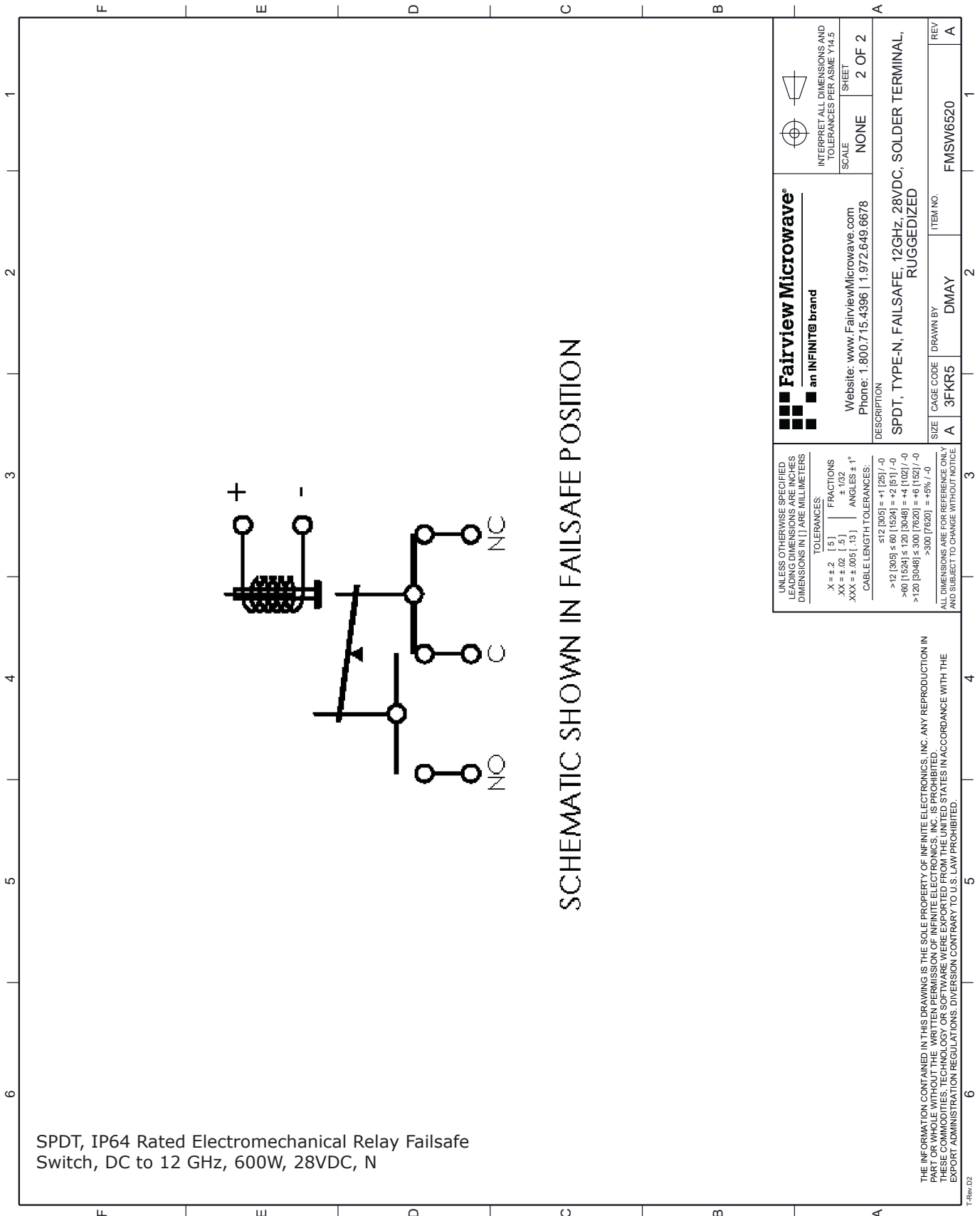
For additional information on this product, please click the following link: [SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 12 GHz, 600W, 28VDC, N FMSW6520](#)

URL: <https://www.fairviewmicrowave.com/spdt-failsafe-12-ghz-electro-mechanical-relay-switch-n-fmsw6520-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.







SPDT, IP64 Rated Electromechanical Relay Failsafe Switch, DC to 12 GHz, 600W, 28VDC, N

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<p>DESCRIPTION: SPDT, TYPE-N, FAILSAFE, 12GHZ, 28VDC, SOLDER TERMINAL, RUGGEDIZED</p>															
SIZE	CAGE CODE	DRAWN BY	ITEM NO.												
A	3FKR5	DMAY	FMSW6520												
<p>UNLESS OTHERWISE SPECIFIED, LEADING DIMENSIONS ARE INCHES, DIMENSIONS IN [ ] ARE MILLIMETERS.</p> <p>TOLERANCES:</p> <table border="0"> <tr> <td>.X = ±.2</td> <td>[.5]</td> <td>FRACTIONS</td> <td>±.132</td> </tr> <tr> <td>.XX = ±.02</td> <td>[.5]</td> <td>ANGLES ± 1°</td> <td></td> </tr> <tr> <td>.XXX = ±.005</td> <td>[.13]</td> <td>CABLE LENGTH TOLERANCES:</td> <td></td> </tr> </table> <p>&gt;12 (305) ≤ 60 (1524) = +1 (25) / -0          &gt;60 (1524) ≤ 120 (3048) = +4 (102) / -0          &gt;120 (3048) ≤ 300 (7620) = +6 (152) / -0          &gt;300 (7620) = +5% / -0</p> <p>ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.</p>				.X = ±.2	[.5]	FRACTIONS	±.132	.XX = ±.02	[.5]	ANGLES ± 1°		.XXX = ±.005	[.13]	CABLE LENGTH TOLERANCES:	
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