FSR Series

Force Sensing Resistor

The Ohmite FSR series exhibits the unique characteristic of dynamic resistance related to the amount of applied force. In general, the more force applied to the surface of the sensor, the lower the resistance. The resistance change is inversely proportional to the applied force. Typical force-sensing resistors are characterized for Human-Machine Interface (HMI) or Machine-Machine Interface (MMI) applications with a sensing range from circa 20g to 5Kg. Specific device characteristics will depend on the size, shape and materials used in construction. Force-sensing resistors are intended for applications where a delta in applied force is to be detected. They are not intended for high accuracy or specific weight measurement applications.

SERIES SPECIFICATIONS

Series	Active area	Thickness (inc. 0.05mm adhesive)	Sensor overall width	Sensor overall length	Tail length	Tail width
FSR01	39.70 x 39.70mm	0.375mm	43.69 x 43.69mm	83.09mm	39.40mm	7.62mm
FSR02	604.60 x 10.20mm	0.375mm	15.20mm	622.30mm	12.70mm	7.60mm
FSR03	ø25.42mm	0.425mm	30.50mm	69.00mm	38.00mm	7.62mm
FSR04	ø5.60mm	0.325mm	7.62mm	15.80mm	9.00mm	6.35mm
FSR05	ø5.60mm	0.325mm	7.62mm	38.10mm	30.00mm	6.35mm
FSR06	ø14.70mm	0.375mm	18.00mm	25.00mm	9.00mm	7.62mm
FSR07	ø14.70mm	0.375mm	18.00mm	56.34mm	38.00mm	7.62mm

CHARACTERISTICS

Characteristic	Description	FSR01	FSR02	FSR03	FSR04	FSR05	FSR06	FSR07
Actuation force	Force to reach 10MΩ, Average of 100 samples	< 20g	< 20g	< 10g	<20g	<30g	<15g	<15g
Force range	linear region of log/log, Higher forces can be achieved with custom sensor and actuation methods	All: Up to 5kg						
Long term drift	1kg for 48hrs, Per log time	< 2%	< 1%	< 1%	< 2%	< 2%	1%	1%
Single part repeatability	100 actuations of 1kg, 1 standard deviation/mean	All: 2%						
Part to part repeatability	100 sensors same batch, 1 standard deviation/mean	All: ±4%						
Low temp. storage	–20°C for 250hrs, Avg. change in res. of 5 sensors	8%	7%	7%	8%	8%	7%	7%
High temp. storage	+85°C for 250hrs, Avg. change in res. of 5 sensors	4%	3%	3%	4%	4%	3%	3%
High humidity storage	+85°C/85%RH for 250hrs, Avg. change in res. of 5 sensors	8%	12%	8%	8%	8%	12%	12%
Lifecycle durability	(10M) 1kg force at 3Hz, Avg. change in res. of 4 sensors	17%	12%	3%	7%	7%	3%	3%
Hysteresis	100 actuations of 1kg, Avg. change in res. of 100 samples	All: 5%						
Operational temp. range	100 cycles at 0.5kg	All: –20 to +85°C						

Note: All values typical, and quoted at 10N applied force unless otherwise stated. Force dependant on actuation interface, mechanics, touch location, and measurement electronics.

	FSR01-03	FSR04	FSR05	FSR06	FSR07
Mode	Shunt	Shunt	Shunt	Shunt	Shunt
Trace pitch	0.25mm	0.50mm	0.50mm	0.50mm	0.50mm
Spacer height	0.125mm	0.125mm	0.125mm	0.125mm	0.125mm
Trace width	0.25mm	0.25mm	0.25mm	0.25mm	0.25mm

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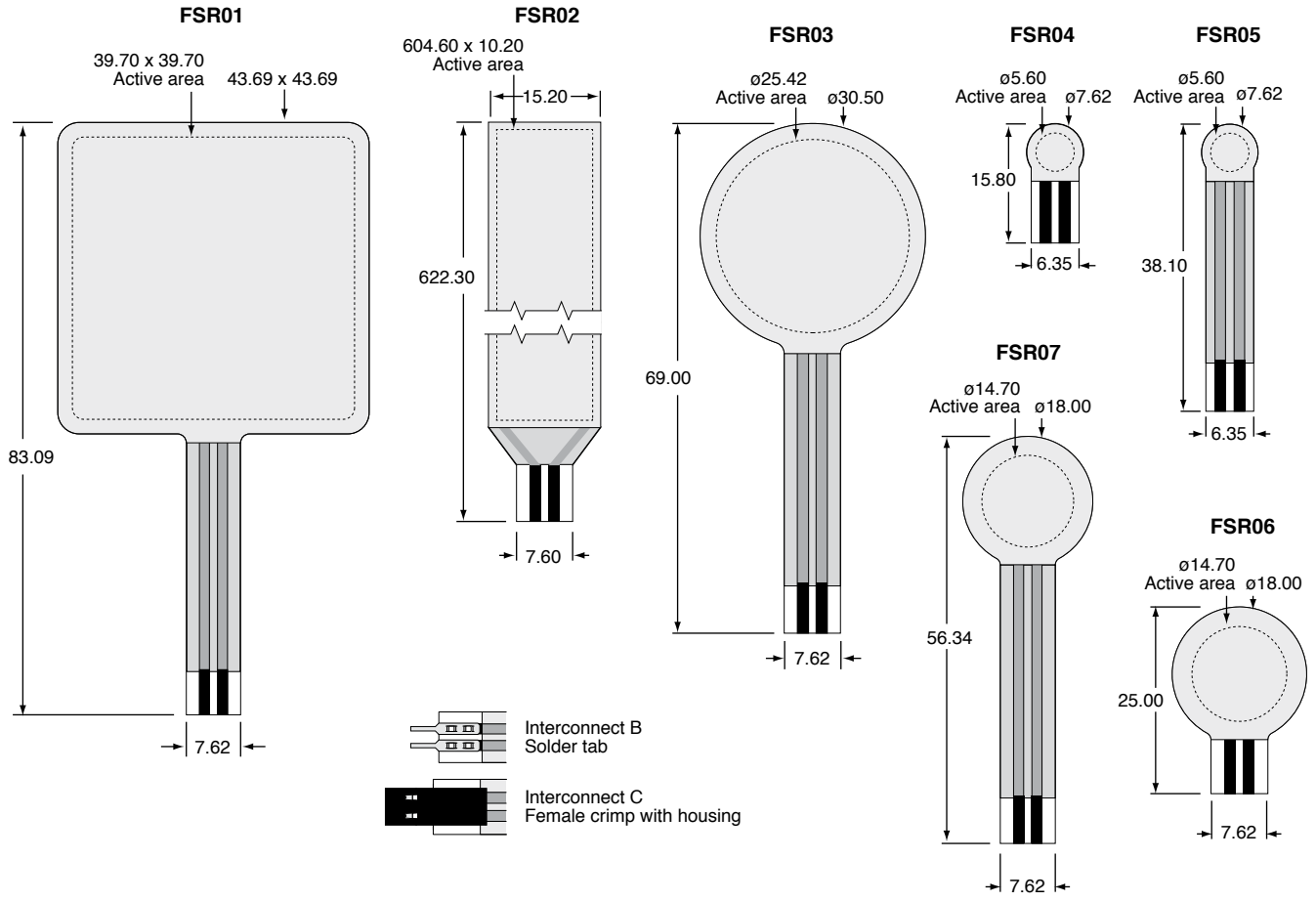
DIMENSIONS



ORDERING INFORMATION

Terminal type
A = Bare tail
B = Solder tab
C = Connector housing (female, equivalent to Nicomatic 14106-12 and OF02)
D, E… = Assigned sequentially for custom designs

F S R 0 3 C X E– **RoHS Compliant**

Series FSR
Force sensing resistor

Format
01 = Std. square
02 = Std. strip
03 = Std. round
04, 05... = Assigned sequentially for custom designs

Modifier
for custom designs (optional)