

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	Trace width	Tail width
FSR01CE	39.70 x 39.70mm	0.375mm	43.69 x 43.69mm	83.09mm	39.40mm	7.62mm
FSR02CE	604.60 x 10.20mm	0.375mm	15.20mm	622.30mm	12.70mm	7.60mm
FSR03CE	∅25.42mm	0.425mm	30.50mm	69.00mm	38.00mm	7.62mm

CHARACTERISTICS

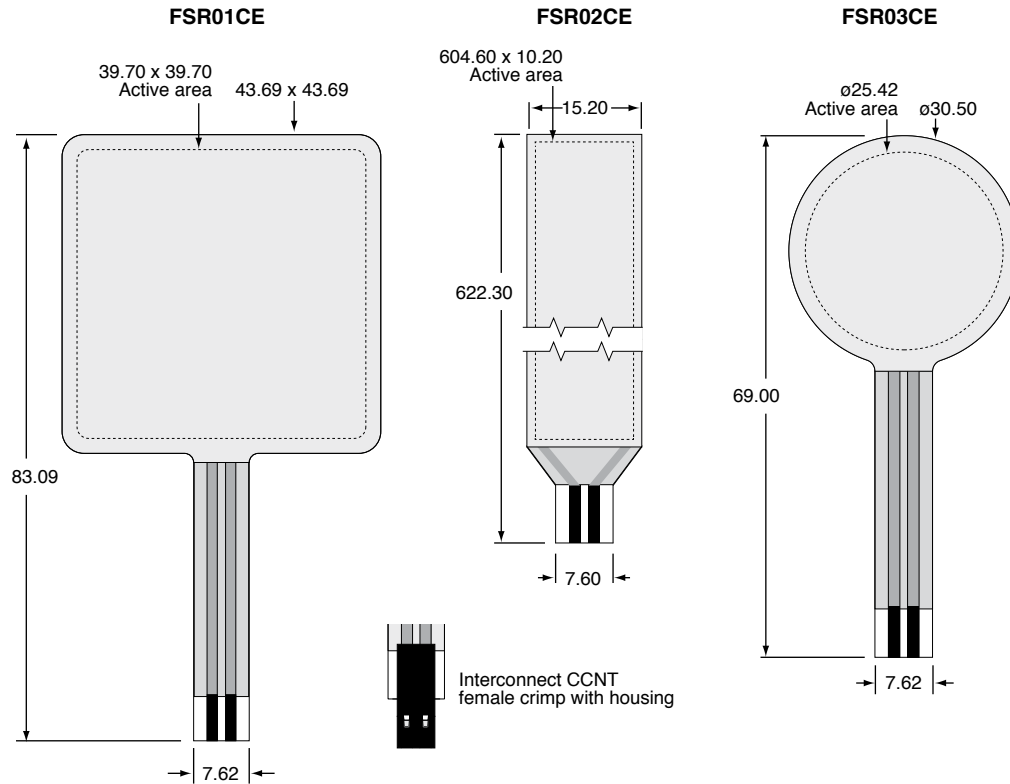
Mode	Shunt	Characteristic	Description	FSR01CE	FSR02CE	FSR03CE
Trace pitch	0.25mm	Actuation force	Force to reach 10MΩ, Average of 100 samples	< 20g	< 20g	< 10g
Spacer height	0.50mm	Force range	linear region of log/log, Higher forces can be achieved with custom sensor and actuation methods	All: Up to 5kg		
Tail length	0.125mm	Long term drift	1kg for 48hrs, Per log time	< 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 resistance of 5 sensors	8%	7%	7%
		High temp. storage	+85°C for 250hrs, Avg. change in resistance of 5 sensors	4%	3%	3%
		High humidity storage	+85°C/85%RH for 250hrs, Avg. change in resistance of 5 sensors	8%	12%	8%
		Lifecycle durability	(10M) 1kg force at 3Hz, Avg. change in resistance of 4 sensors	17%	12%	3%
		Hysteresis	100 actuations of 1kg, Avg. change in resistance 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.

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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	Format	Modifier
Force sensing resistor	01 = Std. square 02 = Std. strip 03 = Std. round 04, 05... = Assigned sequentially for custom designs	for custom designs (optional)