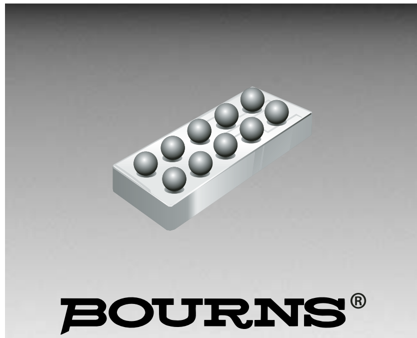


Features

- Bidirectional EMI filtering
- ESD protection > 25k volts
- Protects four data lines

Applications

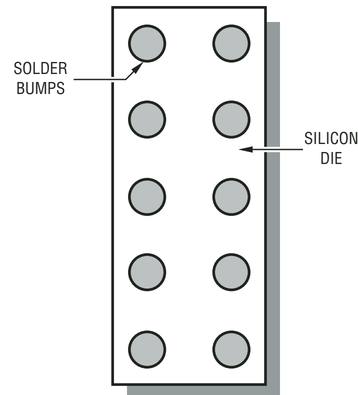
- Cell phones
- PDAs and notebooks
- Digital cameras
- MP3 players and GPS

2FAF-C10R - Integrated Passive & Active Device

General Information

The 2FAF-C10R device, manufactured using Thin Film on Silicon technology, provides ESD protection and EMI filtering for the data port of portable electronic devices such as cell phones, modems and PDAs. The device incorporates four low pass filter channels where each channel has a series 100 ohm resistor assuring a minimum of -28 dB attenuation from 800 MHz to 3 GHz. The device is suitable for EMI filtering of GSM, CDMA, W-CDMA, WLAN and Bluetooth frequencies.

Each internal and external port of the four channels includes a TVS diode for ESD protection. The ESD protection provided by the component enables a data port to withstand a minimum ±8 KV Contact / ±15 KV Air Discharge per the ESD test method specified in IEC 61000-4-2. The device measures 1.22 mm x 2.38 mm and is available in a 10 bump CSP package intended to be mounted directly onto an FR4 printed circuit board. The CSP device meets typical thermal cycle and bend test specifications without the use of an underfill material.



Electrical & Thermal Characteristics

Electrical Characteristics (T_A = 25 °C unless otherwise noted)	Symbol	Minimum	Nominal	Maximum	Unit
Per Line Specification Resistance	R	80	100	120	Ω
Capacitance @ 2.5 V 1 MHz	C	24	30	36	pF
Rated Standoff Voltage	V_{WM}		5.0		V
Breakdown Voltage @ 1 mA	V_{BR}	6.0			V
Forward Voltage @ 10 mA	V_F		0.8		V
Leakage Current @ 3 V	I_R		0.05	0.1	µA
Filter Attenuation @ 800-3000 MHz	S21	-28	-35		dB
ESD Protection: IEC 61000-4-2 Contact Discharge Air Discharge		 ±8 ±15			 kV kV
Thermal Characteristics (T_A = 25 °C unless otherwise noted)					
Operating Temperature Range	T_J	-40	25	+85	°C
Storage Temperature Range	T_{STG}	-55	25	+150	°C
Power Dissipation per Resistor	P_D			100	mW

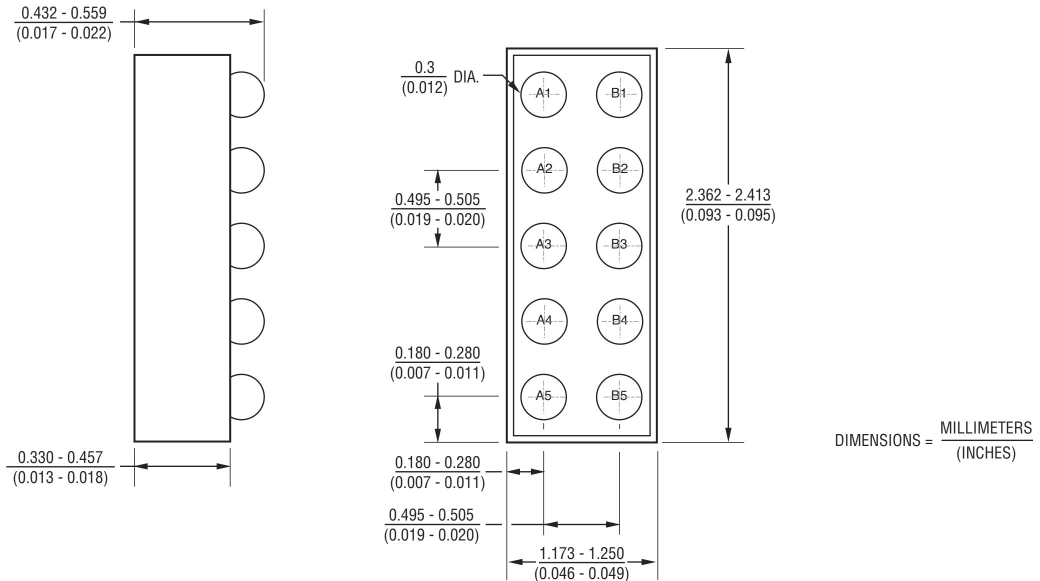
Reliable Electronic Solutions

Asia-Pacific: TEL +886- (0)2 25624117 • FAX +886- (0)2 25624116
Europe: TEL +41-41 768 5555 • FAX +41-41 768 5510
North America: TEL +1-951 781-5492 • FAX +1-951 781-5700
www.bourns.com

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

Mechanical Characteristics

This is a silicon-based device and is packaged using chip scale packaging technology. Solder bumps, formed on the silicon die, provide the interconnect medium from die to PCB. The bumps are arranged on the die in a regular grid formation. The grid pitch is 0.5 mm and the dimensions for the packaged device are shown below.



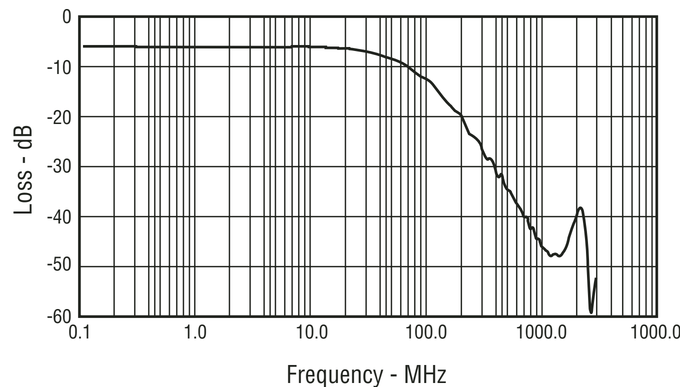
Reliability Data

Reliability data is gathered on an ongoing basis for Bourns® Integrated Passive and Active Devices.

"Package level" testing of the integrity of the solder joint is carried out on an independent Daisy-Chain test device. A 25-Pin Daisy Chain component is available from Bourns for this purpose (part number 2TAD-C25R). This is a 5 x 5 array featuring 0.5 mm pitch solder bumps. The Distance to Neutral Point (DNP) on that component is larger than that of the 2FAF-C10R and is thus deemed suitable for Thermal Cycle testing.

"Silicon level" reliability performance is based on similarity to other integrated passive CSP devices from Bourns.

Frequency Response



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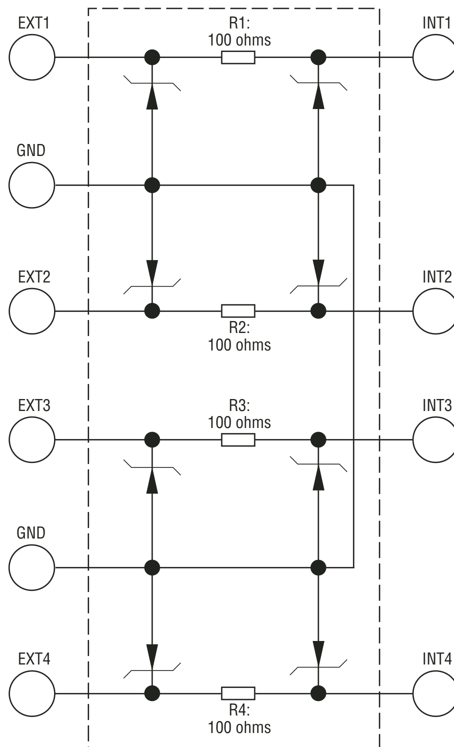
Block Diagram

The CSP device block diagram below includes the pin names and basic electrical connections associated with each channel.



PCB Design and SMT Processing

Please consult the "Bourns Design Guide Using CSP" for notes on PCB design and SMT Processing.

How to Order

2 FAF - C10R

- Thinfilm
- Model
- Chipscale
- No. of Solder Bumps
- Packaging Option
  - R = Tape and Reel
    - Packaged 5000 pcs. / 7 " reel

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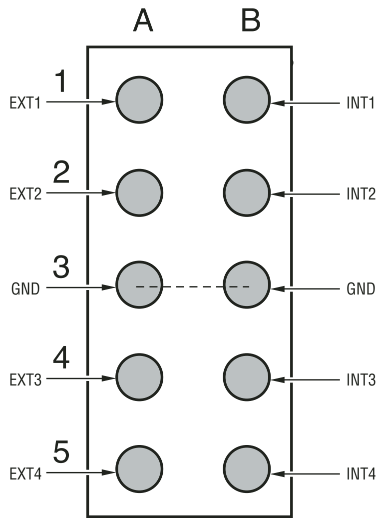
Device Pin Out

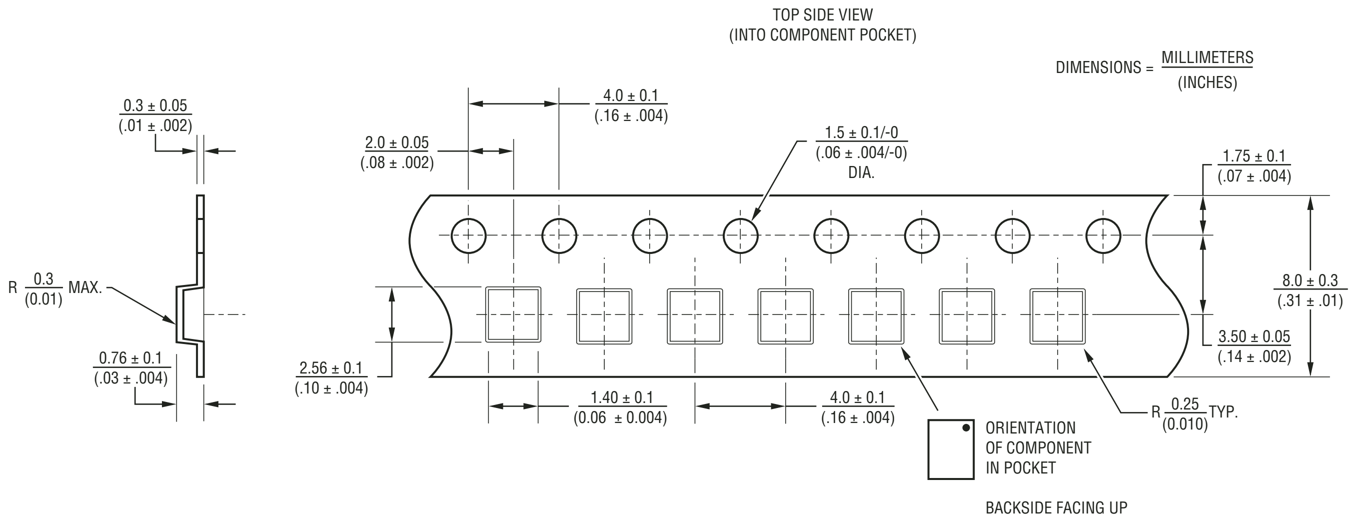
The pin-out for the device is shown below with the bumps facing up.



Pin Out	Function	Pin Out	Function
A1	EXT1	B1	INT1
A2	EXT2	B2	INT2
A3	GND	B3	GND
A4	EXT3	B4	INT3
A5	EXT4	B5	INT4

Packaging

The surface mount product is packaged in an 8 mm x 4 mm Tape and Reel format per EIA-481 standard.



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