

## Features

- Lead free as standard
- RoHS compliant\*
- ESD protection
- Protects up to ten data lines
- Low insertion loss

## Applications

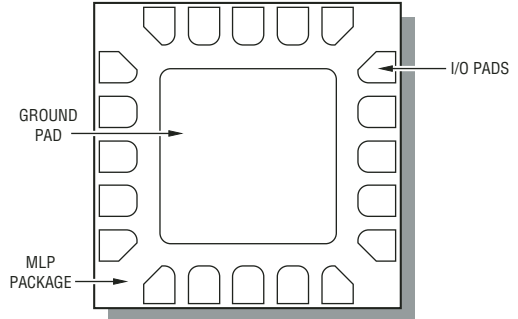
- Cell Phones
- PDAs and Notebooks
- GPS and SMART Cards

## 2FAB-M20R – Integrated Passive & Active Device using MLP

### General Information

The 2FAB-M20R device, manufactured using Thin Film on Silicon technology, provides ESD protection for the external ports of portable electronic devices such as cell phones, modems and PDAs.

The ESD protection provided by the component enables a data port to withstand a minimum  $\pm 8$  KV Contact /  $\pm 15$  KV Air Discharge per the ESD test method specified in IEC 61000-4-2. The device measures 3.5 mm x 3.5 mm and is intended to be mounted directly onto an FR4 printed circuit board. The MLP device meets typical thermal cycle and bend test specifications.



### Electrical & Thermal Characteristics

Electrical Characteristics ( $T_a = 25^\circ\text{C}$ unless otherwise noted)	Symbol	Minimum	Nominal	Maximum	Unit
Resistance	R	90	100	110	$\Omega$
Capacitance @ 2.5 V 1 MHz	C	16	20	24	pF
Rated Standoff Voltage	$V_{RM}$		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	$I_b$			0.1	$\mu\text{A}$
ESD Protection: IEC 61000-4-2 Contact Discharge		$\pm 8$			kV
Air Discharge		$\pm 15$			kV
<b>Thermal Characteristics</b> ( $T_a = 25^\circ\text{C}$ unless otherwise noted)					
DC Power Rating	P			100	mW
Operating Temperature Range	$T_o$	-40	25	+85	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55	25	+150	$^\circ\text{C}$

\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex

Specifications are subject to change without notice.

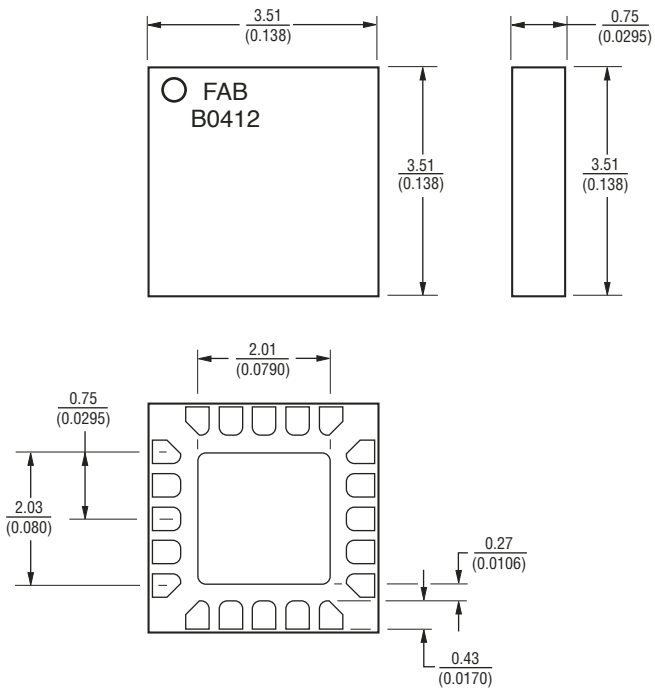
Customers should verify actual device performance in their specific applications.

## 2FAB-M20R – Integrated Passive & Active Device using MLP

**BOURNS®**

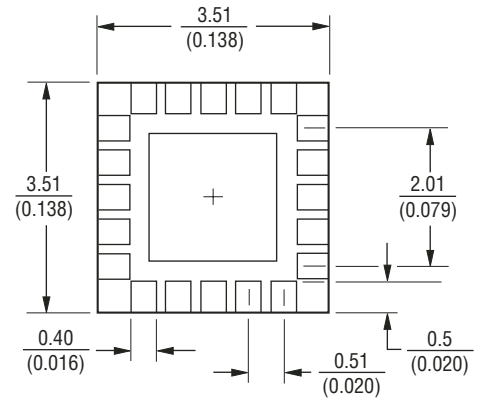
### Product Dimensions

This silicon-based device is packaged using micro leadframe packaging technology. The MLPs have an exposed die attach pad that provides the interconnect medium from die to PCB. The pads are arranged for easy PCB routing. The pitch is 0.5 mm and the dimensions for the packaged device are shown below.



DIMENSIONS =  $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

### Recommended Pad Layout



### How to Order

**2 FAB – M 20 R**

Thin Film \_\_\_\_\_

Model \_\_\_\_\_

MLP Package \_\_\_\_\_

No. of Solder Pads \_\_\_\_\_

Packaging Option \_\_\_\_\_

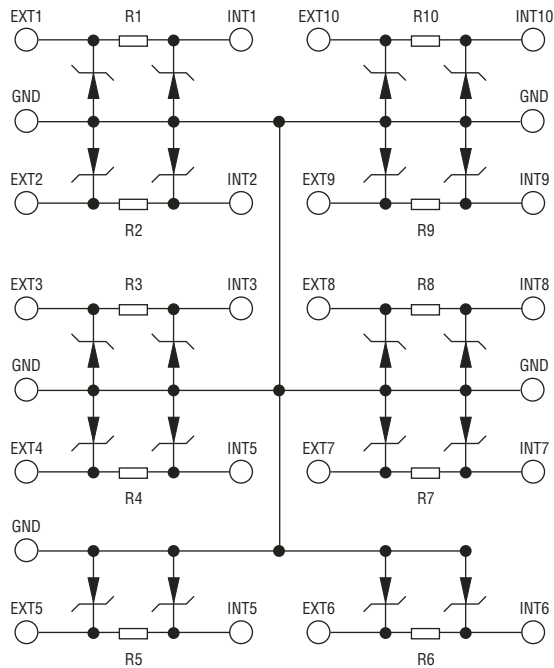
R = Tape and Reel  
 Packaged 3000 pcs. / 13" reel  
 (100 % Sn Termination)

## 2FAB-M20R – Integrated Passive & Active Device using MLP

**BOURNS®**

### Block Diagram

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



### Frequency Response



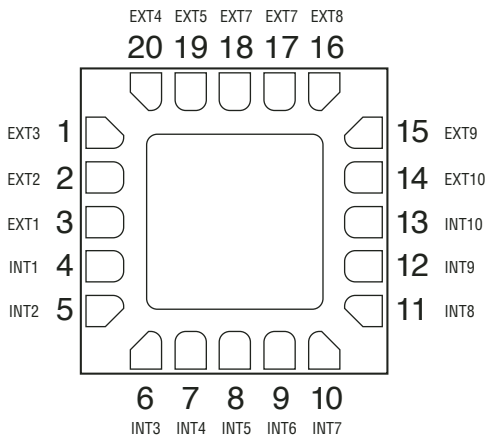
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# 2FAB-M20R – Integrated Passive & Active Device using MLP



## Device Pin Out

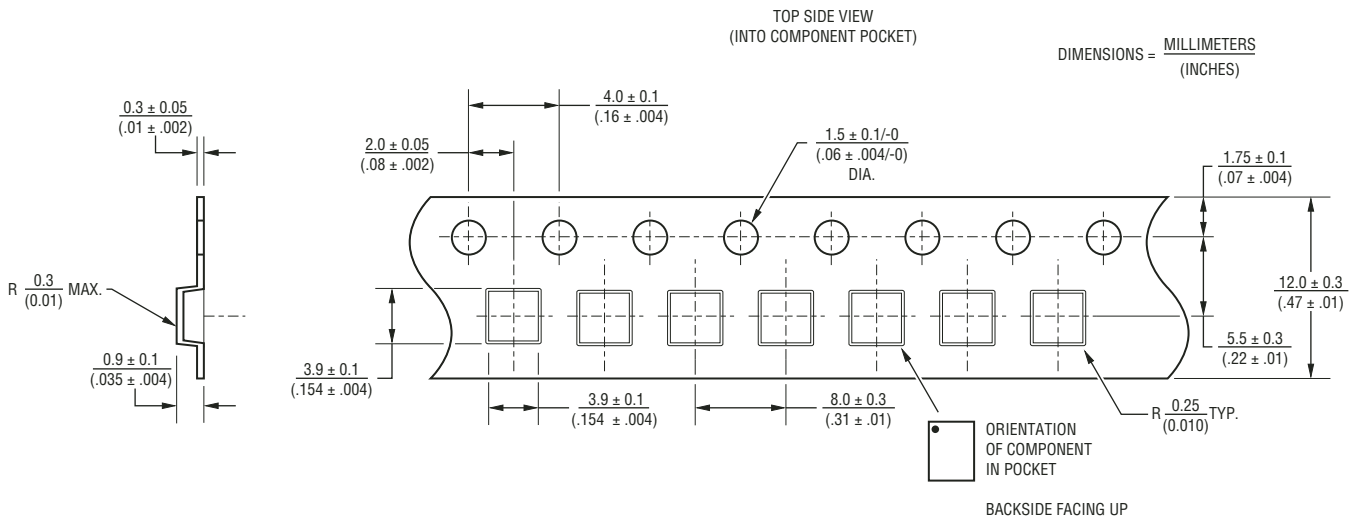
The Pin-Out for the device is shown below. Note also that the device is shown with bottom side pads facing up.



Pin Out	Function	Pin Out	Function	Pin Out	Function	Pin Out	Function
Pin1	EXT3	Pin6	INT3	Pin11	INT8	Pin16	EXT8
Pin2	EXT2	Pin7	INT4	Pin12	INT9	Pin17	EXT7
Pin3	EXT1	Pin8	INT5	Pin13	INT10	Pin18	EXT6
Pin4	INT1	Pin9	INT6	Pin14	EXT10	Pin19	EXT5
Pin5	INT2	Pin10	INT7	Pin15	EXT9	Pin20	EXT4

## Packaging

The surface mount product is packaged in a 12 mm x 8 mm Tape and Reel format per EIA-481 standard.



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  
**The Americas:** TEL +1-951 781-5492 • FAX +1-951 781-5700  
[www.bourns.com](http://www.bourns.com)