

## Features

- Lead free as standard
- RoHS compliant\*
- ESD protection >25 kV
- Protects up to 8 lines
- Bidirectional EMI filtering
- DFN-16 package

## Applications

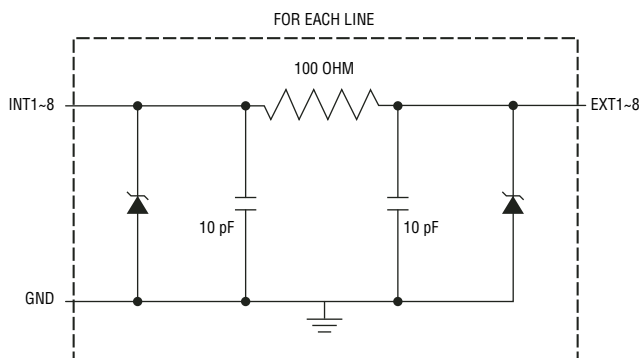
- Cell phones
- PDAs and notebooks
- GPS and SMART cards
- Color LCD display panel

## 2FAL-M16R Integrated Passive & Active Devices

### General Information

The 2FAL-M16R device, manufactured using Thin Film on Silicon technology, provides ESD protection for the external ports of portable electronic devices such as cell phones, notebooks 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 4 mm x 1.7 mm and can be mounted directly onto an FR4 printed circuit board. The device meets typical thermal cycle and bend test specifications without the use of an underfill material.



### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Min.	Nom.	Max.	Unit
Resistance	R	85	100	115	$\Omega$
Capacitance @ 2.5 V, 1 MHz	C	16	20	24	pF
Rated Standoff Voltage	$V_{WM}$			5	V
Breakdown Voltage @ 1 mA	$V_{BR}$	6			V
Forward Voltage @ 10 mA	$V_F$		0.8		V
Leakage Current @ 3 V	$I_D$			0.1	$\mu\text{A}$
ESD Protection: IEC 61000-4-2 Contact Discharge Air Discharge		$\pm 8$ $\pm 15$			kV kV
Frequency: Attenuation @ 800-3000 MHz Cut-off (50 $\Omega$ I/O) Zero Bias	$f_c$	25	35 150		db MHz
DC Power per Resistor	P			100	mW

### Thermal Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Min.	Nom.	Max.	Unit
Operating Temperature Range	$T_J$	-40	+25	+85	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55	+25	+150	$^\circ\text{C}$

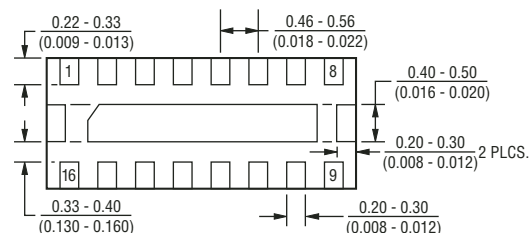
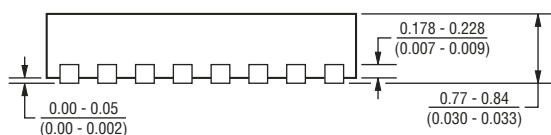
\*RoHS Directive 2002/95/EC Jan 27 2003, including Annex  
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

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## Frequency Response

Technical drawing of a rectangular plate. The drawing includes a front view and a side view. The front view shows a rectangle with a small circle in the bottom-left corner. Dimensions and tolerances are indicated with arrows and text:

- Horizontal dimension:  $\frac{3.88 - 4.09}{(0.153 - 0.161)}$
- Vertical dimension:  $\frac{1.50 - 1.70}{(0.059 - 0.067)}$
- Side view dimension:  $\frac{0.178 - 0.228}{(0.007 - 0.009)}$



### Block Diagram

FOR EACH LINE

INT1-8

EXT1-8

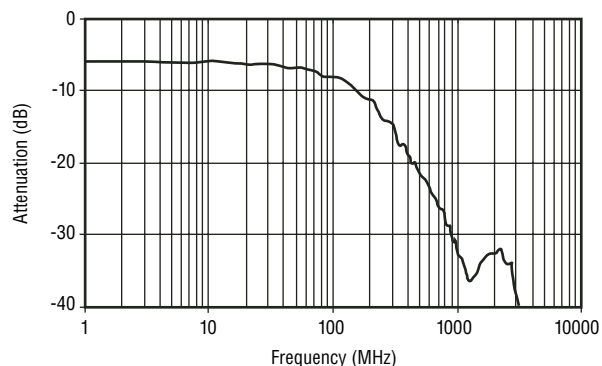
100 OHM

10 pF

10 pF

GND

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



## 2 FAL - M16R

Thinfilim \_\_\_\_\_

Model \_\_\_\_\_

Micro Leadframe \_\_\_\_\_

Number of Pads \_\_\_\_\_

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

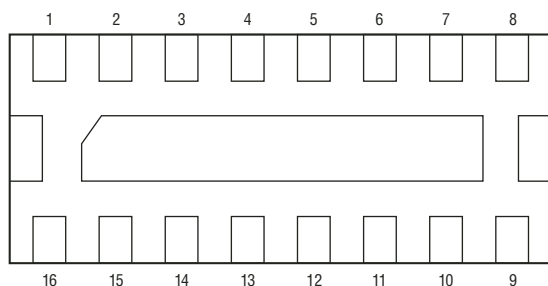
R = Tape and Reel

          Packaged 3000 pcs. / 7" reel

## 2FAL-M16R Integrated Passive & Active Devices

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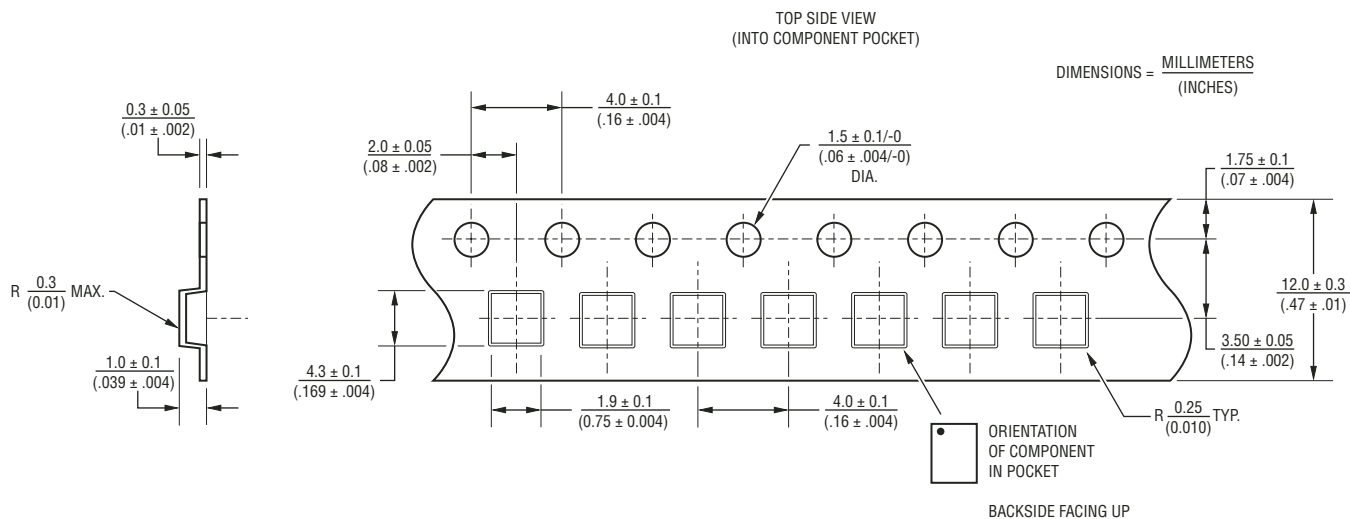
### Device Pin Out



Pin	Function		Function
1	INT 1	9	EXT 8
2	INT 2	10	EXT 7
3	INT 3	11	EXT 6
4	INT 4	12	EXT 5
5	INT 5	13	EXT 4
6	INT 6	14	EXT 3
7	INT 7	15	EXT 2
8	INT 8	16	EXT 1

### Packaging

The surface mount product is packaged in a 12 mm x 4 mm Tape and Reel format per EIA-481 standard.



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