

### Features

- Lead free as standard
- RoHS compliant\*
- ESD protection >25 kV
- Protects up to 6 lines
- Bidirectional EMI filtering
- DFN-12 package

### Applications

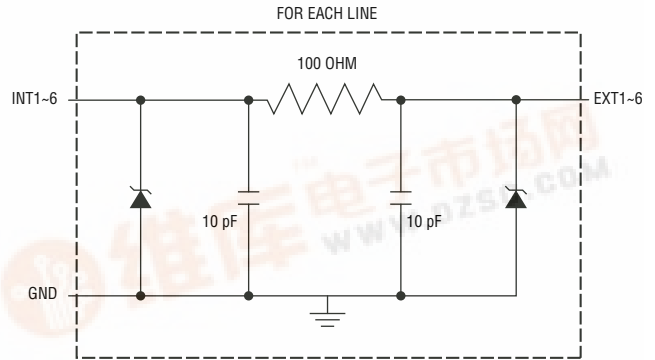
- Cell phones
- PDAs and notebooks
- GPS and SMART cards
- Color LCD display panel

## 2FAG-M12R Integrated Passive & Active Devices

### General Information

The 2FAG-M12R 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 3 mm x 1.4 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	80	100	120	$\Omega$
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)

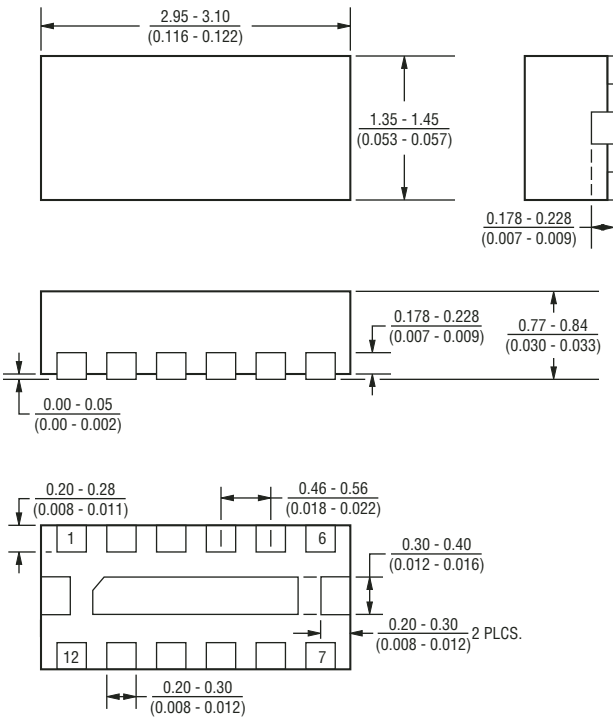
Parameter	Symbol	Min.	Nom.	Max.	Unit
Operating Temperature Range	$T_J$	-40	+25	+85	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55	+25	+150	$^\circ\text{C}$

## 2FAG-M12R Integrated Passive & Active Devices

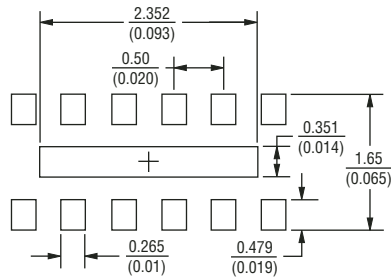
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### Product Dimensions

This device consists of a DFN package. It consists of 12 I/O pins and 1 ground pin and has a flammability rating of UL 94V-0. The package measures 3 mm x 1.4 mm, weighs approximately 0.10 mg and has a 100 % Sn finish termination.

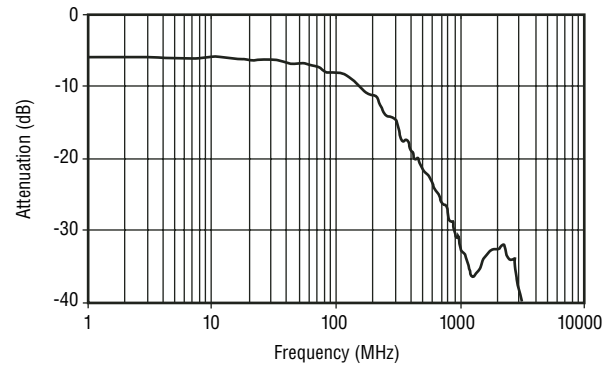


### Recommended Pad Layout

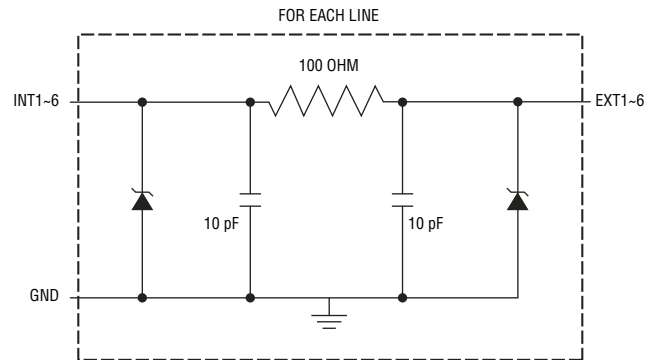


DIMENSIONS =  $\frac{\text{MILLIMETERS}}{\text{(INCHES)}}$

### Frequency Response



### Block Diagram



### How to Order

**2 FAG - M12R**

Thinfilm \_\_\_\_\_

Model \_\_\_\_\_

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

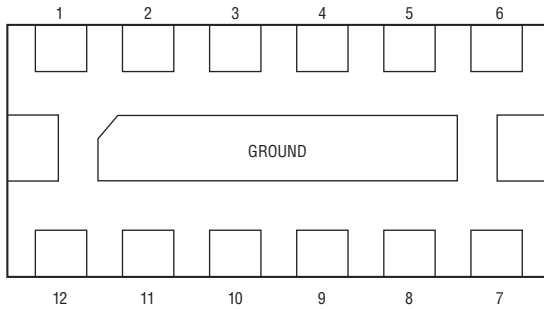
Number of Pads \_\_\_\_\_

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

R = Tape and Reel

Packaged 3000 pcs. / 7" reel

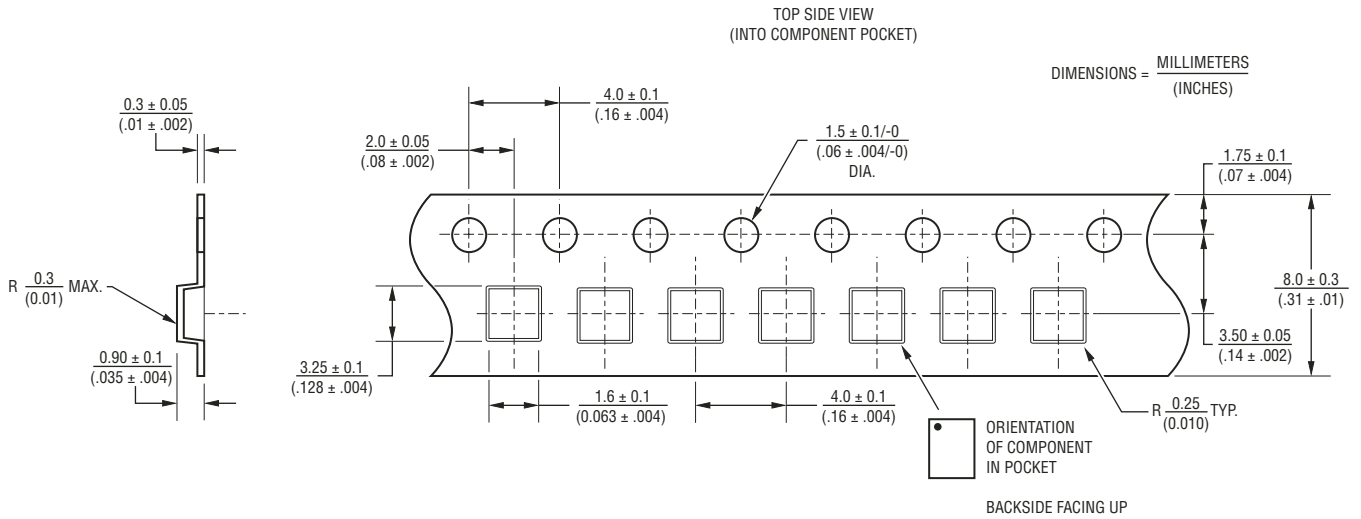
**Device Pin Out**



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

**Packaging**

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



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