

## EMI FILTER/TVS ARRAY

### APPLICATIONS

- ✓ Cellular Phones
- ✓ Notebooks
- ✓ Personal Digital Assistant (PDA)
- ✓ Ground Positioning System (GPS)
- ✓ SMART Card

### IEC COMPATIBILITY (EN61000-4)

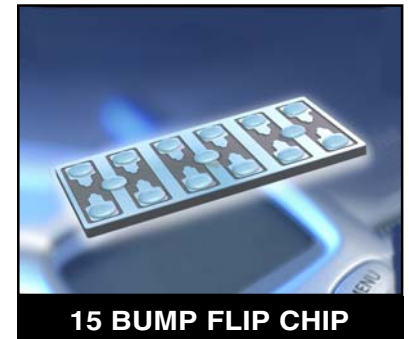
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

### FEATURES

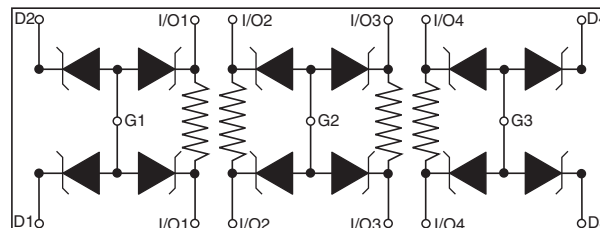
- ✓ ESD Protection > 25 kilovolts
- ✓ 4 Symmetrical I/O Channel EMI Filtering/TVS for ESD Protection
- ✓ Low Insertion Loss: -3db Roll-Off @ 60MHz
- ✓ Four Separate TVS Diodes for ESD Protection
- ✓ Low Lead Inductance
- ✓ RoHS Compliant

### MECHANICAL CHARACTERISTICS

- ✓ 15 Bump Flip Chip Package
- ✓ Weight 0.73 milligrams (Approximate)
- ✓ Available in Lead-Free Plating
- ✓ Solder Reflow Temperature:  
Lead-Free - Sn/Ag/Cu, 96/3.5/0.5: 260-270°C
- ✓ Consult Factory for Leaded Device Availability
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481



### PIN CONFIGURATION



# EMIF4-100FCD4

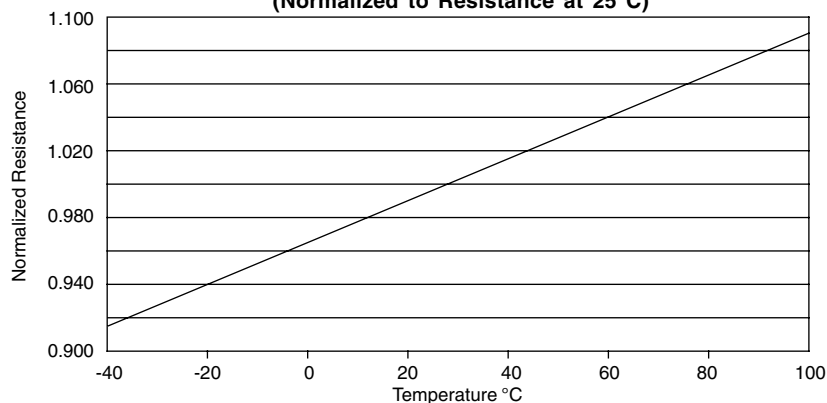
## DEVICE CHARACTERISTICS

| MAXIMUM RATINGS @ 25°C Unless Otherwise Specified |           |            |       |
|---------------------------------------------------|-----------|------------|-------|
| PARAMETER                                         | SYMBOL    | VALUE      | UNITS |
| Operating Temperature                             | $T_A$     | -40 to 85  | °C    |
| Storage Temperature                               | $T_{STG}$ | -55 to 150 | °C    |
| DC Power Per Resistor                             | P         | 100        | mW    |
| Typical Resistance @ $\pm 20\%$                   | R         | 100        | OHMS  |

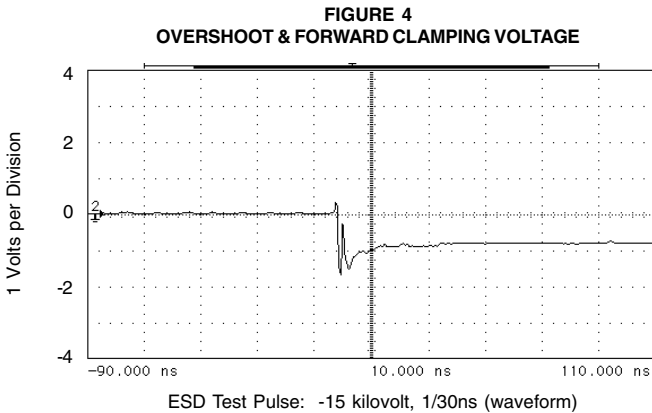
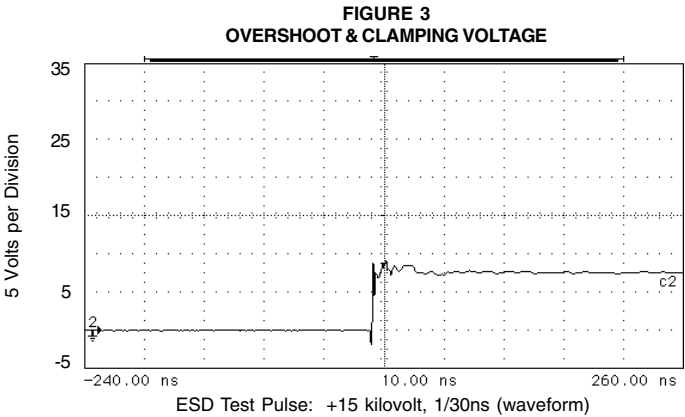
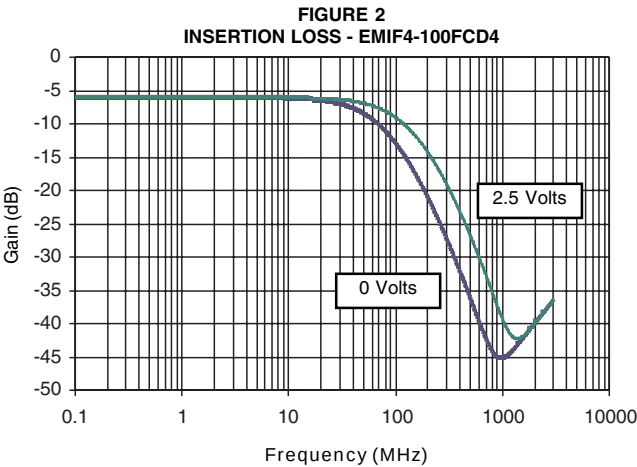
| ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified |                         |                              |                                 |                          |                         |                                           |                                           |
|-----------------------------------------------------------------------|-------------------------|------------------------------|---------------------------------|--------------------------|-------------------------|-------------------------------------------|-------------------------------------------|
| PART NUMBER                                                           | RATED STAND-OFF VOLTAGE | MINIMUM BREAKDOWN VOLTAGE    | MAXIMUM REVERSE LEAKAGE CURRENT | TYPICAL FORWARD VOLTAGE  | MINIMUM ATTENUATION     | CUT-OFF FREQUENCY (50 OHMS I/O) ZERO BIAS | TYPICAL CAPACITANCE PER LINE (See Note 1) |
|                                                                       | $V_{WM}$<br>VOLTS       | @ 1mA<br>$V_{(BR)}$<br>VOLTS | @ 3.3V<br>$I_b$<br>$\mu A$      | @ 10mA<br>$V_F$<br>VOLTS | @<br>800-3000 MHz<br>dB | fC<br>MHz                                 | @ 2.5V, 1MHz<br>$C_{LINE}$<br>pF          |
| EMIF4-100FCD4                                                         | 5.0                     | 6.0                          | 0.5                             | 0.8                      | 30                      | 60                                        | 30                                        |

**Note 1:**  $\pm 20\%$  tolerance.

**FIGURE 1**  
**RESISTANCE VS TEMPERATURE**  
**(Normalized to Resistance at 25°C)**



## GRAPHS

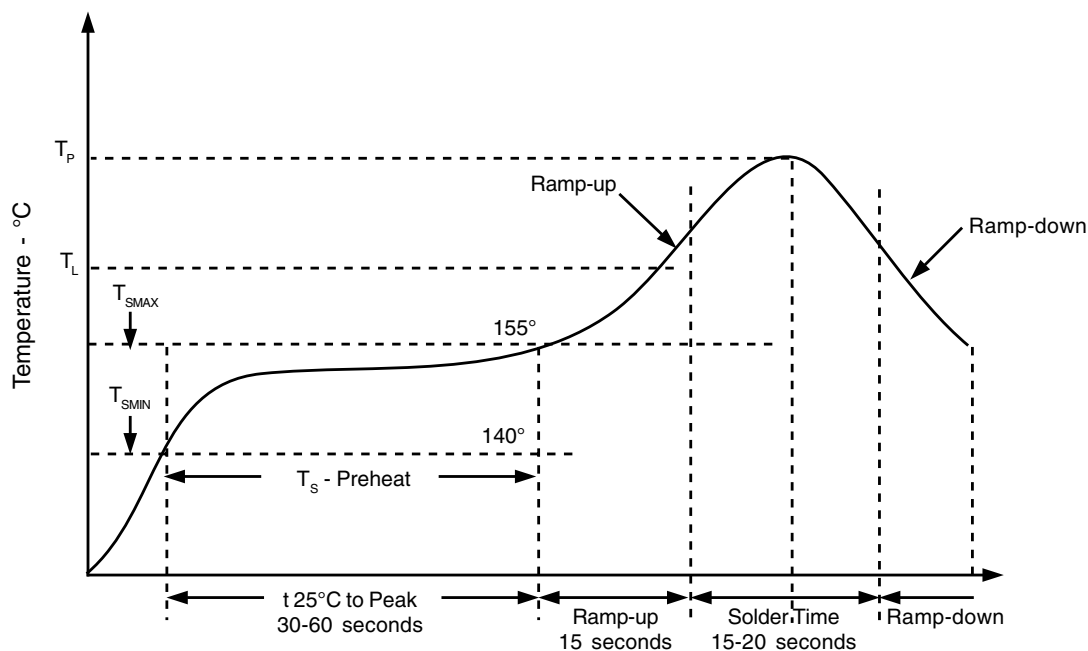
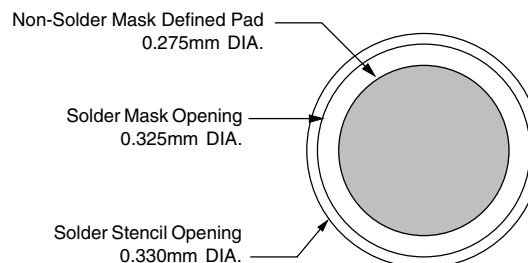


## SOLDER RECOMMENDATIONS

| PRINTED CIRCUIT BOARD RECOMMENDATIONS                         |                              |
|---------------------------------------------------------------|------------------------------|
| PARAMETER                                                     | VALUE                        |
| Pad Size on PCB                                               | 0.275mm                      |
| Pad Shape                                                     | Round                        |
| Pad Definition                                                | Non-Solder Mask Defined Pads |
| Solder Mask Opening                                           | 0.325mm Round                |
| Solder Stencil Thickness                                      | 0.150mm                      |
| Solder Stencil Aperture Opening (laser cut, 5% tapered walls) | 0.330mm Round                |
| Solder Paste Type                                             | No Clean                     |
| Pad Protective Finish                                         | OSP (Entek Cu Plus 106A)     |
| Tolerance - Edge To Corner Ball                               | $\pm 50\mu\text{m}$          |
| Solder Ball Side Coplanarity                                  | $\pm 20\mu\text{m}$          |
| Maximum Dwell Time Above Liquidous ( $183^{\circ}\text{C}$ )  | 60 Seconds                   |
| Soldering Maximum Temperature                                 | $270^{\circ}\text{C}$        |

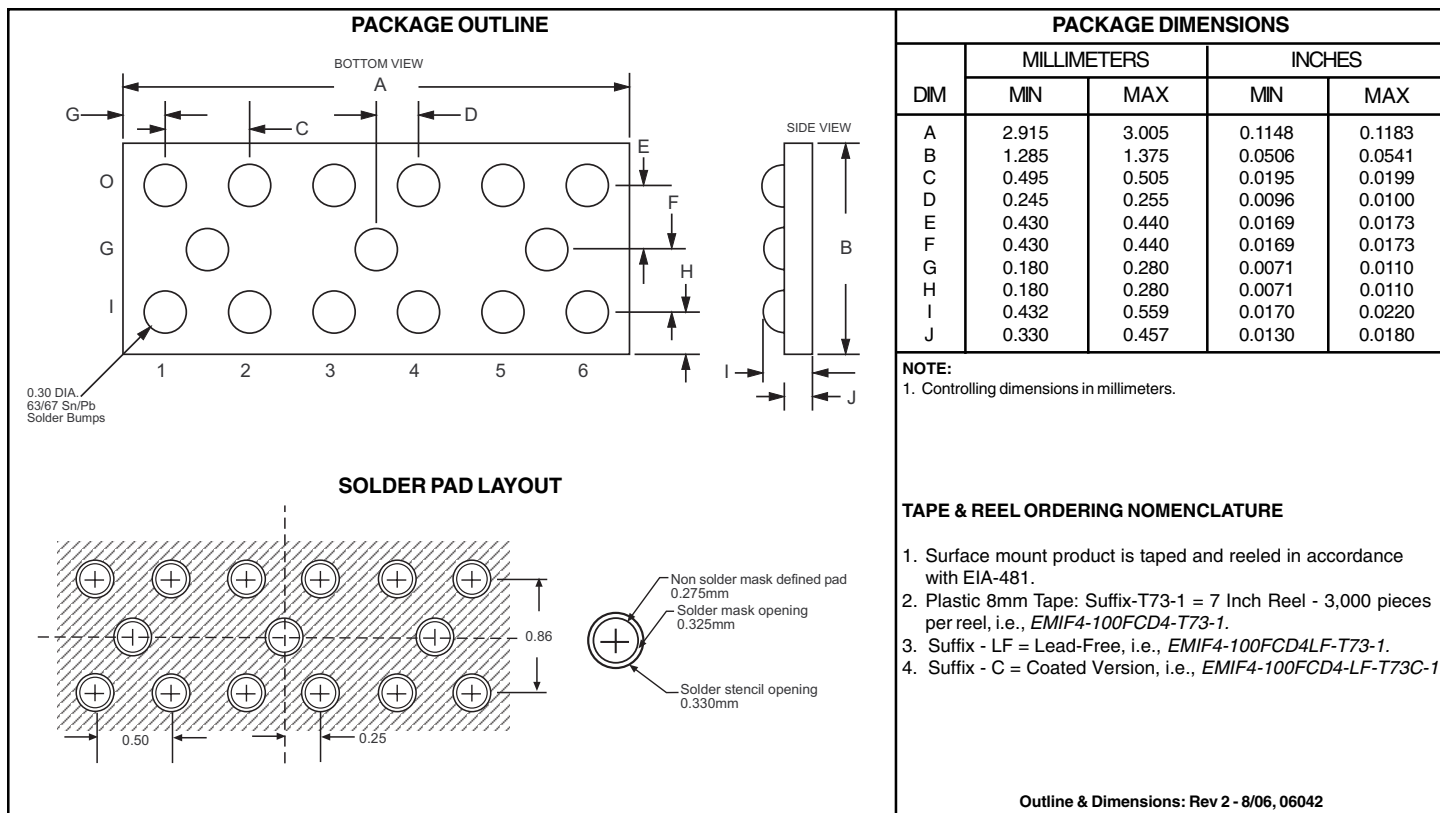
| REQUIREMENTS                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Temperature:</p> <p><math>T_p</math> for Lead-Free (SnAgCu): <math>260-270^{\circ}\text{C}</math></p> <p><math>T_p</math> for Tin-Lead: <math>240-245^{\circ}\text{C}</math></p> <p>Preheat time and temperature depends on solder paste and flux activation temperature, component size, weight, surface area &amp; plating.</p> |

### RECOMMENDED NON-SOLDER MASK DEFINED PAD ILLUSTRATION



# EMIF4-100FCD4

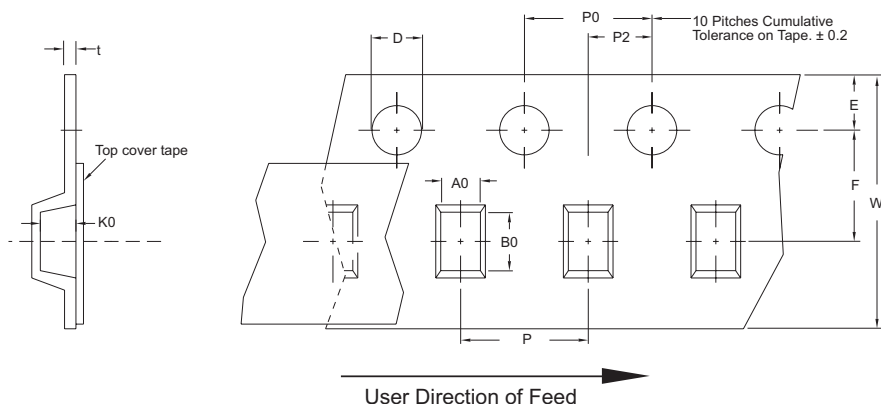
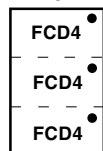
## 15 BUMP FLIP CHIP PACKAGE OUTLINE & DIMENSIONS



Tape & Reel Specifications (Dimensions in millimeters)

| Reel Dia.  | Tape Width | A0          | B0          | K0          | D           | E           | F           | W           | P0          | P2          | P           | t            |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| 178mm (7") | 8mm        | 1.78 ± 0.05 | 3.35 ± 0.05 | 0.76 ± 0.05 | 1.50 ± 0.10 | 1.75 ± 0.10 | 3.50 ± 0.05 | 8.00 ± 0.30 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 0.20 ± 0.025 |

MARKING CODE DIAGRAM



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