

## LOW CAPACITANCE FLIP CHIP ARRAY

### APPLICATIONS

- ✓ Cellular Phones
- ✓ Personal Digital Assistant (PDA)
- ✓ Notebook Computers
- ✓ SMART Cards

### IEC COMPATIBILITY (EN61000-4)

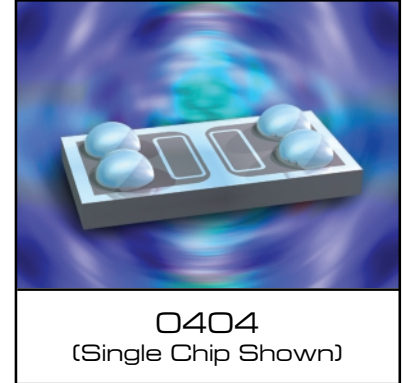
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

### FEATURES

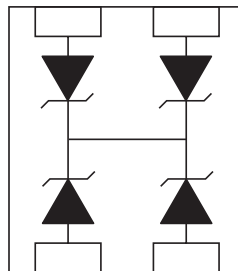
- ✓ ESD Protection > 25 kilovolts
- ✓ Available in Six Voltage Types Ranging From 3.3V to 24V
- ✓ 200 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu s$ )
- ✓ Low Clamping Voltage
- ✓ Bidirectional Configuration & Monolithic Structure
- ✓ Protects 1 to 3 Lines
- ✓ **LOW CAPACITANCE**
- ✓ **LOW LEAKAGE CURRENT**

### MECHANICAL CHARACTERISTICS

- ✓ Standard EIA Chip Size: 0404
- ✓ Weight 0.73 milligrams (Approximate)
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Plastic & Paper Tape and Reel Per EIA Standard 481
- ✓ Device Marking On Reel
- ✓ Top Contacts: Solder Bump 0.004" in Height (Nominal)



### PIN CONFIGURATION

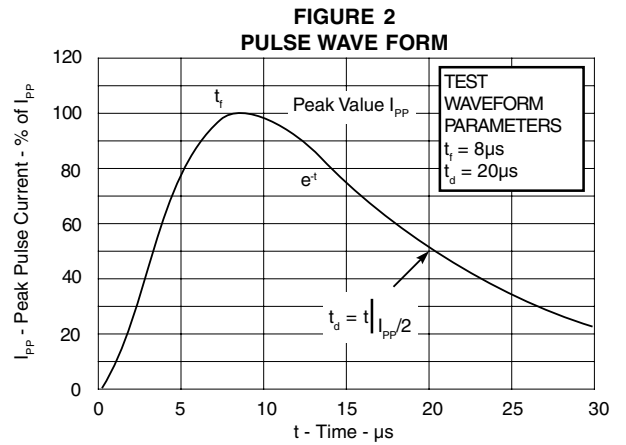
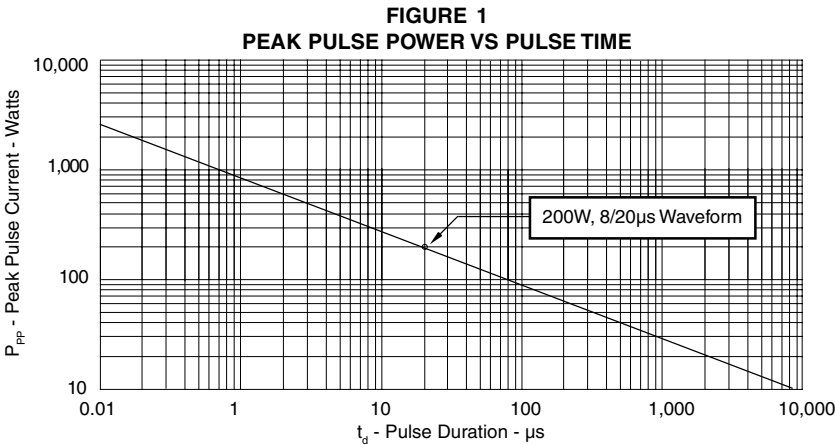


## DEVICE CHARACTERISTICS

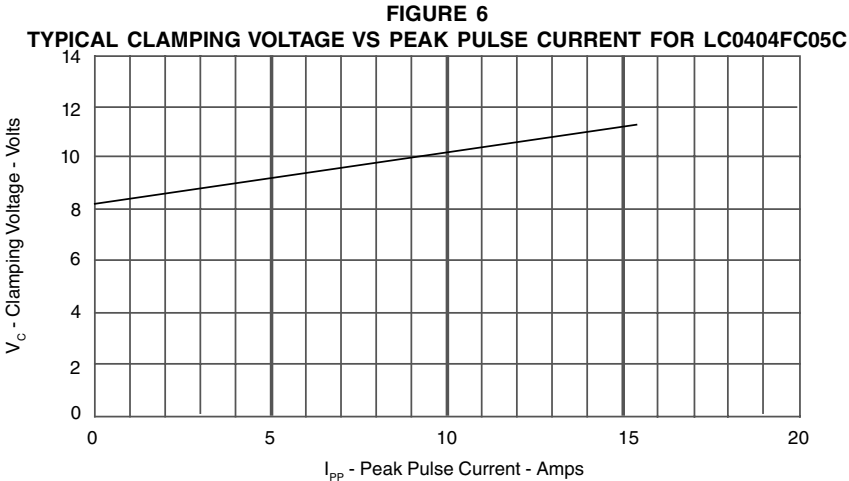
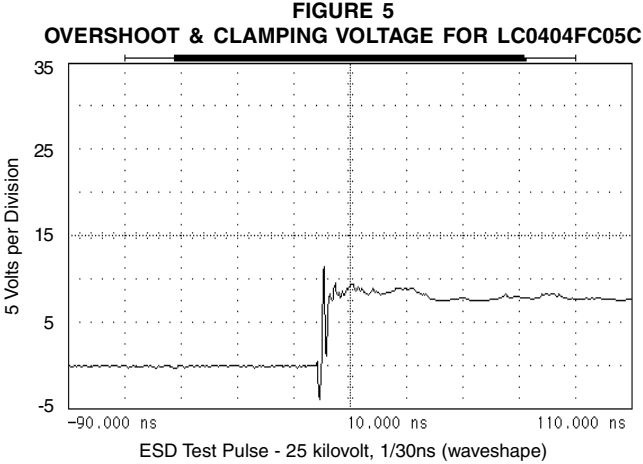
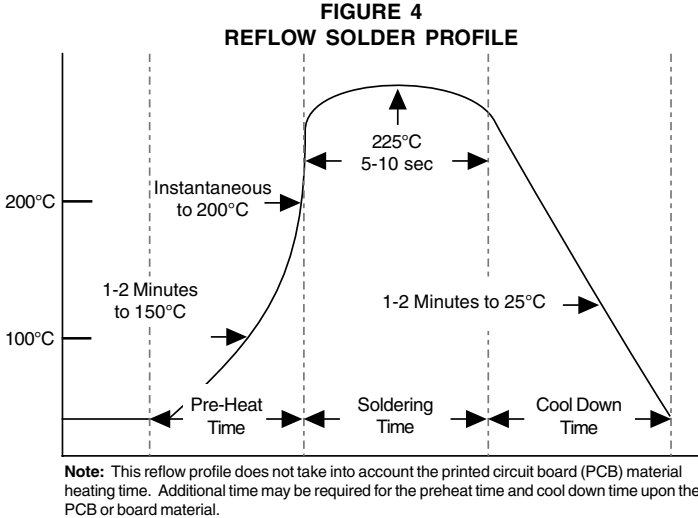
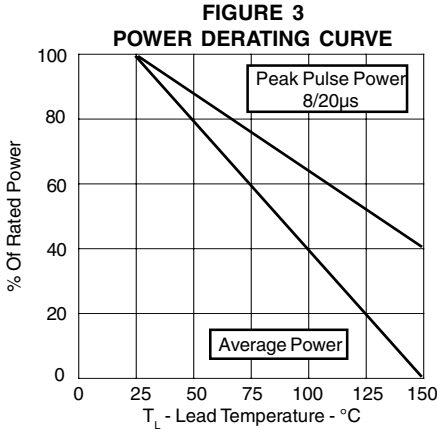
MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1	$P_{PP}$	200	Watts
Operating Temperature	$T_J$	-55°C to 150°C	°C
Storage Temperature	$T_{STG}$	-55°C to 150°C	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER (See Note 1)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE  @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)  @ $I_p = 1A$ $V_C$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)  @ 8/20 $\mu s$ $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT (See Note 2)  @ $V_{WM}$ $I_D$ $\mu A$	TYPICAL CAPACITANCE
						@ 0V, 1 MHz C pF
LC0404FC3.3C	3.3	4.0	7.0	12.5V @ 16A	75*	70
LC0404FC05C	5.9	6.0	11.0	13V @ 15A	10**	35
LC0404FC08C	8.0	8.5	13.2	18V @ 11A	1	32
LC0404FC12C	12.0	13.3	19.8	26.9V @ 7.4A	1	30
LC0404FC15C	15.0	16.7	25.4	34.5V @ 5.8A	1	25
LC0404FC24C	24.0	26.7	37.2	50.6V @ 4A	1	20

**Note 1:** All devices are bidirectional. Electrical characteristics apply in both directions.  
**Note 2:** \*Maximum leakage current < 5 $\mu A$  @ 2.8V. \*\*Maximum leakage current < 500nA @ 3.3V.



**GRAPHS**

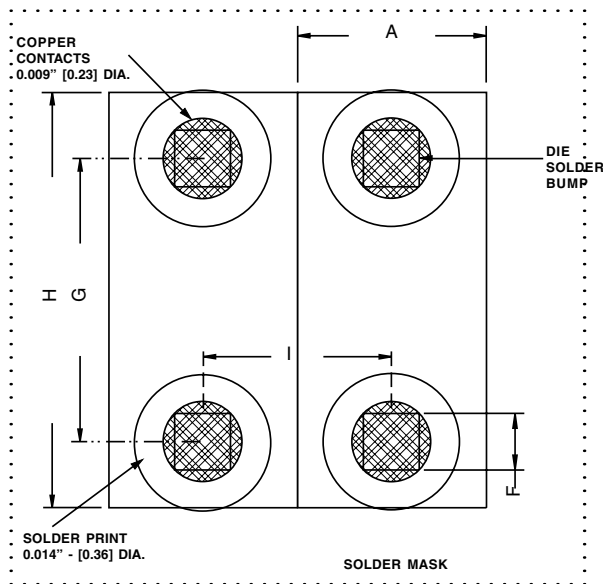


**PACKAGE OUTLINE & DIMENSIONS**

<p style="text-align: center;"><b>PACKAGE OUTLINE</b></p>	<p style="text-align: center;"><b>PACKAGE DIMENSIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">DIM</th> <th style="text-align: center;">MILLIMETERS</th> <th style="text-align: center;">INCHES</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">0.56 NOM</td> <td style="text-align: center;">0.022 NOM</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">0.86 NOM</td> <td style="text-align: center;">0.034 NOM</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">1.0 ± 0.02</td> <td style="text-align: center;">0.039 ± 0.001</td> </tr> <tr> <td style="text-align: center;">E</td> <td style="text-align: center;">0.15 SQ</td> <td style="text-align: center;">0.006 SQ</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">1.0 ± 0.0254</td> <td style="text-align: center;">0.039 ± 0.001</td> </tr> <tr> <td style="text-align: center;">G</td> <td style="text-align: center;">0.15 NOM</td> <td style="text-align: center;">0.006 NOM</td> </tr> <tr> <td style="text-align: center;">H</td> <td style="text-align: center;">0.127 MAX 0.076 MIN</td> <td style="text-align: center;">0.005 MAX 0.003 MIN</td> </tr> <tr> <td style="text-align: center;">I</td> <td style="text-align: center;">0.406 NOM</td> <td style="text-align: center;">0.016 NOM</td> </tr> </tbody> </table> <p><b>NOTES:</b>                      1. Controlling dimensions in inches.                      2. Decimal tolerances for mounting pad and outline: .xxx ± 0.05mm (± 0.002").</p>	DIM	MILLIMETERS	INCHES	A	0.56 NOM	0.022 NOM	B	0.86 NOM	0.034 NOM	C	1.0 ± 0.02	0.039 ± 0.001	E	0.15 SQ	0.006 SQ	F	1.0 ± 0.0254	0.039 ± 0.001	G	0.15 NOM	0.006 NOM	H	0.127 MAX 0.076 MIN	0.005 MAX 0.003 MIN	I	0.406 NOM	0.016 NOM
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## PACKAGE OUTLINE & DIMENSIONS

MOUNTING PAD LAYOUT - Option 2



PACKAGE DIMENSIONS

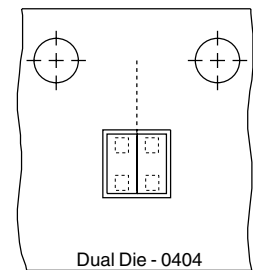
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**NOTES:**

1. Controlling dimensions in inches.
2. Decimal tolerances for mounting pad and outline: .xxx ± 0.05mm (± 0.002").
3. Preferred: Using 0.1mm (0.004") stencil.

**Outline & Dimensions: Rev 3 - 11/02, 06022**

TAPE & REEL ORIENTATION



**NOTE:**

1. Top view of tape. Solder bumps are face down in tape package.

**TAPE & REEL ORDERING NOMENCLATURE**

1. Surface mount product is taped and reeled in accordance with EIA 481.
2. *8mm Plastic Tape*: 7 Inch Reels - 5,000 pieces per reel. Ordering Suffix: -T75-1 (i.e., LC0404FC05C-T75-1).
3. *8mm Paper Tape*: 7 Inch Reels - 10,000 pieces per reel. Ordering Suffix: -T710-2 (i.e., LC0404FC05C-T710-2).

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**ProTek Devices**

2929 South Fair Lane, Tempe, AZ 85282

Tel: 602-431-8101 Fax: 602-431-2288

E-Mail: [sales@protekdevices.com](mailto:sales@protekdevices.com)

Web Site: [www.protekdevices.com](http://www.protekdevices.com)