

UNBUMPED FLIP CHIP ARRAY

APPLICATIONS

- ✓ Cellular Phones
- ✓ MCM Boards
- ✓ Wireless Communication Circuits
- ✓ IR LEDs
- ✓ SMART & PCMCIA Cards

IEC COMPATIBILITY (EN61000-4)

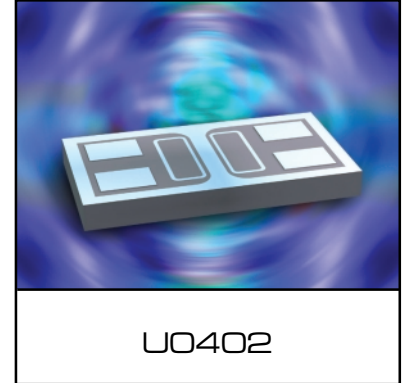
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

FEATURES

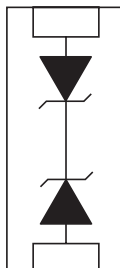
- ✓ ESD Protection > 25 kilovolts
- ✓ Available in Multiple Voltage Types Ranging From 3.3V to 36V
- ✓ 250 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- ✓ Bidirectional Configuration & Monolithic Structure
- ✓ Protects 1 Line

MECHANICAL CHARACTERISTICS

- ✓ Standard EIA Chip Size: 0402
- ✓ Weight 0.73 milligrams (Approximate)
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Plastic & Paper Tape and Reel Per EIA Standard 481
- ✓ Device Marking On Reel



PIN CONFIGURATION



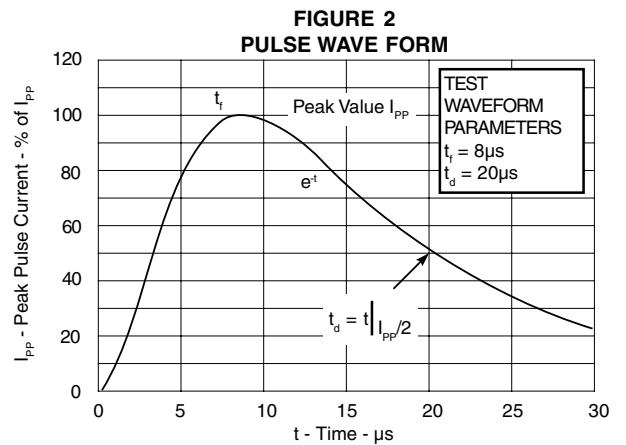
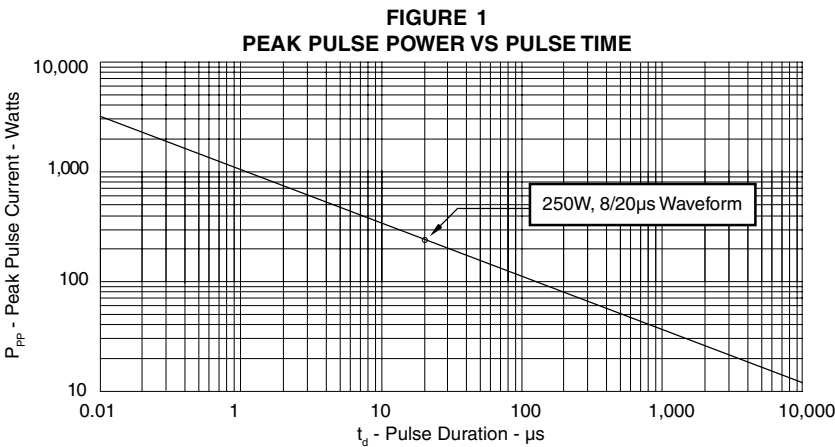
DEVICE CHARACTERISTICS

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}	250	Watts
Operating Temperature	T_J	-55°C to 150°C	°C
Storage Temperature	T_{STG}	-55°C to 150°C	°C

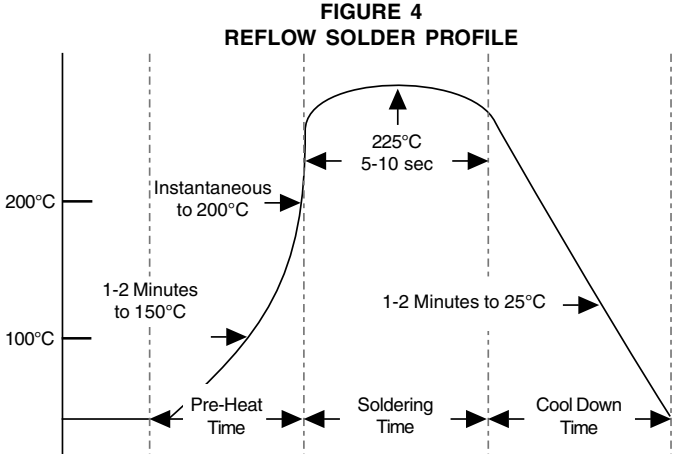
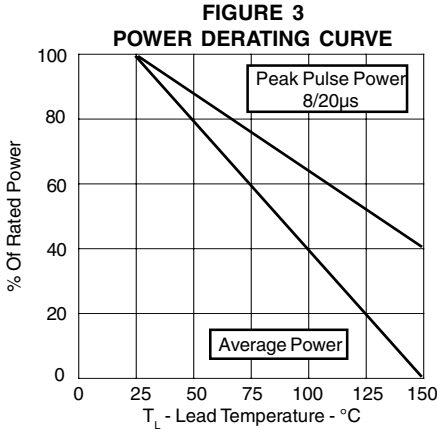
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER (See Note 1)	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_C VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT (See Note 2) @ V_{WM} I_d μA	TYPICAL CAPACITANCE @ 0V, 1 MHz C pF
U0402FC3.3C	3.3	4.0	7.0	12.5V @ 20A	75*	150
U0402FC05C	5.0	6.0	9.8	14.7V @ 17A	10**	100
U0402FC08C	8.0	8.5	13.4	19.2V @ 13A	10***	75
U0402FC12C	12.0	13.3	19.0	29.7V @ 9.0A	1	50
U0402FC15C	15.0	16.7	24.0	35.7V @ 7.0A	1	40
U0402FC24C	24.0	26.7	43.0	55.0V @ 5.0A	1	30
U0402FC36C	36.0	40.0	64.0	84.0V @ 3.0A	1	25

Note 1: All devices are bidirectional. Electrical characteristics apply in both directions.

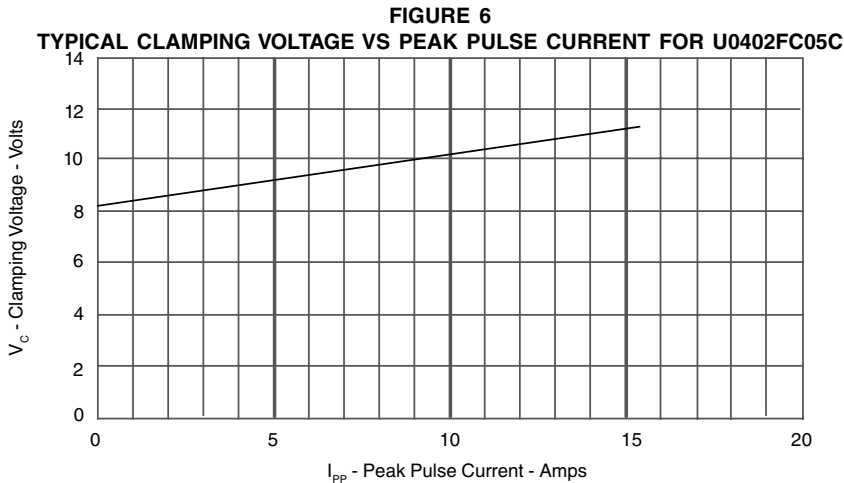
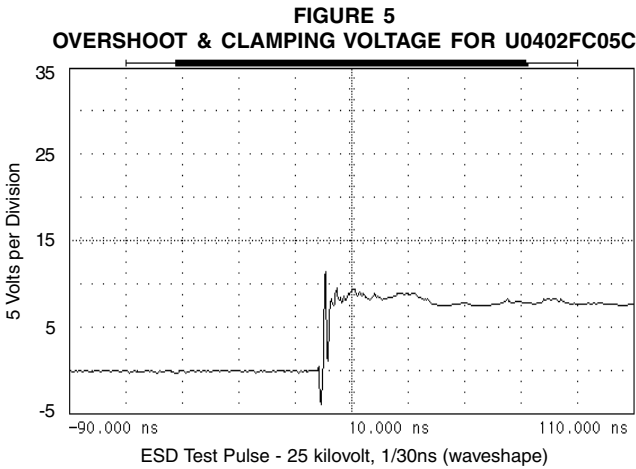
Note 2: *Maximum leakage current < 5 μA @ 2.8V. **Maximum leakage current < 500nA @ 3.3V. ***Maximum leakage current < 200nA @ 5V.



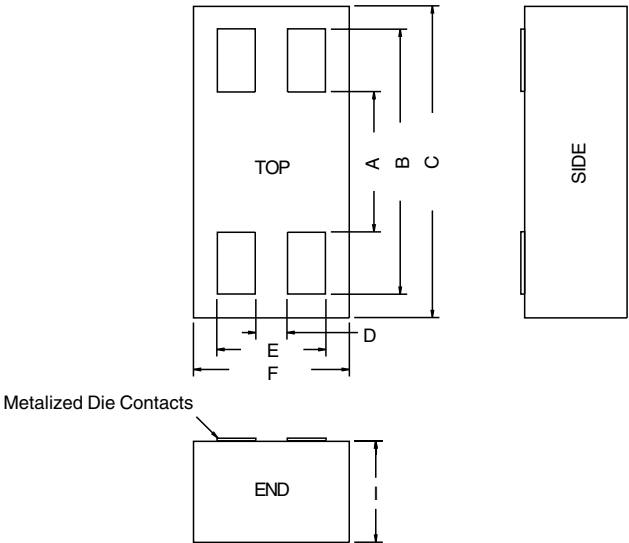

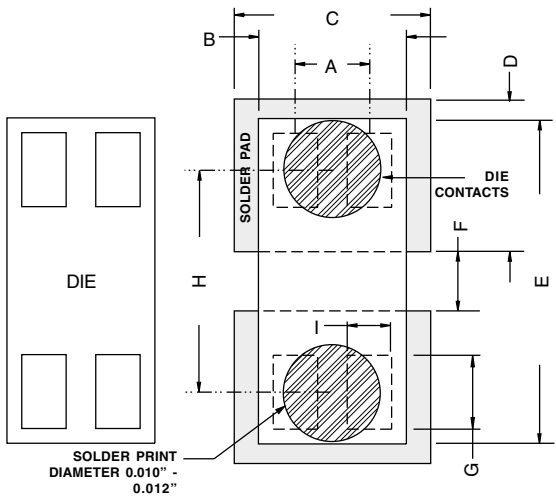
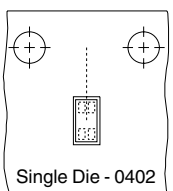
GRAPHS



Note: This reflow profile does not take into account the printed circuit board (PCB) material heating time. Additional time may be required for the preheat time and cool down time upon the PCB or board material.



PACKAGE OUTLINE & DIMENSIONS

<p style="text-align: center;">PACKAGE OUTLINE</p>  <p style="text-align: center;">Metalized Die Contacts</p>	<p style="text-align: center;">U0402</p>  <p style="text-align: center;">PACKAGE DIMENSIONS</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;">0.46 NOM</td> <td style="text-align: center;">0.018 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;">0.99 ± 0.0254</td> <td style="text-align: center;">0.039 ± 0.001</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">0.10 NOM</td> <td style="text-align: center;">0.004 NOM</td> </tr> <tr> <td style="text-align: center;">E</td> <td style="text-align: center;">0.35 NOM</td> <td style="text-align: center;">0.014 NOM</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">0.483 ± 0.0254</td> <td style="text-align: center;">0.019 ± 0.001</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>NOTES:</p> <ol style="list-style-type: none"> Controlling dimensions in inches. Decimal tolerances for mounting pad and outline: .xxx ± 0.05mm (± 0.002"). Maximum chip size: 1.02 (0.040") by 0.51(0.020"). 	DIM	MILLIMETERS	INCHES	A	0.46 NOM	0.018 NOM	B	0.86 NOM	0.034 NOM	C	0.99 ± 0.0254	0.039 ± 0.001	D	0.10 NOM	0.004 NOM	E	0.35 NOM	0.014 NOM	F	0.483 ± 0.0254	0.019 ± 0.001	I	0.406 NOM	0.016 NOM						
DIM	MILLIMETERS	INCHES																													
A	0.46 NOM	0.018 NOM																													
B	0.86 NOM	0.034 NOM																													
C	0.99 ± 0.0254	0.039 ± 0.001																													
D	0.10 NOM	0.004 NOM																													
E	0.35 NOM	0.014 NOM																													
F	0.483 ± 0.0254	0.019 ± 0.001																													
I	0.406 NOM	0.016 NOM																													
<p style="text-align: center;">MOUNTING PAD</p>  <p style="text-align: center;">SOLDER PRINT DIAMETER 0.010" ± 0.012"</p>	<p style="text-align: center;">PAD DIMENSIONS</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;">0.23</td> <td style="text-align: center;">0.009</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">0.48</td> <td style="text-align: center;">0.019</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">0.69</td> <td style="text-align: center;">0.027</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">0.46</td> <td style="text-align: center;">0.018</td> </tr> <tr> <td style="text-align: center;">E</td> <td style="text-align: center;">0.99</td> <td style="text-align: center;">0.039</td> </tr> <tr> <td style="text-align: center;">F</td> <td style="text-align: center;">0.20</td> <td style="text-align: center;">0.008</td> </tr> <tr> <td style="text-align: center;">G</td> <td style="text-align: center;">0.20</td> <td style="text-align: center;">0.008</td> </tr> <tr> <td style="text-align: center;">H</td> <td style="text-align: center;">0.66</td> <td style="text-align: center;">0.026</td> </tr> <tr> <td style="text-align: center;">I</td> <td style="text-align: center;">0.13</td> <td style="text-align: center;">0.005</td> </tr> </tbody> </table> <p>NOTE:</p> <ol style="list-style-type: none"> Top view of tape. Metal contacts are face down in tape package. 	DIM	MILLIMETERS	INCHES	A	0.23	0.009	B	0.48	0.019	C	0.69	0.027	D	0.46	0.018	E	0.99	0.039	F	0.20	0.008	G	0.20	0.008	H	0.66	0.026	I	0.13	0.005
DIM	MILLIMETERS	INCHES																													
A	0.23	0.009																													
B	0.48	0.019																													
C	0.69	0.027																													
D	0.46	0.018																													
E	0.99	0.039																													
F	0.20	0.008																													
G	0.20	0.008																													
H	0.66	0.026																													
I	0.13	0.005																													
<p>TAPE & REEL ORDERING NOMENCLATURE</p> <ol style="list-style-type: none"> Surface mount product is taped and reeled in accordance with EIA 481. 8mm Plastic Tape: 7 Inch Reels - 5,000 pieces per reel. Ordering Suffix: -T75-1 (i.e., U0402FC05C-T75-1). 8mm Paper Tape: 7 Inch Reels - 10,000 pieces per reel. Ordering Suffix: -T710-2 (i.e., U0402FC05C-T710-2). 	<p style="text-align: center;">TAPE & REEL ORIENTATION</p>  <p style="text-align: center;">Single Die - 0402</p> <p>NOTE:</p> <ol style="list-style-type: none"> Preferred: Using 0.1mm (0.004") stencil. <p style="text-align: center;">Outline & Dimensions: Rev 3 - 11/02, 06020</p>																														

COPYRIGHT © ProTek Devices 2003
 SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice (except JEDEC).
 DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice, and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance, ProTek assumes no responsibility with respect to the selection or specifications of such products.

ProTek Devices
 2929 South Fair Lane, Tempe, AZ 85282
 Tel: 602-431-8101 Fax: 602-431-2288
 E-Mail: sales@protekdevices.com
 Web Site: www.protekdevices.com