

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

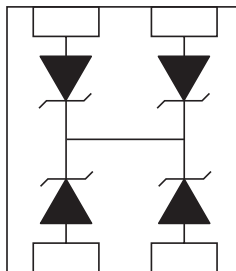
- ✓ ESD Protection > 25 kilovolts
- ✓ Available in Multiple Voltage Types Ranging From 3.3V to 36V
- ✓ 250 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- ✓ Bidirectional Configuration & Monolithic Structure
- ✓ Protects 1 to 3 Lines
- ✓ RoHS Compliant in Lead-Free Versions

MECHANICAL CHARACTERISTICS

- ✓ Standard EIA Chip Size: 0404
- ✓ Weight 0.73 milligrams (Approximate)
- ✓ Available in Tin-Lead or Lead-Free Plating
- ✓ Solder Reflow Temperature:
 - Tin-Lead - Sn/Pb, 85/15: 240-245°C
 - Lead-Free - Sn/Ag/Cu, 96/3.5/0.5: 260-270°C
- ✓ 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}	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
P0404FC3.3C	3.3	4.0	7.0	12.5V @ 20A	75*	150
P0404FC05C	5.0	6.0	9.8	14.7V @ 17A	10**	100
P0404FC08C	8.0	8.5	13.4	19.2V @ 13A	10***	75
P0404FC12C	12.0	13.3	19.0	29.7V @ 9.0A	1	50
P0404FC15C	15.0	16.7	24.0	35.7V @ 7.0A	1	40
P0404FC24C	24.0	26.7	43.0	55.0V @ 5.0A	1	30
P0404FC36C	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.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

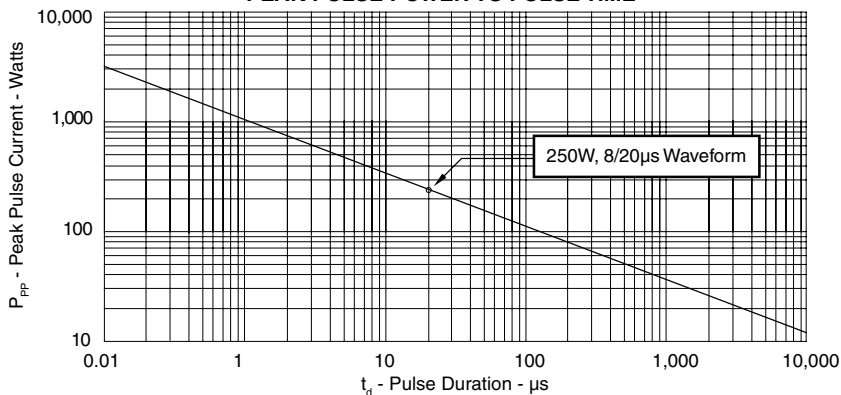
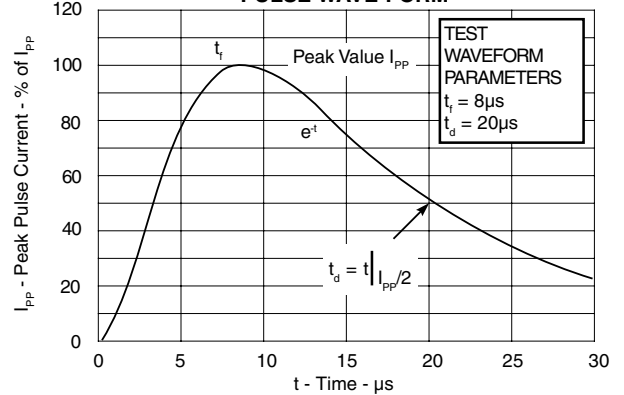
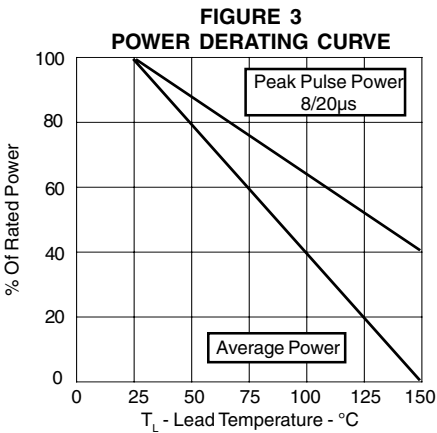
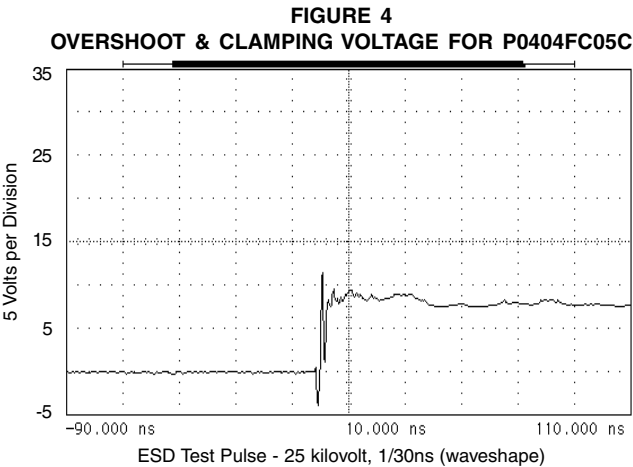
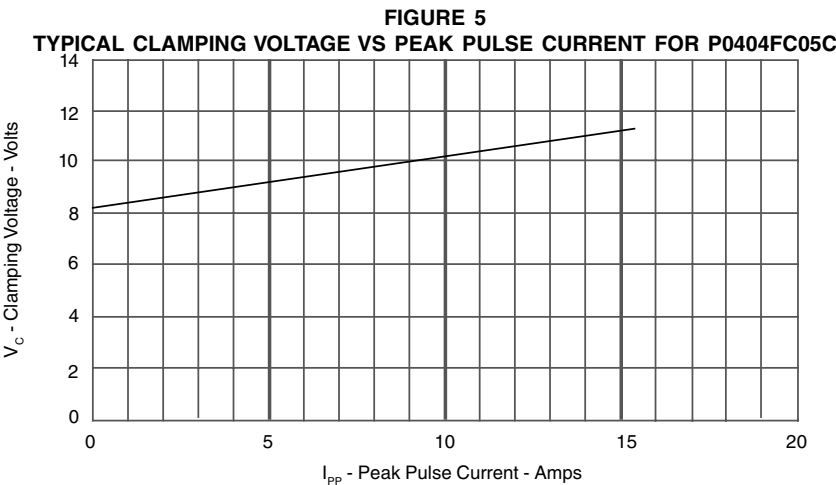


FIGURE 2
PULSE WAVE FORM



GRAPHS



APPLICATION INFORMATION

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	±50µm
Solder Ball Side Coplanarity	±20µm
Maximum Dwell Time Above Liquidous (183°C)	60 Seconds
Soldering Maximum Temperature	270°C

REQUIREMENTS

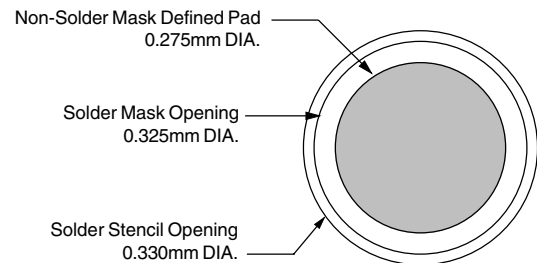
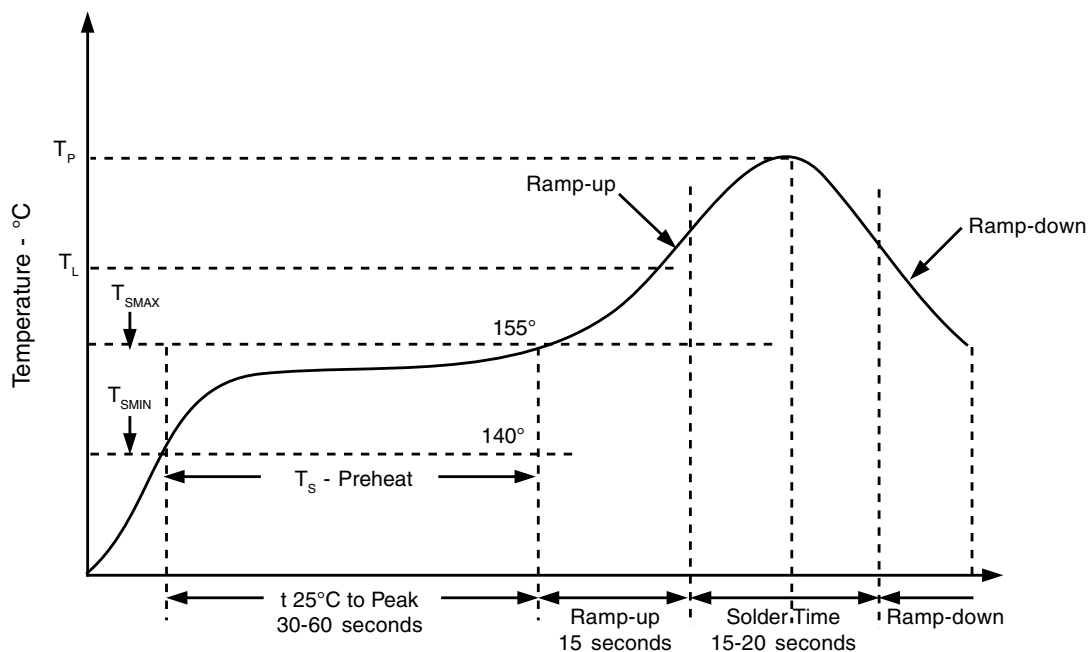
Temperature:

T_p for Lead-Free (SnAgCu): 260-265°C

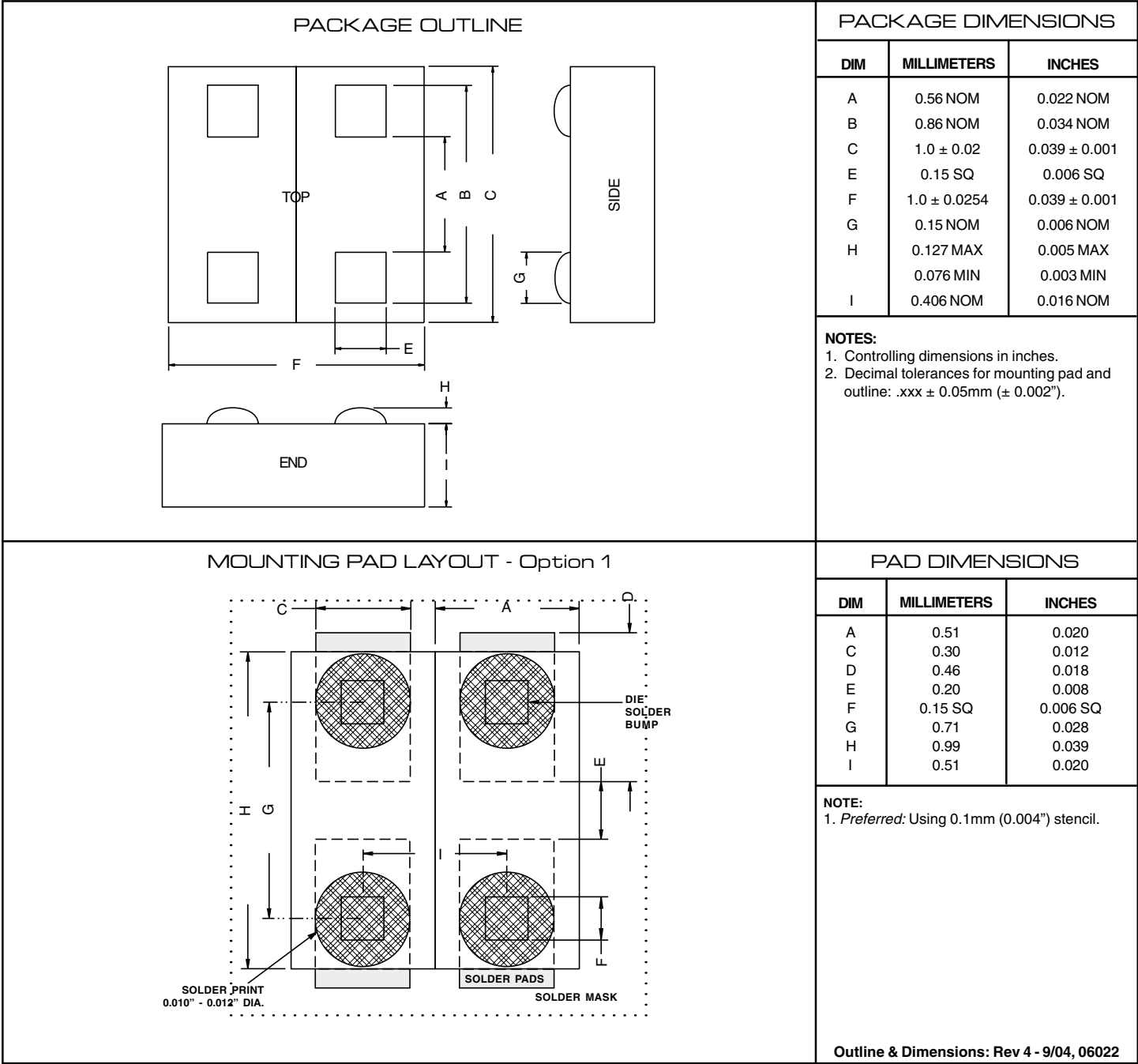
T_p for Tin-Lead: 240-245°C

Preheat time and temperature depends on solder paste and flux activation temperature, component size, weight, surface area & plating.

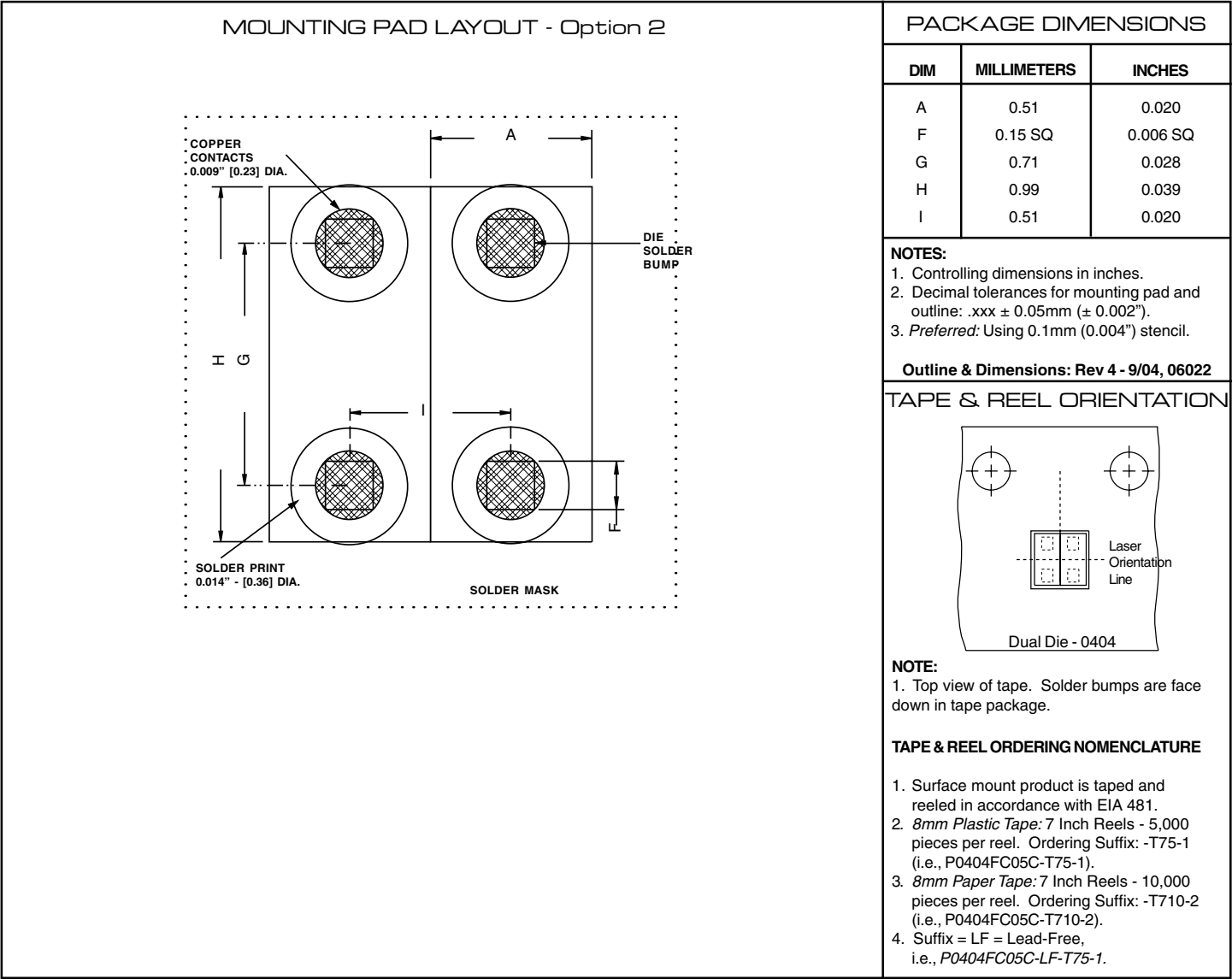
RECOMMENDED NON-SOLDER MASK DEFINED PAD ILLUSTRATION



PACKAGE OUTLINE & DIMENSIONS



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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
Web Site: www.protekdevices.com