

PACKAGED 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

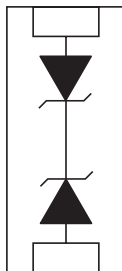
FEATURES

- ✓ **CHIP SCALE PACKAGE 0.050" (1.270mm) x 0.030" (0.762mm)**
- ✓ 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
- ✓ RoHS Compliant in Lead-Free Versions

MECHANICAL CHARACTERISTICS

- ✓ Encapsulated 0502 Chip
- ✓ Weight 0.73 milligrams (Approximate)
- ✓ Available in Tin-Lead or Lead-Free Pure-Tin Plating (Annealed)
- ✓ Solder Reflow Temperature:
 - Tin-Lead - Sn/Pb, 85/15: 240-245°C
 - Pure-Tin - Sn, 100: 260-270°C
- ✓ 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
PKFC3.3C	3.3	4.0	7.0	12.5V @ 20A	75*	150
PKFC05C	5.0	6.0	9.8	14.7V @ 17A	10**	100
PKFC08C	8.0	8.5	13.4	19.2V @ 13A	10***	75
PKFC12C	12.0	13.3	19.0	29.7V @ 9.0A	1	50
PKFC15C	15.0	16.7	24.0	35.7V @ 7.0A	1	40
PKFC24C	24.0	26.7	43.0	55.0V @ 5.0A	1	30
PKFC36C	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: *Typical leakage current < 5 μA @ 2.8V. **Typical leakage current < 500nA @ 3.3V. ***Typical leakage current < 200nA @ 5V.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

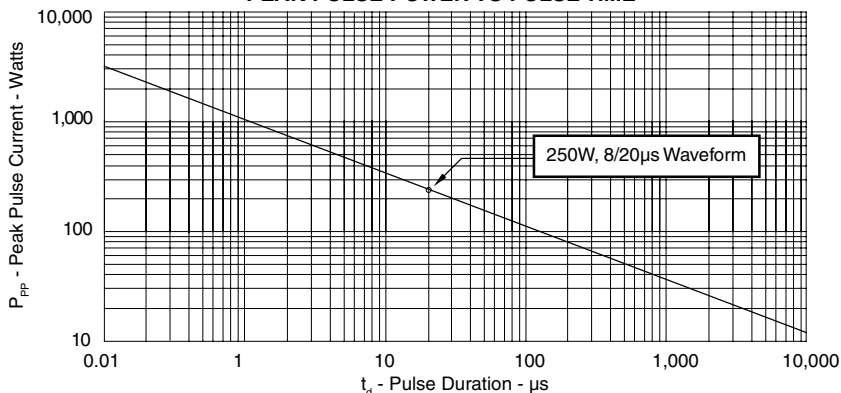
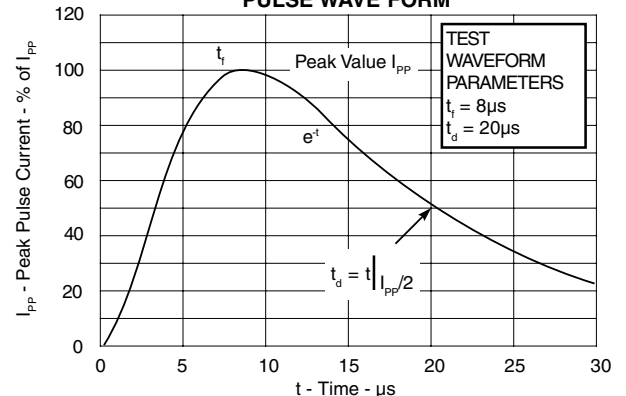
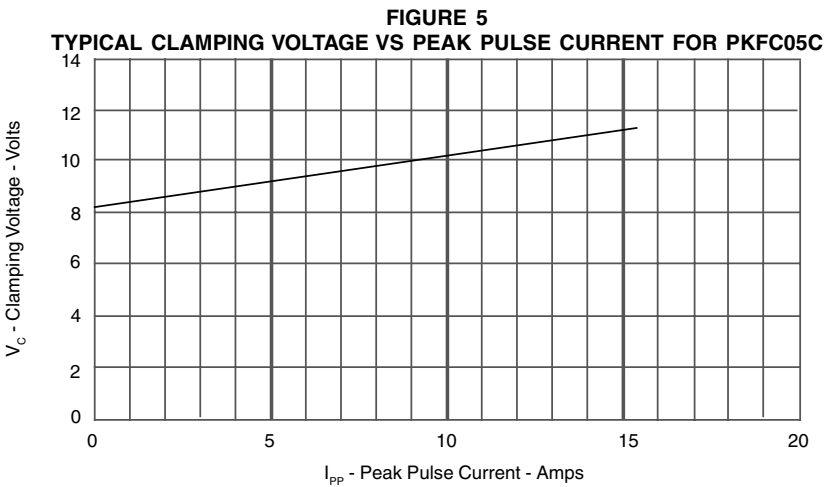
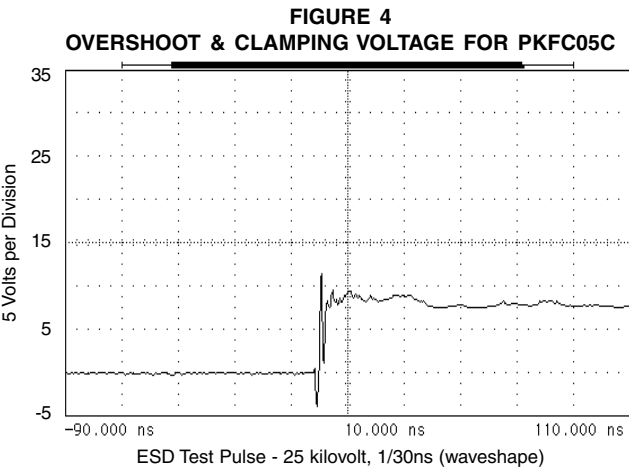
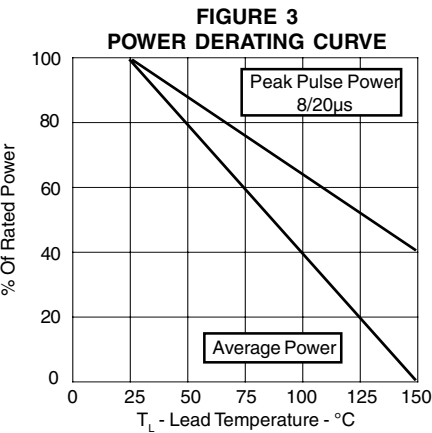


FIGURE 2
PULSE WAVE FORM



GRAPHS

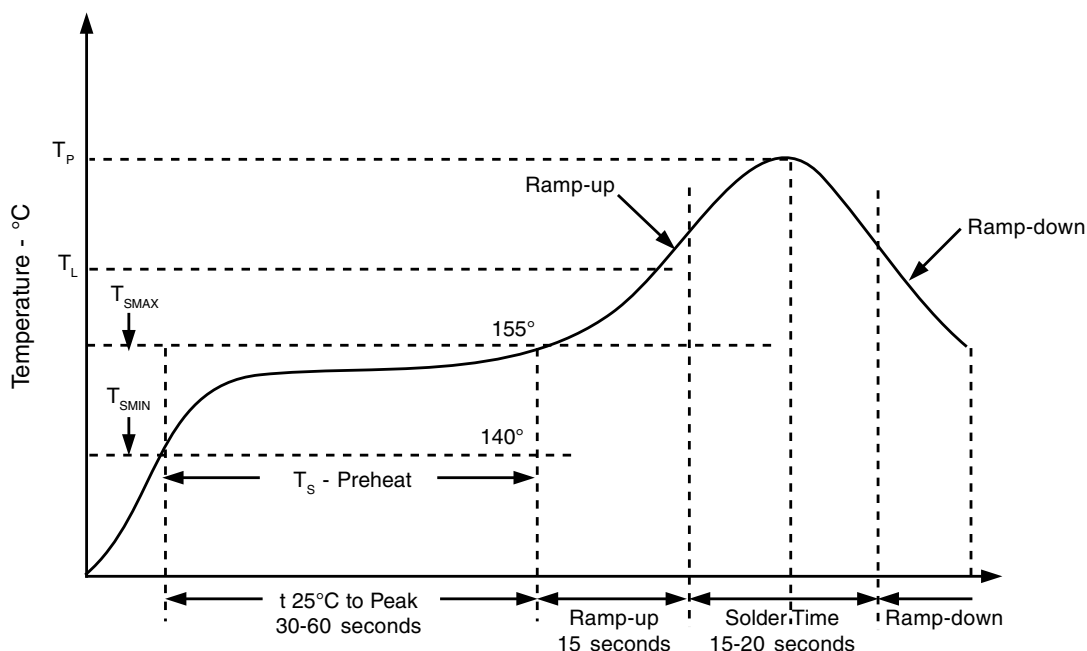
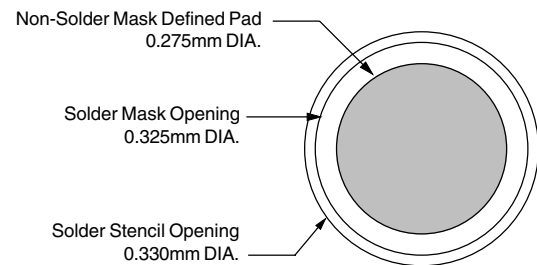


APPLICATION INFORMATION

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

PACKAGE OUTLINE

The diagram shows three views of a package: TOP, BOTTOM, and SIDE. The TOP view shows dimensions A (width) and B (height). The BOTTOM view shows dimensions H (width of the central pad), G (width of the bottom pad), and J (height of the bottom pad). The SIDE view shows dimensions C (width), D (height of the central pad), E (height of the top pad), and F (height of the bottom pad). The package is shown with a central pad and two side pads.

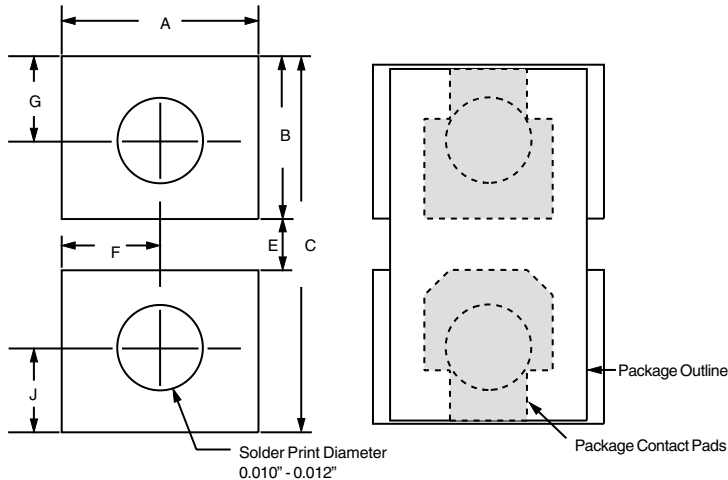
PACKAGE DIMENSIONS

DIM	MILLIMETERS	INCHES
A	0.838	0.033
B	1.245	0.049
C	0.762	0.030
D	0.533	0.021
E	0.228	0.009
F	0.533	0.021
G	0.305	0.012
H	0.432	0.017
J	0.432	0.017
K	0.355	0.014

NOTES

- Controlling dimensions in inches.
- Decimal tolerances for mounting pad : $\pm 0.003"$ ($\pm 0.08\text{mm}$).
- Maximum size: 0.052" (1.321mm) by 0.036" (0.914mm).
- All dimensions $\pm 0.003"$ on package outline.

MOUNTING PAD



The diagram shows two views of a mounting pad: TOP and SIDE. The TOP view shows dimensions A (width), B (height), F (width of the central pad), and J (height of the central pad). The SIDE view shows dimensions C (width), E (height of the central pad), and G (height of the side pad). The package is shown with a central pad and two side pads. Labels include 'Solder Print Diameter 0.010" and "Package Contact Pads'.

PAD DIMENSIONS

DIM	MILLIMETERS	INCHES
A	1.016	0.040
B	0.635	0.025
C	1.473	0.058
E	0.203	0.008
F	0.508	0.020
G	0.343	0.0135
J	0.343	0.0135

TAPE & REEL ORIENTATION

The diagram shows a top view of a tape with two packages. Each package has a central pad and two side pads. The packages are oriented with their solder pads facing down.

NOTE

- Top view of tape. Solder PADS face down in tape package.

TAPE & REEL ORDERING NOMENCLATURE

- 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., PKFC05C-T75-1).
- 8mm Paper Tape: 7 Inch Reels - 5,000 pieces per reel. Ordering Suffix: -T75-2 (i.e., PKFC05C-T75-2).
- Suffix - LF = Lead-Free, Pure-Tin Plating, i.e., PKFC05C-LF-T75-2.

Outline & Dimensions: Rev 1 - 8/03, 06040

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