

## 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

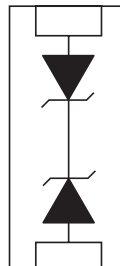
## FEATURES

- ✓ Chip Scale Package 0.050" (1.270mm) x 0.030" (0.762mm)
- ✓ ESD Protection > 25 kilovolts
- ✓ Available in Voltages Ranging From 3.3V to 36V
- ✓ 250 Watts Peak Pulse Power per Line (tp = 8/20µs)
- ✓ Bidirectional Configuration & Monolithic Structure
- ✓ Protects 1 Line
- ✓ RoHS Compliant

## MECHANICAL CHARACTERISTICS

- ✓ Encapsulated 0502 Chip
- ✓ 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 Plastic & Paper Tape and Reel Per EIA Standard 481
- ✓ Device Marking On Reel

## PIN CONFIGURATION



# PKFC3.3C\* thru PKFC36C\*

## DEVICE CHARACTERISTICS

### MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 8/20µs) - See Figure 1	P <sub>PP</sub>	250	Watts
Operating Temperature	T <sub>A</sub>	-55 to 150	°C
Storage Temperature	T <sub>STG</sub>	-55 to 150	°C

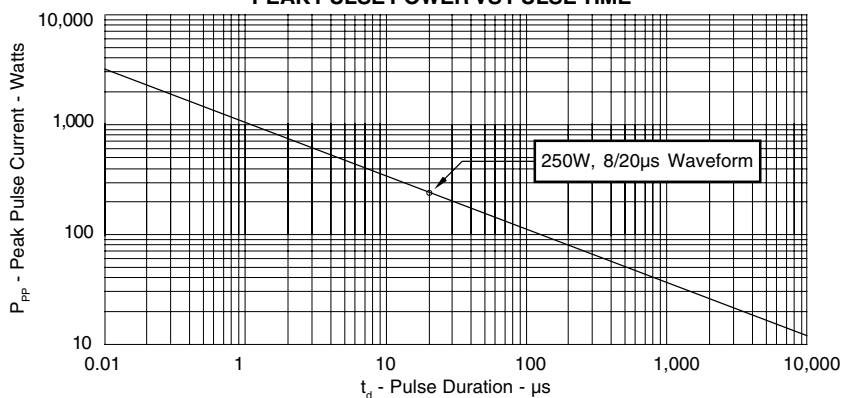
### ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (See Note 1)	DEVICE MARKING CODE	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	MAXIMUM CLAMPING VOLTAGE (See Fig. 2)	MAXIMUM LEAKAGE CURRENT (See Note 2)	TYPICAL CAPACITANCE
		V <sub>WM</sub> VOLTS	@ 1mA V <sub>(BR)</sub> VOLTS	@ I <sub>P</sub> = 1A V <sub>C</sub> VOLTS	@ 8/20µs V <sub>C</sub> @ I <sub>PP</sub>	@ V <sub>WM</sub> I <sub>D</sub> µA	@ 0V, 1 MHz C pF
PKFC3.3C	03	3.3	4.0	7.0	12.5V @ 20A	75*	150
PKFC05C	05	5.0	6.0	9.8	14.7V @ 17A	10**	100
PKFC08C	08	8.0	8.5	13.4	19.2V @ 13A	10***	75
PKFC12C	12	12.0	13.3	19.0	29.7V @ 9.0A	1	50
PKFC15C	15	15.0	16.7	24.0	35.7V @ 7.0A	1	40
PKFC24C	24	24.0	26.7	43.0	55.0V @ 5.0A	1	30
PKFC36C	36	36.0	40.0	64.0	84.0V @ 3.0A	1	25

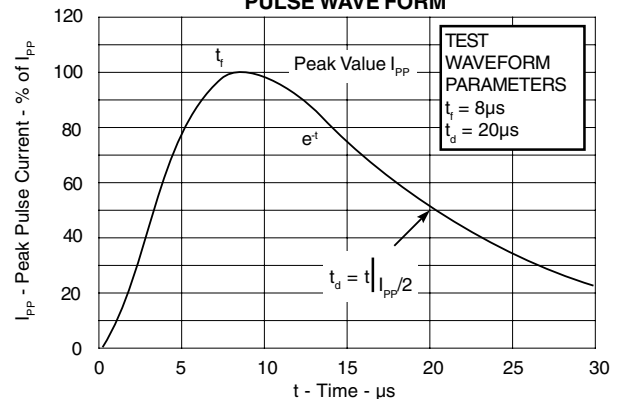
**Note 1:** All devices are bidirectional. Electrical characteristics apply in both directions.

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

**FIGURE 1  
PEAK PULSE POWER VS PULSE TIME**

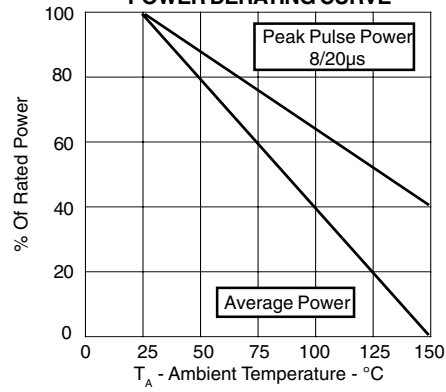


**FIGURE 2  
PULSE WAVE FORM**

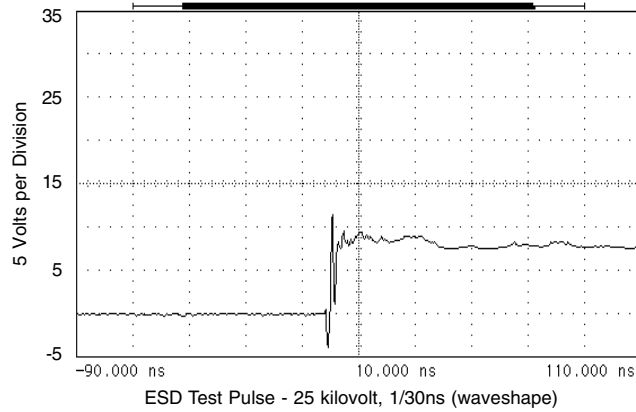


**GRAPHS**

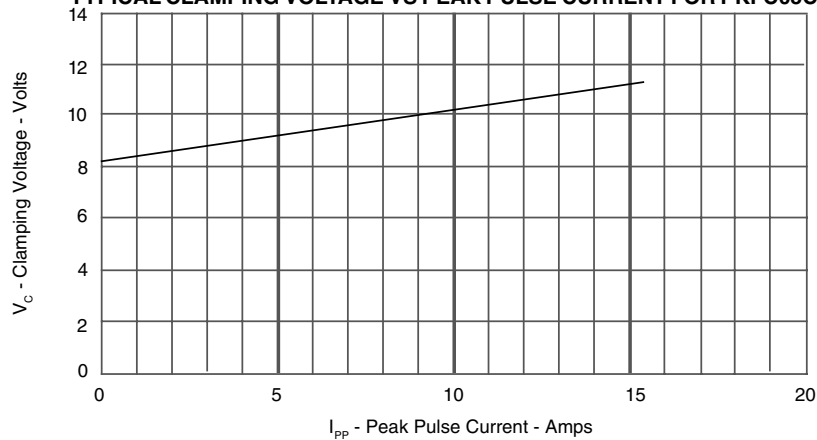
**FIGURE 3  
 POWER DERATING CURVE**



**FIGURE 4  
 OVERSHOOT & CLAMPING VOLTAGE FOR PKFC05C**



**FIGURE 5  
 TYPICAL CLAMPING VOLTAGE VS PEAK PULSE CURRENT FOR PKFC05C**

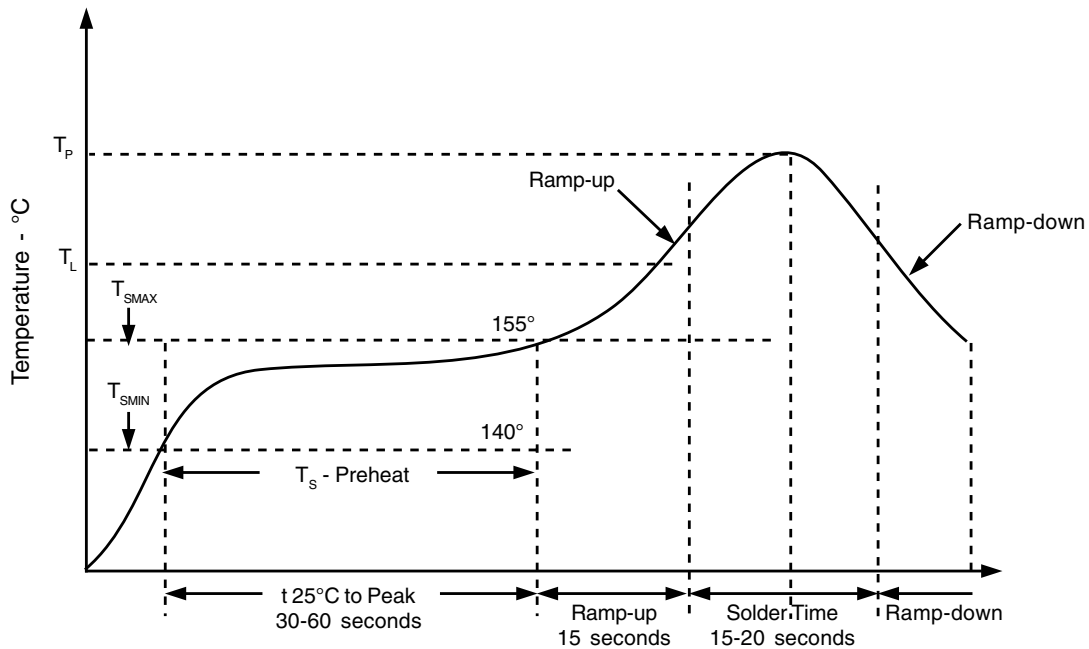
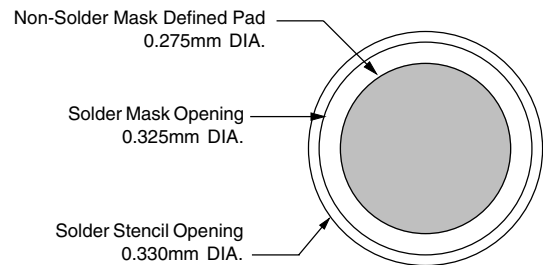


**APPLICATION INFORMATION**

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

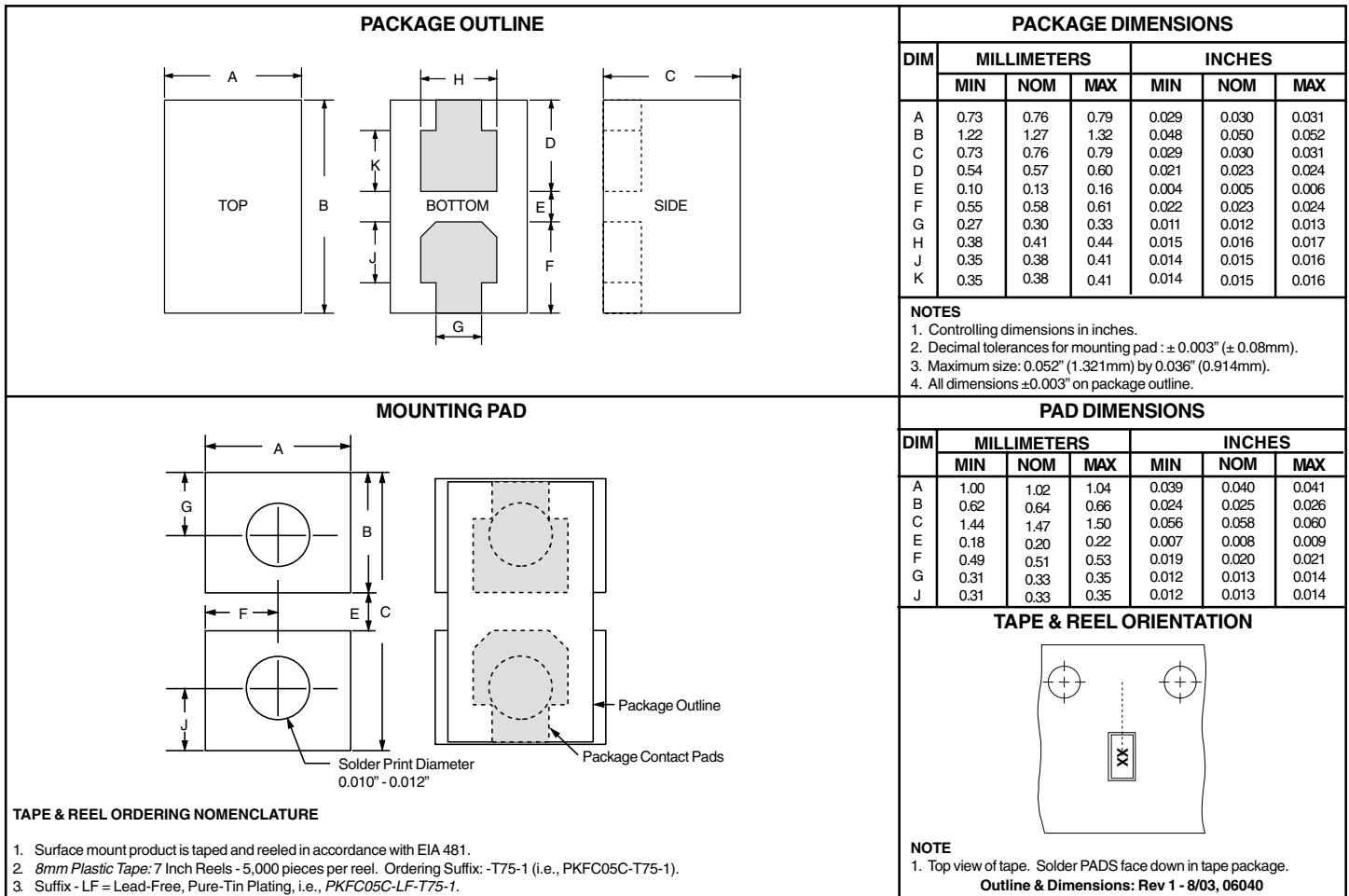
REQUIREMENTS
Temperature: $T_p$ for Lead-Free (SnAgCu): 260-270°C $T_p$ for Tin-Lead: 240-245°C Preheat time and temperature depends on solder paste and flux activation temperature, component size, weight, surface area & plating.

**RECOMMENDED NON-SOLDER MASK DEFINED PAD ILLUSTRATION**



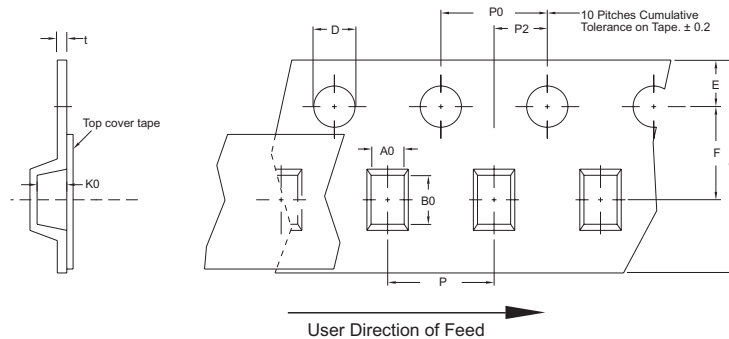
# PKFC3.3C\* thru PKFC36C\*

## 0502 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	1.08 ± 0.05	1.60 ± 0.05	0.72 ± 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



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