

APPLICATIONS

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

IEC COMPATIBILITY (EN61000-4)

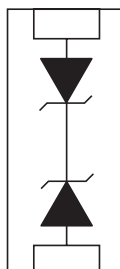
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

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 ($t_p = 8/20\mu s$)
- ✓ 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 ($t_p = 8/20\mu s$) - See Figure 1	P_{PP}	250	Watts
Operating Temperature	T_A	-55 to 150	°C
Storage Temperature	T_{STG}	-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 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	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 < 5 μA @ 2.8V. **Typical leakage current < 500nA @ 3.3V. ***Typical leakage current < 200nA @ 5V.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

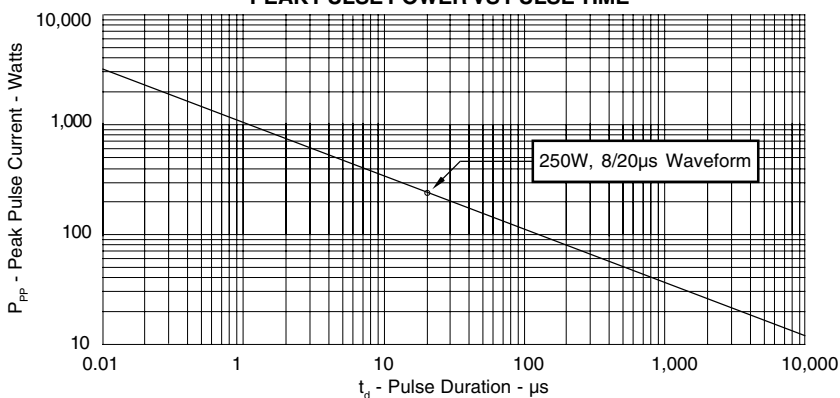
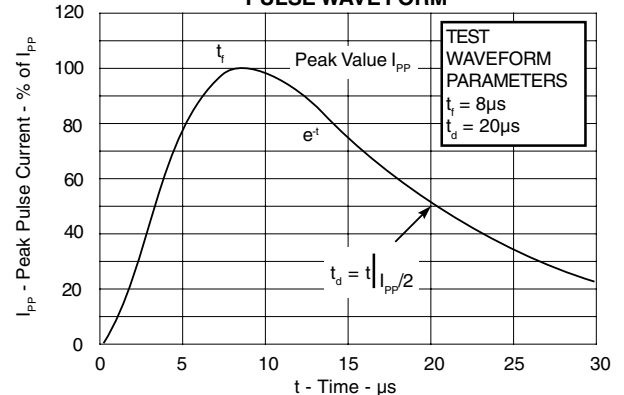
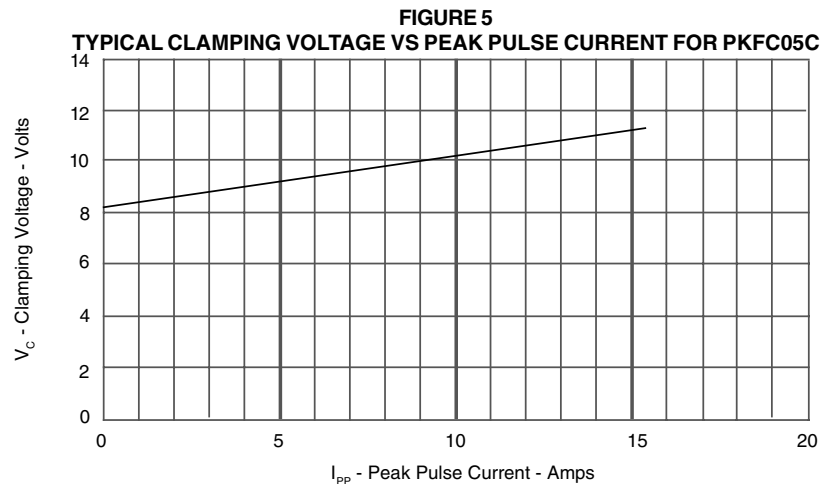
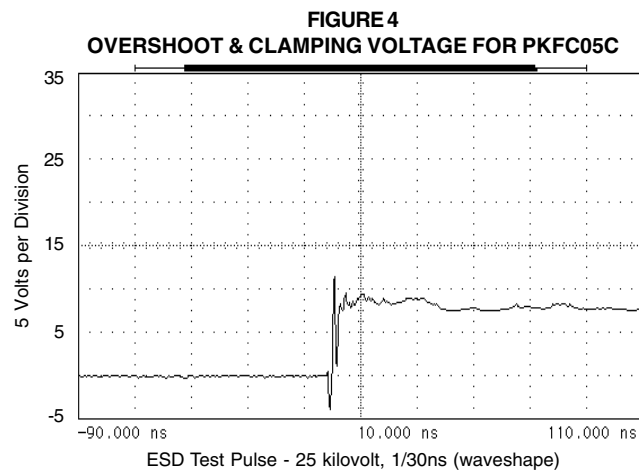
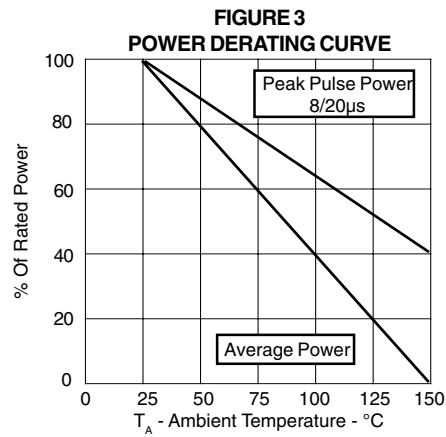


FIGURE 2
PULSE WAVE FORM



GRAPHS

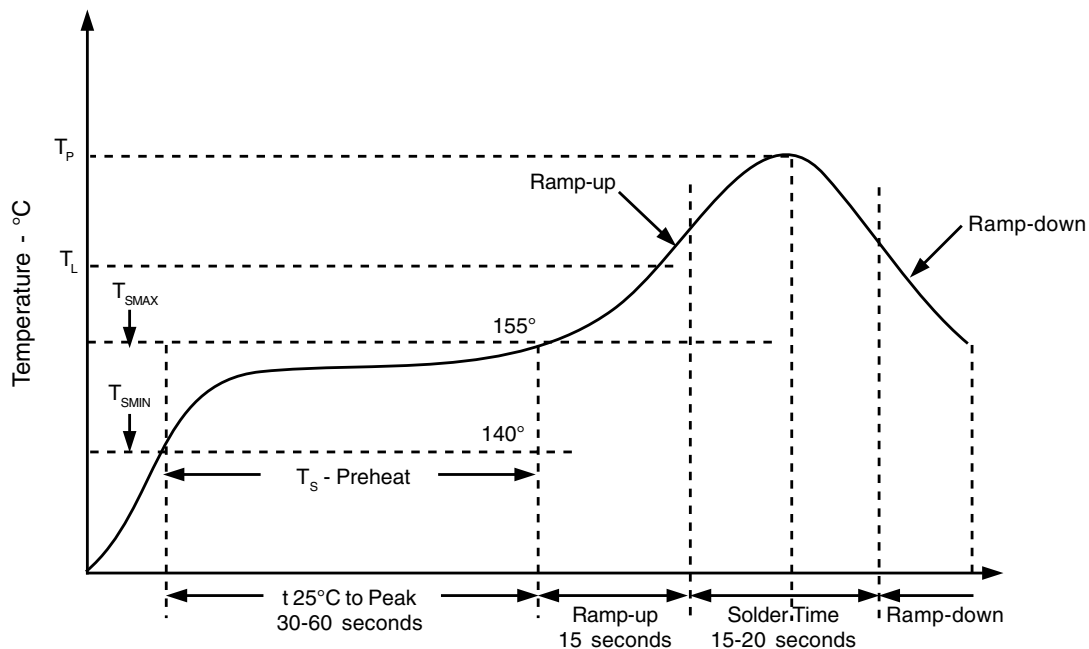
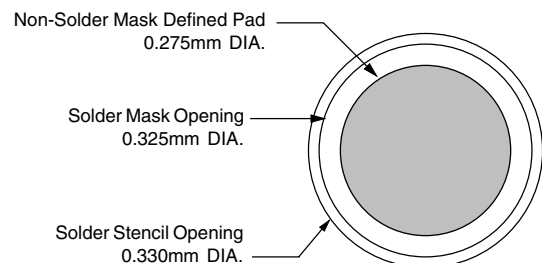


APPLICATION INFORMATION

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	$\pm 50\mu\text{m}$
Solder Ball Side Coplanarity	$\pm 20\mu\text{m}$
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

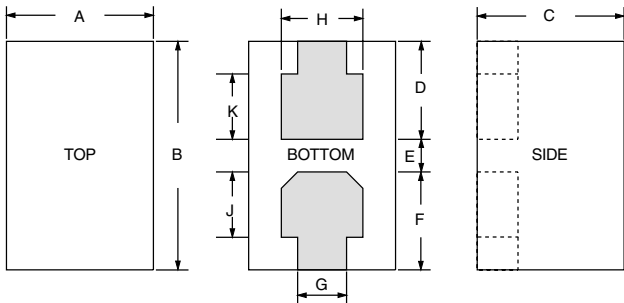
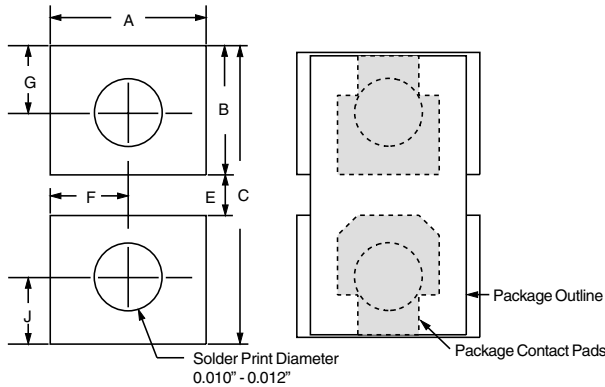
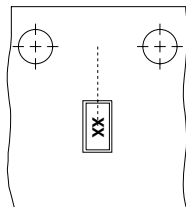


PKFC3.3C*

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PKFC36C*

0502 PACKAGE OUTLINE & DIMENSIONS

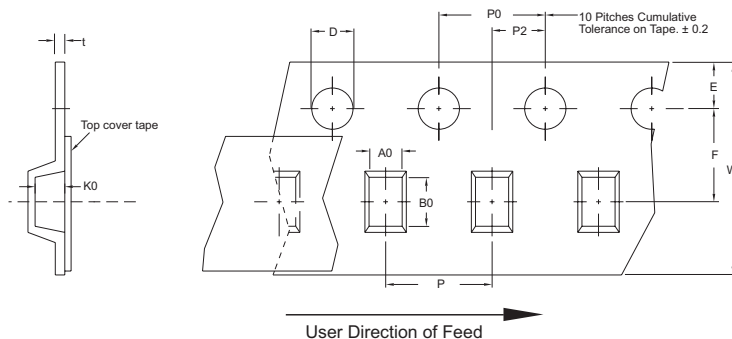
PACKAGE OUTLINE				PACKAGE DIMENSIONS						
				DIM	MILLIMETERS			INCHES		
					MIN	NOM	MAX	MIN	NOM	MAX
				A	0.73	0.76	0.79	0.029	0.030	0.031
				B	1.22	1.27	1.32	0.048	0.050	0.052
				C	0.73	0.76	0.79	0.029	0.030	0.031
				D	0.54	0.57	0.60	0.021	0.023	0.024
				E	0.10	0.13	0.16	0.004	0.005	0.006
				F	0.55	0.58	0.61	0.022	0.023	0.024
				G	0.27	0.30	0.33	0.011	0.012	0.013
				H	0.38	0.41	0.44	0.015	0.016	0.017
				J	0.35	0.38	0.41	0.014	0.015	0.016
				K	0.35	0.38	0.41	0.014	0.015	0.016
				NOTES 1. Controlling dimensions in inches. 2. Decimal tolerances for mounting pad : $\pm 0.003"$ ($\pm 0.08\text{mm}$). 3. Maximum size: 0.052" (1.321mm) by 0.036" (0.914mm). 4. All dimensions $\pm 0.003"$ on package outline.						
MOUNTING PAD				PAD DIMENSIONS						
				DIM	MILLIMETERS			INCHES		
					MIN	NOM	MAX	MIN	NOM	MAX
				A	1.00	1.02	1.04	0.039	0.040	0.041
				B	0.62	0.64	0.66	0.024	0.025	0.026
				C	1.44	1.47	1.50	0.056	0.058	0.060
				E	0.18	0.20	0.22	0.007	0.008	0.009
				F	0.49	0.51	0.53	0.019	0.020	0.021
				G	0.31	0.33	0.35	0.012	0.013	0.014
				J	0.31	0.33	0.35	0.012	0.013	0.014
				TAPE & REEL ORIENTATION 						
				NOTE 1. Top view of tape. Solder PADS face down in tape package. Outline & Dimensions: Rev 1 - 8/03, 06040						

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).
- Suffix - LF = Lead-Free, Pure-Tin Plating, i.e., PKFC05C-LF-T75-1.

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 $\pm$ 0.05	1.60 $\pm$ 0.05	0.72 $\pm$ 0.05	1.50 $\pm$ 0.10	1.75 $\pm$ 0.10	3.50 $\pm$ 0.05	8.00 $\pm$ 0.30	4.00 $\pm$ 0.10	2.00 $\pm$ 0.05	4.00 $\pm$ 0.10	0.20 $\pm$ 0.025



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