

## TYPICAL DEVICE CHARACTERISTICS

## MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	$T_L$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C
Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 2	$P_{PP}$	3,900	Watts
Peak Pulse Power ( $t_p = 10/1000\mu s$ ) - See Figure 2	$P_{PP}$	400	Watts

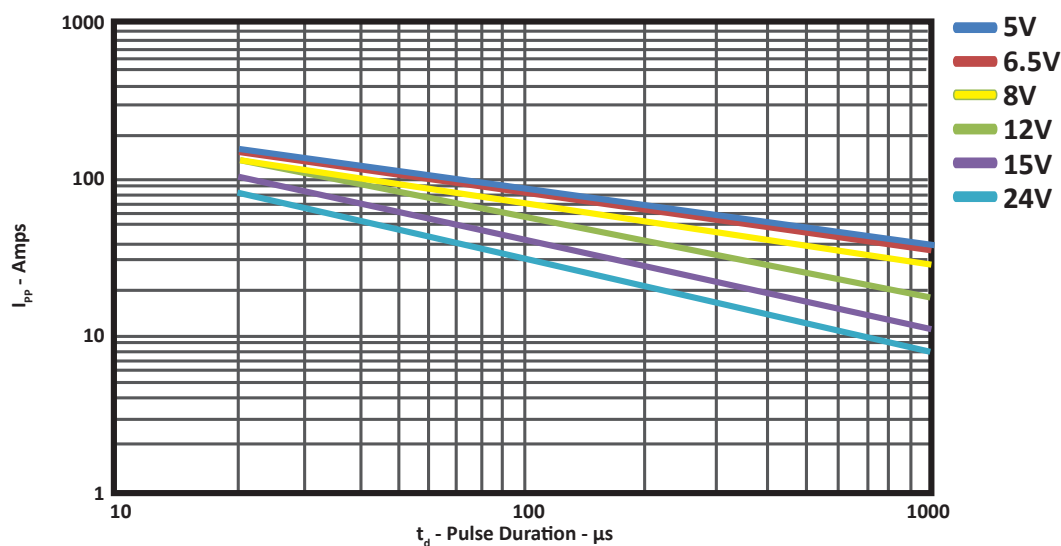
## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	MINIMUM BREAKDOWN VOLTAGE  @1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 3)  @ 8/20 $\mu s$ $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	TYPICAL CAPACITANCE  @0V, 1MHz C pF
SMP6LC05-2P	5.0	6.0	26.0V @ 150.0A	300	15
SMP6LC6.5-2P	6.5	7.2	28.0V @ 150.0A	300	15
SMP6LC08-2P	8.0	8.6	30.0V @ 145.0A	25	15
SMP6LC12-2P	12.0	13.3	35.0V @ 140.0A	2	15
SMP6LC15-2P	15.0	16.7	50.0V @ 110.0A	2	15
SMP6LC24-2P	24.0	26.7	57.0V @ 80.0A	2	15

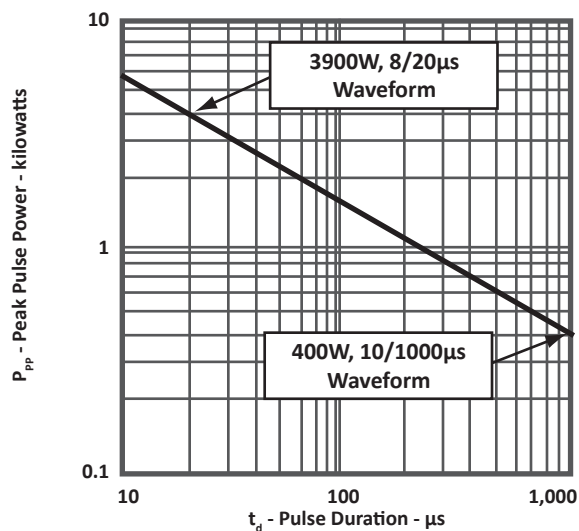
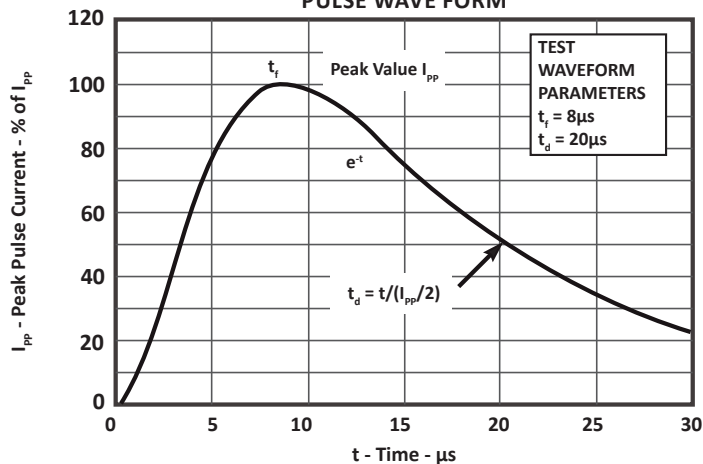
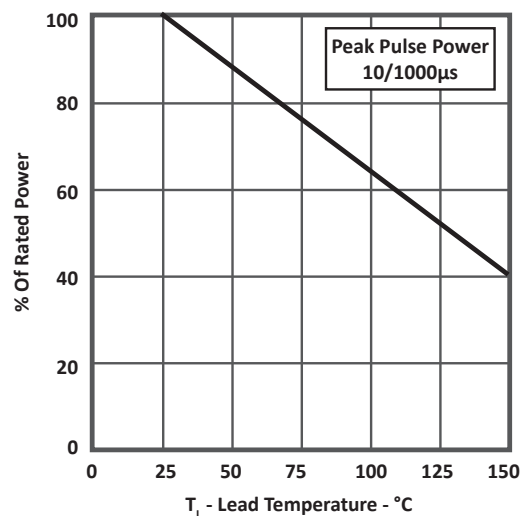
## NOTES

1. Do not surge from pins 15/16 to 1/2, 3/4 to 13/14, 11/12 to 5/6 and 7/8 to 9/10. PIV typically greater than 100 Volts for each rectifier diode.

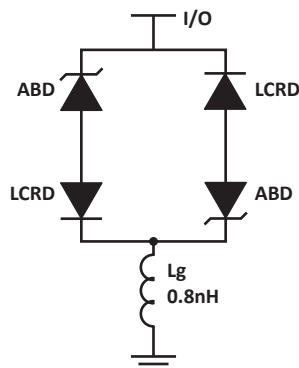
FIGURE 1  
MAXIMUM IPP VS PULSE DURATION BY VOLTAGE



## TYPICAL DEVICE CHARACTERISTICS

 FIGURE 2  
 PEAK PULSE POWER VS PULSE TIME

 FIGURE 3  
 PULSE WAVE FORM

 FIGURE 4  
 POWER DERATING CURVE


## SPICE MODEL

 FIGURE 1  
 SPICE MODEL


ABD - Avalanche Breakdown Diode (TVS)  
 LCRD: Low Capacitance Rectifier Diode  
 Lg - Lead Inductance

TABLE 1 - SPICE PARAMETERS

PARAMETER	UNIT	ABD(TVS)	LCRD
BV	V	See Table 2	200
IBV	$\mu\text{A}$	1	0.01
$C_{jo}$	pF	See Table 2	5
$I_s$	A	See Table 2	1E-13
Vj	V	0.6	0.6
M	-	0.33	0.33
N	-	1	1
$R_s$	Ohms	See Table 2	0.31
TT	s	1E-8	1E-9
EG	eV	1.11	1.11

TABLE 2 - ABD SPECIFIC SPICE PARAMETERS

PART NUMBER	$B_V$ (VOLTS)	$C_{jo}$ (pF)	$I_s$ (AMPS)	$R_s$ (OHMS)
SMP6LC05-2P	6.0	3000	1E-11	0.075
SMP6LC6.5-2P	7.2	2600	1E-11	0.075
SMP6LC12-2P	13.3	1150	1E-13	0.080

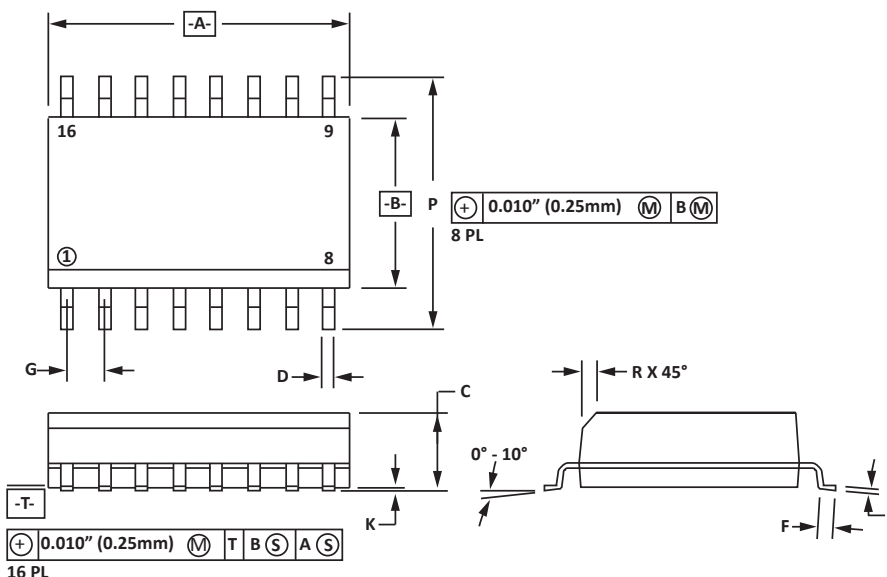
## SO-16 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.80	10.00	0.386	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.18	0.25	0.007	0.009
K	0.10	0.25	0.004	0.008
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

## NOTES

1. -T- = Seating plane and datum surface.
2. Dimensions "A" and "B" are datum.
3. Dimensions "A" and "B" do not include mold protrusion.
4. Maximum mold protrusion is 0.015" (0.380mm) per side.
5. Dimensioning and tolerances per ANSI Y14.5M, 1982.
6. Dimensions are exclusive of mold flash and metal burrs.

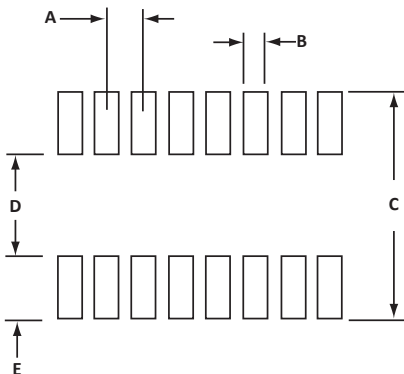


## PAD LAYOUT DIMENSIONS

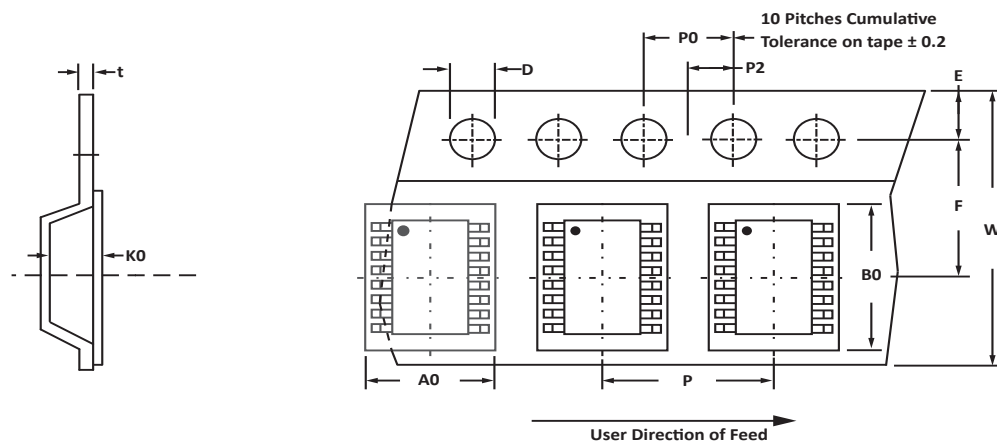
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.14	1.40	0.045	0.055
B	0.64	0.89	0.025	0.035
C	6.22	-	0.245	-
D	3.94	4.17	0.155	0.165
E	1.02	1.27	0.040	0.050

## NOTES

1. Controlling dimension: inches.



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P	tmax
178mm (7")	16mm	6.50 ± 0.10	10.30 ± 0.10	2.10 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	3.50 ± 0.05	16.00 ± 0.30	4.00 ± 0.12	2.00 ± 0.10	8.00 ± 0.10	0.25

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T7 = 7" Reel - 1,000 pieces per 16mm tape.
- Suffix - T13 = 13" Reel - 2,500 pieces per 16mm tape.
- Bulk product shipped in tubes of 48 pieces per tube.
- Marking on Part - part number, date code, logo and pin one defined by dot on top of package.

## ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SMP6LCxx-2P	-LF	-T7	1,000	7"	48
SMP6LCxx-2P	-LF	-T13	2,500	13"	48

This device is only available in a Lead-Free configuration.

## COMPANY INFORMATION

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### COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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