

## HIGH POWERED VSIP® TVS ARRAY



**6 PIN VSIP® PACKAGE**

### DESCRIPTION

The VSB06P05LCI is a high powered, low capacitance TVS array available in a 6 pin VSIP package. This device is designed to protect telecommunications equipment from the damaging effects of ESD, EFT and secondary transient threats.

The VSB06P05LCI has a peak pulse power rating of 600 Watts for an 10/1000 $\mu$ s waveshape. This device meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 requirements.

### FEATURES

- Compatible with IEC 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A - 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 8/20 $\mu$ s, 95A - Level 4 (Line-Gnd) & 48A, Level 4 (Line-Line), 83A Level 2 (Power)
- 600 Watts Peak Pulse Power per Line (tp = 10/1000 $\mu$ s)
- 100A (2/10 $\mu$ s) per Bellcore GR-1089 (Intra Building)
- ESD Protection > 25 kilovolts
- High Surge Capability
- Low Capacitance: < 50pF
- RoHS Compliant
- REACH Compliant

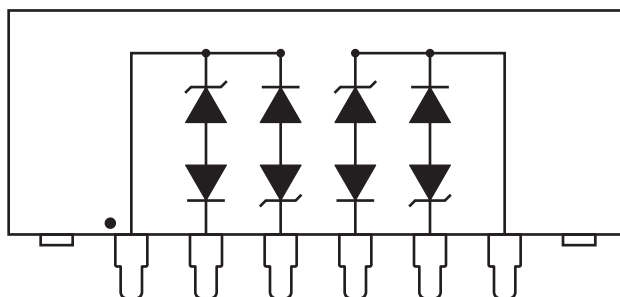
### APPLICATIONS

- RS-232 & RS-423 Data Lines
- T1/E1 & T3/E3
- ATM Circuit Interfaces
- xDSL Interfaces
- Cable Modem Intra-Structure Protection
- V.34/V.90

### MECHANICAL CHARACTERISTICS

- Molded 6 Pin Plastic VSIP® Package
- Approximate Weight: 1.5 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

### PIN CONFIGURATION



**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000µs) - See Figure 1	$P_{PP}$	600	Watts
Operating Temperature	$T_L$	-55 to 150	°C
Storage Temperature	$T_{STG}$	-55 to 150	°C

**SERIES "A" 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. 2) @ IP = 10A $V_C$ VOLTS	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ 10/1000µs $V_C @ I_{PP}$	MAXIMUM LEAKAGE CURRENT @ $V_{WM}$ $I_D$ µA	MAXIMUM CAPACITANCE @ 0V, 1MHz $C_J$ pF
VSB06P05LCI	5.0	6.0	12.5	16.5V @ 36.0A	300	50

**NOTES**

- Do not surge from pins 2 to 1, 1 to 3, 4 to 6 or 6 to 5. PIV typically greater than 100 Volts for each rectifier diode. For circuit applications, external pins 2, 3, 4 and 5 are not connected.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

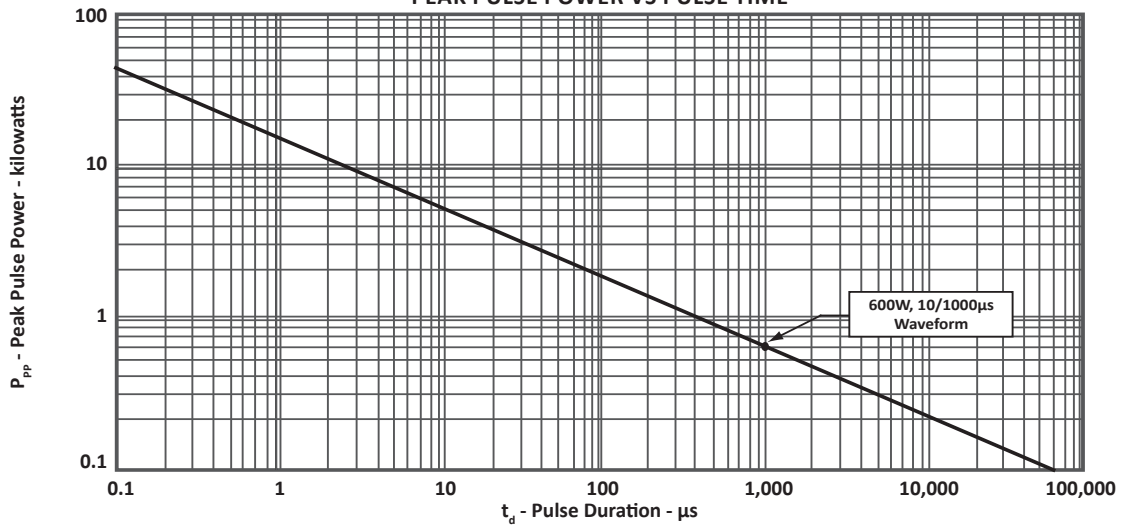


FIGURE 2  
PULSE WAVEFORM

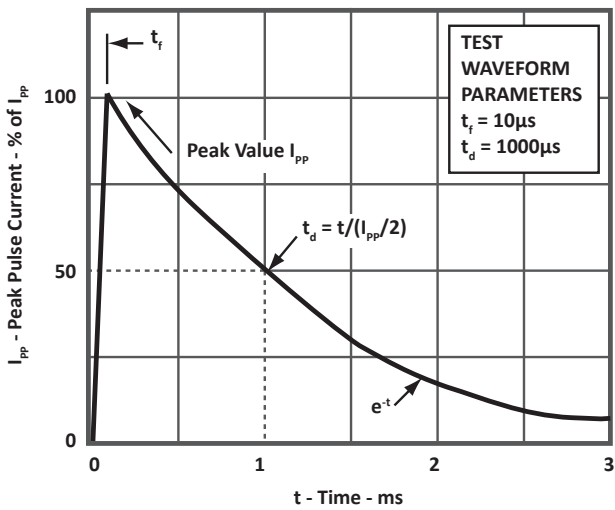
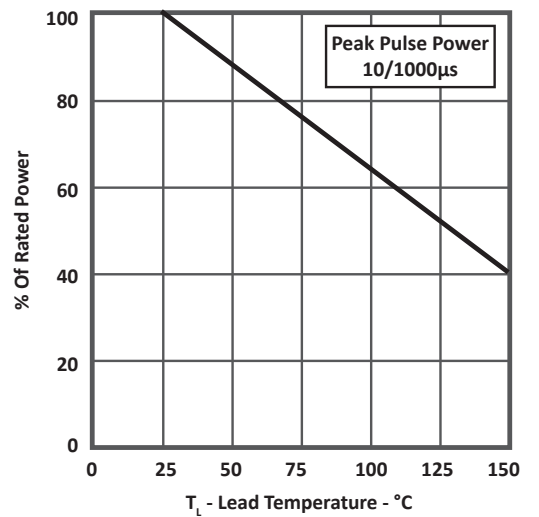
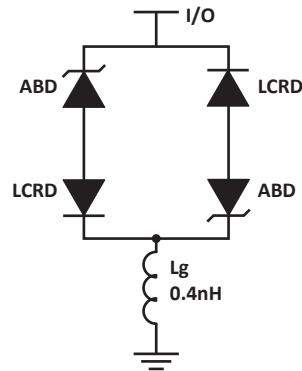


FIGURE 3  
POWER DERATING CURVE



## 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)
VSB06P05LCI	6.0	3000	1E-11	0.075

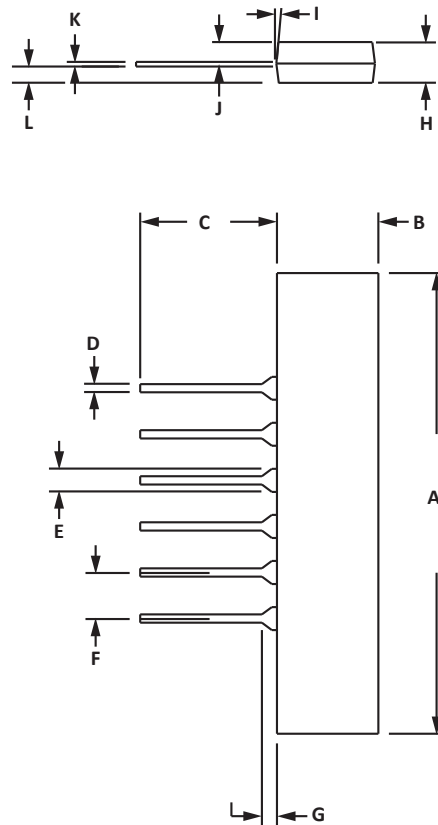
## 6 PIN VSIP PACKAGE INFORMATION

### OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	18.92	20.57	0.745	0.810
B	5.68	6.45	0.244	0.254
C	5.92	6.73	0.233	0.265
D	0.406	0.508	0.016	0.020
E	1.27	1.65	0.05	0.065
F	2.49	2.59	0.098	0.102
G	0.38	1.40	0.015	0.055
H	3.05	3.81	0.120	0.150
I	7° TYP	7° TYP	7° TYP	7° TYP
J	1.78	2.03	0.070	0.080
K	0.20	0.30	0.008	0.012
L	1.52	1.78	0.060	0.070

#### NOTES

- Dimensions are exclusive of mold flash and metal burrs.
- Controlling dimensions in inches.



### ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
VSB06P05LCI	-LF	n/a	n/a	n/a	25

#### NOTES

- Marking on Part - logo, part number, date code and pin one defined by dot on top of package.
- This device only available in a lead-free configuration.

Package outline per document number 06017.R2 1/11.

## COMPANY INFORMATION

---

### COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately-held company located in Tempe, Arizona, that offers a product line of transient voltage suppressors (TVS); avalanche breakdown diodes; steering diode TVS arrays and other surge suppressor component products. These TVS devices protect electronic systems from the effects of lightning, electrostatic discharge (ESD), nuclear electromagnetic pulses (NEMP), inductive switching and EMI / RFI. ProTek Devices also offers high performance interface and linear products that include analog switches; multiplexers; LED drivers; audio control ICs; RF and related high frequency products. The analog devices work in a host of consumer; industrial; automotive and other applications.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Sales: [sales@protekdevices.com](mailto:sales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

COPYRIGHT © ProTek Devices 2000 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.