

DESCRIPTION:

The TVA8LC series of monolithic transient voltage suppressors are designed for applications where voltage transients, caused by electrostatic discharge (ESD) and other induced voltage surges, can permanently damage sensitive components.

These TVS diodes are characterized by extremely LOW CAPACITANCE while at the same time retaining their HIGH SURGE capability, extremely FAST RESPONSE time and LOW dynamic resistance. The 8LC series consists of 8 monolithic bi-directional TVS diode arrays and is specifically designed to protect multiple or single data lines with each channel being electrically independent for multiple I/O port protection.

This series will meet the surge requirements of IEC 1000-4-2 Level 4 (Formerly IEC 801-2), "Human Body Model" for air and contact discharge.

FEATURES:

- 500 watts Peak Pulse Power ($T_p = 8 \times 20\mu s$)
- Transient protection for data, signal, and Vcc bus to IEC 1000-4-2 (ESD) & IEC 1000-4-4 (EFT)
- Protects up to 8 bi-directional lines
- Standoff voltages from 5 to 15 volts
- Low capacitance for high speed interfaces
- Low clamping voltage
- ESD protection > 15kV

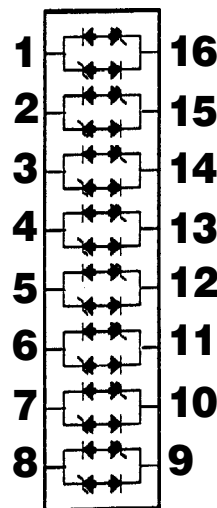
MECHANICAL CHARACTERISTICS:

- JEDEC MS-012AA small outline package (SOP) or
- 16 pin DIP
- Solder temperature: 265°C for 10 seconds
- Readily solderable terminals

APPLICATIONS:

- ESD & surge protection for power lines & I/O ports
- TTL and MOS Bus Lines
- RS-232, RS-422 and RS-485 data lines
- High speed logic
- High speed data & video transmission

SCHEMATIC:



Maximum Ratings				Units
Peak Pulse Power... P_{PK}	500			Watts
$T_p = 8 \times 20\mu s$				
Operating & Storage Temperature Range... T_J, T_{STG}	-65 to 175			°C

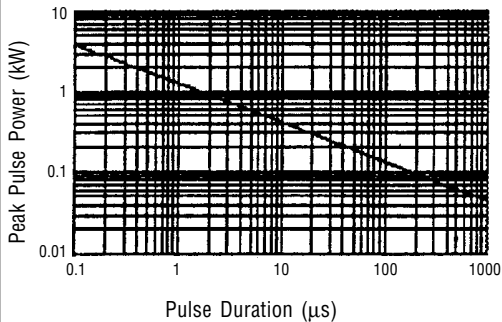
Electrical Characteristics @ 25°C

	Reverse Stand-off Voltage	Minimum Breakdown Voltage @ 1mA	Maximum Clamping Voltage @ $I_{PP}=1A$	Maximum Clamping Voltage @ $I_{PP}=10A$	Leakage Current @ V_{RWM}	Maximum Capacitance @ 0V, 1MHz
Symbol	V_{RWM}	BV (min)	V_C	V_C	I_R	C_J
Units	Volts	Volts	Volts	Volts	μA	pF
TVA8LC05C	5	6	9.8	12.5	400	25
TVA8LC08C	8	8.5	13.4	16.6	10	25
TVA8LC12C	12	13.3	17.5	23.5	4	25
TVA8LC15C	15	16.7	25.5	29.5	4	25

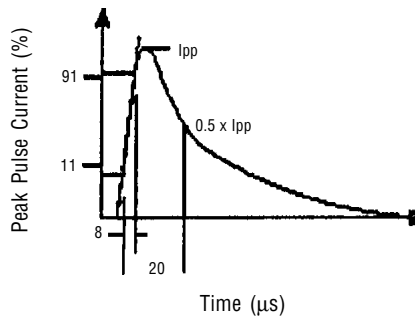
NOTE: Clamping voltage values are based upon an industry standard 8 x 20 μs peak pulse current (Ipp) waveform.



Peak Pulse Power vs Pulse Time



8 x 20 Impulse Waveform



Differential Mode:

Eight lines may be protected differentially (line-to-line) by connecting Inputs/Outputs at pins 1 - 16.

Common Mode:

Bi-directional protection of eight lines is achieved by connecting Inputs/Outputs at pins 1 - 8. Pins 9 - 16 are connected to ground. Note: Device is symmetrical so connections may be reversed to serve a specific application.

Typical Application (Data line protection)

