

**CTLTVS5-4****SURFACE MOUNT SILICON  
LOW CAPACITANCE  
QUAD TVS/DIODE ARRAY**[www.centrasemi.com](http://www.centrasemi.com)**Ideal for  
USB  
3.0****TLM1031 CASE****DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CTLTVS5-4 is a 4-line TVS/Diode array packaged in a TLM1031 surface mount case. With its ultra low capacitance, this device was designed to protect four high speed data or transmission lines from over-voltage transients and ESD damage.

**MARKING CODE: CTL5****APPLICATIONS:**

- USB 3.0 Power and Data Line Protection
- HDMI Interface Protection
- Tablets, Monitors, Displays, Smart Phones
- Ethernet Ports

**FEATURES:**

- Low capacitance
- Low clamping voltage
- Protects four I/O lines

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

Peak Pulse Current (8x20 $\mu\text{s}$ )  
 Peak Power Dissipation (8x20 $\mu\text{s}$ )  
 Electrical Fast Transient (IEC 61000-4-4) (5x50ns)  
 ESD Voltage (IEC 61000-4-2, Air)  
 ESD Voltage (IEC 61000-4-2, Contact)  
 Operating and Storage Junction Temperature

**SYMBOL**

$I_{PP}$  2.5  
 $P_{PK}$  32.5  
 EFT 40  
 $V_{ESD}$  15  
 $V_{ESD}$  8.0  
 $T_J, T_{stg}$  -55 to +150

**UNITS**

A  
 W  
 A  
 kV  
 kV  
 $^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS PER DIODE:** ( $T_A=25^\circ\text{C}$ )

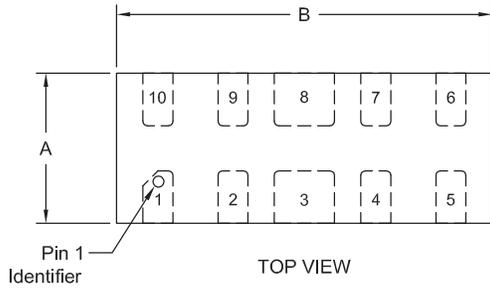
Maximum Reverse Stand-off Voltage $V_{RWM}$	Reverse Breakdown Voltage I/O to GND		Maximum Reverse Leakage Current I/O to GND $I_R @ V_{RWM}$	Maximum Clamping Voltage I/O to GND (8x20 $\mu\text{s}$ ) $V_C @ I_{PP}$		Typical TLP Clamping Voltage (Note 1) $V_{CL} @ I_{PP}$		Typical Dynamic Resistance (Note 1) $R_{DYN}$	Maximum Off State Junction Capacitance ( $V_R=0, f=1.0\text{MHz}$ )	
	$V_Z @ 1.0\text{mA}$			$V$	$A$	$V$	$A$		I/O to GND	I/O to I/O
	MIN V	MAX V							$C_J$	$C_J$
5.0	6.0	9.0	1.0	12	1.0	12	4.0	0.5	0.8	0.4
				13	2.5	14	8.0			

Note 1: Transmission Line Pulse (TLP) conditions:  $Z_0=50\Omega, t_p=100\text{ns}$

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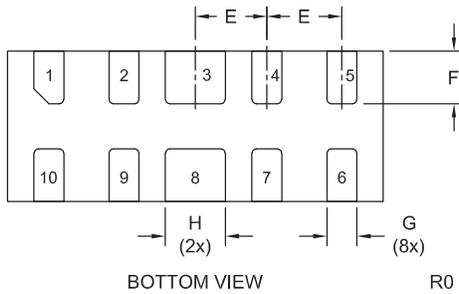
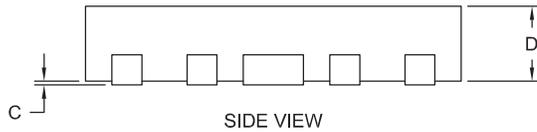


**TLM1031 CASE - MECHANICAL OUTLINE**



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.037	0.041	0.95	1.05
B	0.096	0.100	2.45	2.55
C	0.000	0.002	0.00	0.05
D	0.018	0.022	0.45	0.55
E	0.020		0.50	
F	0.012	0.016	0.30	0.40
G	0.006	0.010	0.15	0.25
H	0.014	0.018	0.35	0.45

TLM1031 (REV:R0)

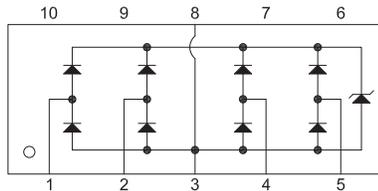


**LEAD CODE:**

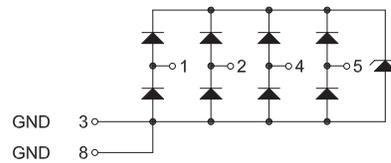
- 1) I/O                    6) N/C
- 2) I/O                    7) N/C
- 3) Ground                8) Ground
- 4) I/O                    9) N/C
- 5) I/O                    10) N/C

**MARKING CODE: CTL5**

**PIN CONFIGURATION**



**SCHEMATIC**



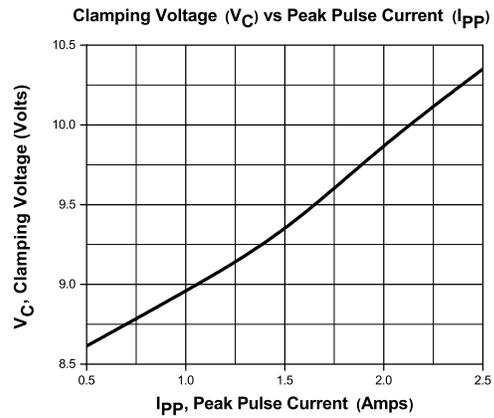
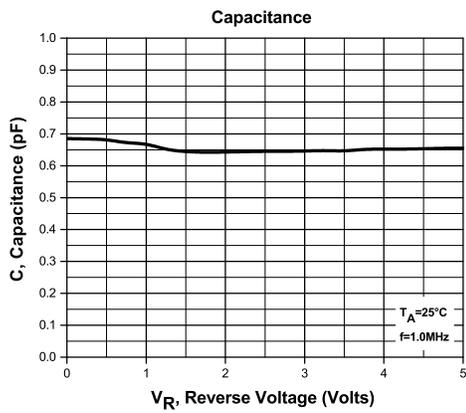
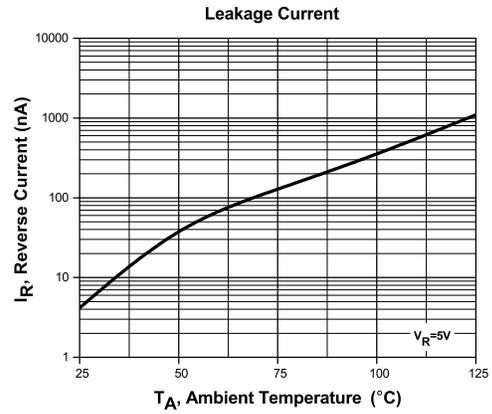
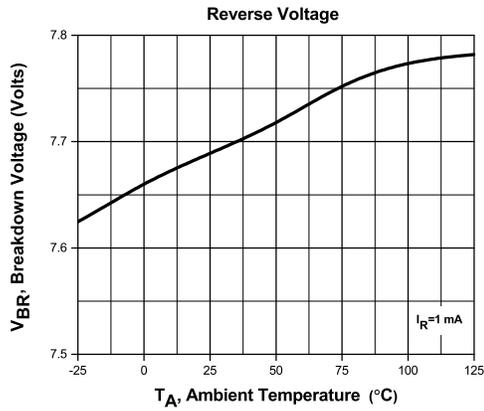
R4 (4-September 2015)

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TYPICAL ELECTRICAL CHARACTERISTICS



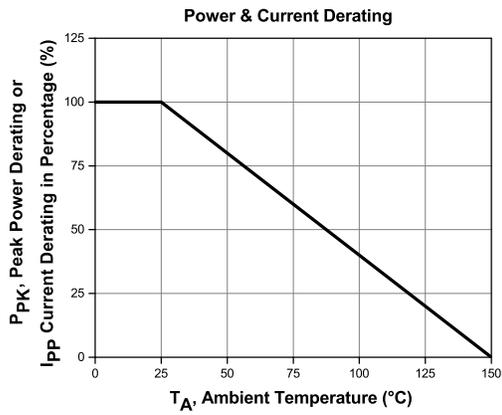
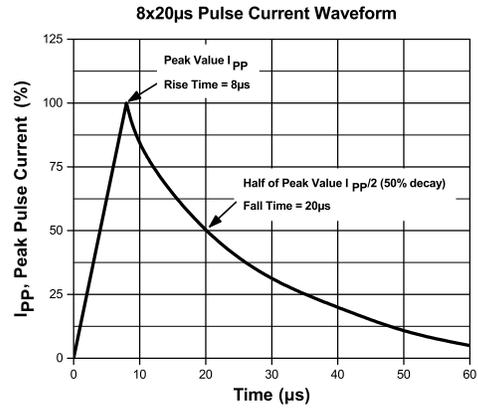
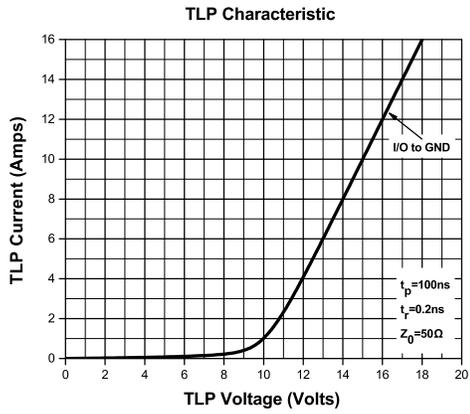
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### TYPICAL ELECTRICAL CHARACTERISTICS



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Central's operations team provides the highest level of support to insure product is delivered on-time.

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- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

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- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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