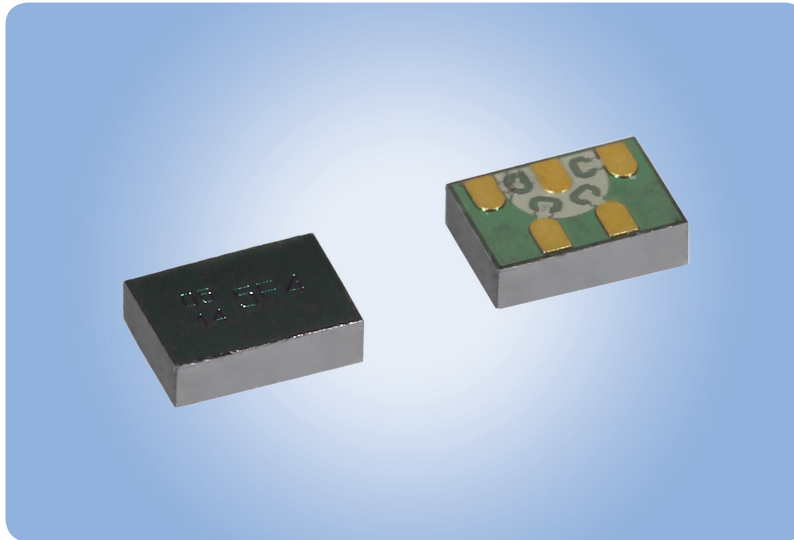




## 4-Line ESD Protection Diode Provides Extreme Size Reduction for Portable Electronics



### KEY BENEFITS

- Ultra compact CLP1007-5L package
  - Measures only 1.0 mm x 0.7 mm with a low height of 0.27 mm
- Low load capacitance of 0.9 pF typical
- Features a “flow through” design
- Low maximum leakage current of < 0.1  $\mu$ A at the working voltage of 5.5 V
- Breakdown voltage of 7.5 V typical at 1 mA
- Maximum clamping voltage of 15 V at 3 A
- Provides transient protection for data lines as per IEC 61000-4-2 at  $\pm$  15 kV (air and contact discharge)
- Supports reflow soldering to +260 °C for 10 s

### APPLICATIONS

- SD protection of high speed data lines including HDMI, DisplayPort, eSATA, USB, 1394 / fireWire, and Thunderbolt in mobile phones, digital cameras, and portable gaming systems

### RESOURCES

- Datasheet: please visit [www.vishay.com/ppg?82665](http://www.vishay.com/ppg?82665)
- For technical questions contact [ESDProtection@vishay.com](mailto:ESDProtection@vishay.com)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



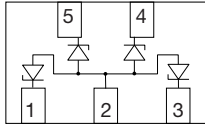
**RoHS**  
COMPLIANT

HALOGEN  
**FREE**

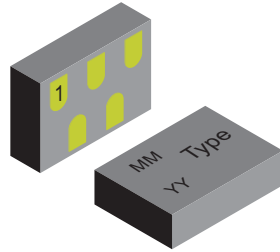
**GREEN**  
(5-2008)



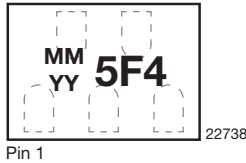
## 4-Line ESD Protection Diode Provides Extreme Size Reduction for Portable Electronics



22736



### MARKING



Pin 1

5F4 = type code  
MM = date code month  
YY = date code year

### ADDITIONAL RESOURCES



3D Models

### FEATURES

- Compact chip level package CLP1007-5L
- Length = 1 mm; width = 0.7 mm; height = 0.27 mm
- 4-lines, unidirectional ESD protection array
- Low leakage current  $I_R < 0.1 \mu A$
- Low capacitance at  $V_R = 0 V = 0.9 pF$  (typ.)
- Ideal for high speed data line like
  - HDMI, DisplayPort, eSATA
  - USB, 1394/firewire
  - Thunderbolt
- ESD immunity acc. IEC 61000-4-2
  - $\pm 15 kV$  contact discharge
  - $\pm 15 kV$  air discharge
- e4 - precious metal (e.g. Ag, Au, NiPd, NiPdAu) (no Sn)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
[5-2008]

### ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VBUS54FD-SD1	VBUS54FD-SD1-G4-08	10 000	10 000

### PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VBUS54FD-SD1	CLP1007-5L	5F4	0.45 mg	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5; $t_p = 8/20 \mu s$ ; single shot	$I_{PPM}$	3	A
Peak pulse power	Acc. IEC 61000-4-5; $t_p = 8/20 \mu s$ ; single shot	$P_{PP}$	45	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	$V_{ESD}$	$\pm 15$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	
Operating temperature	Junction temperature	$T_J$	-40 to +125	°C
Storage temperature		$T_{STG}$	-55 to +150	°C

Revision: 30-Sep-2019