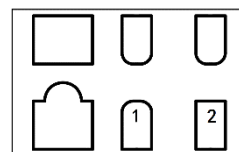


## Features

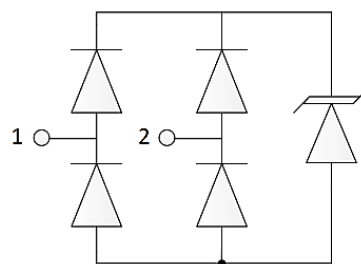
- Bidirectional ESD protection of one line
- Extremely low diode capacitance  $C_d = 0.35$  pF
- Extremely low clamping voltage to protect sensitive I/Os
- Extremely low inductance protection path to ground
- ESD protection up to 16 kV according to IEC 61000-4-2
- 10 A maximum 8/20  $\mu$ s peak pulse current
- RoHS Compliant

## Applications

- Protect 2 differential lines from overvoltage events
- 1G/2.5G/5G/10G Ethernet
- Integrated Magnetics / RJ-45 Connectors
- Central Office Equipment
- Industrial Equipment
- IP Camera



**DFN1610**

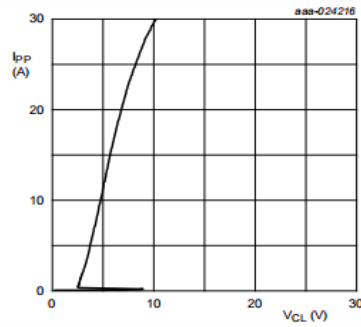


**Device Symbol**

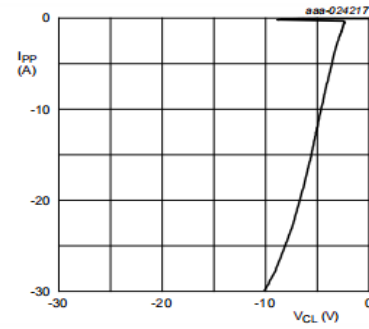
## Limiting values

| Parameter                | Symbol    | Condition                                                      | Min | Typ  | Max | Unit     |
|--------------------------|-----------|----------------------------------------------------------------|-----|------|-----|----------|
| Rated peak pulse current | $I_{PPM}$ | $T_p = 8/20 \mu s$                                             |     |      | 10  | A        |
| Reverse standoff voltage | $V_{RWM}$ | $T_{amb} = 25^\circ C$                                         |     |      | 3.3 | V        |
| Breakdown voltage        | $V_{BR}$  | $I_R = 1$ mA; $T_{amb} = 25^\circ C$                           | 5.5 | 6.5  | 8   | V        |
| Reverse leakage current  | $I_{RM}$  | $V_{RWM} = 3.3$ V; $T_{amb} = 25^\circ C$                      |     |      | 50  | nA       |
| Electrostatic discharge  | $V_{ESD}$ | IEC 61000-4-2 contact discharge                                |     | -16  | +16 | kV       |
|                          |           | IEC 61000-4-2 air discharge                                    |     | -16  | +16 | kV       |
| Diode capacitance        | $C_d$     | $f = 1$ MHz; $V_R = 0$ V; $T_{amb} = 25^\circ C$               |     | 0.35 | 0.5 | pF       |
|                          |           | $f = 1$ MHz; $V_R = 1.5$ V; $T_{amb} = 25^\circ C$             |     | 0.28 |     | pF       |
| Clamping voltage         | $V_{CL}$  | $I_{PP} = 4$ A; $T_p = 8/20 \mu s$ ; $T_{amb} = 25^\circ C$    |     | 4    |     | V        |
|                          |           | $I_{PP} = 10$ A; $T_p = 8/20 \mu s$ ; $T_{amb} = 25^\circ C$   |     | 6    |     | V        |
| Trigger voltage          | $V_t$     | $I_{PP} = 10$ A $T_p = 8/20 \mu s$                             |     | 9    |     | V        |
| Dynamic resistance       | $R_{dyn}$ | $0 A \leq I_R \leq 30$ A; $T_p = TLP$ ; $T_{amb} = 25^\circ C$ |     | 0.25 |     | $\Omega$ |

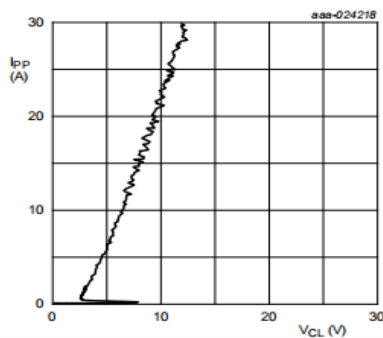
| Parameter                 | Symbol    | Value       | Unit       |
|---------------------------|-----------|-------------|------------|
| Junction temperature      | $T_J$     | 150         | $^\circ C$ |
| Ambient temperature       | $T_{amb}$ | -40 to +125 | $^\circ C$ |
| Storage temperature range | $T_{stg}$ | -55 to +150 | $^\circ C$ |



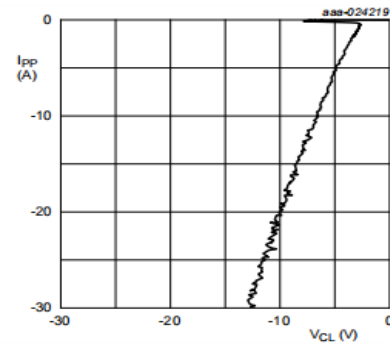
Transmission Line Pulse (TLP) = 100 ns; rise time = 1  
Fig. 1. Positive clamping voltage (TLP); typical values



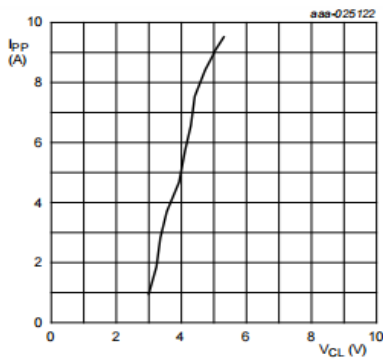
Transmission Line Pulse (TLP) = 100 ns; rise time = 1  
Fig. 2. Negative clamping voltage (TLP); typical values



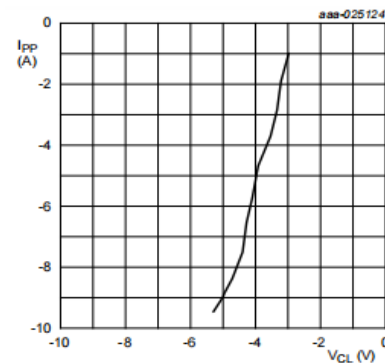
Very Fast Transmission Line Pulse (VF-TLP) = 5 ns  
Fig. 3. Positive clamping voltage (VF-TLP); typical values



Very Fast Transmission Line Pulse (VF-TLP) = 5 ns  
Fig. 4. Negative clamping voltage (VF-TLP); typical values

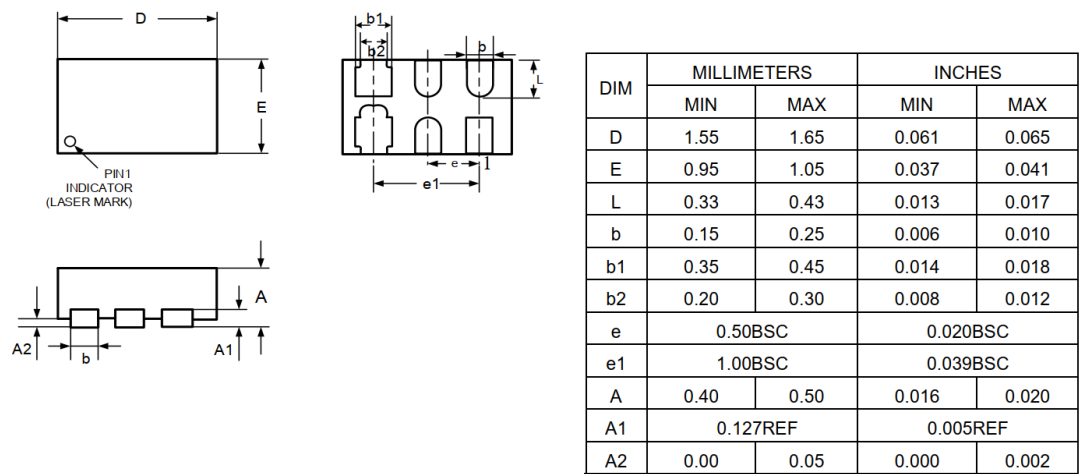


IEC 61000-4-5;  $t_p = 8/20 \mu s$ ; positive pulse  
Fig.5. Dynamic resistance with positive clamping; typical values



IEC 61000-4-5;  $t_p = 8/20 \mu s$ ; negative pulse  
Fig.6. Dynamic resistance with negative clamping; typical values

Product Dimension



Marking



Order Information

| Device        | Package    | Carrier          | Quantity       | HSF Status     |
|---------------|------------|------------------|----------------|----------------|
| VT5VD1610-10A | DFN1610-6L | Tape & Reel (7") | 10000pcs / Ree | Rohs Compliant |