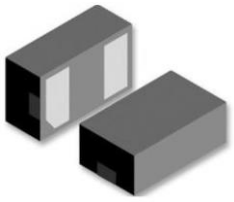
VT3V3D1006-10A

Low Capacitance Surge and ESD Protector

Features

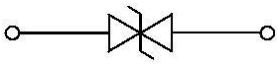
- Bidirectional ESD protection of one line
- Extremely low diode capacitance C_d = 0.35 pF
- Extremely low clamping voltage to protect sensitive I/Os
- Extremely low inductance protection path to ground
- ESD protection up to 16 kV according to IEC 61000-4-2
- 10 A maximum 8/20 µs peak pulse current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



DFN1006

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

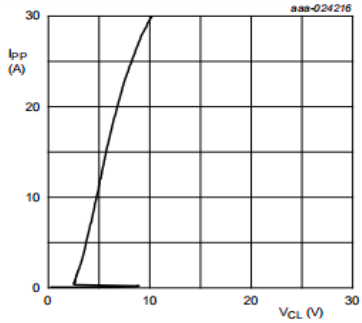


Device Symbol

Limiting values

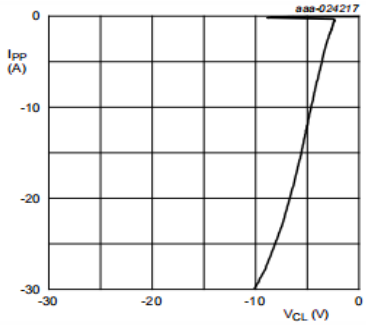
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Rated peak pulse current	I_{PPM}	Tp = 8/20 µs			10	A
Reverse standoff voltage	V_{RWM}	T_{amb} = 25 °C			3.3	V
Breakdown voltage	V_{BR}	I_R = 1 mA; T_{amb} = 25 °C	5.5	6.5	8	V
Reverse leakage current	I_{RM}	V_{RWM} = 3.3 V; T_{amb} = 25 °C			50	nA
Electrostatic 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 °C		0.35	0.5	pF
		f = 1 MHz; V_R = 1.5 V; T_{amb} = 25 °C		0.28		pF
Clamping voltage	V_{CL}	I_{PP} = 4 A; Tp=8/20us ;T_{amb} = 25 °C		4		V
		I_{PP} =10A; Tp=8/20us ;T_{amb} = 25 °C		6		V
Trigger voltage	Vt	I_{PP} =10A Tp=8/20us		9		V
Dynamic resistance	R_{dyn}	0 A ≤ I_R ≤ 30 A; Tp=TLP; T_{amb} = 25 °C		0.25		Ω

Parameter	Symbol	Value	Unit
Junction temperature	T_J	150	℃
Ambient temperature	T_{amb}	-40 to +125	℃
Storage temperature range	T_{stg}	-55 to +150	℃



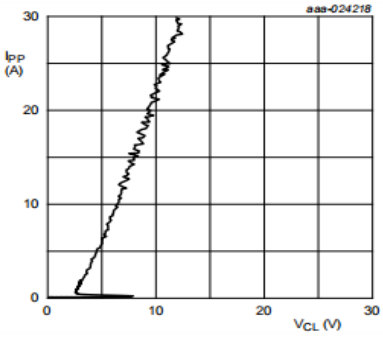
Transmission Line Pulse (TLP) = 100 ns; rise time = 1

Fig. 1. Positive clamping voltage (TLP); typical values



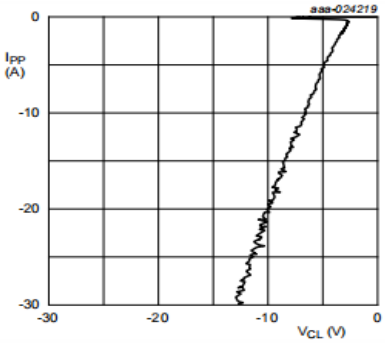
Transmission Line Pulse (TLP) = 100 ns; rise time = 1

Fig. 2. Negative clamping voltage (TLP); typical values



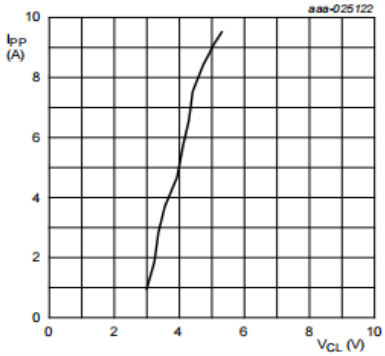
Very Fast Transmission Line Pulse (VF-TLP) = 5 ns

Fig. 3. Positive clamping voltage (VF-TLP); typical values



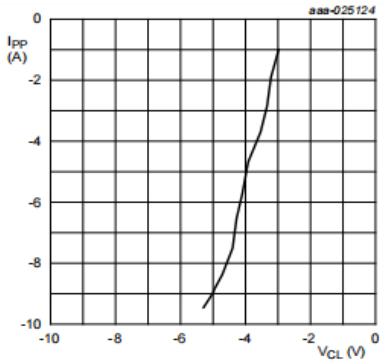
Very Fast Transmission Line Pulse (VF-TLP) = 5 ns

Fig. 4. Negative clamping voltage (VF-TLP); typical values



IEC 61000-4-5; tp = 8/20 µs; positive pulse

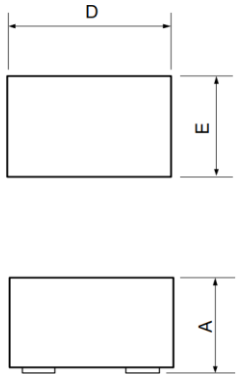
Fig.5. Dynamic resistance with positive clamping; typical values

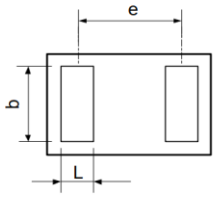


IEC 61000-4-5; tp = 8/20 µs; negative pulse

Fig.6. Dynamic resistance with negative clamping; typical values

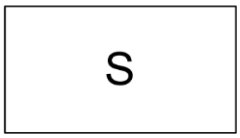
Product Dimension





Symbol	Milimeter		
	min	nom	max
D	0.95	1.00	1.05
E	0.55	0.60	0.65
A	0.45	0.50	0.55
b	0.45	0.50	0.55
L	0.20	0.25	0.30
e	0.65BSC		

Marking



Marking

Device	Package	Carrier	Quantity	HSF Status
VT3V3D1006-10A	DFN1006	Tape & Reel (7")	10000pcs / Ree	Rohs Compliant