

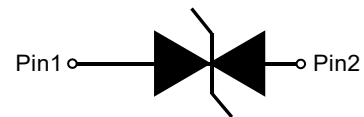
1-Line, Bi-directional, Transient Voltage Suppressors

Descriptions

The ESD3V3D500TATA is a bi-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components that may be subjected to ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lightning. It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight. The is available in DFN1006-2L package. Standard products are Pb-free .



DFN1006-2L



Circuit diagram

Features

- Stand-off voltage: $\pm 3.3V$ Max
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 30KV$ Air, $\pm 30KV$ contact IEC61000-4-5 (Surge): 33 A (8/20 μs)
- Solid-state silicon technology
- Low leakage current

Order information

Device	Marking	Package	Shipping
ESD3V3D500TA	3/E	DFN1006-2L	10000/Tape&Reel

Applications

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Digital Cameras
- CAR/MID DVD/MP3/MP4/PMP Players

Absolute maximum ratings

Parameter	Symbol	Rating	Unit
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	33	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge			
Operating temperature	T_{OP}	-40~85	°C
Operation junction temperature	T_J	125	°C
Lead temperature	T_L	260	°C
Storage temperature	T_{STG}	-55~150	°C

Electrical characteristics (TA=25 °C ,unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V_{RWM}				± 3.3	V
Reverse leakage current	I_R	$V_{RWM} = 3.3V$			0.5	μA
Reveres breakdown voltage	V_{BR}	$I_T = 1mA$	3.8	4.7	6.0	V
Clamping voltage	V_C	$I_{pp} = 1A$ $t_p = 8/20\mu s$			6.5	V
		$I_{pp} = 33A$ $t_p = 8/20\mu s$			12.5	V
Junction capacitance	C_J	$V_R = 0V$, $f = 1MHz$		50.0	80.0	pF

Electrical performance curve

V_{RWM} Reverse stand-off voltage

I_R Reverse leakage current

V_{CL} Clamping voltage

I_{PP} Peak pulse current

V_{TRIG} Reverse trigger voltage

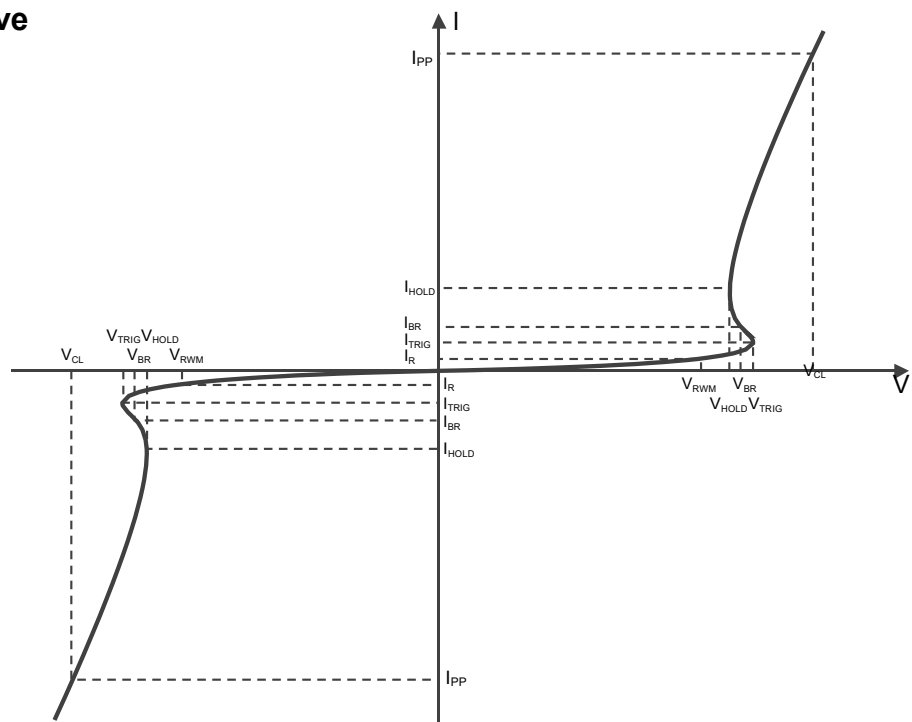
I_{TRIG} Reverse trigger current

V_{BR} Reverse breakdown voltage

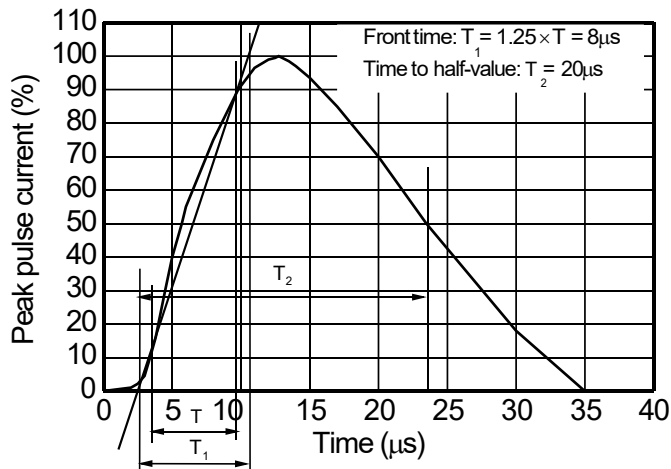
I_{BR} Reverse breakdown current

V_{HOLD} Reverse holding voltage

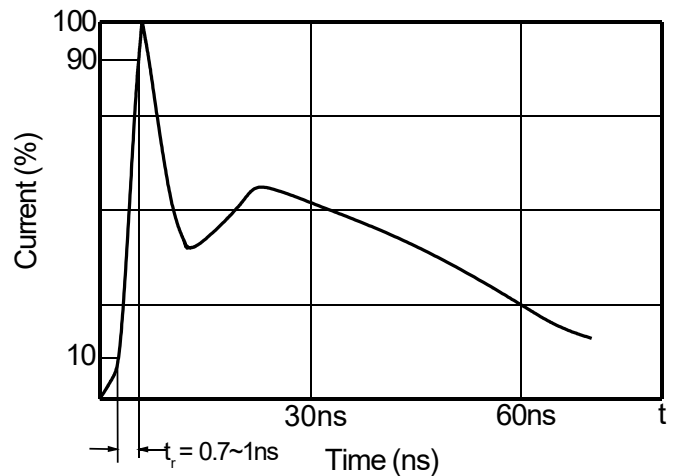
I_{HOLD} Reverse holding current



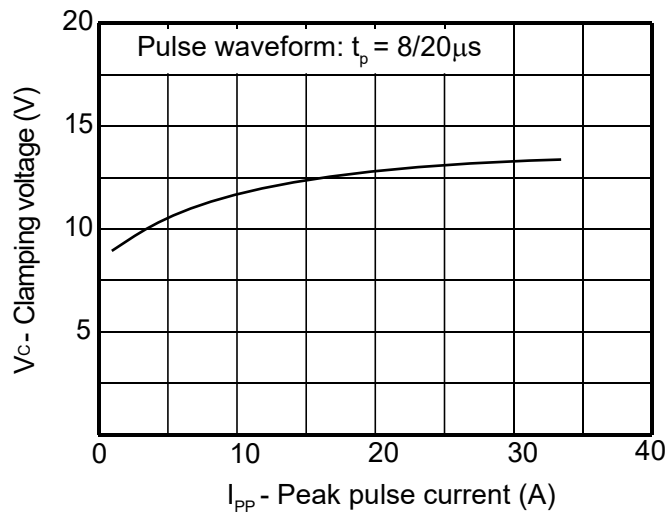
Typical characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)



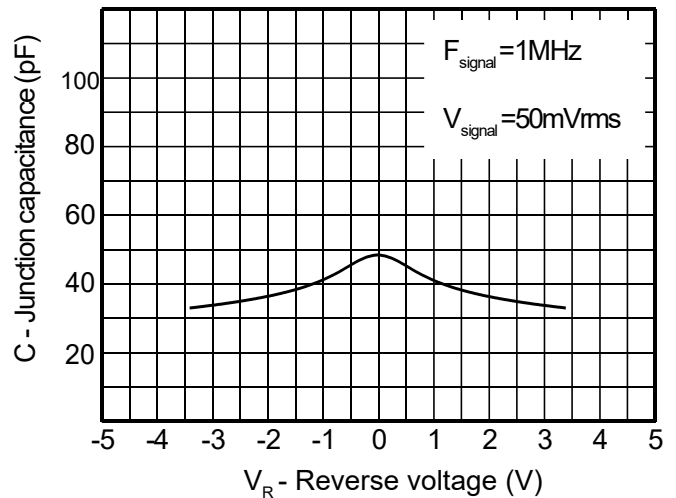
8/20 μs waveform per IEC61000-4-5



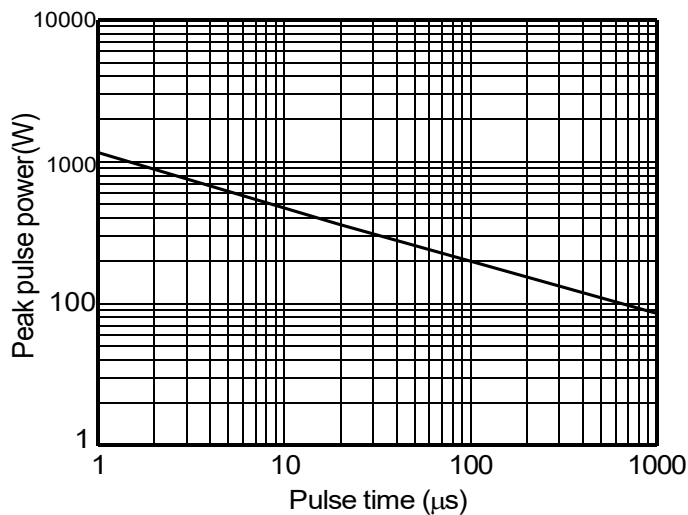
Contact discharge current waveform per IEC61000-4-2



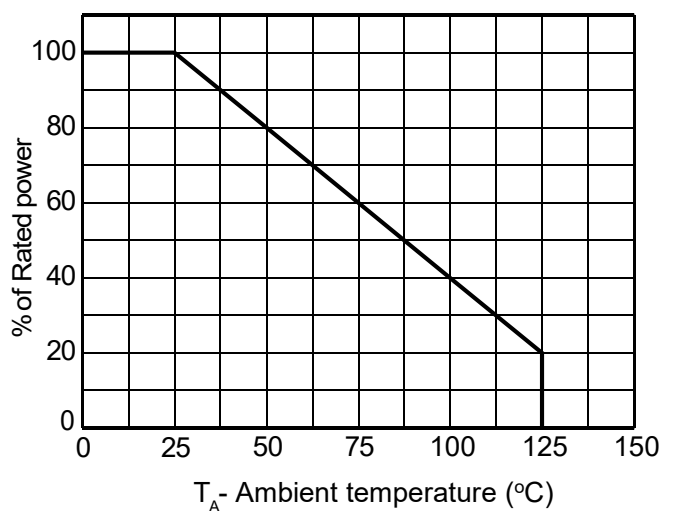
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverses voltage

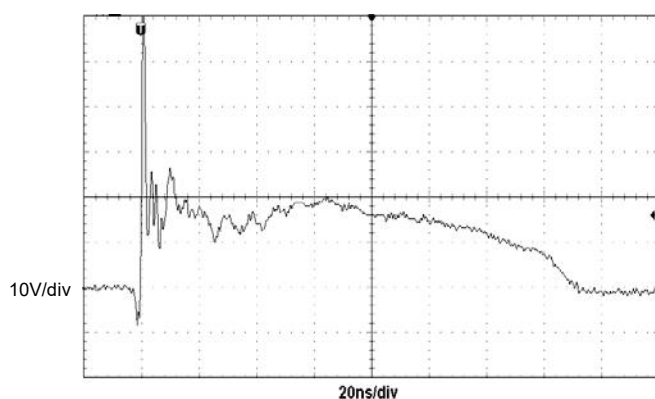
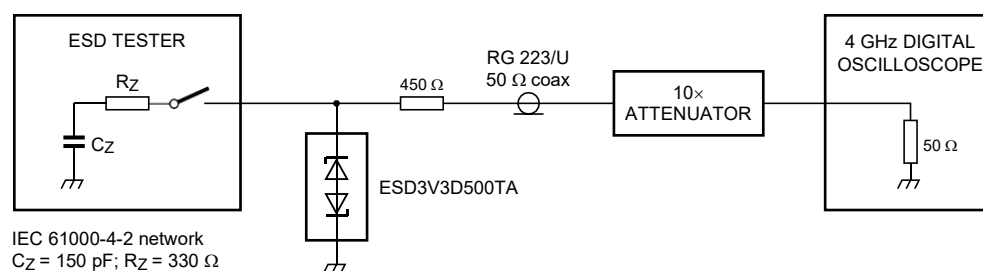


Non-repetitive peak pulse power vs. Pulse time

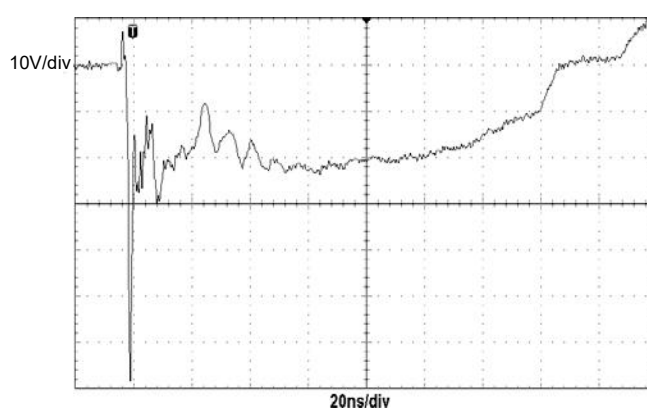


Power derating vs. Ambient temperature

ESD clamping test setup and waveforms



ESD clamping
(+8kV contact discharge per IEC61000-4-2)



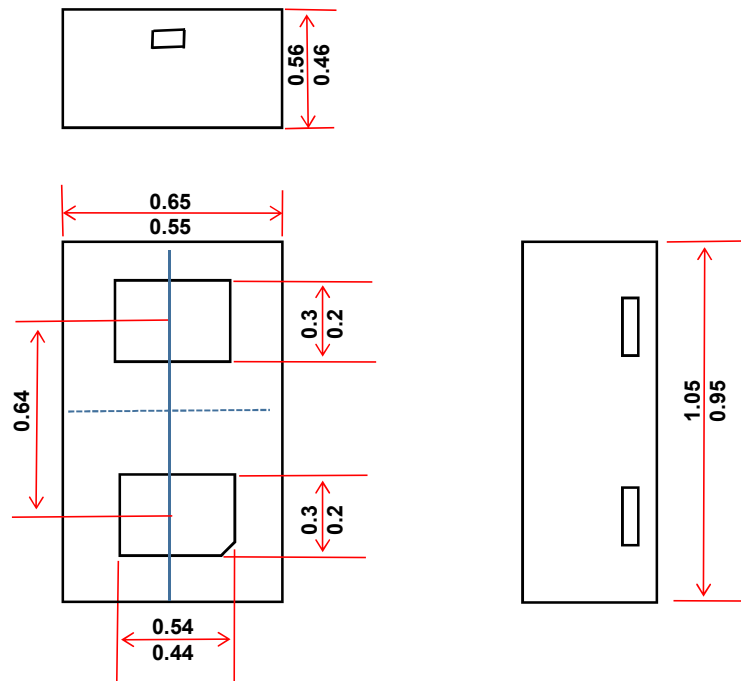
ESD clamping
(-8kV contact discharge per IEC61000-4-2)

Package outline dimensions

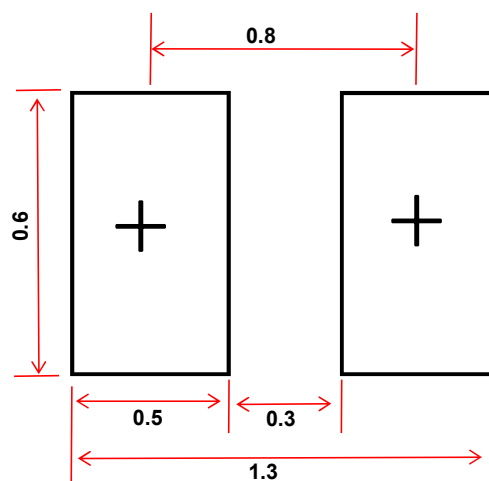
DFN1006-2L

DIMENSION OUTLINE:

Unit:mm

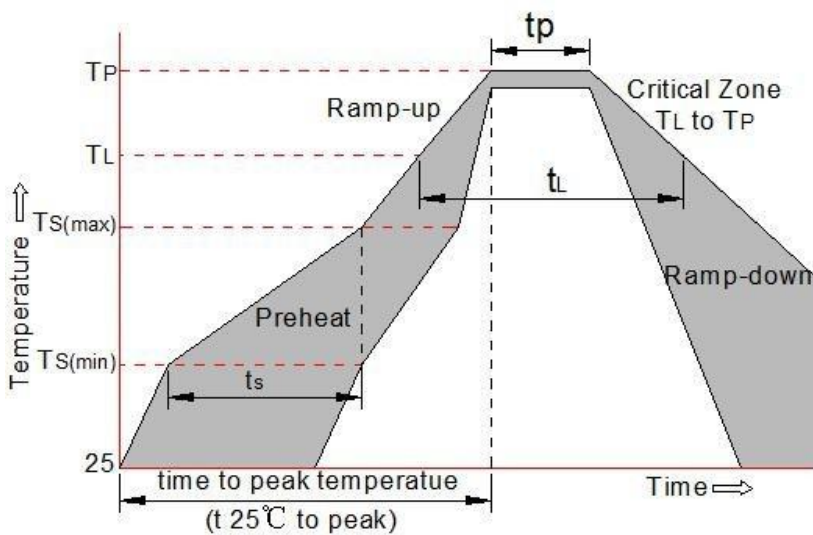


Recommended Mounting Pad Layout Unit:mm



Soldering Parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



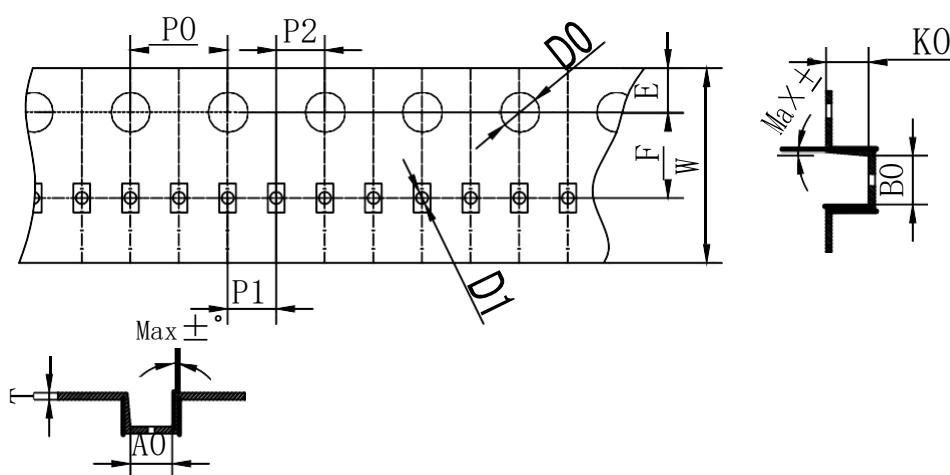
Technical drawing of a wheel hub assembly, showing front, side, and detail views.

Front View (Left): Shows the wheel with a central hub. The hub has a central hole with a diameter of $\phi 13.2 \pm 0.3$. The hub is surrounded by a flange with a thickness of 1.5 MIN . The hub is mounted on a shaft with a diameter of $\phi 20.2 \text{ MIN}$. The hub is labeled "ARBDR HOLE" and "DETAIL A" with a scale of 2:1.

Side View (Right): Shows the hub mounted on a shaft. The hub has a thickness of 1.8 ± 0.3 . The shaft has a diameter of $\phi 20.2 \text{ MIN}$. The hub is labeled "W2 (Measured at OUT)" and "W1 (Measured at HUB)". The shaft is labeled "W3 (Include flange distance at outer edge)".

Detail A (Bottom): A magnified view of the hub hole, showing a hole with a diameter of $\phi 13.2 \pm 0.3$ and a depth of 1.5 MIN . The hole is labeled "ARBDR HOLE" and "DETAIL A" with a scale of 2:1.

PRODUCT SPECIFICATIONS					
TAPE WIDTH	ØA (±1.0)	ØN (±1.0)	W1 (+2.0/-0.0)	W2 (MAX)	W3 (+3.0/-0.0)
MM	180	53.6	8.4	14.4	8.4



SYMBOL	A0	B0	K0	P0	P1	P2
SPEC	$0.68 \pm 0.0 \pm$	$1.1 \pm \pm 0.0 \pm$	$0.63 \pm 0.0 \pm$	4.00 ± 0.10	$2.00 \pm 0.0 \pm$	$2.00 \pm 0.0 \pm$
SYMBOL	T	E	F	D0	D1	W
SPEC	0.20 ± 0.03	$1.1 \pm \pm 0.10$	$3.1 \pm 0 \pm 0.0 \pm$	$1.1 \pm \pm 0.0 \pm$	$0.50^{+0.1}_{-0}$	$8.00^{+0.2}_{-0.1}$