Description

The DC56161D24 is a Uni-directional TVS (Transient Voltage Suppressor). It is specifically designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transient) and Lightning.
The DC56161D24 may be used to provide ESD protection up to ±30kV (contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 200A (8/20μs) according to IEC61000-4-5.

Features

- 6000W peak pulse power (8/20μs)
- Operating voltage: 24V
- Ultra low clamping voltage
- One power line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 200A (8/20μs)
- RoHS Compliant

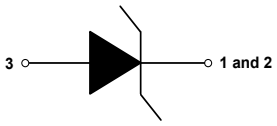
Mechanical Characteristics

- Package: DFN2020-3
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

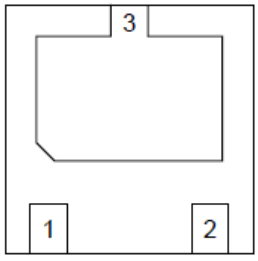
Applications

- Power lines
- Cellular handsets
- Tablets
- Microprocessors
- Portable Electronics

Dimensions and Pin Configuration



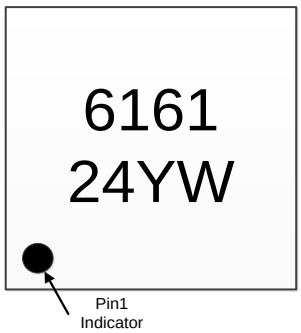
Circuit Diagram



Transparent top view

Pin Schematic

Marking Information



6161 = Series code
24 = Device code
YW = Date code

Ordering Information

Part Number	Marking	Packaging	Reel Size
DC56161D24	6161	3000/Tape & Reel	7 inch

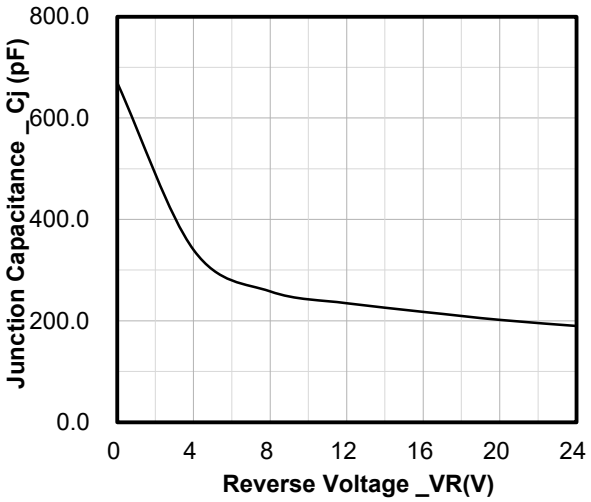
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20μs)	Ppk	6000	W
Peak Pulse Current(8/20μs)	I_{PP}	200	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

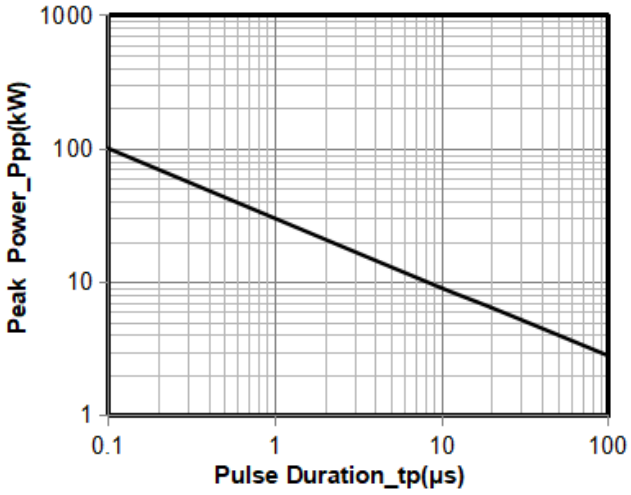
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			24	V	
Breakdown Voltage	V_{BR}	25			V	I_T = 1mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 24V
Clamping Voltage	V_C			26	V	I_{PP} = 100A (8 x 20μs pulse)
Clamping Voltage	V_C			30	V	I_{PP} = 200A (8 x 20μs pulse)
Junction Capacitance	C_J			800	pF	VR = 0V, f = 1MHz

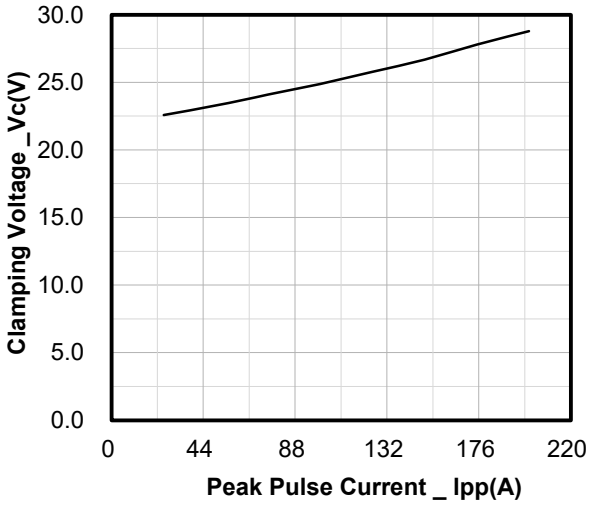
Typical Performance Characteristics (TA=25℃ unless otherwise Specified)



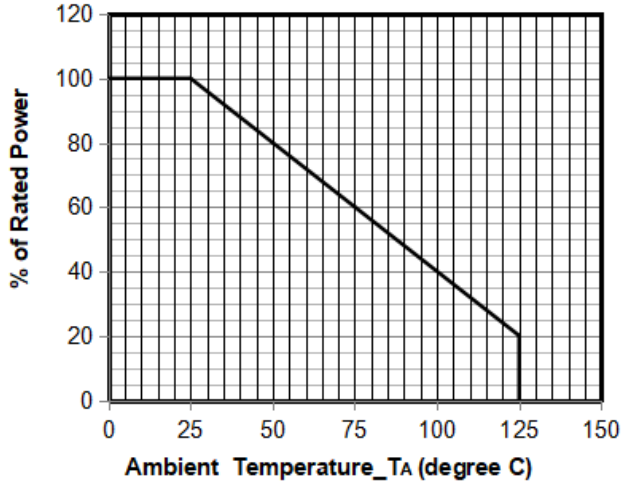
Junction Capacitance vs. Reverse Voltage



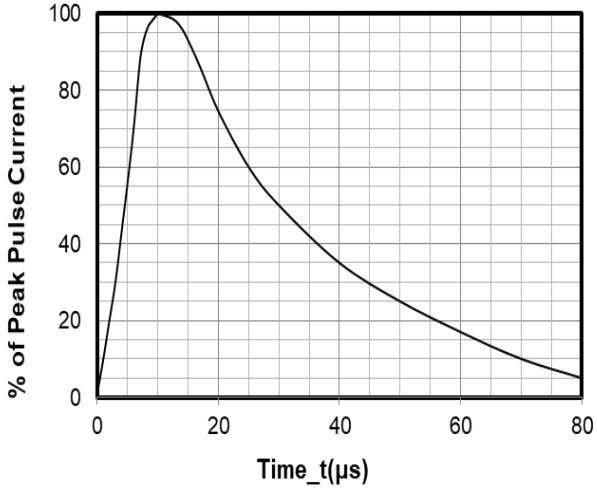
Peak Pulse Power vs. Pulse Time



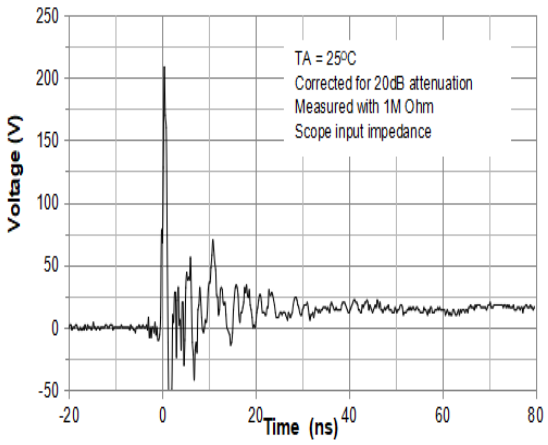
Clamping Voltage vs. Peak Pulse Current

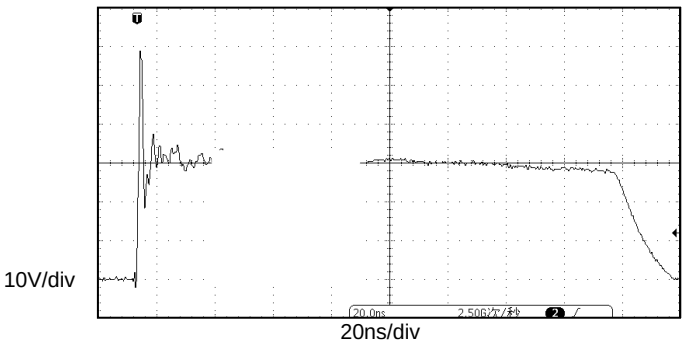


Power Derating Curve

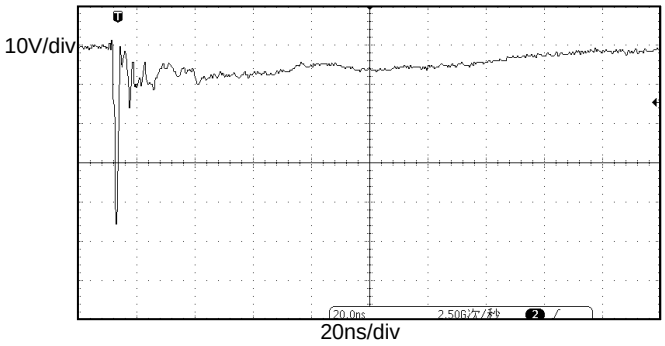


8 X 20μs Pulse Waveform

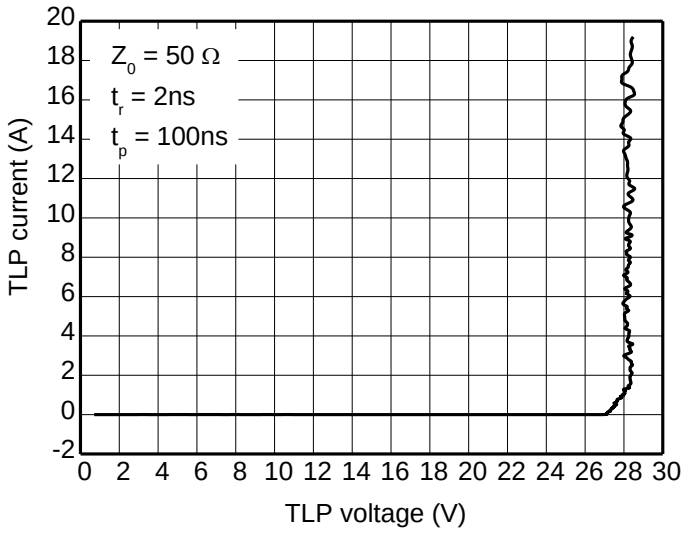




ESD clamping
(+8kV contact discharge per IEC61000-4-2)

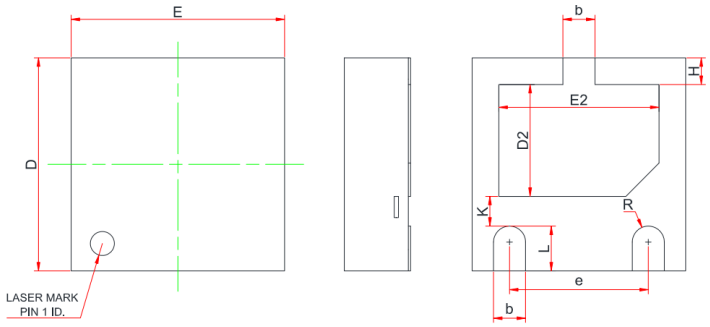


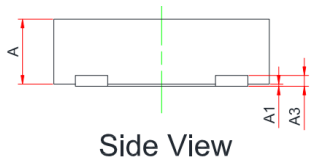
ESD clamping
(-8kV contact discharge per IEC61000-4-2)



TLP Measurement

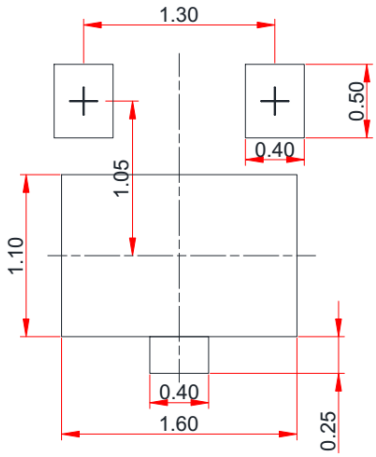
DFN2020-3 Package Outline Drawing





	MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3		0.10REF.	
b	0.25	- -	0.35
D	1.90	- -	2.10
E	1.90	- -	2.10
D2	0.95	- -	1.15
E2	1.40	- -	1.60
e	1.20		1.40
H	0.20	- -	0.30
K	0.20		0.40
L	0.35	- -	0.45
R	0.13	- -	- -

Suggested Land Pattern



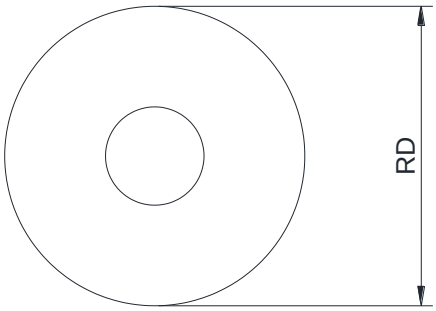
Unit: mm

Contact Information

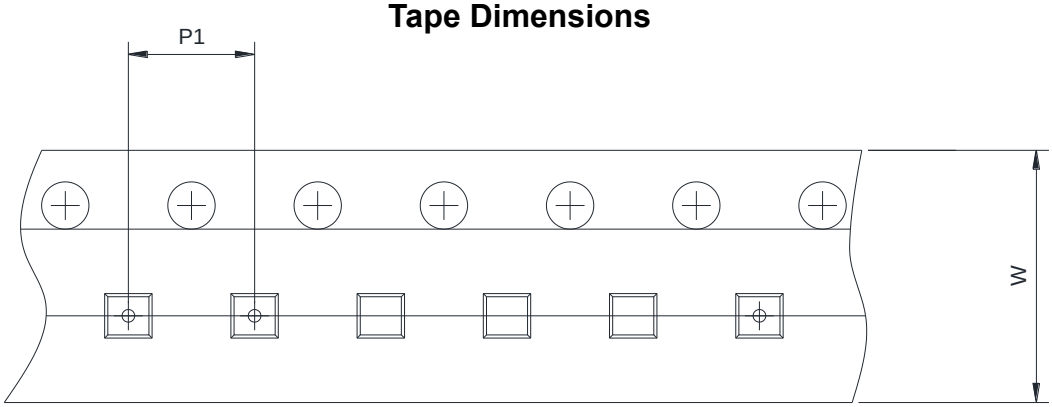
Changzhou D-first Electronics CO.,Ltd.
www.first-electronic.com
Email: xhf@first-electronic.cn
Phone: +86（0519）8817 1671

Tape and Reel Information

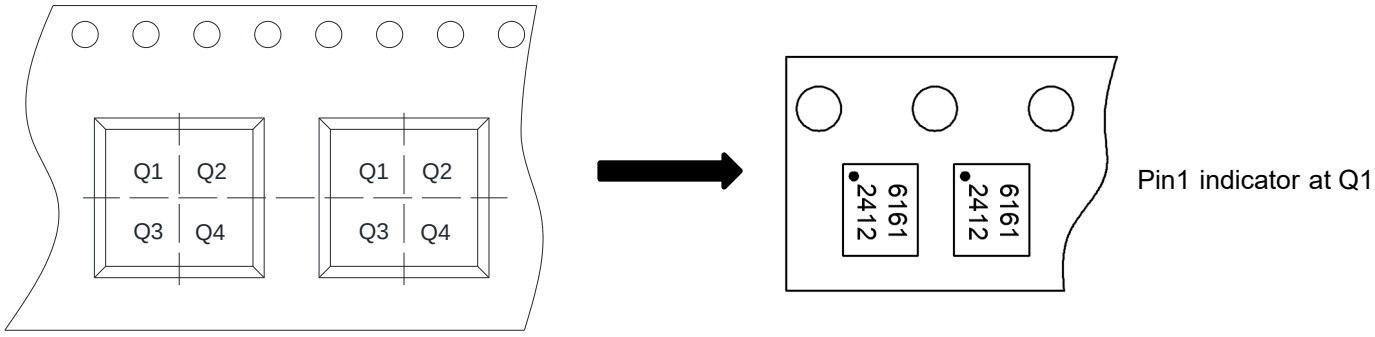
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape



RD	Reel Dimension	☑7inch	☐13inch		
W	Overall width of the carrier tape	☑8mm	☐12mm		
P1	Pitch between successive cavity centers	☐2mm	☑4mm	☐8mm	
Pin1	Pin1 Quadrant	☑Q1	☐Q2	☐Q3	☐Q4