

Features

- Low operating voltage: 13.5V
- Ultra low leakage: nA level
- Low clamping voltage
- -IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
- -IEC 61000-4-4 (EFT) 40A (5/50ns)
- -IEC 61000-4-5 (Lightning) 160A (8/20 μs)
- 6-pin leadless package
- These are Pb-Free Devices
- Response Time is Typically < 1 ns

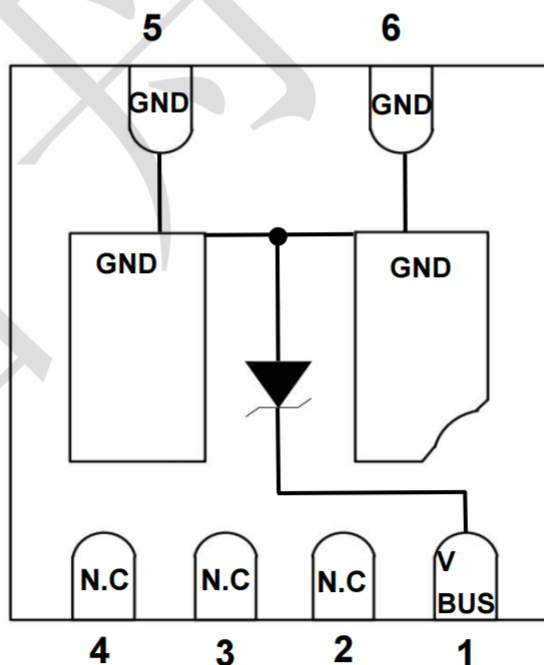
Mechanical Characteristics

- Package: DFN2018-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Protection for the VBUS circuit on USB2.0 Fast Charging

Dimensions and Pin Configuration



Bottom View

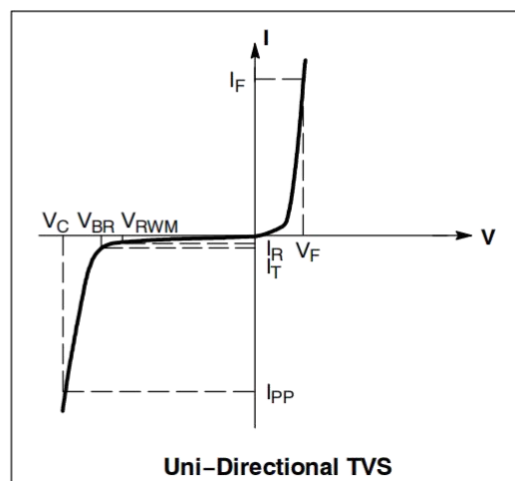
Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P _{pk}	5000	W
Peak Pulse Current (8/20μs)	I _{pp}	160	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±30 ±30	KV
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
USB V_{BUS} (Pin 1)						
Reverse Working Voltage	V _{RWM}	--	--	13.5	V	
Breakdown Voltage	V _{BR}	13.8	14.5	--	V	I _T = 1mA, pin1 to ground
Forward Voltage	V _F	--	0.7	1.0	V	I _F =1mA, GND to Pin 1
Reverse Leakage Current	I _R	--	--	1	uA	V _{RWM} =13.5V
Clamping Voltage	V _C	--	16.5	18	V	I _{pp} =30A(8x 20us pulse)
Clamping Voltage	V _C	--	28	--	V	I _{pp} =160A(8x 20us pulse)
Junction Capacitance	C _J	--	1300	2500	pF	V _R = 0V, f = 1MHz

Symbol	Parameter
I _{pp}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{pp}
V _{RWM}	Working Peak Reverse Voltage
I _R	Maximum Reverse Leakage Current @ V _{RWM}
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current
I _F	Forward Current
V _F	Forward Voltage @ I _F
P _{pk}	Peak Power Dissipation
C	Capacitance @ V _R = 0 and f = 1.0 MHz



Characteristic Curves

Fig1. 8/20 μ s Pulse Waveform

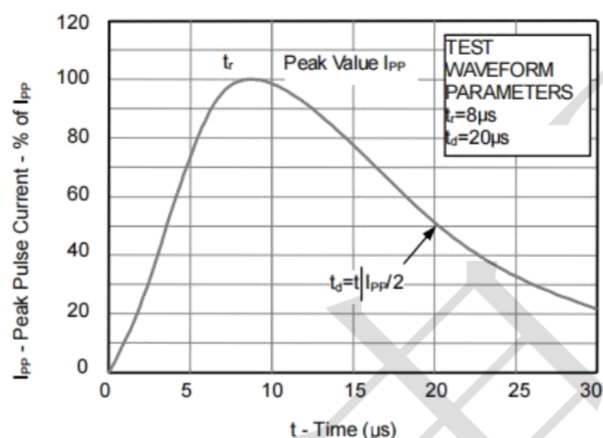


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

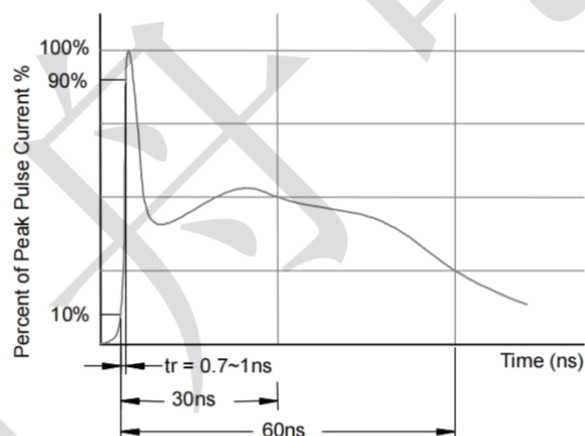
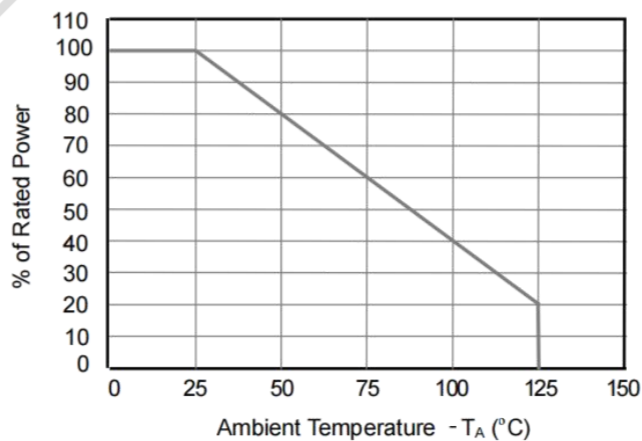
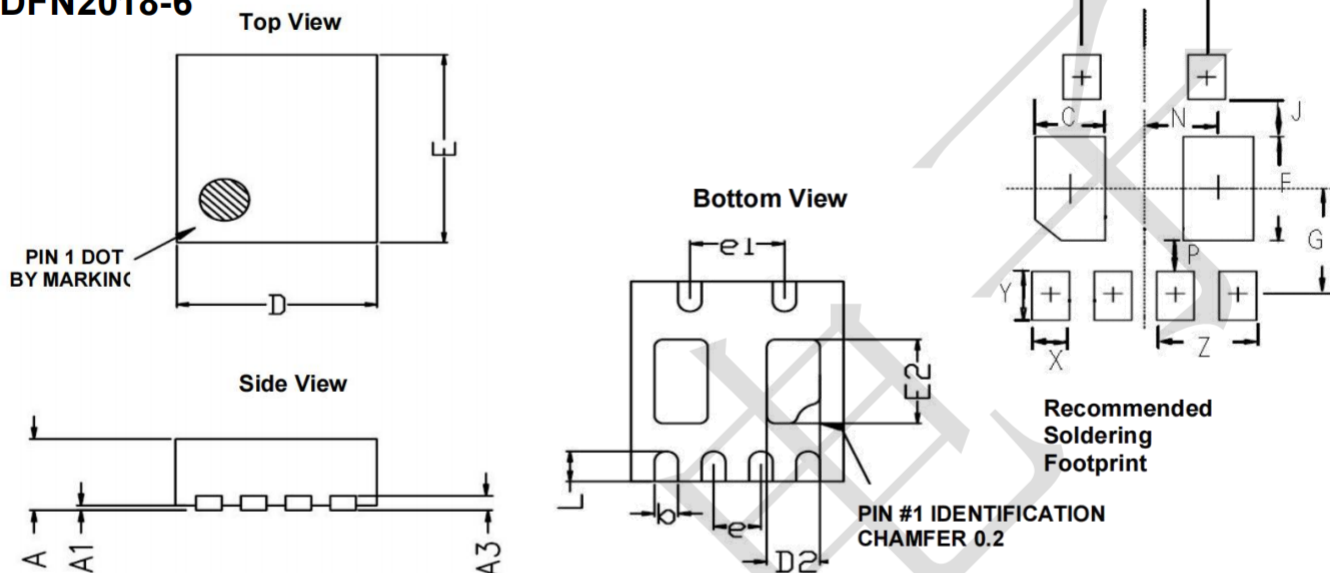


Fig3. Power Derating Curve



Package Outline & Dimensions

DFN2018-6



Symbol	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	0.50	0.55	0.60	0.020	0.022	0.024
A1	0.00	-	0.05	0.000	-	0.002
A3	0.15Ref			0.006Ref		
D	1.75	1.80	1.85	0.069	0.071	0.073
E	1.95	2.00	2.05	0.077	0.079	0.081
b	0.15	0.20	0.25	0.006	0.008	0.010
L	0.20	0.30	0.40	0.008	0.012	0.016
D2	0.35	0.45	0.55	0.014	0.018	0.022
E2	0.74	0.84	0.94	0.029	0.033	0.037
e	0.40 BSC			0.016 BSC		
e1	0.80 BSC			0.031 BSC		
B	0.80 BSC			0.031 BSC		
C	0.35	0.45	0.55	0.014	0.018	0.022
F	0.81	0.84	0.87	0.032	0.033	0.034
G	0.82	0.85	0.88	0.032	0.033	0.034
J	0.24	0.25	0.26	0.010	0.010	0.010
N	0.47	0.48	0.49	0.018	0.019	0.020
P	0.24	0.25	0.26	0.010	0.010	0.010
X	0.23	0.24	0.25	0.009	0.009	0.009
Y	0.35	0.36	0.37	0.014	0.014	0.014
Z	0.62	0.64	0.66	0.024	0.025	0.026