

Features

- 3 Bi-directional Channels and 1 VBUS of ESD protection
- Typically Used at High Speed Ports such as USB 2.0 OTG
- Low Channel Input Capacitance of 0.6pF Typical for I/Os (Typ)
- High Surge Ipp up to 8A(10x1000 μ s) for VBUS
- Low Profile Package (0.605mm max) and Ultra-small PCB Footprint Area (2.05 * 2.05mm max) Suitable for Compact Portable Electronics
- Totally Lead-Free & Fully RoHS Compliant
- Halogen and Antimony Free. "Green" Device

Mechanical Characteristics

- Package: DFN2020-6
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- -IEC 61000-4-2 (ESD) immunity test

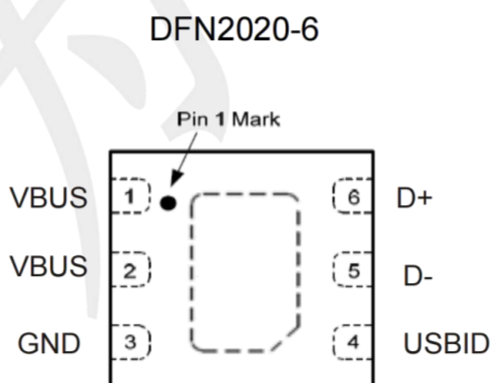
Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral
- Digital visual interface
- Microcontroller Input Protection

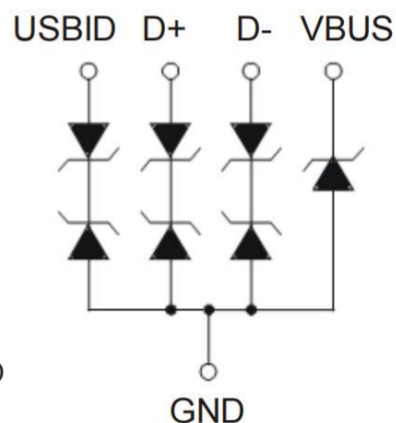
Dimensions and Pin Configuration

Pin #	Description
1, 2	VBUS
4, 5, 6	I/Os
3	Ground
Center Tab	Ground

Pin Description



Top View



Schematic

Maximum Ratings - VBUS (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current, VBUS Pin	I _{PP1}	8.0	A	10/1000μs
ESD Protection – Contact Discharge, VBUS Pin	VESD_Contact	±30	KV	Standard IEC 61000-4-2
ESD Protection – Air Discharge, VBUS Pin	VESD_Air	±30	KV	Standard IEC 61000-4-2

Maximum Ratings - I/Os (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current, I/O Pin	I _{PP1}	2.0	A	8/20μs
ESD Protection – Contact Discharge, I/O Pin	VESD_Contact	±18	KV	Standard IEC 61000-4-2
ESD Protection – Air Discharge, I/O Pin	VESD_Air	±20	KV	Standard IEC 61000-4-2

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	PD	500	mW
Thermal Resistance, Junction to Ambient (Note 1)	R _{θJA}	2500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics - VBUS (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V _{RWM}	--	--	26	V	--
Channel Leakage Current (Note 2)	I _{RM}	--	--	50	nA	V _{RWM} = 26V
Forward Voltage	V _F	0.6	0.8	1.2	V	I _R = 10mA
Clamping Voltage	V _{CL}	--	--	40	V	I _{PP} = 8A, t _p = 10/1000μs
Breakdown Voltage	V _{BR}	28	--	32	V	I _R = 1mA
Channel Input Capacitance	C _T	--	630	--	pF	V _R = 0V, f = 1MHz

Electrical Characteristics - I/Os (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V _{RWM}	--	--	5.0	V	--
Reverse Current (Note 2)	I _R	--	--	80	nA	V _R = 5.0V
Reverse Breakdown Voltage	V _{BR}	6.5	--	9.0	V	I _R = 1mA
Reverse Clamping Voltage(Note 3)	V _{CL}	--	--	9.0	V	I _{PP} = 1A, t _p = 8/20μs
Reverse Clamping Voltage(Note 3)	V _{CL}	--	--	15	V	I _{PP} = 2A, t _p = 8/20μs
Capacitance (Note 4)	C _T	--	0.6	0.9	pF	V _R = 0V, f = 1MHz

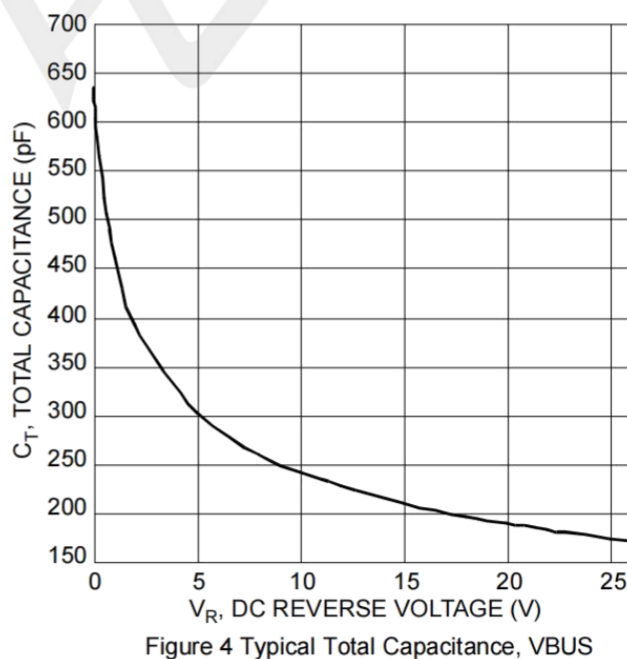
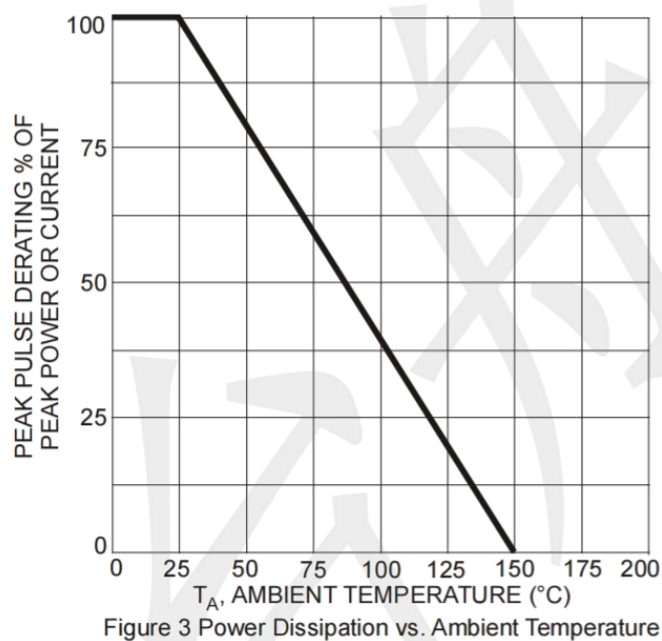
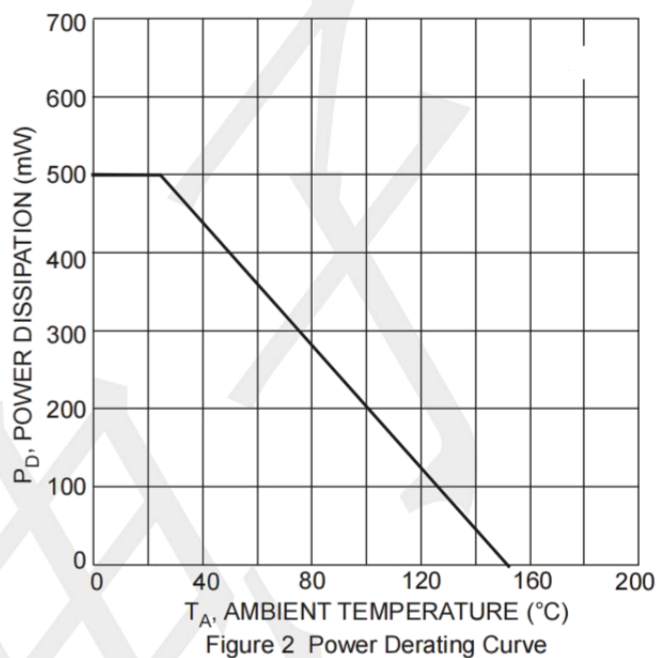
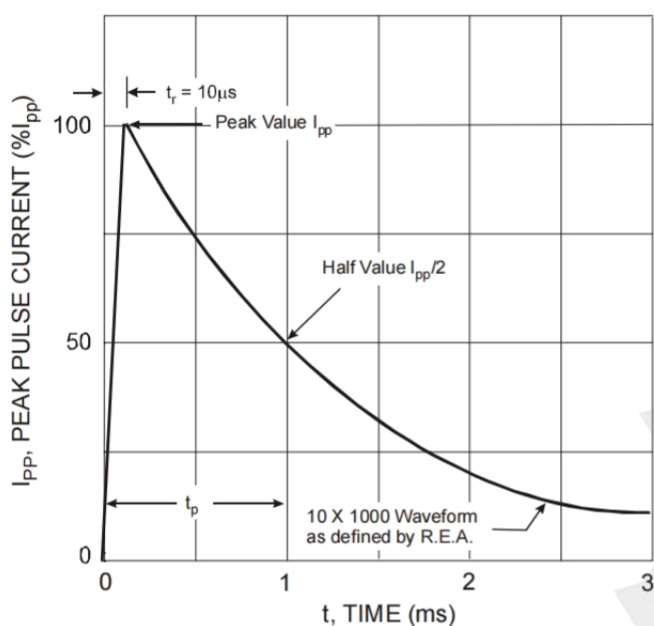
Notes: 1. Device mounted on FR-4 PCB pad layout (2oz copper) as shown

2. Short duration pulse test used to minimize self-heating effect.

3. Clamping voltage value is based on an 8x20μs peak pulse current (I_{pp}) waveform.

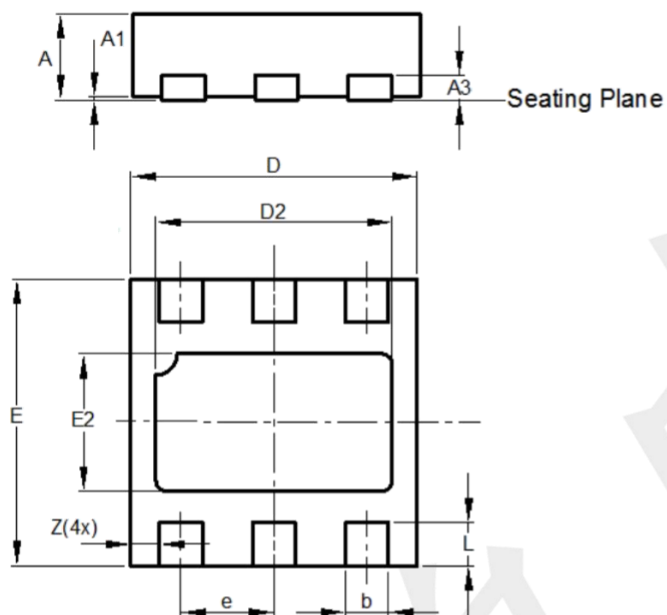
4. Measured from any I/O to GND.

Characteristic Curves



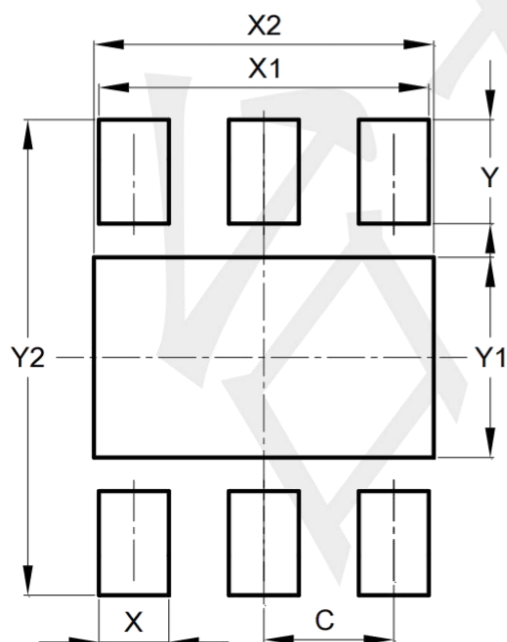
Package Outline & Dimensions

DFN2020-6



DFN2020-6 (TYPE C)			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0.00	0.05	0.02
A3	—	—	0.15
b	0.25	0.35	0.30
D	1.95	2.075	2.00
D2	1.55	1.75	1.65
E	1.95	2.075	2.00
E2	0.86	1.06	0.96
e	—	—	0.65
L	0.25	0.35	0.30
Z	—	—	0.20
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	0.650
X	0.350
X1	1.650
X2	1.700
Y	0.525
Y1	1.010
Y2	2.400