Ultra Low Capacitance TVS Diode Array

APPLICATION

◆ USB 2.0 and USB OTG

IEC COMPATIBILITY

Package: DFN1616-6

◆ IEC61000-4-2 (ESD) ±25kV (air), ±20kV (contact)

◆ IEC61000-4-4 (EFT) 40A (5/50ns)

FEATURES

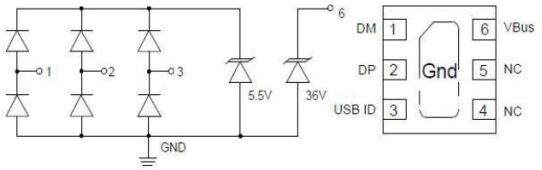
◆Ultra low capacitance: 0.8pF typical (I/O to I/O)

◆Ultra low leakage: nA level

◆Working voltage: 5.5V

◆Low clamping voltage

◆Up to 3 data lines and one power line protects



Circuit Diagram Pin Schematic

Electrical Characteristics

Parameter	Symbol	Value	Unit
DP, DM, USB ID (Pins1, 2, 3)			
Peak Pulse Power (tp=8/20μs waveform)	P_{ppp}	100	W
Peak Pulse Current (8/20μs)	Ipp	5	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±25 ±20	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C
VBus (Pin 6)			
Peak Pulse Power (tp=8/20μs waveform)	P_{ppp}	300	W
Peak Pulse Current (8/20μs)	Ipp	4	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	VESD	±25 ±20	kV
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

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RoHS

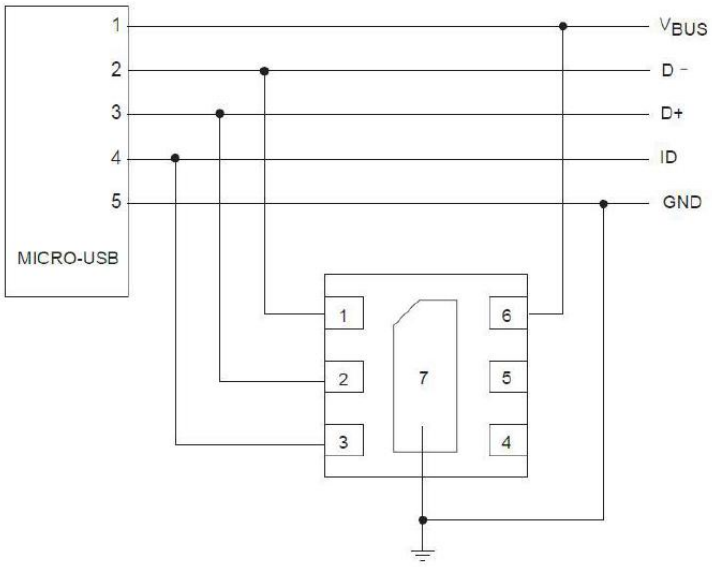
Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
DP, DM, USB ID TVS						
Reverse Working Voltage	V_{RWM}			5.5	V	Any I/O to GND
Breakdown Voltage	V_{BR}	6.5			V	I_T = 1mA,any I/O to GND
Reverse Leakage Current	I_R			0.5	uA	V_{RWM} = 5V,any I/O to GND
Clamping Voltage	V_C			10	V	I_{PP} = 1A (8 x 20μs pulse) any I/O pin to ground
Clamping Voltage	V_C			20	V	I_{PP} = 5A (8 x 20μs pulse) any I/O pin to ground
Junction Capacitance	C_J		0.4	0.5	pF	VR = 0V, f = 1MHz,I/O to I/O
Junction Capacitance	C_J		0.6	0.8	pF	VR = 0V, f = 1MHz,I/O to GND

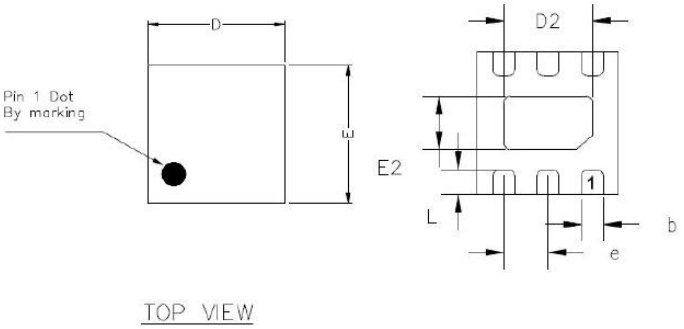
Note: I/O Pins are 1, 2, 3

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
VBus TVS						
Reverse Working Voltage	V_{RWM}			36	V	Pin 6 to Gnd
Breakdown Voltage	V_{BR}	38		45	V	I_T = 1mA,Pin 6 to Gnd
Reverse Leakage Current	I_R			0.2	uA	V_{RWM} = 36V,Pin 6 to Gnd
Clamping Voltage	V_C			50	V	I_{PP} = 1A (8 x 20μs pulse) Pin 6 to Gnd
Clamping Voltage	V_C			75	V	I_{PP} = 4A (8 x 20μs pulse) Pin 6 to Gnd
Junction Capacitance	C_J			100	pF	VR = 0V, f = 1MHz,Pin 6 to Gnd

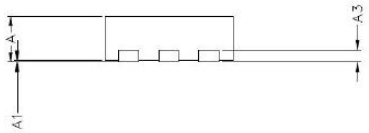
on USB Port Application



Package Mechanical Data



TOP VIEW



SIDE VIEW

SYM	DIMENSIONS IN MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0.00	--	0.05
A3		0.15REF	
D	1.55	1.60	1.65
E	1.55	1.60	1.65
D2	0.90	1.00	1.05
E2	0.50	0.60	0.65
e		0.50 BSC	
L	0.20	0.25	0.30
b	0.20	0.25	0.30

Ordering Information

Part Number	Qty per Reel	Reel Size	Package	Delivery Time
HAH3614P3	3000pcs	7inch	DFN1616-6	7days