



4-Line Low Capacitance TVS Diode Array

Features

- Ultra low capacitance : 0.4pF typical (I/O to I/O)
- Ultra low leakage : nA level
- Operating voltage : 5V
- Low clamping voltage
- Up to 4 lines and one power line protects
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
Air discharge : $\pm 18\text{kV}$, Contact discharge : $\pm 15\text{kV}$
 - IEC61000-4-5(Lightning) 5A (8/20us)
- RoHS Compliant

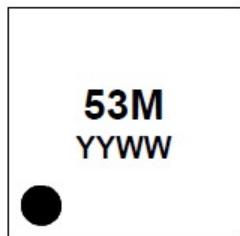
Mechanical Data

- Package : DFN1616-6
- Lead Finish : NiPdAu
- Case Material : "Green" Molding Compound.
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information: See Below

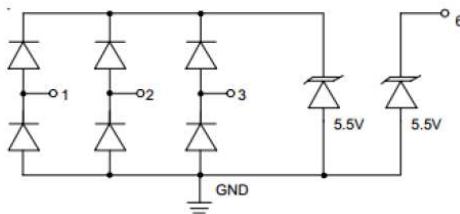
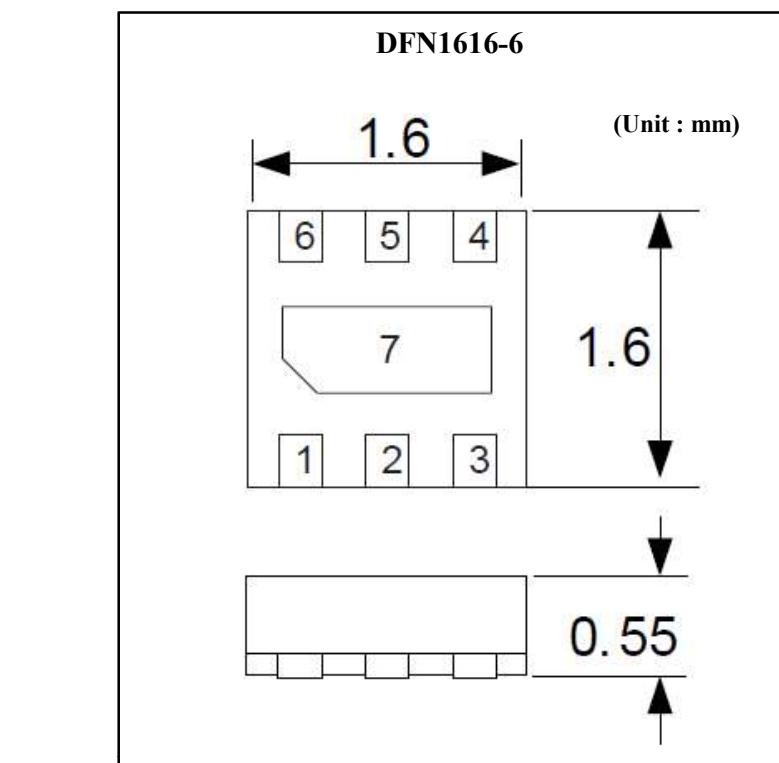
Applications

- USB 2.0 and USB OTG
- Multi Media Card Interfaces
- SD Card Interfaces
- MDDI Ports
- SIM Ports

Marking and Circuit



53M=Device Marking Code
YYWW= Date Code
Dot denotes Pin1



Circuit Diagram

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

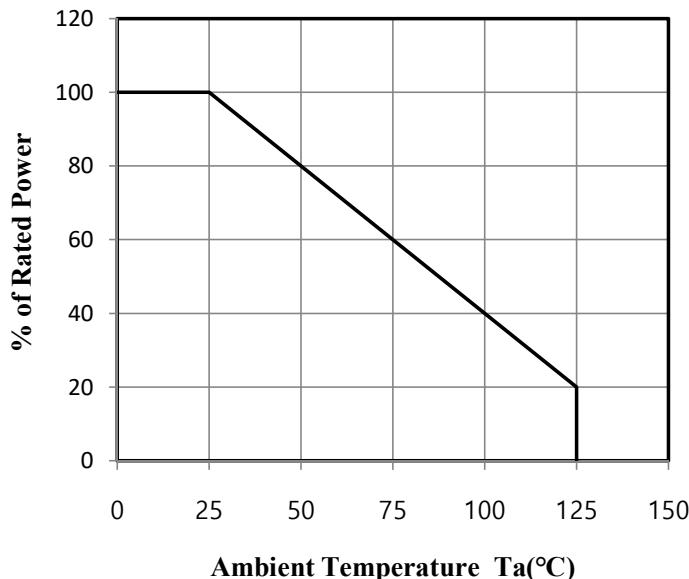
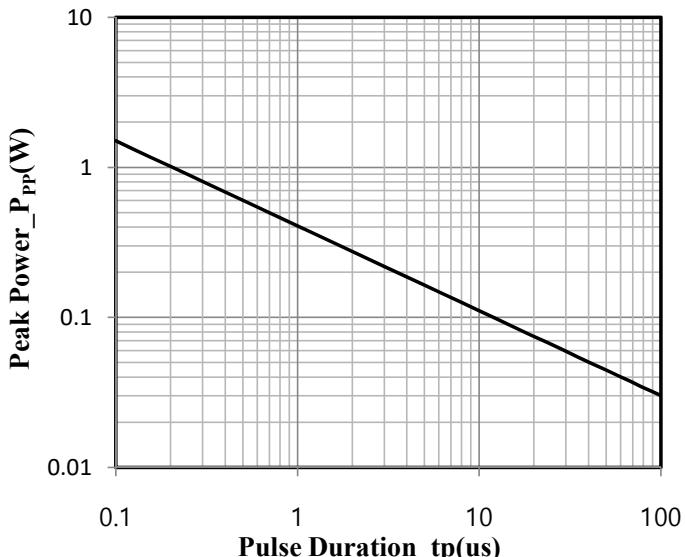
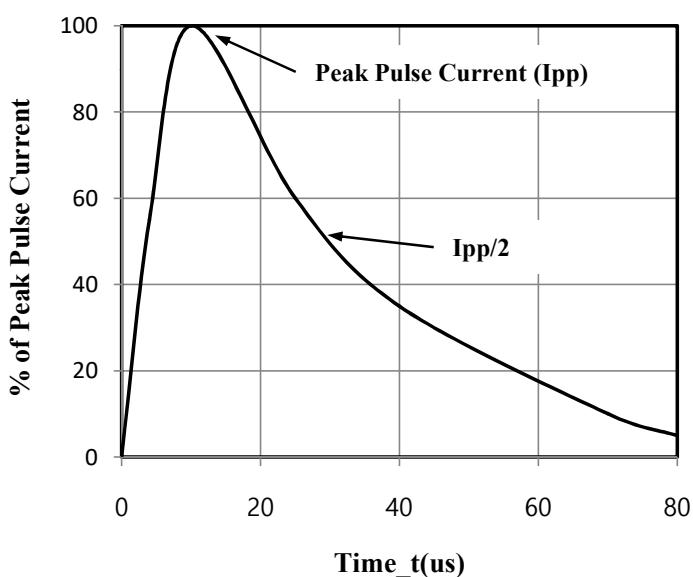
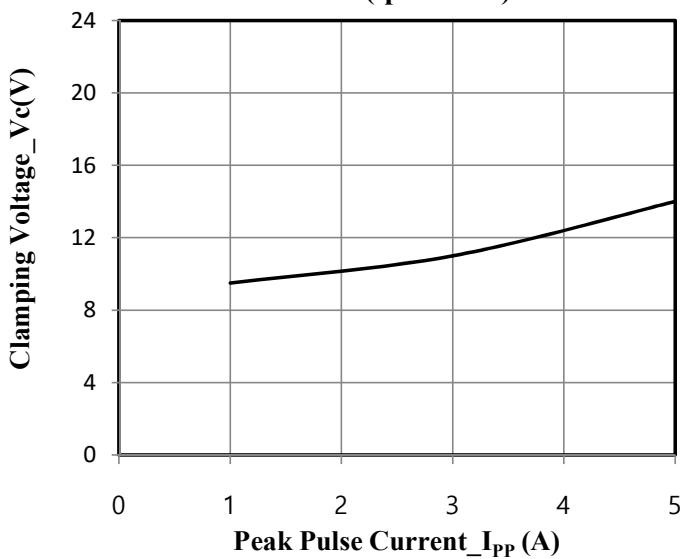
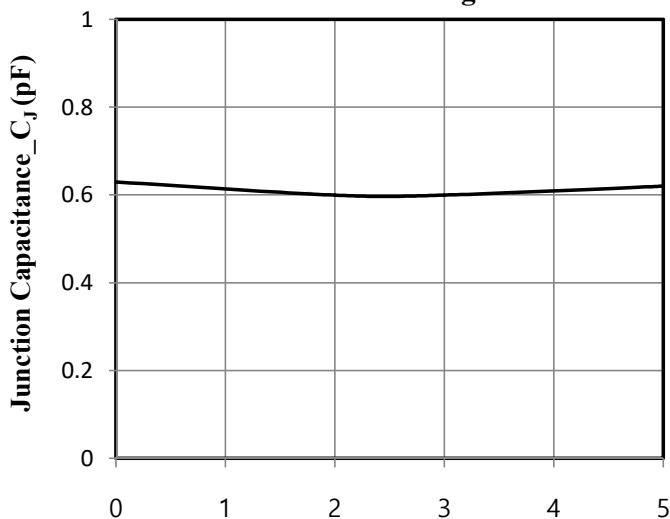
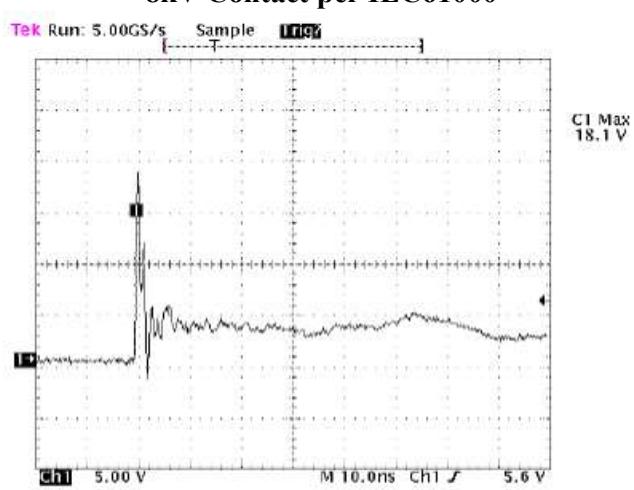
Parameter	Symbol	Value	Unit
DP, DM, USB ID (Pins 1,2,3)			
Peak Pulse Power (8/20us)	Ppk	75	W
Peak Pulse Current (8/20us)	I _{PP}	5.0	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
VBus (Pin 6)			
Peak Pulse Power (8/20us)	Ppk	100	W
Peak Pulse Current (8/20us)	I _{PP}	8.0	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 25	kV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C



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

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	-	-	5.0	V	Pin 1, 2, or 3 to ground
Breakdown Voltage	V _{BR}	6.0	-	-	V	I _T = 1mA, pin 6 to ground
Reverse Leakage Current	I _R	-	-	0.5	uA	V _{RWM} = 5V, pin 6 to ground
Clamping Voltage (8/20us pulse)	V _C	-	-	10	V	I _{PP} =1A, any I/O pin to ground
	V _C	-	-	15	V	I _{PP} =5A, any I/O pin to ground
Junction Capacitance	C _J	-	-	0.4	pF	f=1MHz, V _R =0V, between I/O pins
	C _J	-	0.6	0.8	pF	f=1MHz, V _R =0V, any I/O pin to ground

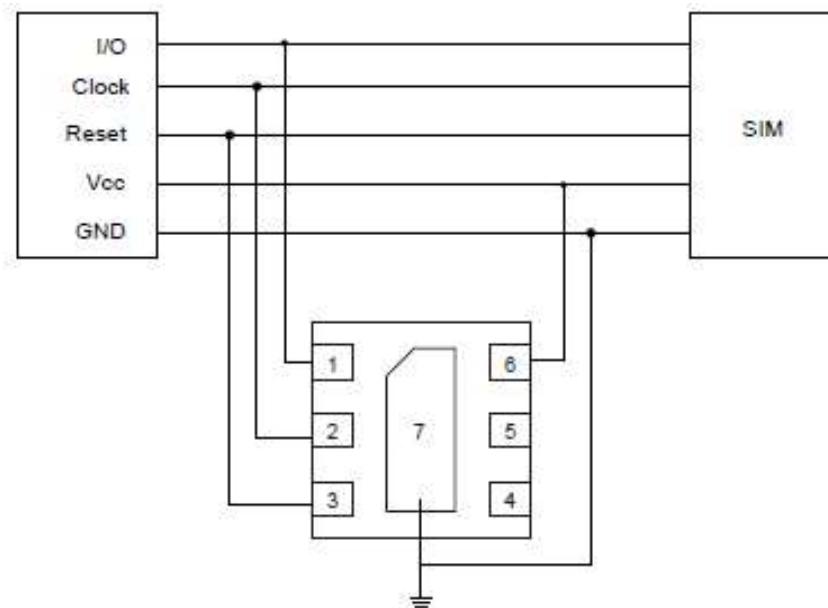
Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test Condition
VBus TVS						
Reverse Working Voltage	V _{RWM}	-	-	5.5	V	Pin 6 to ground
Breakdown Voltage	V _{BR}	6.0	-	8.5	V	I _T = 1mA, pin 6 to ground
Reverse Leakage Current	I _R	-	-	0.5	uA	V _{RWM} = 5.5V, pin 6 to ground
Clamping Voltage (8/20us pulse)	V _C	-	-	8.0	V	I _{PP} =1A, pin 6 to ground
	V _C	-	-	12	V	I _{PP} =8A, pin 6 to ground
Junction Capacitance	C _J	-	60	-	pF	f=1MHz, V _R =0V, pin 6 to ground

Ratings and Characteristics Curves (Ta=25°C unless otherwise noted)
Fig.1 Power Derating Curve

Fig.2 Peak Pulse Power vs. Pulse Time

Fig.3 8 × 20μs Pulse Waveform

Fig.5 Clamping Voltage vs. Peak Pulse Current ($t_p=8/20\mu s$)

Fig.4 Junction Capacitance vs. Reverse Voltage

Fig. 6 ESD Clamping Voltage 8kV Contact per IEC61000-


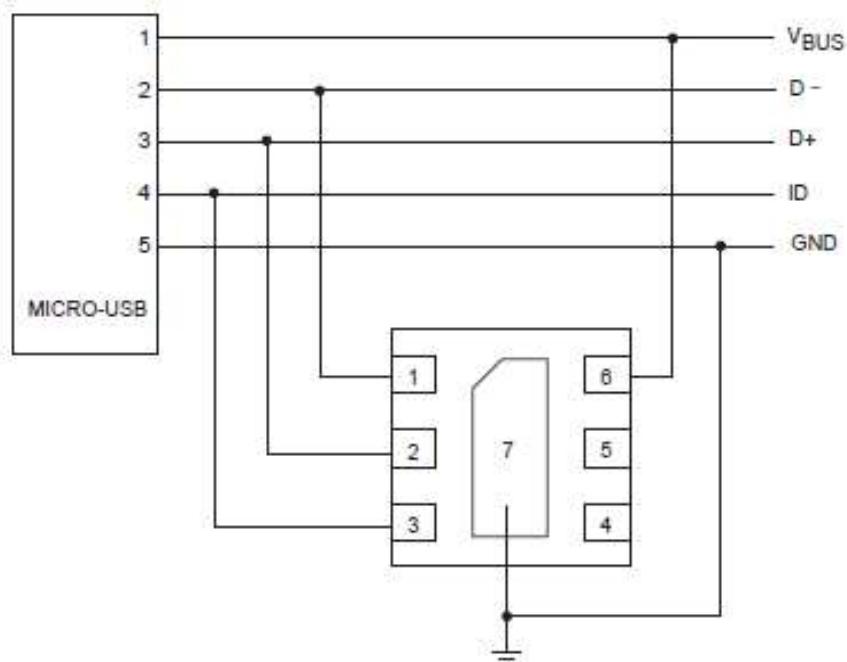
Note: Data is taken with a 10x attenuator



AR0504P3 on SIM Port Application

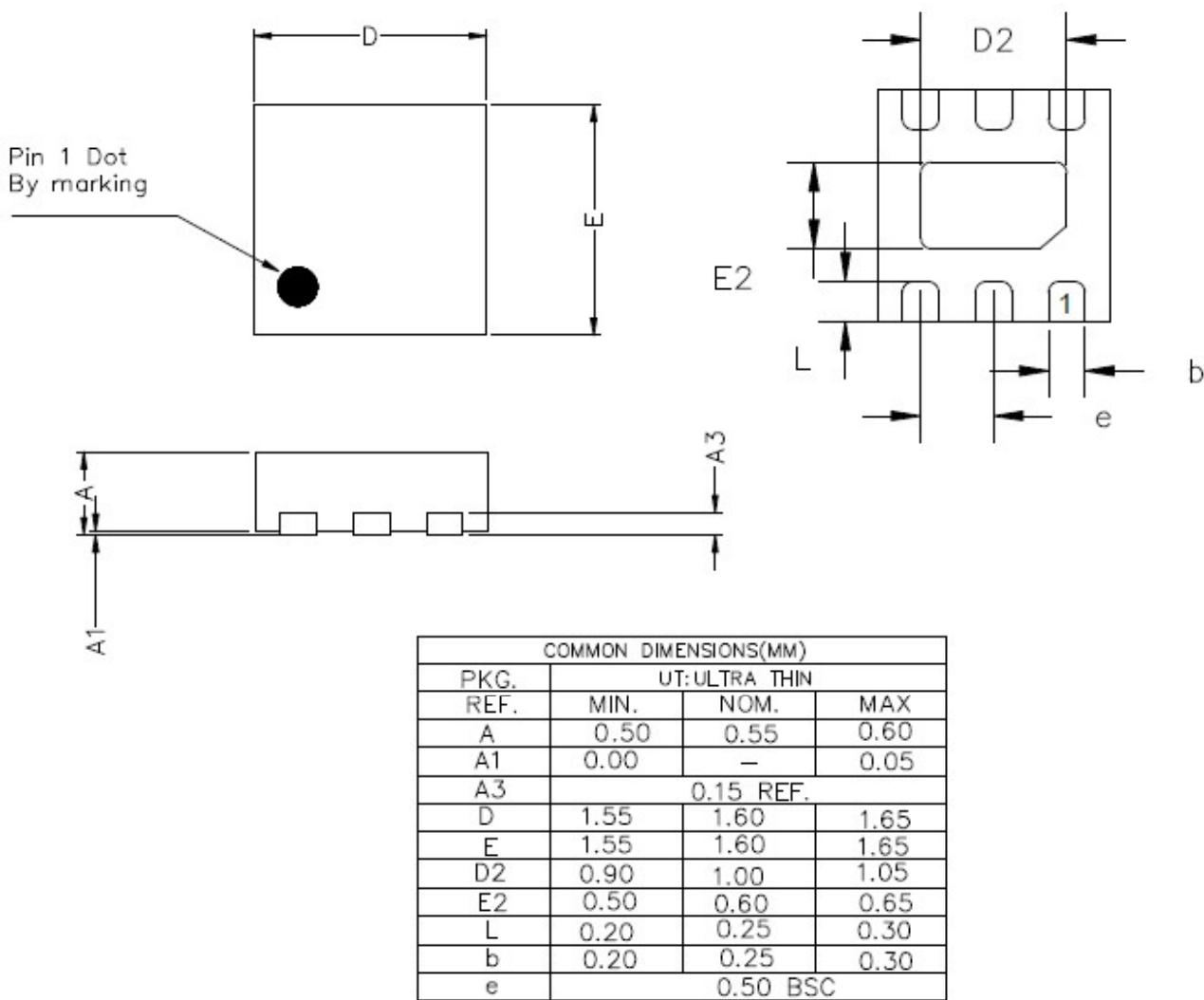


AR0504P3 on USB Port Application

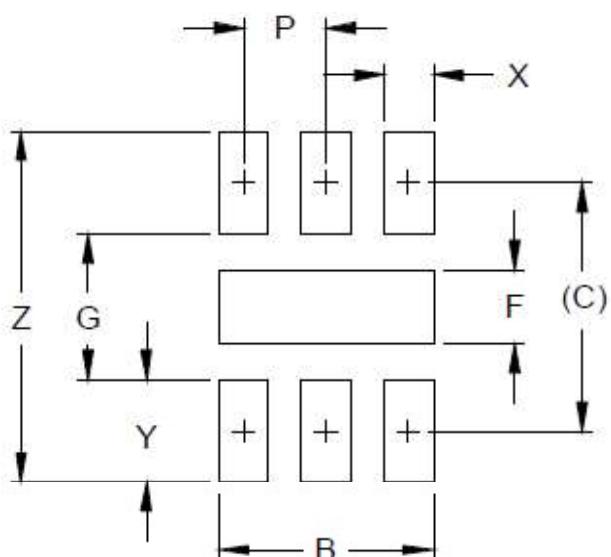




DFN1616-6 Package Outline Drawing



Suggested Land Pattern



DIMENSIONS		
DIM	INCHES	MMILLIMETERS
B	.051	1.30
C	.060	1.52
P	.020	0.50
F	.018	0.45
G	.035	0.89
X	.012	0.30
Y	.025	0.63
Z	.085	2.15