



Steering Structure ESD Protection Array

Features

- Meet IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- Meet IEC61000-4-5 (Lightning) rating. 5A (8/20 μs)
- Protects four high speed I/O lines and one Vcc line
- Working Voltage : 5V
- Pb free version, RoHS compliant, and Halogen free

Mechanical Data

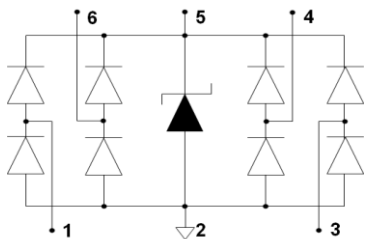
- Case : DFN1616-6L small outline plastic package
- Terminal : Matte tin plated., solderable per MIL-STD-202, Method 208
- Molding Compound Flammability Rating, UL 94V-O
- High temperature soldering guaranteed : 260°C/10second
- Weight : 5mg (approximately)

Applications

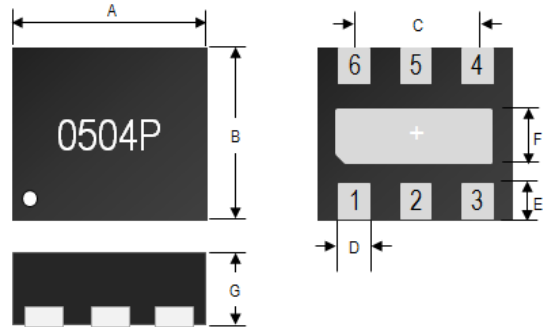
- USB 2.0 and USB OTG
- Multi Media Card (MMC) Interfaces SIM Ports
- Key Pads

Ordering Information

Package	Part No.	Packing	Marking	Configuration
DFN1616	RESDS65V0P	3K/7" Reel	0504P	As below

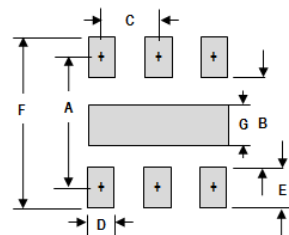


Outline Drawing and Pin Configuration



Dimension	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.50	1.70	0.059	0.067
B	1.50	1.70	0.059	0.067
C	0.95	1.05	0.037	0.041
D	0.20	0.30	0.008	0.012
E	0.16	0.32	0.006	0.012
F	0.55	0.65	0.022	0.026
G	0.50	0.65	0.020	0.026

Suggested Pad Layout



Dim	A	B	C	D	E	F	G
Inch	0.06	0.03	0.02	0.12	0.03	0.09	0.02
mm	1.52	0.06	0.50	0.30	0.06	2.15	0.45

Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified)

Maximum Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20 μs waveform)	P _{PP}	150	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 15	KV
ESD per IEC 61000-4-2 (Contact)		± 8	
Junction and Storage Temperature Range	T _J , T _{STG}	-55 ~ 150	°C



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Electrical Characteristics

Parameter	Symbol	Min	Max	Unit
Reverse Stand-Off Voltage	V_{RWM}	-	5.0	V
Reverse Breakdown Voltage	V_{BR}	6.0	-	V
Reverse Leakage Current	I_R	-	1	μA
Clamping Voltage	V_C	$I_{PP} = 1A$	-	15.5
		$I_{PP} = 5A$	-	25.0
Junction Capacitance (Any I/O pin to GND)	C_J	1.0 (Typ.)		pF

Rating and Characteristic Curves

Fig 1 Non- Repetitive Peak Pulse Power vs. Pule Time

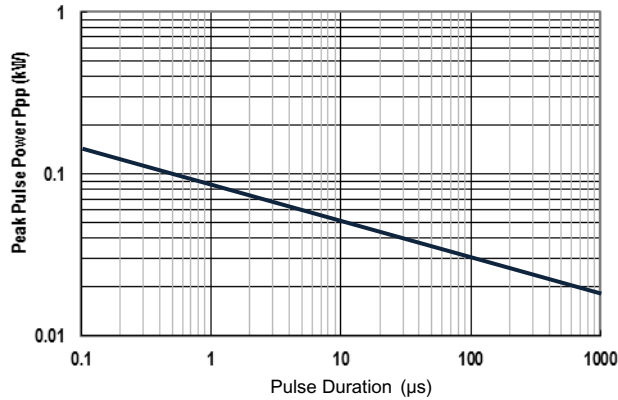


Fig 2 Clamping Voltage vs. Peak Pulse Current

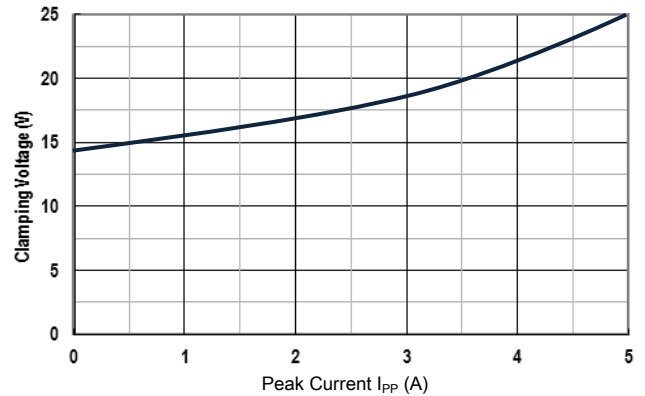


Fig 3 Admissible Power Dissipation Curve

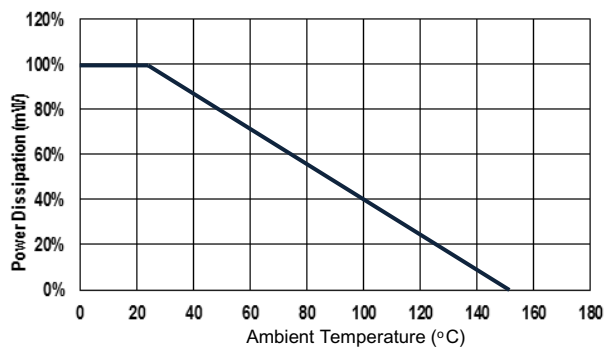


Fig 4 Typical Junction Capacitance

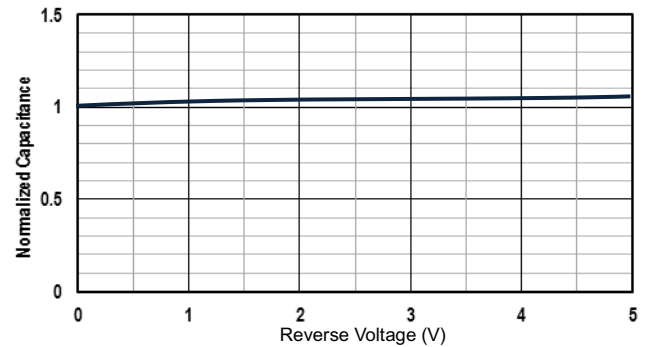


Fig 5 Pulse Waveform

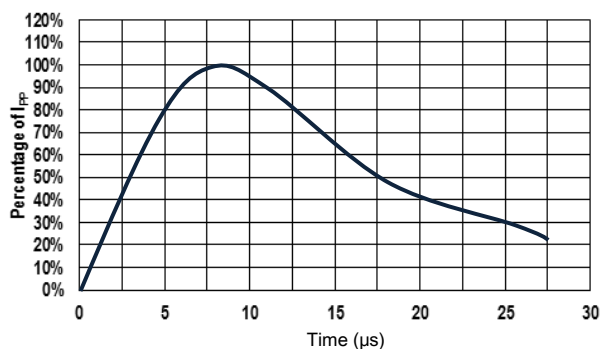
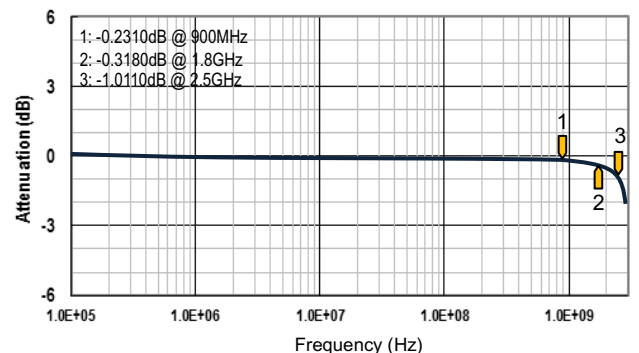


Fig 6 I/O to GND Insertion Loss vs. Frequency





Steering Structure ESD Protection Array

Applications Information

Designed for protection of high-speed interfaces.

Designed to protect four data lines from transient over-voltages by clamping them to a fixed reference.

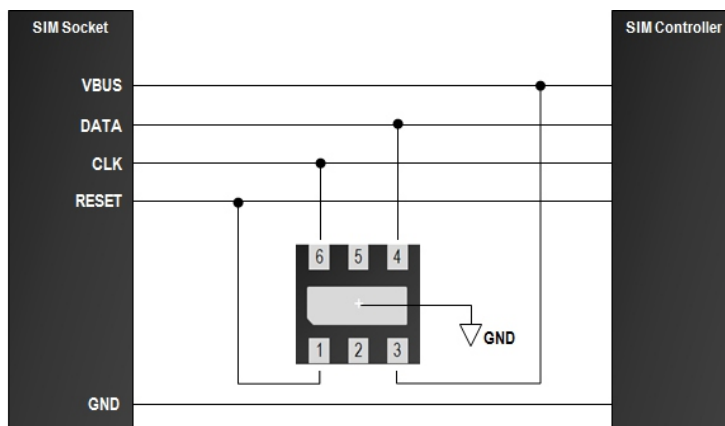
During transient conditions, the steering diodes direct the transient to either the positive side of the power supply line or to ground.

The internal TVS diode prevents over-voltage on the power line, protecting any downstream components.

Typical Applications

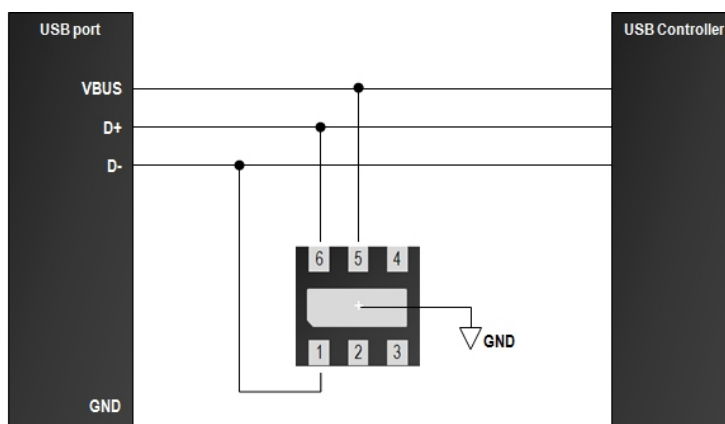
SIM port

1. The SIM (Subscriber identification module) card has THREE data lines that are low speed and low voltage, so the capacitance will not be the major concern.
2. The low voltage signal lines are best protected by a device which has low V_{RWM}
3. The typical application circuit is showed as below :



USB2.0 port

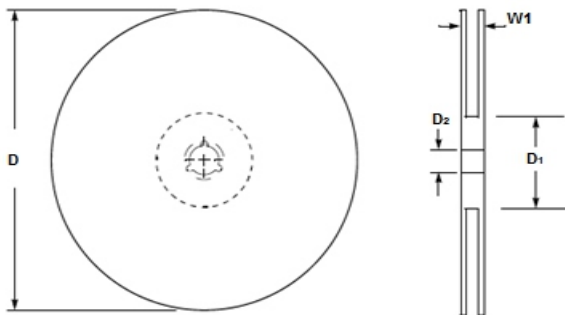
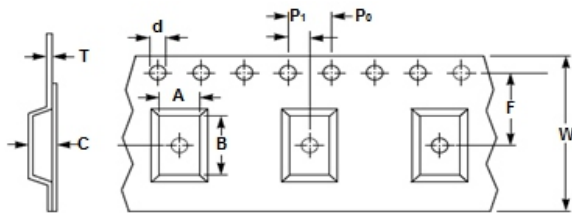
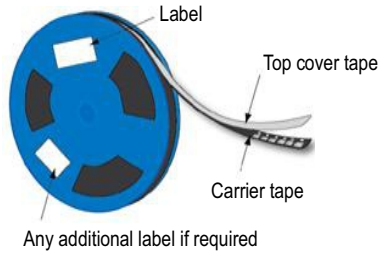
1. Each port can operate up to 480Mbps, the high data rate requires a low capacitance device to preserve the signal integrity.
2. Requires 2 channels of data line protection per port, a FOUR channels device can be used for protecting a TWO ports USB stack.
3. VBUS can be protected by connecting the RESDS65V0P to the V_{CC} pin.





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Tape & Reel specification



Item	Symbol	Dimension (mm)
Carrier width	A	1.78 ± 0.10
Carrier length	B	1.78 ± 0.10
Carrier depth	C	0.69 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178 ± 1
Reel inner diameter	D1	54.4 ± 0.40
Feed hole width	D2	13.0 ± 0.20
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.05
Punch hole pitch	P	4.00 ± 0.10
Sprocket hole pitch	P0	4.00 ± 0.10
Embossment center	P1	2.00 ± 0.05
Overall tape thickness	T	0.23 ± 0.013
Tape width	W	8.10 ± 0.20
Reel width	W1	12.3 ± 0.20