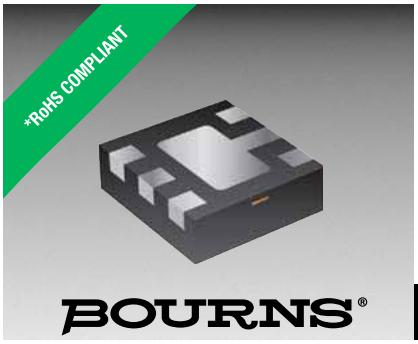


Features

- Lead free as standard
- RoHS compliant*
- Low capacitance - 1.2 pF
- No insertion loss to 2 GHz
- ESD, EFT, surge protection

Applications

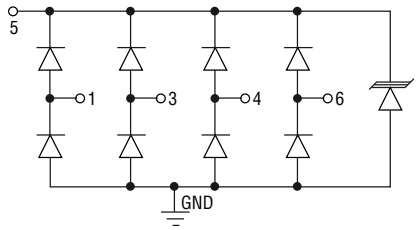
- USB 2.0 & USB OTG
- Multimedia card interface
- SD card interface
- SIM ports
- Gigabit Ethernet

CDDFN6-0504P - TVS/Steering Diode Array

General Information

The CDDFN6-0504P device provides ESD, EFT and surge protection for high speed data ports meeting IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements. The Transient Voltage Suppressor array, protecting up to 4 data lines, offers a Working Peak Reverse Voltage of 5 V and Minimum Breakdown Voltage of 6 V.

The molded packaged device will mount directly onto the industry standard DFN6 or QFN6 footprint. Bourns® Chip Diodes are easy to handle with standard pick and place equipment and their flat configuration minimizes roll away.



Absolute Maximum Ratings

Parameter	Symbol	CDDFN6-0504P	Unit
Peak Pulse Power (t_p = 8/20 μs) (NOTE 1)	P_{pk}	150	W
Peak Pulse Current (t_p = 8/20 μs) (NOTE 1)	I_{PP}	6.5	A
Storage Temperature	T_{STG}	-55 to +150	ºC
Operating Temperature	T_{OPR}	-55 to +125	ºC
Operating Supply Voltage	VDC	6	V
ESD per IEC 61000-4-2 (Air)(I/O to GND) ESD per IEC 61000-4-2 (Contact) (I/O to GND)	V_{ESD_IO}	18 14	kV
ESD per IEC 61000-4-2 (Air)(V_{CC} to GND) ESD per IEC 61000-4-2 (Contact)(V_{CC} to GND)	V_{ESD_VCC}	30 30	kV
DC Voltage at any I/O Pin	V_{IO}	(GND-0.5) to (V_{CC}+0.5)	V

Note 1. See Power Derating Curve.

Additional Information

Click these links for more information:

PRODUCT SELECTOR | TECHNICAL LIBRARY | INVENTORY | SAMPLES | CONTACT

WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CDDFN6-0504P	Unit
Maximum Reverse Standoff Voltage[1]	V_{RWM}	5.0	V
Maximum Leakage Current[1] @ V_{RWM}	I_D	5.0	μA
Maximum Channel Leakage Current @ V_{RWM}	I_{CD}	1.0	μA
Minimum Reverse Breakdown Voltage[1] @ I_{BV}=1 mA	V_{BR}	6.0	V
Maximum Forward Voltage[4] @ I_F = 15 mA	V_F	1.0	V
Typical Clamping Voltage[2]	V_C	8.1	V
Typical ESD Clamping Voltage - I/O per IEC 61000-4-2 +6 kV, Contact[2]	V_{clamp_io}	12.5	V
Typical ESD Clamping Voltage-V_{CC}[1]	V_{clamp_VCC}	9.0	V
Maximum Channel Input Capacitance[2] @ V_{PIN5}=5 V, V_{PIN2}=0 V, V_{IN}=2.5 V, f=1 MHz	C_{IN}	1.6	pF
Maximum Channel to Channel Input Capacitance[3] @ V_{PIN5}=5 V, V_{PIN2}=0 V, V_{IN}=2.5 V, f=1 MHz	C_{CROSS}	0.14	pF
Maximum Variation of Channel Input Capacitance @ V_{PIN5}=5 V, V_{PIN2}=0 V, V_{IN}=2.5 V, f=1 MHz. (I/O Pin to GND)	ΔC_{IN}	0.06	pF

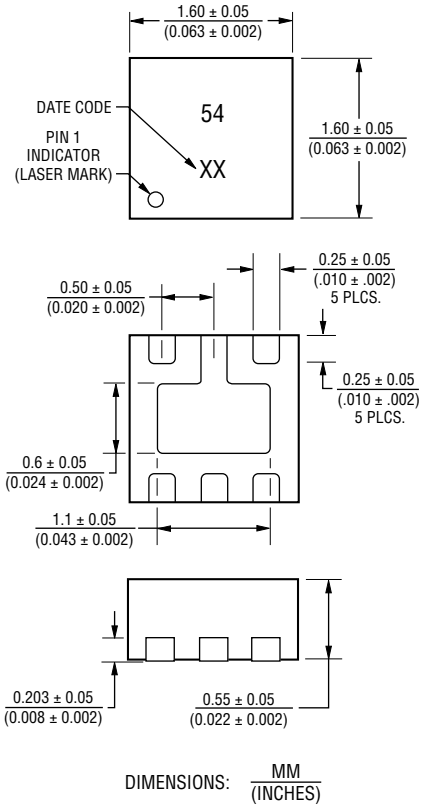
Note 1. Pin 5 to Pin 2 (ground).
Note 2. Pin 1, 3, 4 or 6 to Pin 2 (ground).
Note 3. Between any two of pins 1, 3, 4, 6.
Note 4. Pin 2 (ground) to Pin 5.

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Product Dimensions

This is a molded DFN6 package with lead free Nickel-Paladium-Gold (Ni/Pd/Au) on the lead frame. It has a flammability rating of UL 94V-0.

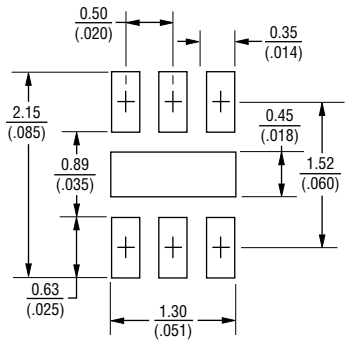


DIMENSIONS: MM / (INCHES)

Pin Out

Pin	Function
1	I/O
2	GND
3	I/O
4	I/O
5	V_{CC}
6	I/O
Center Tab	GND

Recommended Footprint



Typical Part Marking

CDDFN6-0504P 54

How to Order

CD DFN-6 - 05 04P

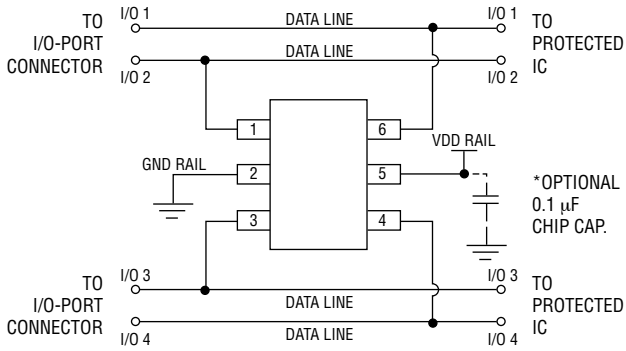
Common Diode
Chip Diode

Package
DFN-6 = DFN-6 Package

Working Peak Reverse Voltage
05 = 5 V_{RWM} (Volts)

Number of Lines
04P = 4 Data Lines

Typical Application

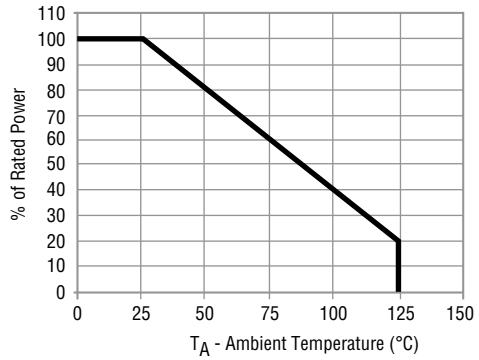


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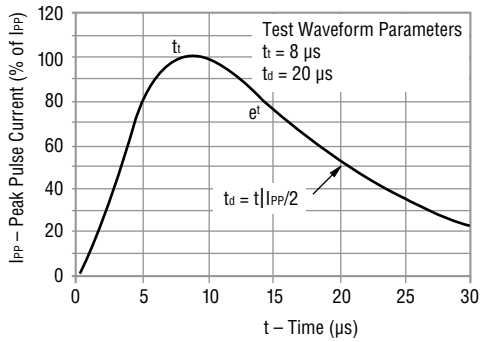
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Rating & Characteristic Curves

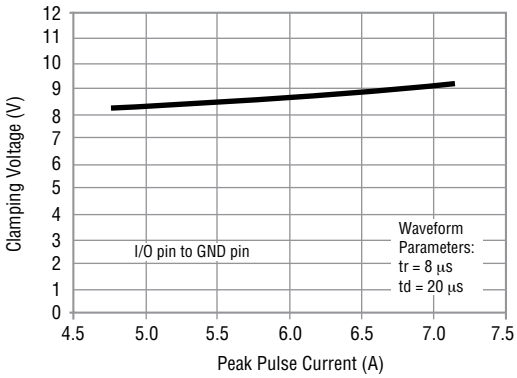
Power Derating Curve



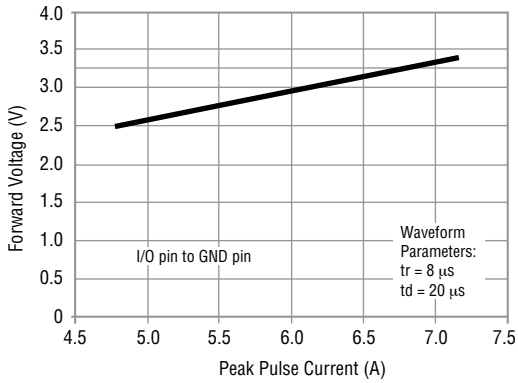
Pulse Waveform



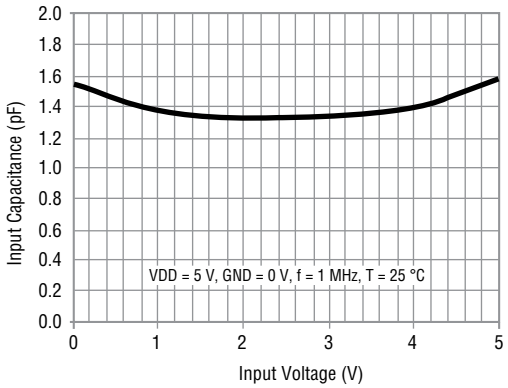
Clamping Voltage vs. Peak Pulse Current



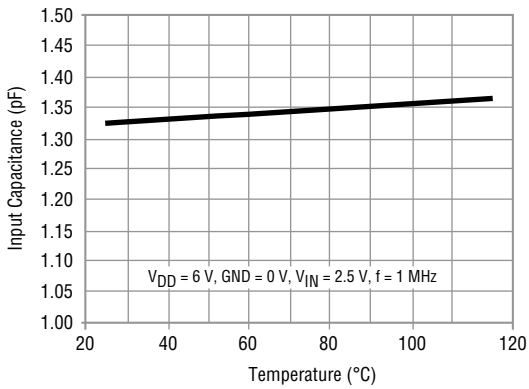
Forward Voltage vs. Forward Current



Capacitance vs. Line Voltage



Capacitance vs. Temperature

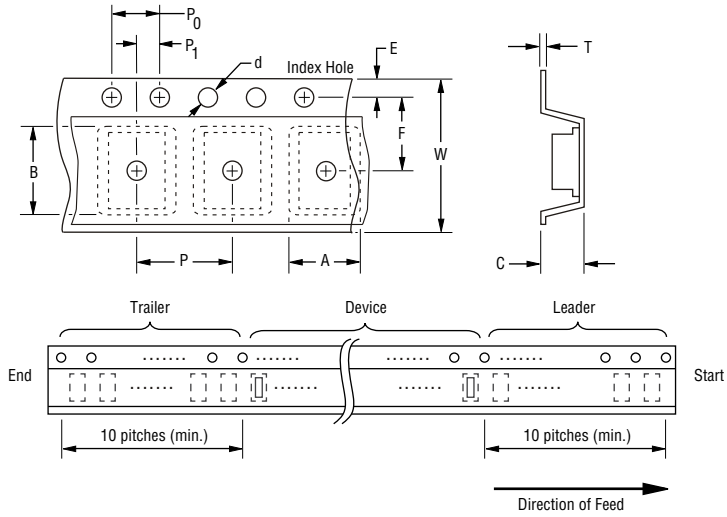


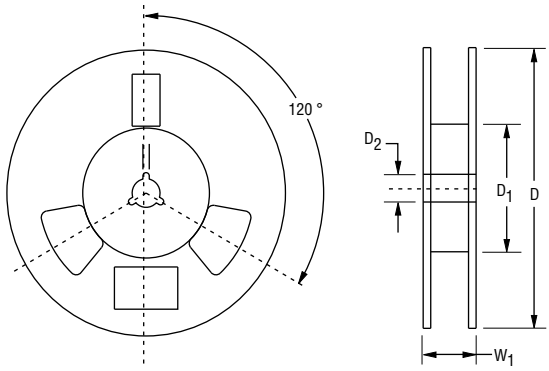
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Packaging Information

The product will be dispensed in tape and reel format (see diagram below).





DIMENSIONS: MM / (INCHES)

Devices are packed in accordance with EIA standard RS-481-A.

Item	Symbol	DFN-6
Carrier Width	A	1.78 ± 0.05 (0.070 ± 0.002)
Carrier Length	B	1.78 ± 0.05 (0.070 ± 0.002)
Carrier Depth	C	0.69 ± 0.05 (0.027 ± 0.002)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	178 (7.008)
Reel Inner Diameter	D_1	50.0 (1.969) MIN.
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness	T	0.20 ± 0.10 (0.008 ± 0.004)
Tape Width	W	8.00 ± 0.20 (0.315 ± 0.008)
Reel Width	W_1	14.4 (0.567) MAX.
Quantity per Reel	--	3000

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REV. 08/19

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