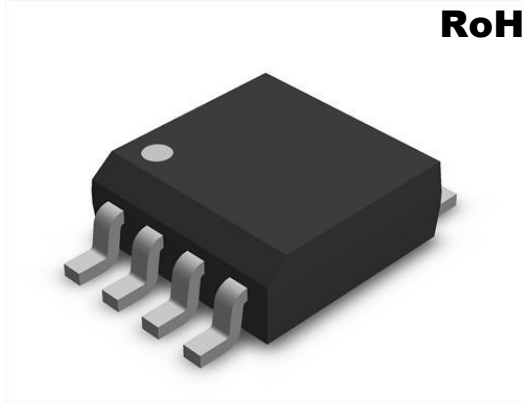


Low Capacitance Transient Voltage Suppression Diode Array



RoHS

Features

- Low Capacitance
- Protects four Data Lines
- Single Package Integration Design
- Low leakage current
- Array of surge rated diodes with internal TVS diode
- Response Time is Typically < 1 ns

Description

PTR0504DA is surge rated diode arrays designed to protect high speed data interfaces. The RDA's series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

Applications

- USB Data Line Protection
- T1/E1 Secondary IC Protection
- T3/E3 Secondary IC Protection
- 10/100/1000 Ethernet
- Video Line Protection
- Base Stations

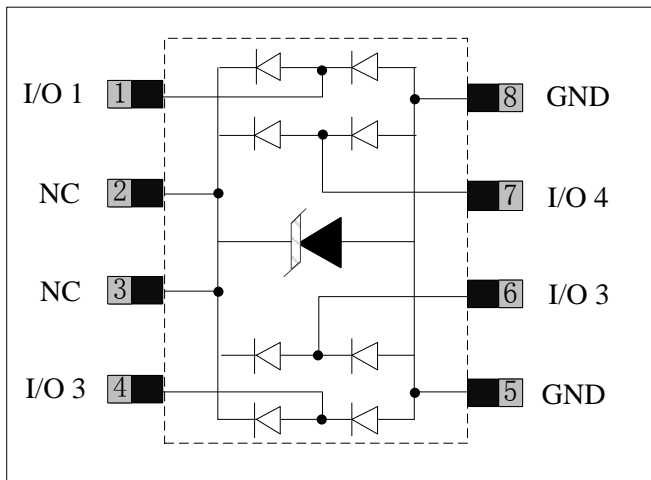
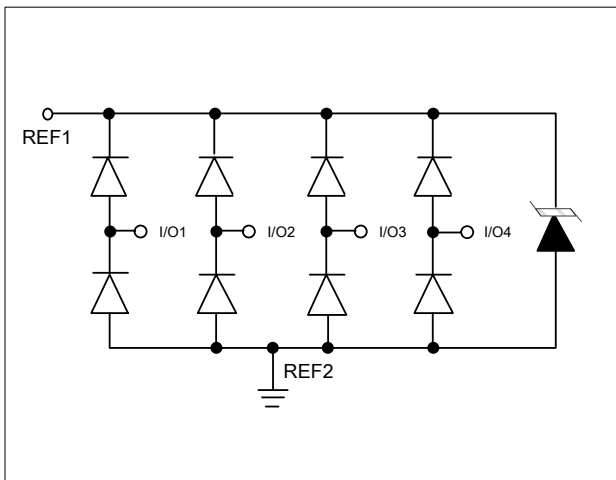
Complies with the following standards

- IEC 61000-4-2 level 4 15 kV (air) 8 kV (contact)
- IEC 61000-4-4 level 4 ±2 kV - 40 A (5/50 ns)
- IEC 61000-4-5 level 2 24A(8/20µs)

Mechanical Data

- JEDEC SOIC-8 package
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel

Schematic & PIN Configuration



Absolute Maximum Rating(Each Diode)($T_J=25^{\circ}\text{C}$ unless otherwise noted)

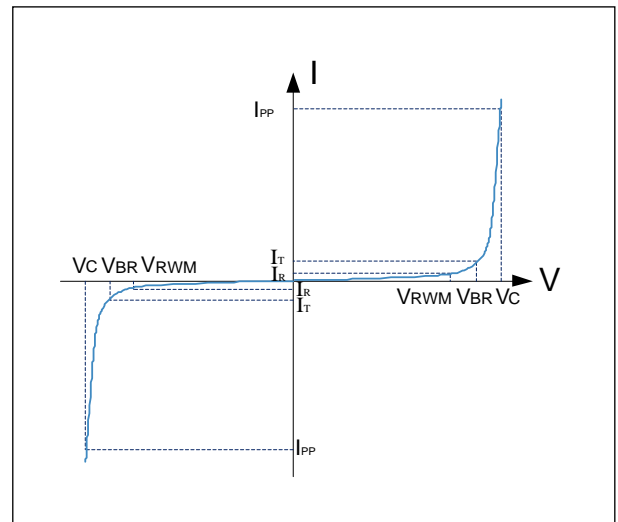
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{PP}	500	Watts
Peak Forward Voltage ($I_F=1\text{A}$, $t_p=8/20\mu\text{s}$)	V_{FP}	1.5	V
Lead Soldering Temperature	T_L	260(10 sec.)	$^{\circ}\text{C}$
Operating Temperature	T_J	-55 to + 125	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (Each Diode)($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}$, $T=25^{\circ}\text{C}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}$, $t_p = 8/20\mu\text{s}$			9.8	V
Clamping Voltage	V_C	$I_{PP}=10\text{A}$, $t_p = 8/20\mu\text{s}$			12	V
Junction Capacitance	C_j	Between I/O pins and Ground, $V_R=0\text{V}$, $f=1\text{MHz}$		5	7	pF
		Between I/O pins $V_R=0\text{V}$, $f=1\text{MHz}$		3		pF

Electrical Parameters ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_t
I_t	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Note: 8/20 μs pulse waveform.

Typical Characteristics

Figure 1: Non-Repetitive Peak Pulse Power

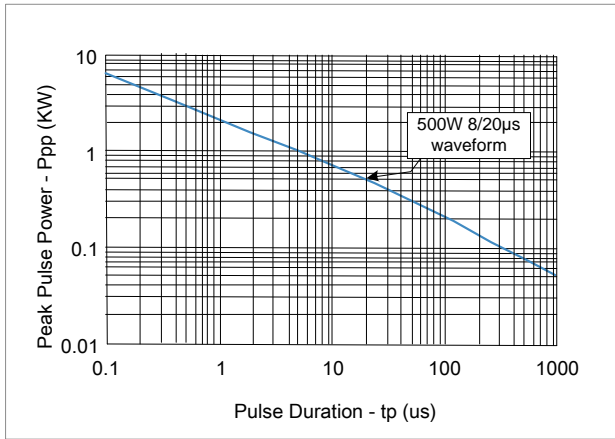


Figure 2: Power Derating curve

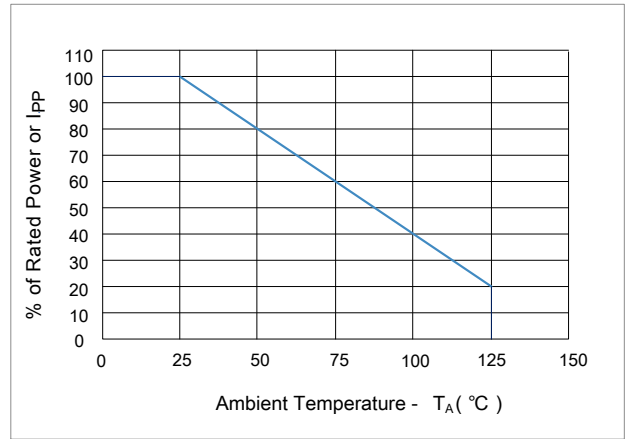


Figure 3: Forward Voltage vs. Forward Current

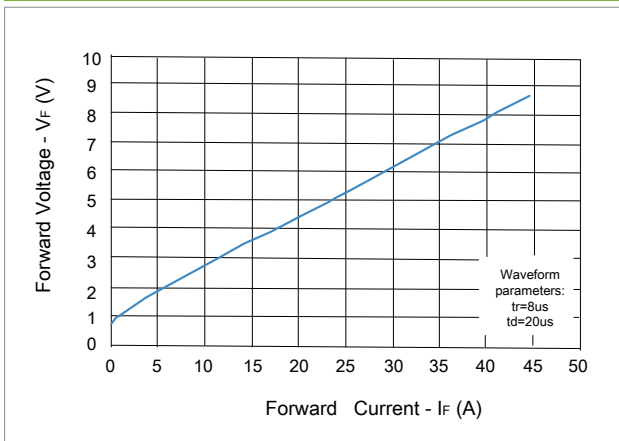


Figure 4: Clamping Voltage vs. Peak Pulse Current

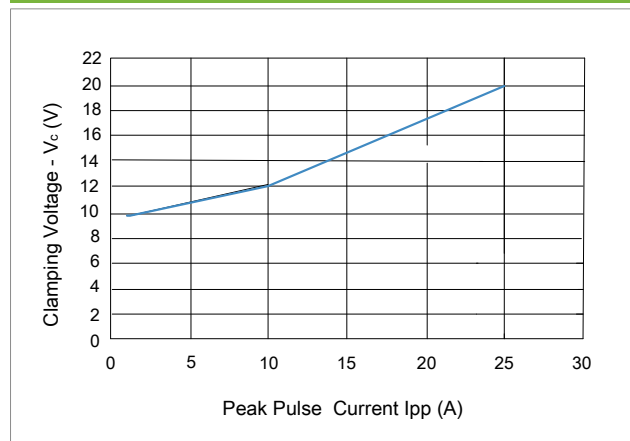


Figure 4: Pulse Waveform

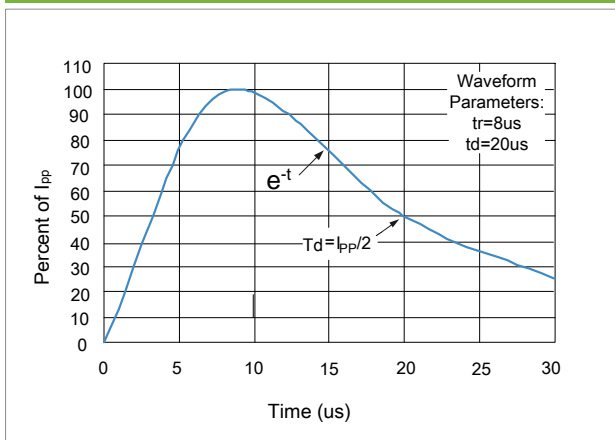
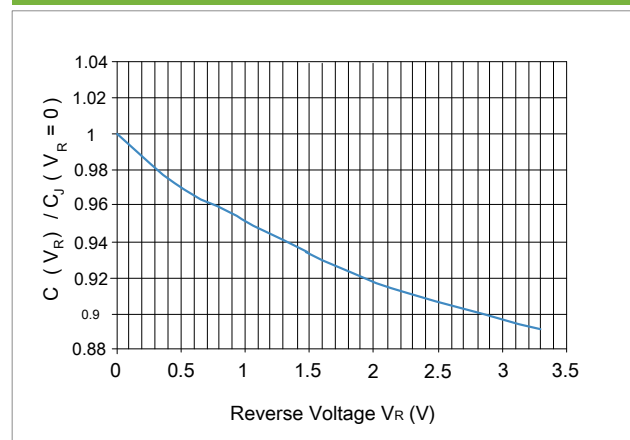


Figure 4: Capacitance vs. Reverse Voltage



Outline Drawing – SOIC-8

PACKAGE OUTLINE

DIMENSIONS				
SYMBOL	INCHES		MILIMETER	
	MIN	MAX	MIN	MAX
A	0.054	0.068	1.35	1.75
a1	0.004	0.008	0.10	0.25
a2	0.050	0.060	1.25	1.50
D	0.189	0.196	4.80	5.00
F	0.150	0.157	3.80	4.00
E	0.229	0.244	5.80	6.20
e	0.05BSC	0.05BSC	1.27BSC	1.27 BSC
L	0.016	0.049	0.40	1.250
θ	0°	10°	0°	10°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	0.205	5.20
G	0.160	4.06
P	0.050	1.27
X	0.015	0.38
Y	0.045	1.14
Z	0.291	7.40

Notes
 1. This land pattern is for reference purposes only consult your manufacturing group to ensure your company's manufacturing guidelines are met.
 Reference ipc-sm-782a..

Ordering information

Order code	Package	Base qty	Delivery mode
PTR0504DA	SO-8	2500	Tape and reel