

Descriptions

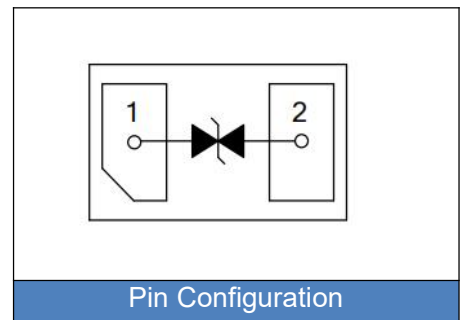
The UP1P882 series includes back-to-back TVS diodes fabricated is an ultra low capacitance Transient Voltage Suppressor (TVS) designed to protect high speed data interfaces. This device has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients). The series has a typical capacitance of only 0.40pF. They may be used to meet the ESD immunity requirements of IEC 61000-4-2. It gives the designer the flexibility to protect single lines in applications where arrays are not practical.



Features

- ◆ IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- ◆ SOD-882 surface mount package
- ◆ Working voltage: 3.3V、5V、12V、15V、24V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Lead Free/RoHS compliant
- ◆ Flammability rating UL 94V-0
- ◆ Meets MSL level 1, per J-STD-020

Schematic



Applications

- ◆ USB 3.0/USB 2.0
- ◆ MHL/MIPI/MDDI
- ◆ HDMI, Video Port, eSATA
- ◆ Set Top Boxes, Game Consoles
- ◆ Smart Phones
- ◆ External Storage
- ◆ Ultra books, Notebooks
- ◆ Tablets, eReaders

Dimensions (SOD-882)

Symbol	Dimension			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
B	0.55	0.65	0.022	0.026
C	0.32	0.55	0.013	0.022
D	0.45		0.018	
E	0.20	0.30	0.008	0.012
F	0.45	0.55	0.018	0.022

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

Rating	Symbol	Value	Unit
ESD voltage (Contact discharge)	V_{ESD}	± 8	kV
ESD voltage (Air discharge)		± 15	
Storage & operating temperature range	T_{STG}, T_J	$-55 \sim +150$	$^{\circ}\text{C}$

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

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current @ $t_p=8/20\mu\text{s}$	Reverse Leakage Current @ V_{RWM}	Capacitance At 1MHZ 0V
	$V_{\text{RWM}}(\text{V})$	$V_{\text{BR}}(\text{V})\text{min}$	$I_T(\text{mA})$	$V_C(\text{V})$	$I_{\text{PP}}(\text{A})$	$I_R(\mu\text{A})$	$C_j(\text{pF})$
UP1P882C03P01	3.3	4.0	1	20	5	5	0.4
UP1P882C05P01	5.0	6.0	1	20	4	1	0.4
UP1P882C12P01	12.0	13.3	1	35	3	1	0.4
UP1P882C15P01	15.0	16.7	1	43	2.5	1	0.4
UP1P882C24P01	24.0	26.7	1	50	2	1	0.4

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

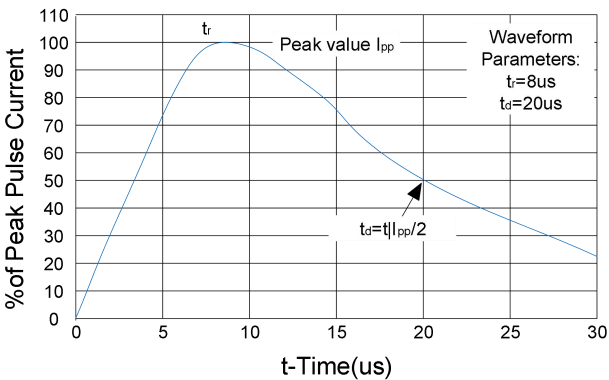


Figure 2. Pulse Derating Curve

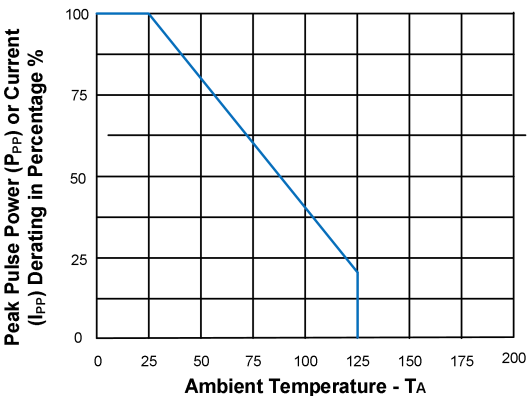


Figure 3. Typical Junction Capacitance

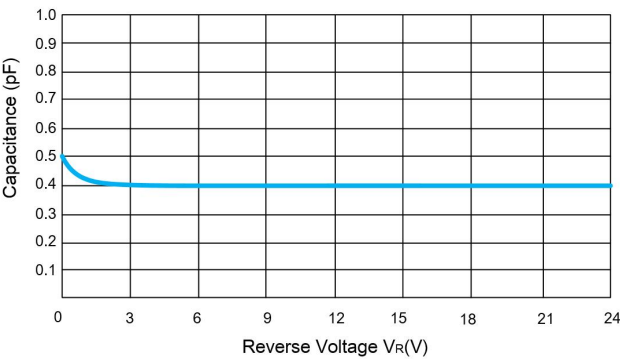
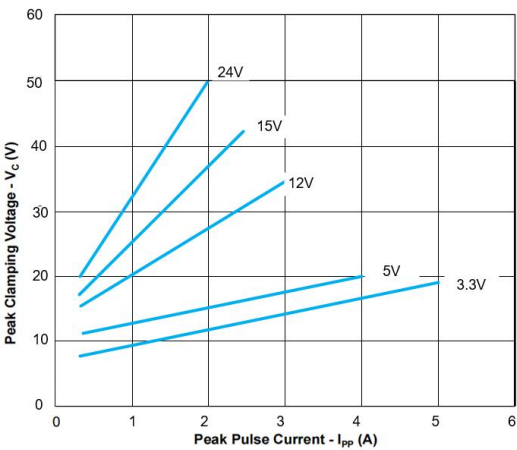
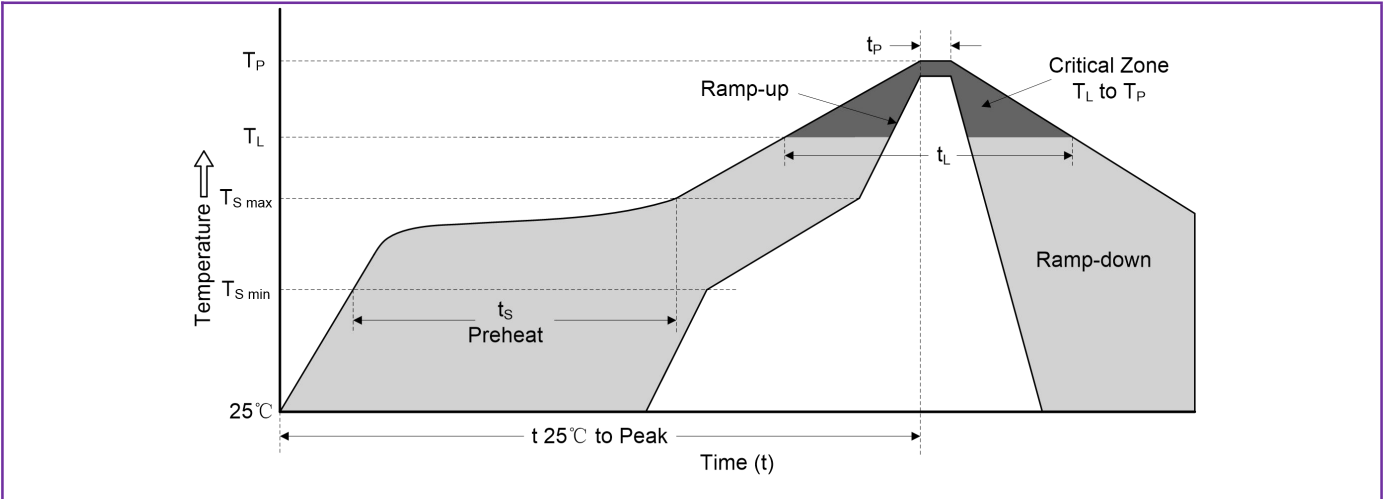


Figure 4. Clamping Voltage Vs Peak Pulse Current



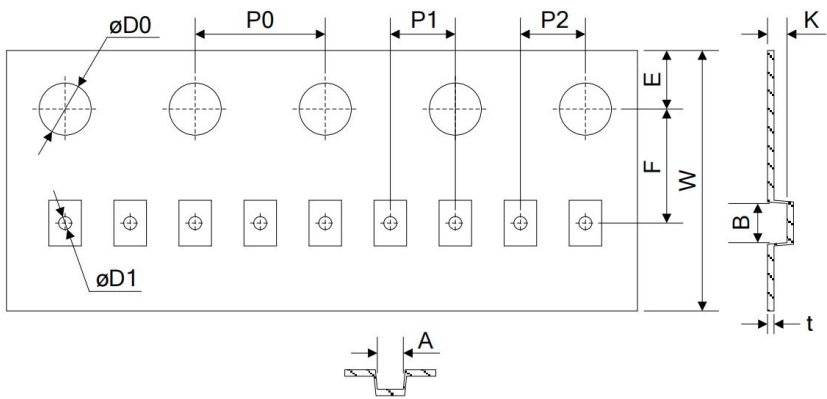
Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Pre heat	-Temperature Min ($T_{S\ min}$)	150°C
	-Temperature Max ($T_{S\ max}$)	200°C
	-Time (min to max) (t_s)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3°C/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3°C/second max.
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_s)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)°C
Time within 5°C of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to Peak Temperature(T_P)		8 minutes max.
Do not exceed		260°C

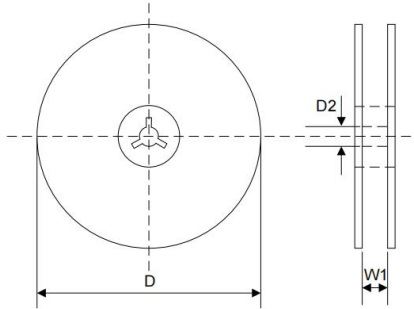
Packaging

Tape



Symbol	Dimension (mm)
W	8.00±0.30
P0	4.00±0.10
P1	2.00±0.10
P2	2.00±0.10
D0	Φ1.55±0.10
D1	Φ0.40±0.05
E	1.75±0.10
F	3.50±0.10
A	0.75±0.10
B	1.15±0.10
K	0.60±0.05
t	0.20±0.05

Reel



D	Φ178.0±2.0
D2	Φ13.00
W1	9.50
Quantity: 10000PCS	