

WPE5V0D3BL2; WPE5V0D5BL2; WPE5V0N9BL2

Low capacitance bidirectional TVS Diodes for ESD Protection

The WPE5V0xxBL2 Series are low capacitance bidirectional TVS Diodes designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

This series has been specifically designed to protect sensitive components which are connected to power, data and transmission lines from overvoltage caused by ESD (electrostatic discharge), and EFT (electrical fast transients).

Features

- Peak Power Dissipation – 40 W (8 x 20 us Waveform)
- Replacement for MLV (0805)
- Protects One Power or I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance: 3.5pf Typ.
- Stand-off Voltage: 5.0 V
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- **Solid-state Punch-Through TVS Process technology**
- ROHS compliant
- WeiPan technology

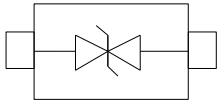
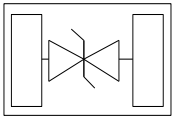
Main applications

- Cellular handsets AND accessories
- Portable instrumentation
- Peripherals
- Networking and Telecom
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV

Protection solution to meet

- IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device		Package	Qty per Reel	Reel Size
WPE5V0D3BL2		SOD-323	3000	7 Inch
WPE5V0D5BL2		SOD-523	3000	7 Inch
WPE5V0N9BL2		DFN1006	5000/10000	7 Inch

Maximum ratings (Tamb=25°C Unless Otherwise Specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	PPPP	40	Watts
ESD Rating per IEC61000-4-2:	Contact	8	KV
	Air	15	
Lead Soldering Temperature	TL	260 (10 sec.)	°C
Operating Temperature Range	TI	-55 ~ 150	°C
Storage Temperature Range	TSTG	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

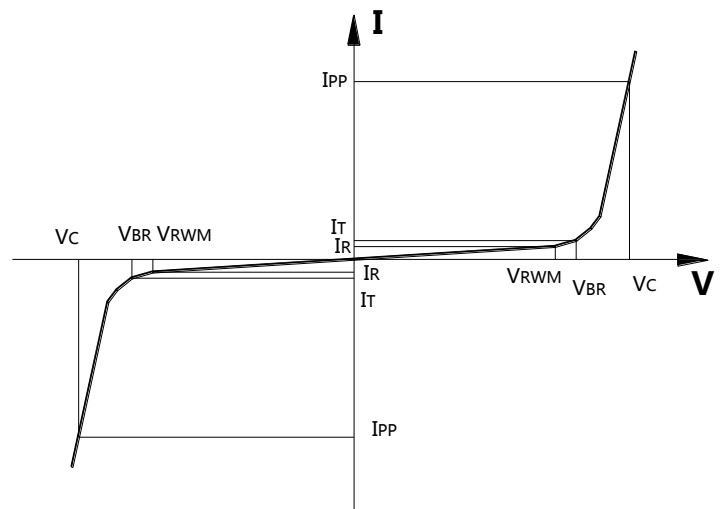
*Other voltages may be available upon request.

1. Nonrepetitive current pulse, per Figure 1.

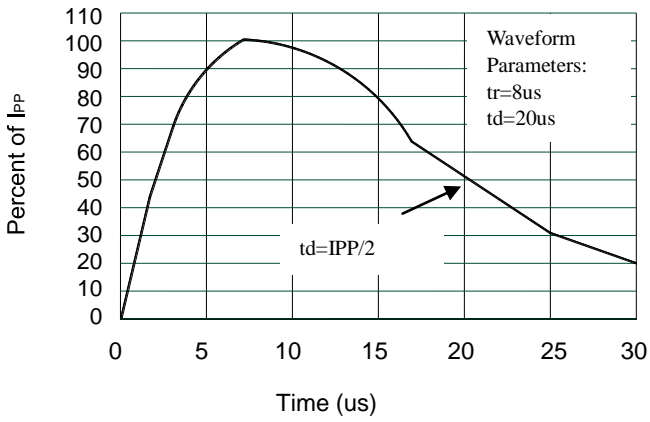
Electrical characteristics (Tamb=25°C Unless Otherwise Specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VRWM	Reverse Working Voltage				5.00	V
VBR	Reverse Breakdown Voltage	IT = 1mA,	5.6			V
IR	Reverse Leakage Current	VRWM = 5V,		0.01	1.00	µA
VC	Clamping Voltage	Ipp = 1A, tp =8/20µs,		9.50	10.5	V
		Ipp = 3A, tp =8/20µs,		11.5	12.5	V
CJ	Junction Capacitance	VR = 0V, f = 1MHz,		3.50	5.00	pF

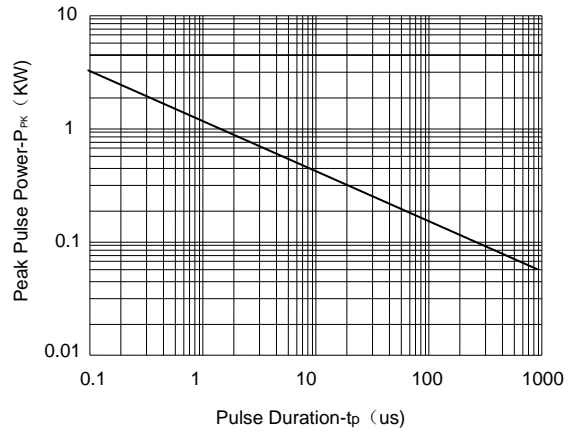
Symbol	Parameter
VRWM	Working Peak Reverse Voltage
VBR	Breakdown Voltage @ IT
VC	Clamping Voltage @ IPP
IT	Test Current
IRM	Leakage current at VRWM
IPP	Peak pulse current
CO	Off-state Capacitance
CJ	Junction Capacitance



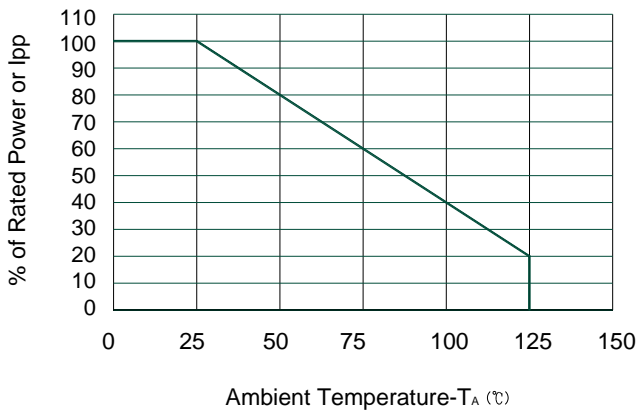
Typical electrical characterist applications



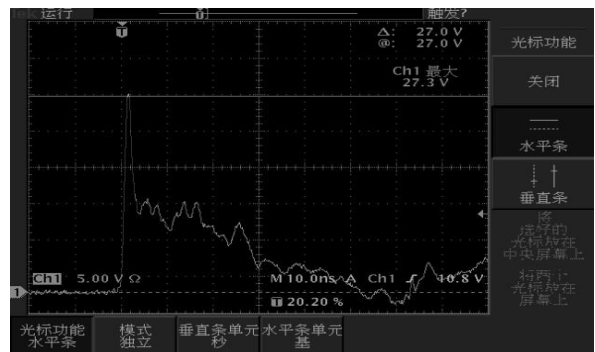
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

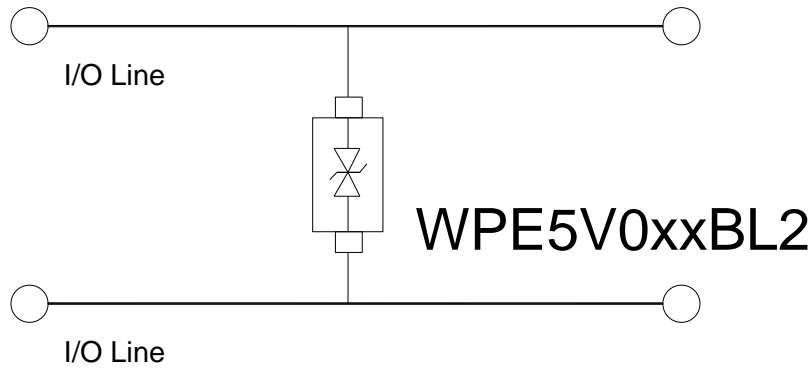


Power Derating Curve

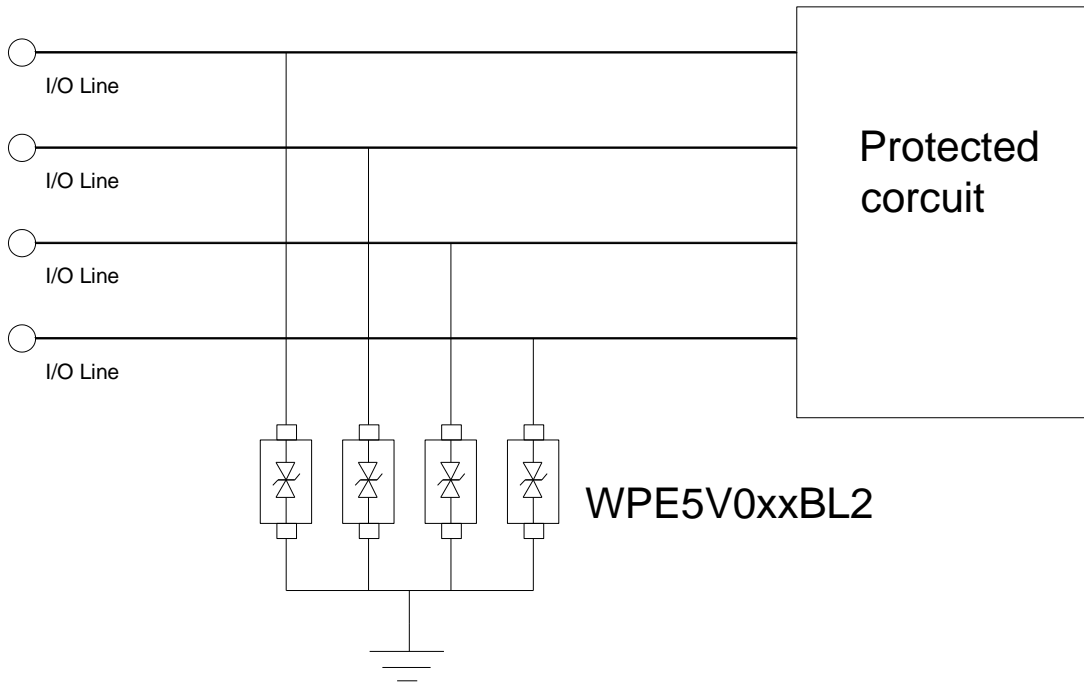


ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

Typical applications



Between I/O Line Protection



I/O Line Protection

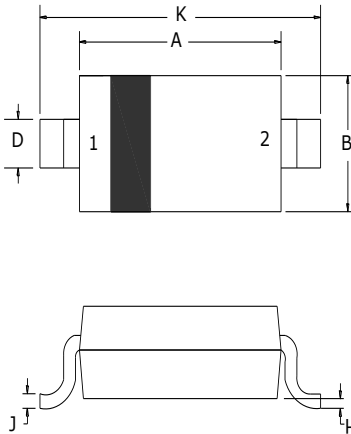
Package Information

SOD-323

Mechanical Data

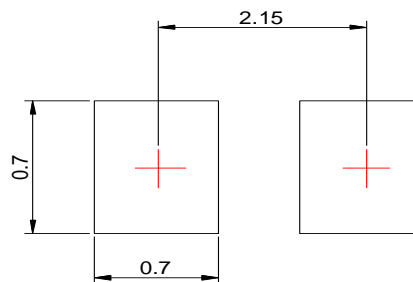
Case: SOD-323

Case Material: Molded Plastic. UL Flammability

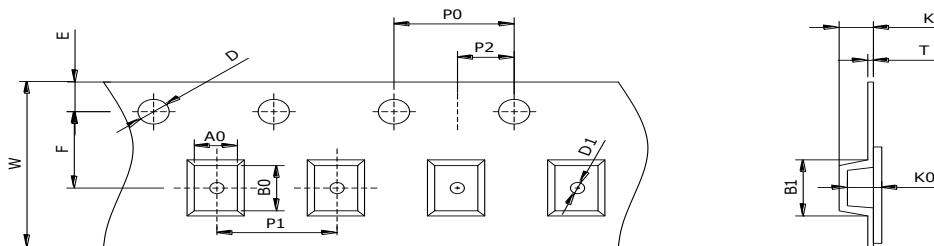


Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	1.60	1.80	0.063	0.071
B	1.2	1.40	0.047	0.055
C	0.80	0.90	0.031	0.035
D	0.25	0.35	0.010	0.014
E	0.15REF		0.006REF	
H	0	0.10	0	0.004
J	0.08	0.15	0.003	0.006
K	2.50	2.70	0.098	0.106

Recommended Pad outline



SOD-323 Reel Dim



Package	Chip Size	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOD-323	2.60×1.40×1.05	3.30×1.50×1.25	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	0.5mm	1.75mm	3.5mm	0.95mm	0.2mm	8mm	

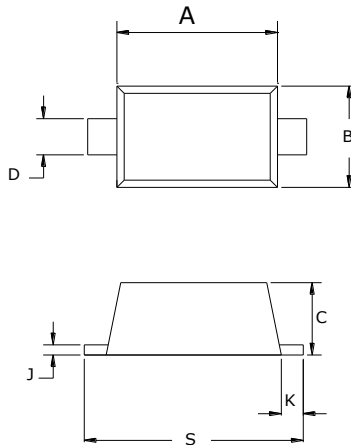
Package Information

SOD-523

Mechanical Data

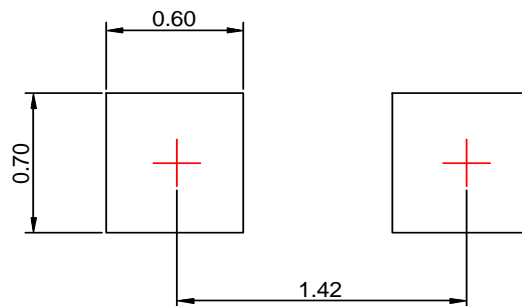
Case: SOD-523

Case Material: Molded Plastic. UL Flammability

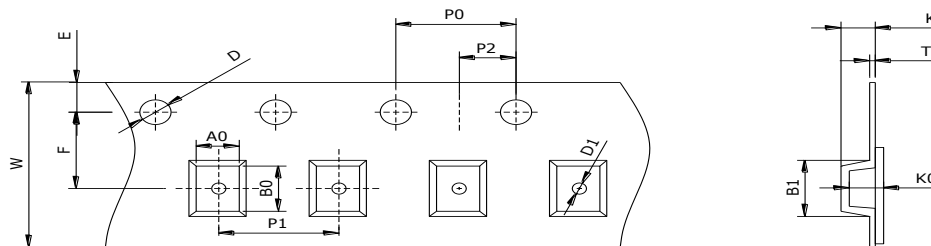


Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.75	0.85	0.03	0.033
C	0.51	0.70	0.02	0.028
D	0.25	0.35	0.01	0.014
J	0.08	0.15	0.003	0.006
K	0.15	0.25	0.006	0.010
S	1.50	1.70	0.059	0.067

Recommended Pad outline



SOD-523 Reel Dim



Package	Chip Size	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
SOD-523	1.70×0.80×0.70	1.90×0.90×0.80	8mm	178mm(7")	3000	4mm	4mm
D0	D1	E	F	K	T	W	
1.5mm	1.0mm	1.75mm	3.5mm	0.75mm	0.2mm	8mm	

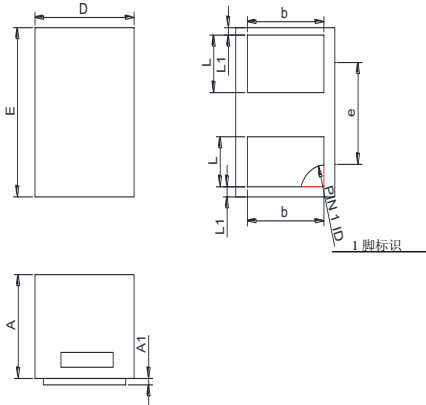
Package Information

DFN1006

Mechanical Data

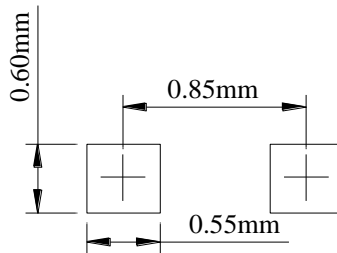
Case:DFN1006

Case Material: Molded Plastic. UL Flammability

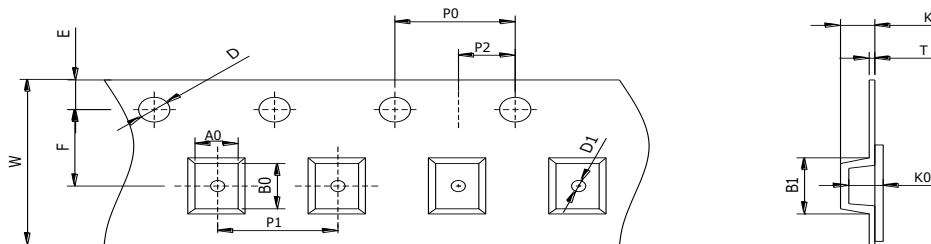


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.30	0.50	0.012	0.020
A1	0.00	0.05	0.000	0.002
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
b	0.25	0.60	0.010	0.024
e	0.65TYP		0.026TYP	
L	0.15	0.35	0.006	0.014
L1	0.05REF		0.002REF	

Recommended Pad outline



DFN1006 Reel Dim



Package	Chip Size (mm)	Pocket Size B0×A0×K0(mm)	Tape Width	Reel Diameter	Quantity Per Reel	P0	P1
DFN1006	1.0×0.6×0.50	1.10×0.70×0.60	8mm	178mm(7")	5000/10000	4mm	4/2mm
D0	D1	E	F	K	T	W	
1.5mm	0.5mm	1.75mm	3.5mm	0.55mm	0.2mm	8mm	