BORN SEMICONDUCTOR

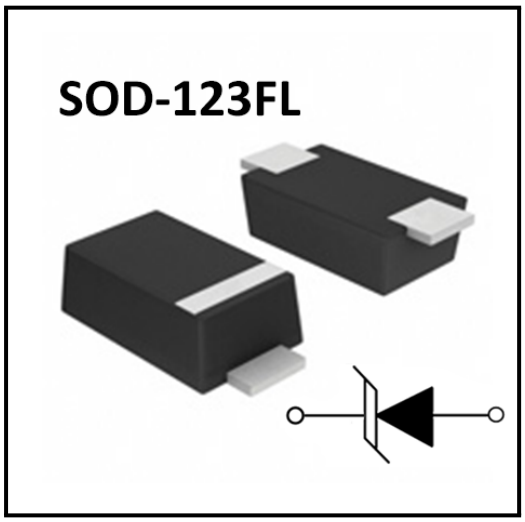
PTVS12VS1UR-N

ESD Protection Diode

Features

- 3840W Peak pulse power per line (tp = 8/20μs)
- Unidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Protection one data/power line
- IEC 61000-4-2 ±30kV contact ±30kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 160A (8/20μs)

Package



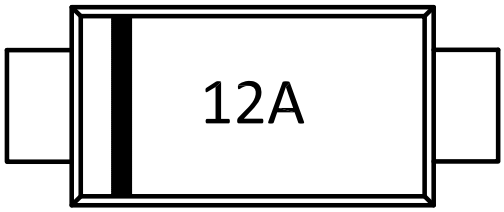
Mechanical Characteristics

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation

Applications

- SOD-123FL package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
PTVS12VS1UR-N	SOD-123FL	3000	Tape and reel

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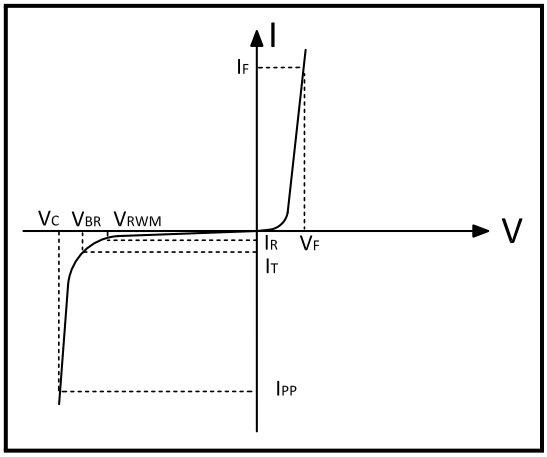
Electrical Parameters (T_A = 25°C unless otherwise noted)

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



Absolute Maximum Rating

Rating	Symber	Value	Units
Peak Pulse Power (tp =8/20μs)	P_{PP}	3840	Watts
Peak Pulse Current (tp =8/20μs)	I_{PP}	160	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	30 30	KV
Lead Soldering Temperature	T_L	260(10seconds)	°C
Junction Temperature	T_J	-55 to + 150	°C
Storage Temperature	T_{stg}	-55 to + 150	°C

Electrical Characteristics

Parameter	Symber	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}	–	–	–	12	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3	–	–	V
Reverse Leakage Current	I_R	V_{RWM}=12V,T=25°C	–	–	1.0	uA
Peak Pulse Current	I_{PP}	tp =8/20μs	–	160	–	A
Clamping Voltage	V_C	I_{PP}=160A, tp =8/20us	–	24	–	V
Junction Capacitance	C_j	V_R=0V,T=25°C,f=1MHZ	–	1020	–	pF

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Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

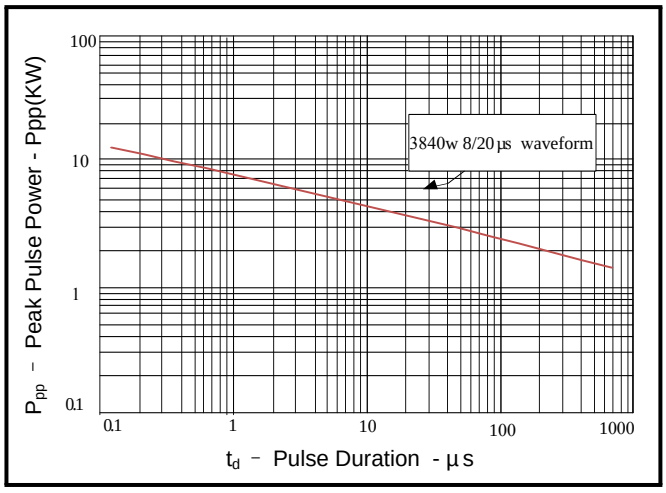


Figure 2: Power Derating Curve

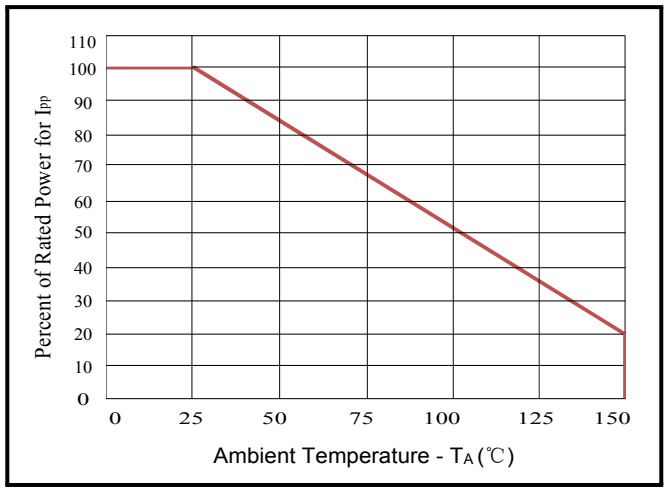


Figure 3: Pulse Waveform

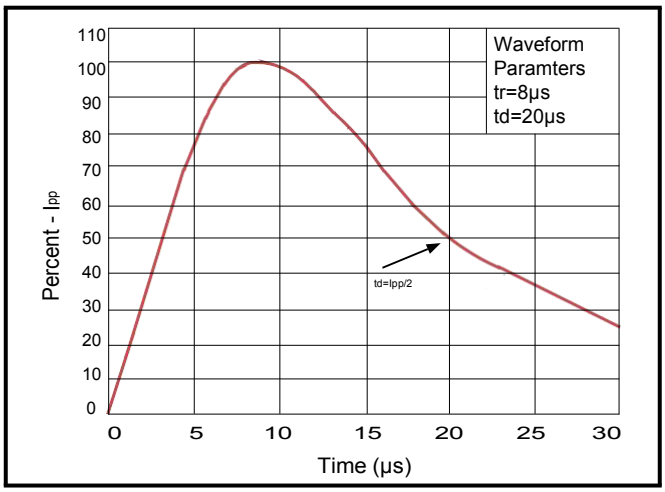
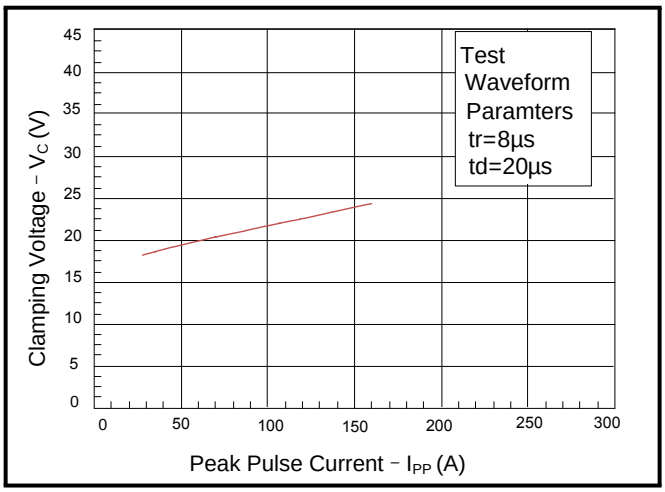


Figure 4: Clamping Voltage vs. I_{PP}



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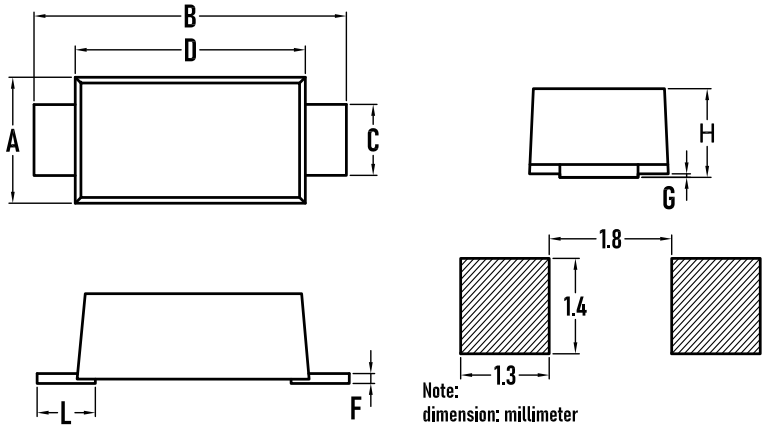
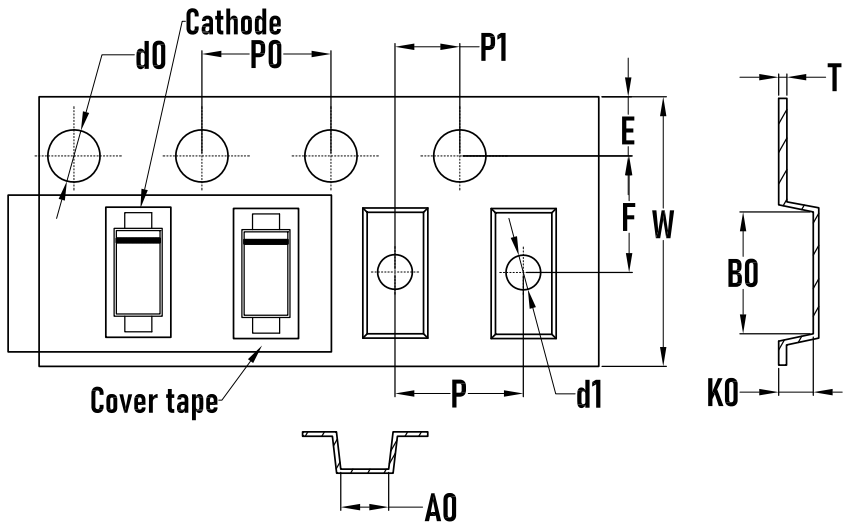
Package Mechanical Data - SOD-123FL



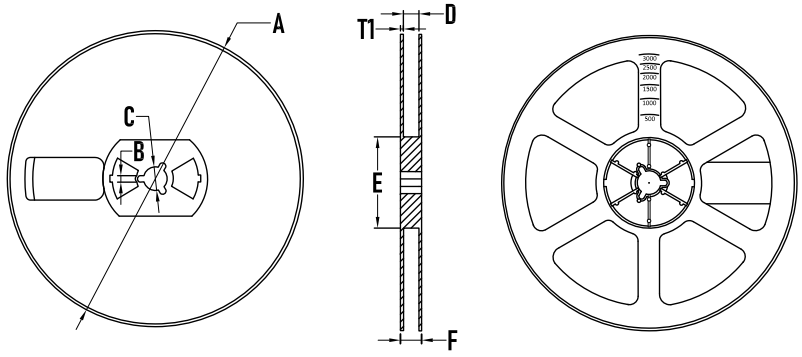
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	1.50	1.75	2.00
B	3.40	3.65	3.90
C	0.70	0.95	1.20
D	2.50	2.70	2.90
F	0.05	0.15	0.26
G	0.00	–	0.10
H	0.95	1.15	1.35
L	0.35	0.63	0.90

Packaging Tape - SOD-123FL



SYMBOL	MILLIMETER
A0	2.10±0.1
B0	4.0 ±0.1
d0	1.5±0.1
d1	1.0±0.1
E	1.75±0.1
F	3.50±0.1
K0	1.25±0.1
P	4.00±0.1
P0	4.00±0.1
P1	2.00±0.1
W	8.00±0.1
T	0.2±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	2.7±0.2
C	13.5±0.2
D	9.6±0.3
E	54.5±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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