

SDxxC Series

Low capacitance bidirectional TVS Diodes for ESD Protection

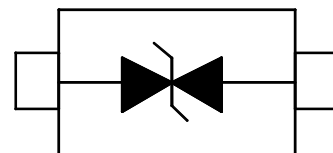
SDxxC Series is high performance capacitance bidirectional TVS Diodes designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment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

Features

- Peak Power Dissipation – 300 W (8 x 20 us Waveform)
- Replacement for MLV (0805)
- Protects One Power or I/O Port
- Low Clamping Voltage
- Low Leakage
- Response Time is < 1 ns
- Available in Multiple Voltages Ranging From 3V to 36V
- Meets MSL 1 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant



SOD-323



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

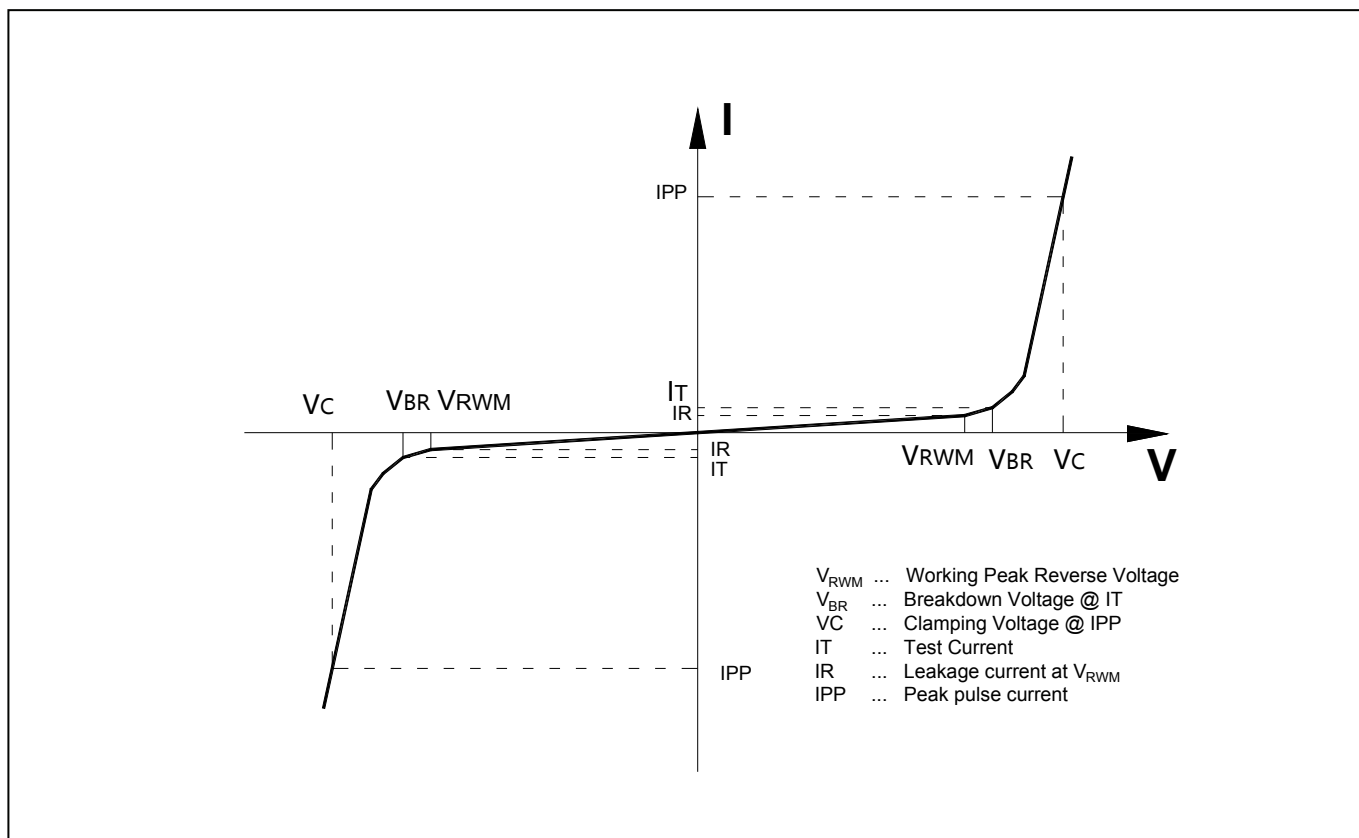
- IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 10\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

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

Rating	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	P _{PK}	300	Watts
ESD Rating per IEC61000-4-2 (Contact)	V _{ESD}	10	KV
ESD Rating per IEC61000-4-2 (Air)		15	
Lead Soldering Temperature	TL	260 (10 sec.)	°C
Operating Temperature Range	T _J	-55 ~ 150	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C

Attention: Stresses above the max. values listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the integrated circuit.

Electrical Characteristics at TA = 25 °C, unless otherwise specified

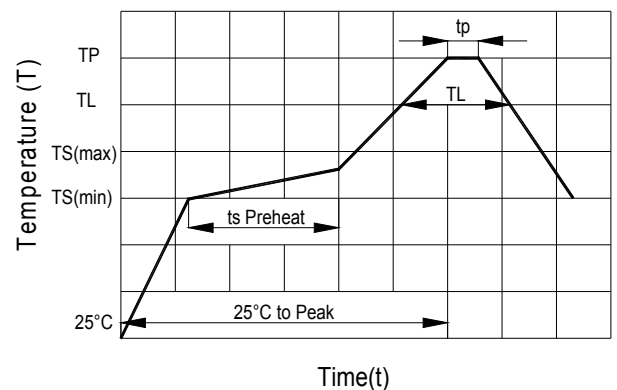


Electrical characteristics ($T_{amb}=25^{\circ}C$ Unless Otherwise Specified)

DEVICE	VRWM	IR @VRWM	VBR @ 1mA	VC@ 1A	IPP _{Max}	C@0V,1MHz	PPK
	(V)	(uA)	(V)	(V)	(A)	PF(TYP.)	(W)
SD03C	3.3	20	4.0	7.8	25	120	300
SD05C	5	5	6.3	9.8	25	135	300
SD08C	8	1	9.1	13.4	15	75	300
SD12C	12	1	13.3	19	12	45	300
SD15C	15	1	16.7	24	12	45	300
SD24C	24	1	26.1	43	5	35	300
SD36C	36	1	40	60	3	35	300

Soldering Parameters

Reflow condition		LF assembly
Pre heat	Temperature min ($T_{s(min)}$)	150°C
	Temperature Max($T_{s(Max)}$)	200°C
	Time (Min To Max)(t_s)	60-180S
Average ramp up rate (liquidus temp(T_L)) to peak		3°C/s max
$T_{s(max)}$ to T_L –ramp-up rate		3°C/s max
Reflow	Temperature(T_L)(Liquidus)	217°C
	Time(min to max)(t_s)	60-150S
Peak temperature(T_P)		260°C
Time within 5°C of actual peak temperature		20-40s
Ramp-down rate		6°C/s max
Time 25°C to peak temperature(t_p)		8minutes max
Do not exceed		280°C



Typical Characteristics at TA = 25 °C, unless otherwise specified

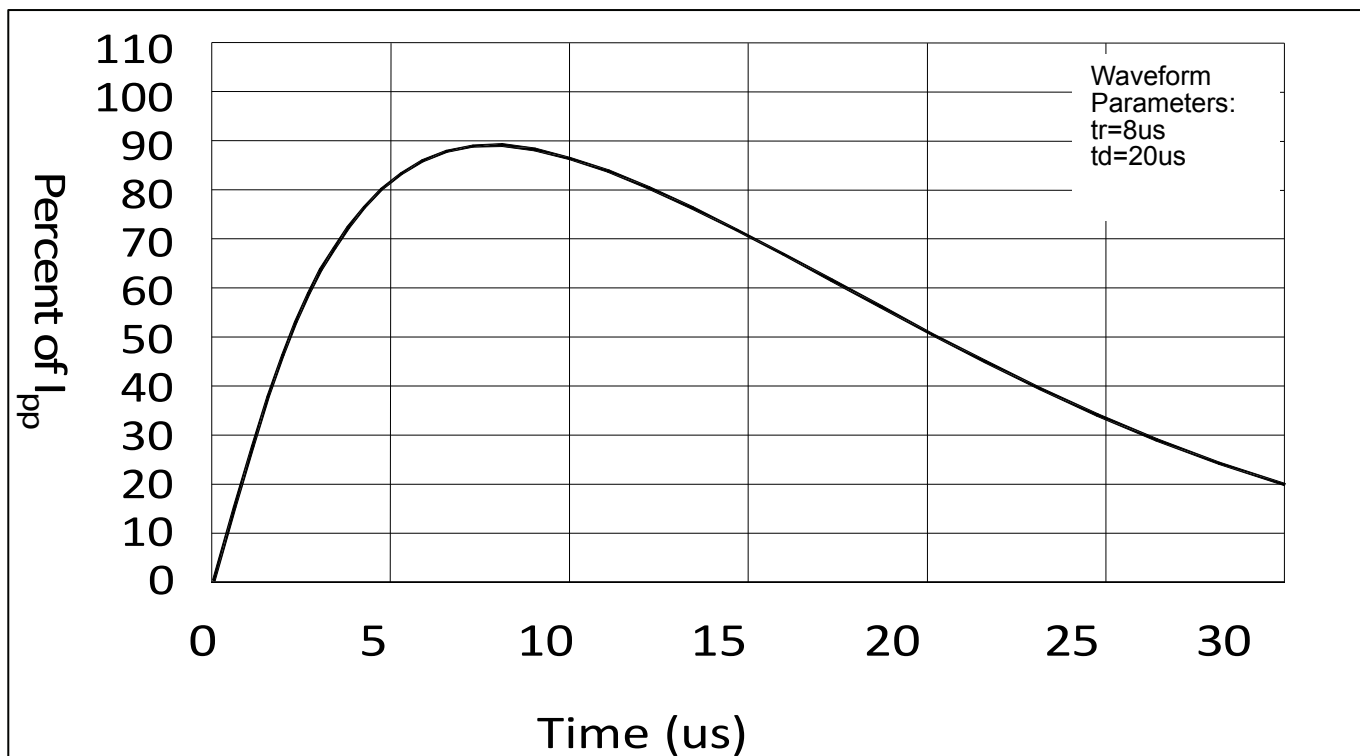


Figure 4-1 Pulse Waveform

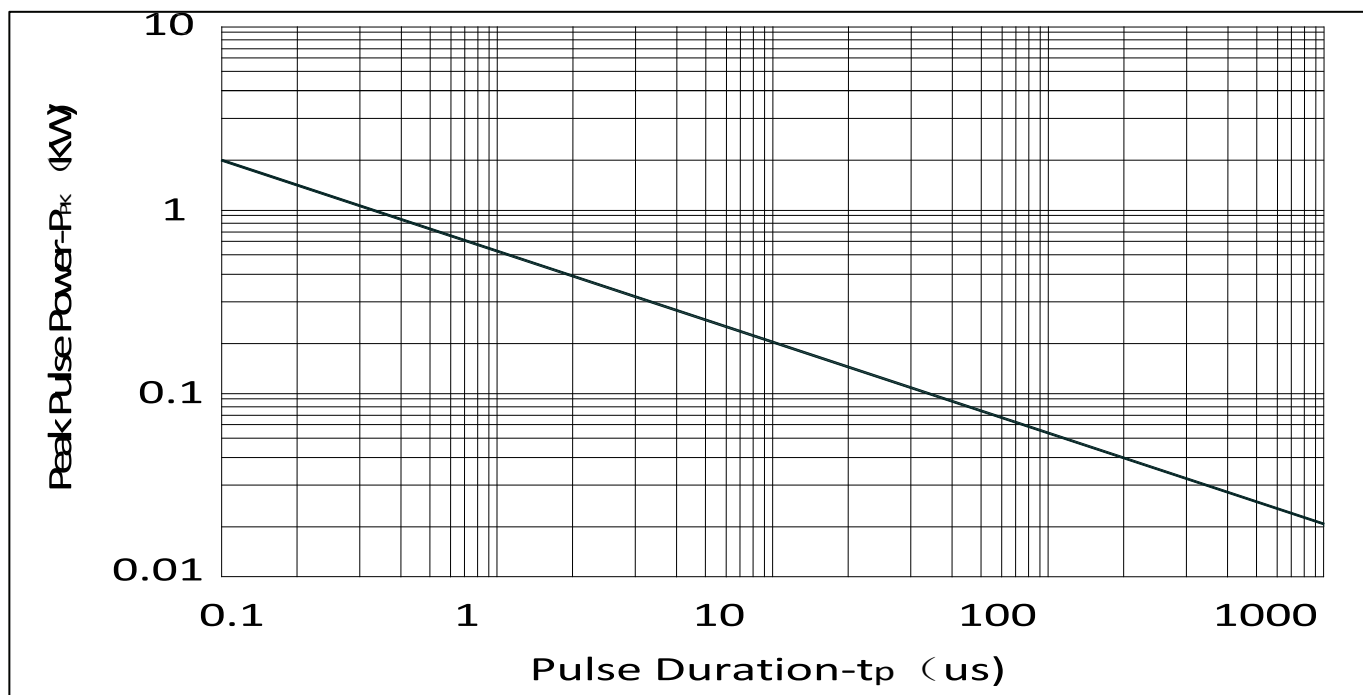


Figure 4-2 Non-Repetitive Peak Pulse Power vs. Pulse Time

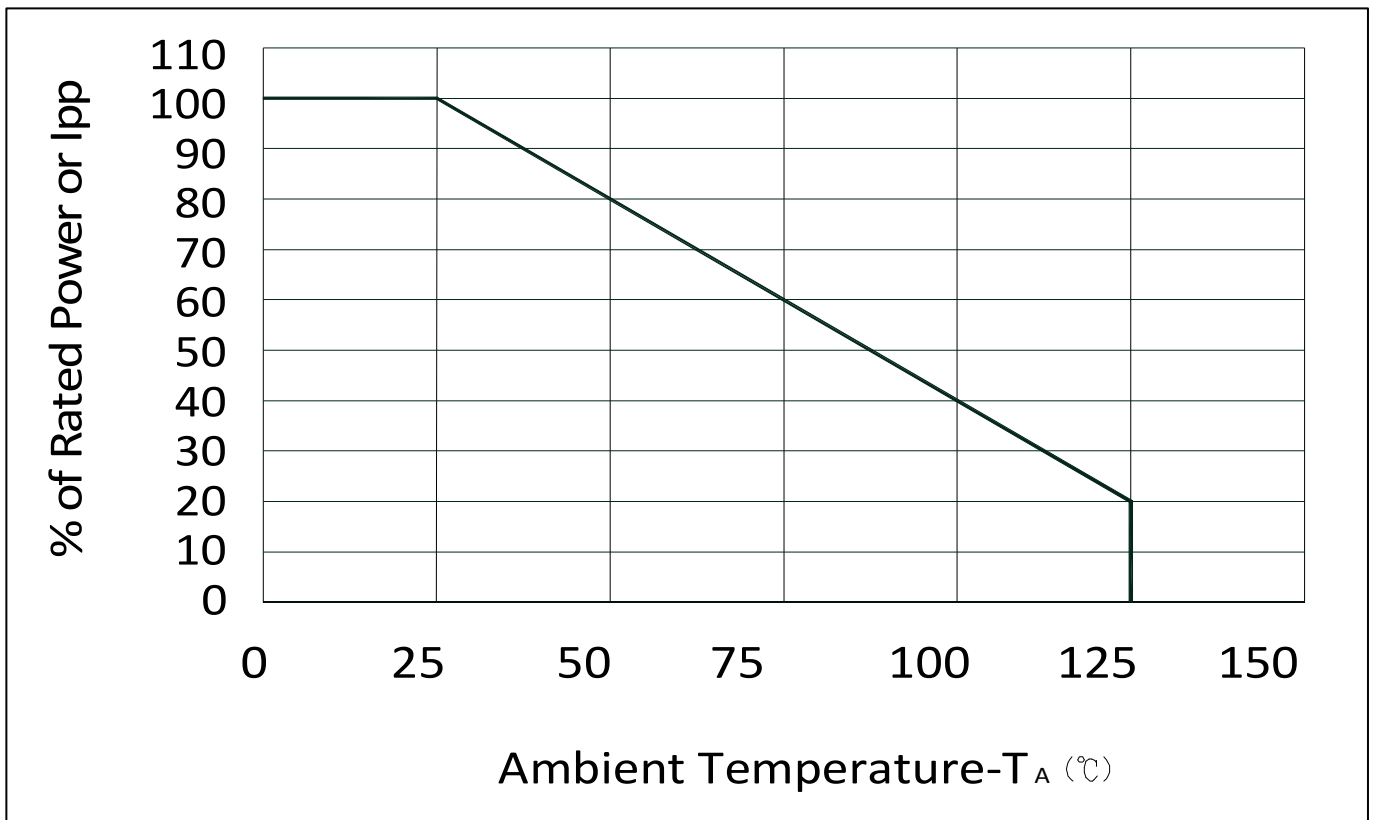


Figure 4-3 Power Derating Curve

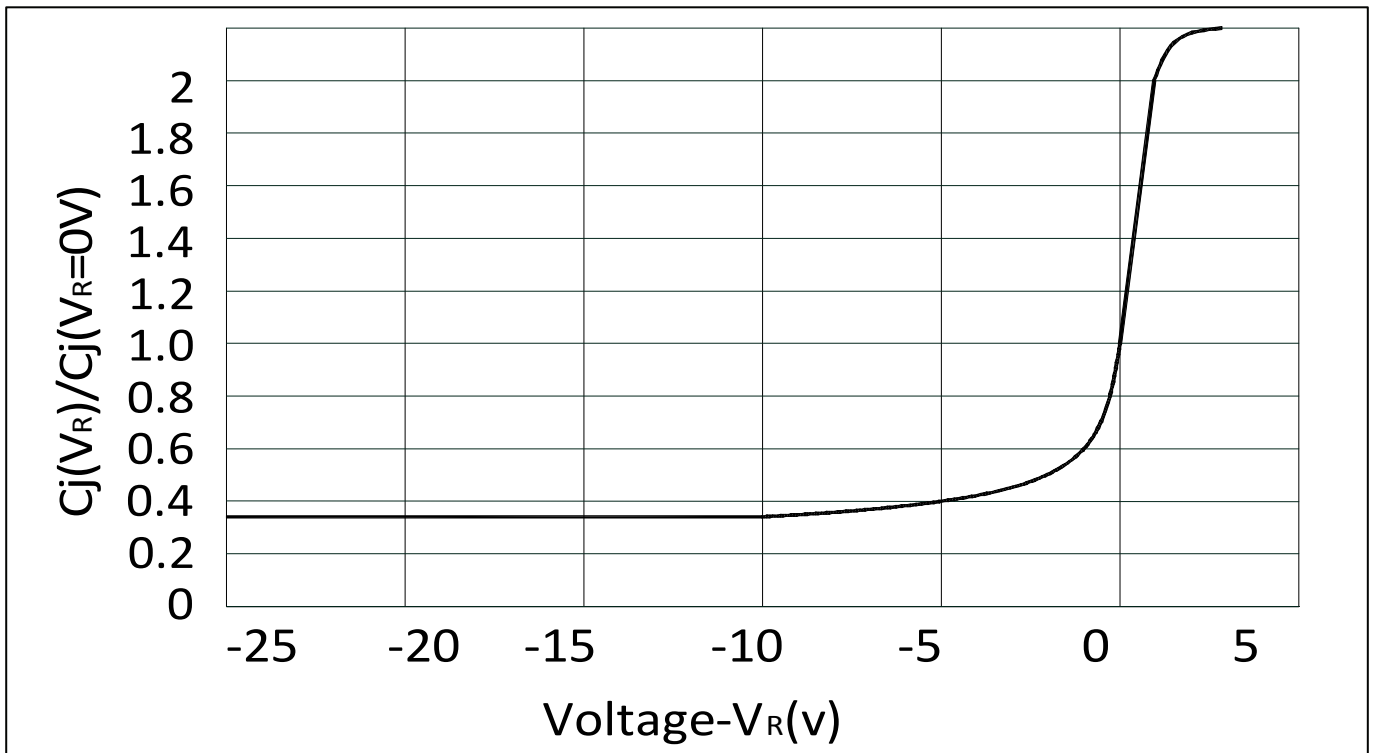
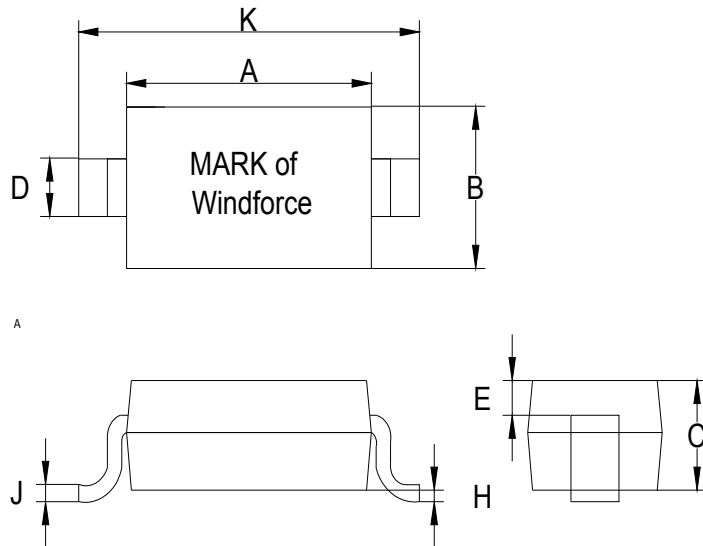


Figure 4-4 Junction Capacitance vs. Reverse Voltage

Mechanical Data

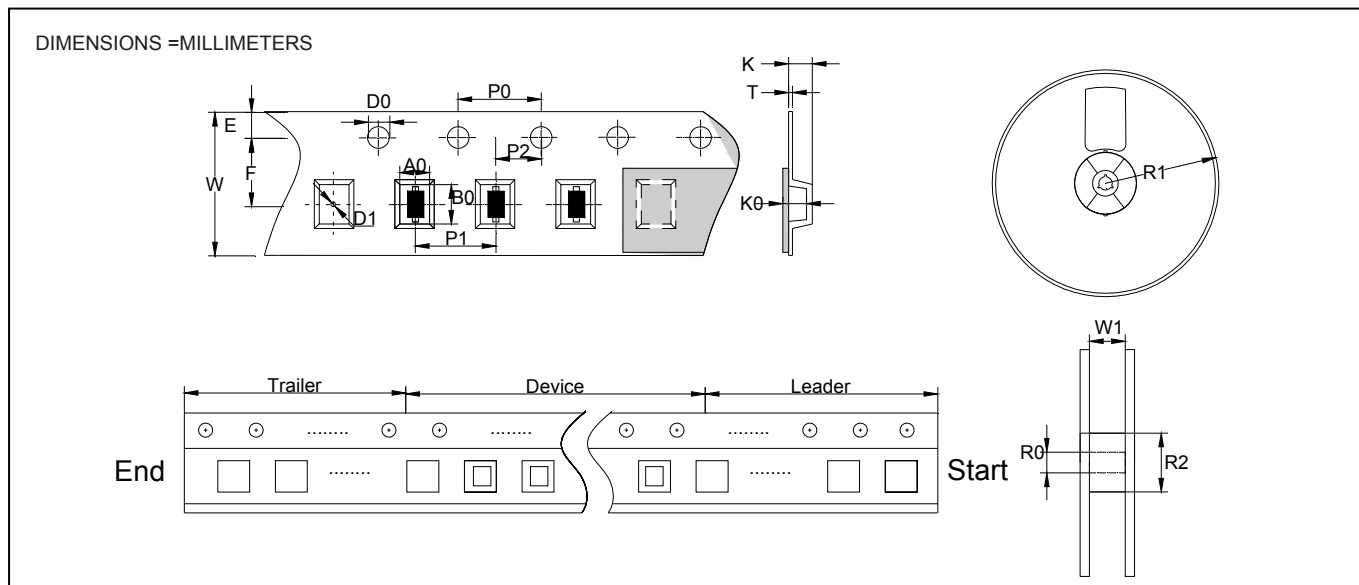
SOD-323



DIM	Millimeters	
	Min	Max
A	1.60	1.80
B	1.15	1.35
C	0.80	1.00
D	0.25	0.40
E	0.15REF	
H	0	0.10
J	0.089	0.177
K	2.30	2.70

*This is a molded SOD-323 package with lead free 100 % Sn plating on the lead frame.
It has a flammability rating of UL 94V-0.*

Packaging



The LEADER is a minimum of 20 components in length and it consists of empty cavities with sealed cover tape

The TRAILER is a minimum of 20 components in length and it consists of empty cavities with sealed cover tape

Item	Symbol	SOD-323
Carrier Width	A0	1.40±0.10
Carrier Length	B0	2.75±0.10
Carrier Depth	K0	1.15±0.10
Sprocket Hole	D0	1.50±0.05
Feed Hole Diameter	R0	13±0.20
Reel Outside Diameter	R1	178
Reel Inner Diameter	R2	50 MIN
Sprocket Hole Position	E	1.75±0.10
Punch Hole Position	F	3.50±0.05
Punch Hole Pitch	P1	4.00±0.10
Sprocket Hole Pitch	P0	4.00±0.10
Embossment Center	P2	2.00±0.05
Overall Tape Thickness	T	0.20
Tape Width	W	8±0.20
Reel Width	W1	14.4 MAX
Quantity per Reel		3000

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