



Features

- 2550 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- Protects one I/O or power line
- Low Clamping Voltage
- Working Voltage: 4.7 V
- Low Leakage Current
- Response Time is Typically < 1 ns

IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD) ± 30 kV (air), ± 30 kV (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 170A (8/20 μs)



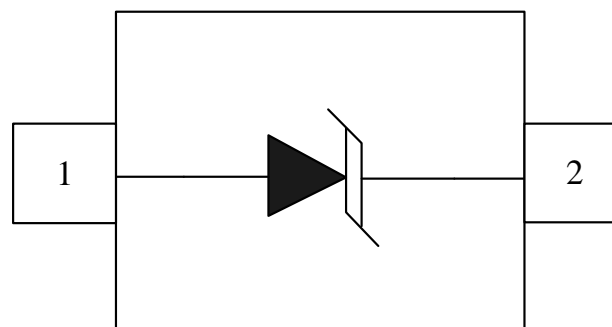
Mechanical Characteristics

- JEDEC SOD-323F package
- Molding compound flammability rating: UL 94V-0
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

- Laptop Computers
- Cellular Phones
- Digital Cameras
- Personal Digital Assistants (PDAs)

Schematic & PIN Configuration

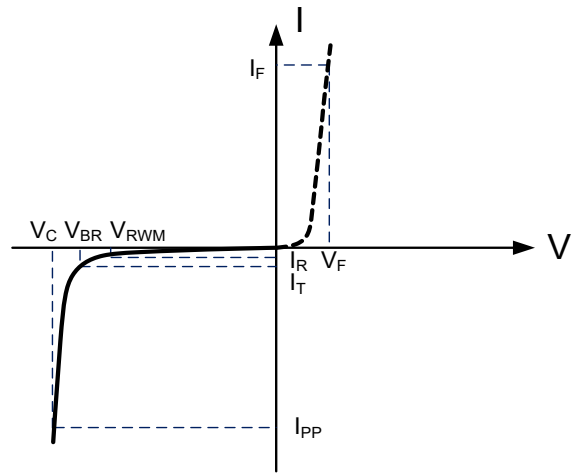


SOD-323F (Top View)

Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PP}	2550	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{PP}	170	A
Operating Temperature	T_J	-55 to + 125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

Electrical Parameters (T=25 $^{\circ}C$)

Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	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



Electrical Characteristics

DW4.5D3HA-S						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				4.7	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	5.5	5.8	7.0	V
Forward Voltage	V_F	$I_F=10 mA$	0.6		1.0	V
Reverse Leakage Current	I_R	$V_{RWM}=4.7V, T=25^{\circ}C$			200	nA
Clamping Voltage	V_C	$I_{PP}=170A, t_p=8/20\mu s$		10.5	15	V
Dynamic Resistance ^{1,2}	R_{DYN}	TLP=0.2/100ns		0.04		Ω
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$		480	600	pF

Note: 1. TLP Setting : $t_p=100ns, t_r=0.2ns, I_{TLP}$ and V_{TLP} sample window: $t_1=70ns$ to $t_2=90ns$.

2. Dynamic resistance calculated from $I_{PP}=4A$ to $I_{PP}=16A$ using "Best Fit".

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Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

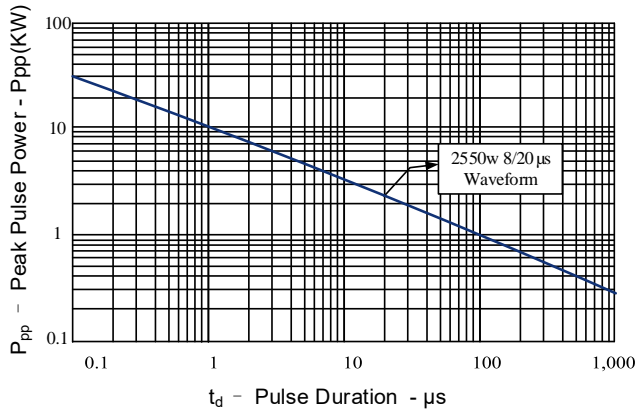


Figure 2: Power Derating Curve

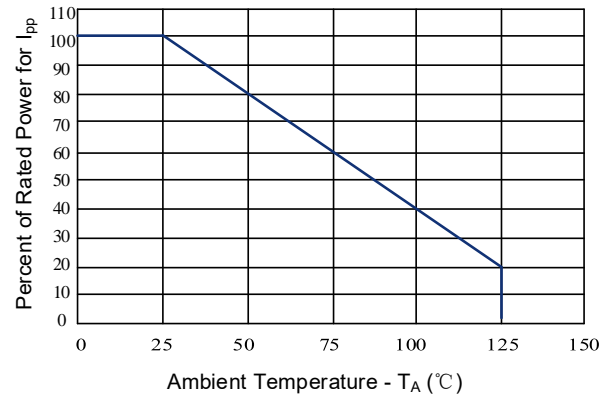


Figure 3: Clamping Voltage vs. Peak Pulse Current

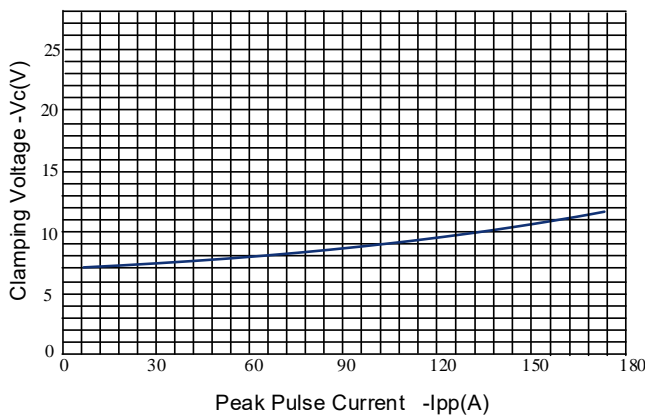


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

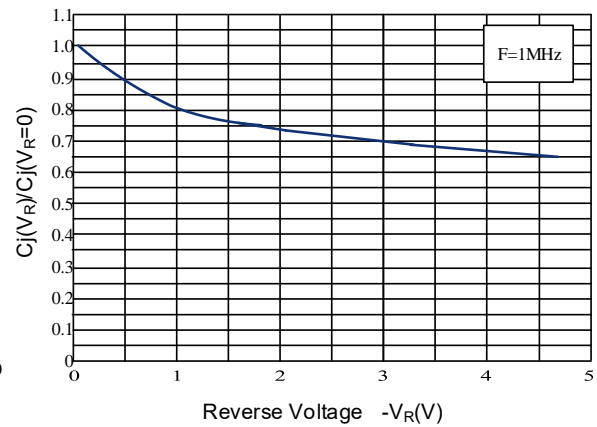


Figure 5: Pulse Waveform

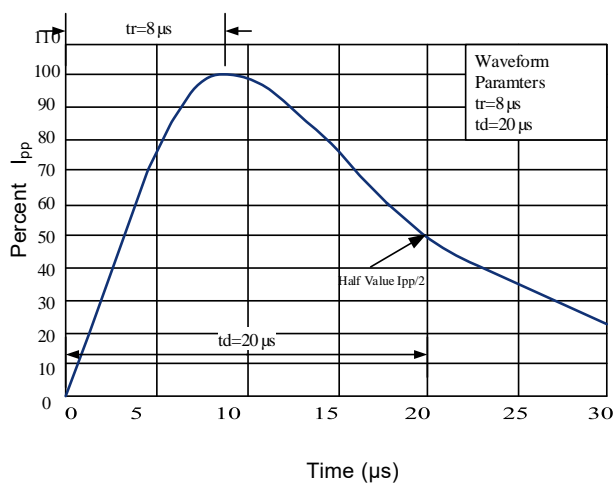
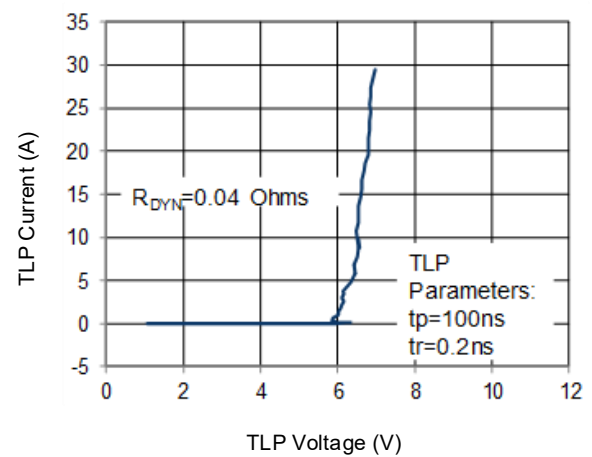


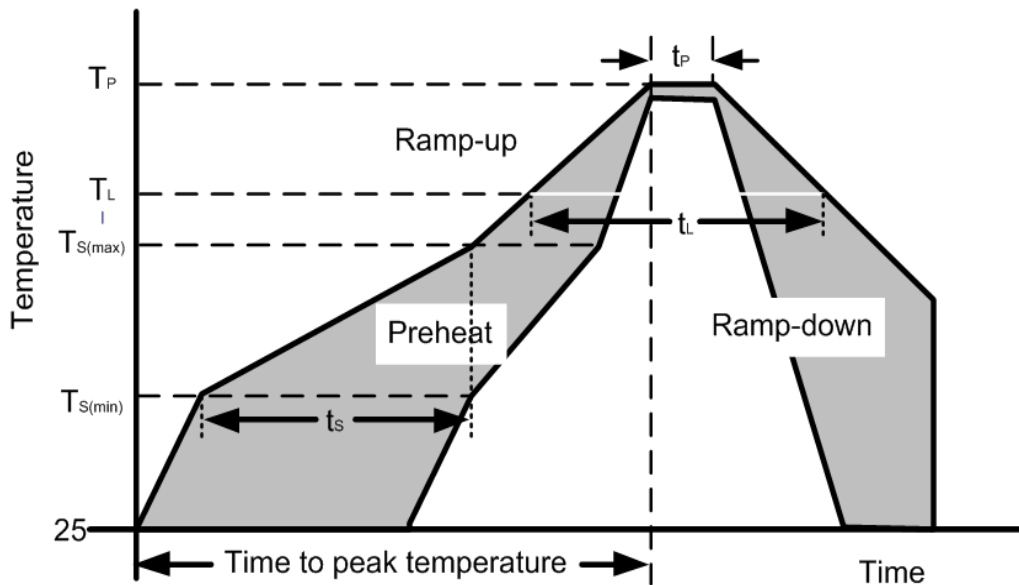
Figure 6: TLP I-V Curve





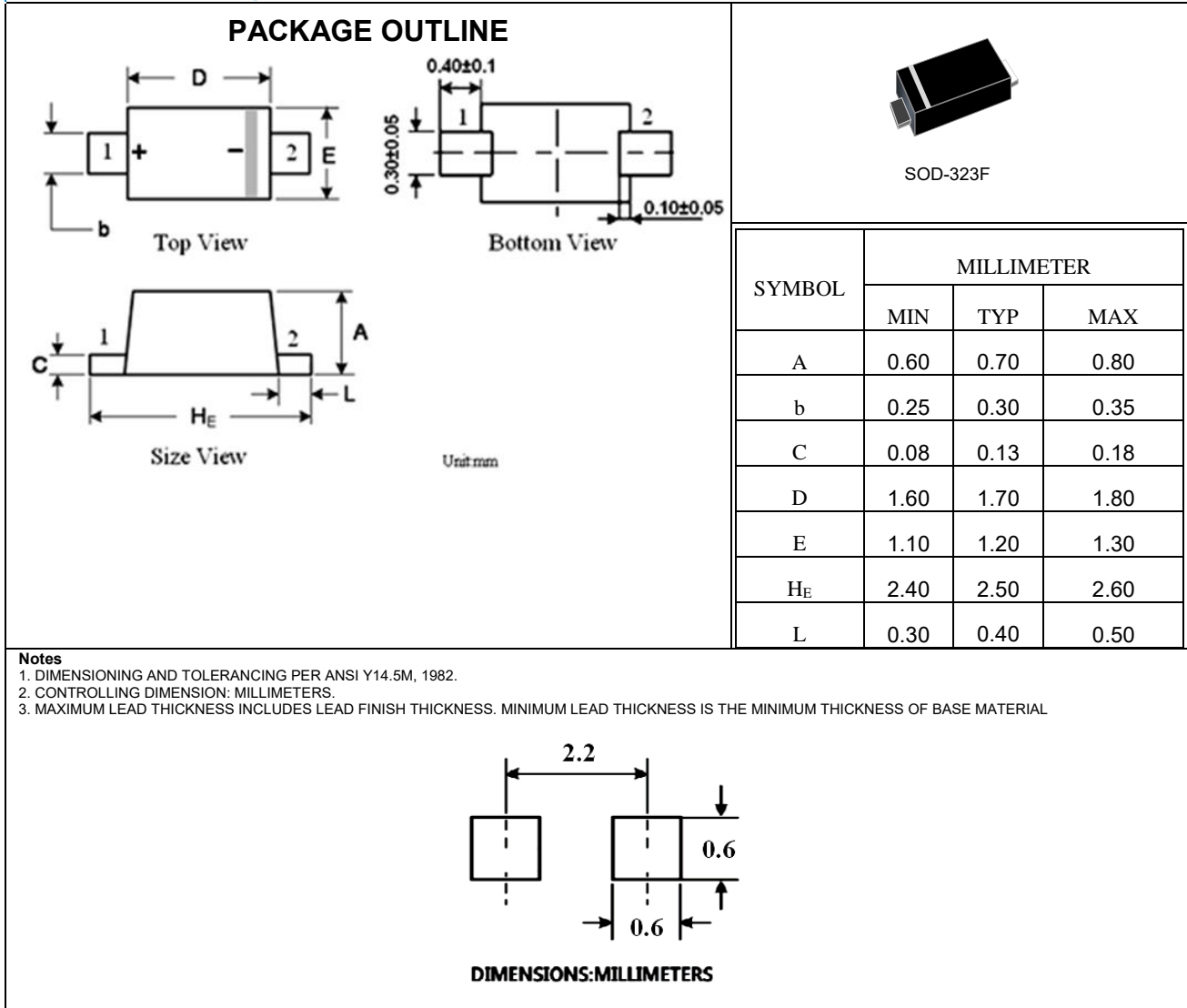
Soldering Parameters

Reflow Condition		Pb – 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 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L —Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C






Outline Drawing – SOD-323F



Marking Codes

Part Number	Marking Code
DW4.5D3HA-S	 HA=Specific Device Code X=Month Code

Package Information

Qty: 3k/Reel