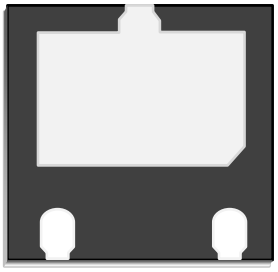
WS30P4N3D

Transient Voltage Suppressor

Features

- 6270 Watts Peak Power (tp = 8/20μs)
- Excellent Clamping Capability
- Low profile package
- Solid-state silicon technology



DFN2020-3L
(bottom view)

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning) 165A (8/20μs)**

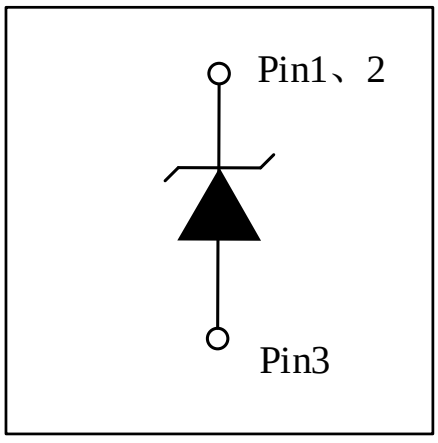
Mechanical Characteristics

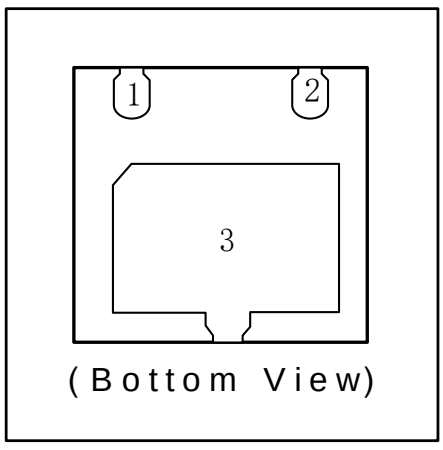
- DFN2020-3L package
- Marking : Marking Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant & HF
- Device meets MSL1 requirement

Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computer & Consumer Electronics
- Industrial Electronics
- Microcontroller Input Protection

PIN Configuration



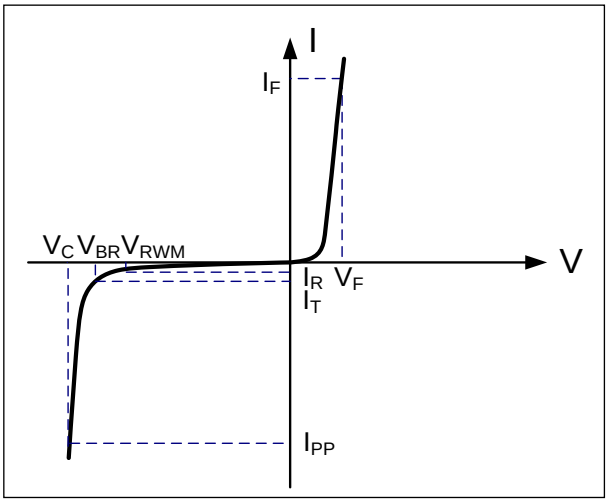


Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power（t_p=8/20μs）	P_{PP}	6270	Watts
Peak Pulse Current（t_p=8/20μs）	I_{PP}	165	A
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters

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(T=25℃ unless otherwise noted)

WS30P4N3D						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				30	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	31			V
Forward Voltage	V_F	I_F=10mA	0.6		1.2	V
Reverse Leakage Current	I_R	V_{RWM}=30V			500	nA
Clamping Voltage[1]	V_C	I_{PP}=165A, t_p=8/20μs		36	38	V
Dynamic Resistance[2,3]	R_{DYN}	TLP=0.2/100ns		0.16		Ω
ESD Clamping Voltage[1]	V_C	I_{PP} = 4A, tp = 0.2/100ns (TLP)		33		V
ESD Clamping Voltage[1]	V_C	I_{PP} = 16A, tp = 0.2/100ns (TLP)		35		V
Junction Capacitance	C_j	V_R = 0V, f = 1MHz		538	650	pF

Note：1.Measured from pin 1& pin 2 to pin 3；
2. TLP Setting：t_p=100ns, t_r=0.2ns, I_{TLP} and V_{TLP} sample window:t_1=70ns to t_2=90ns.
3、Dynamic resistance calculated from I_{PP}=4A to I_{PP}=16A using “Best Fit”.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

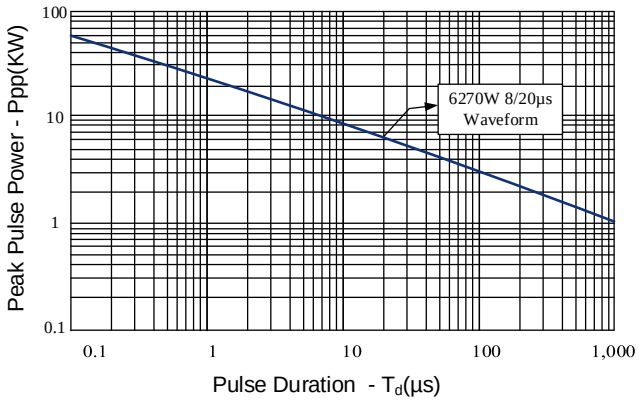


Figure 2: Power Derating Curve

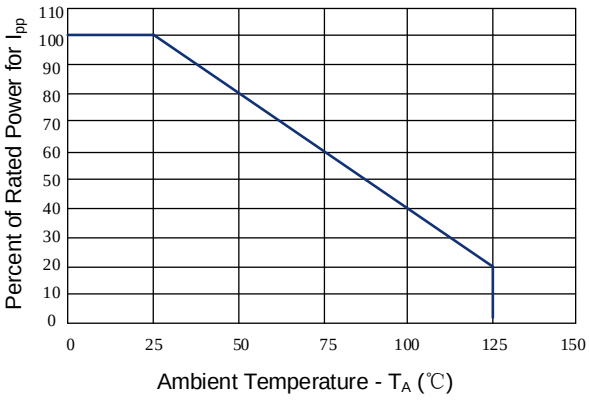


Figure 3: Clamping Voltage vs. Peak Pulse Current

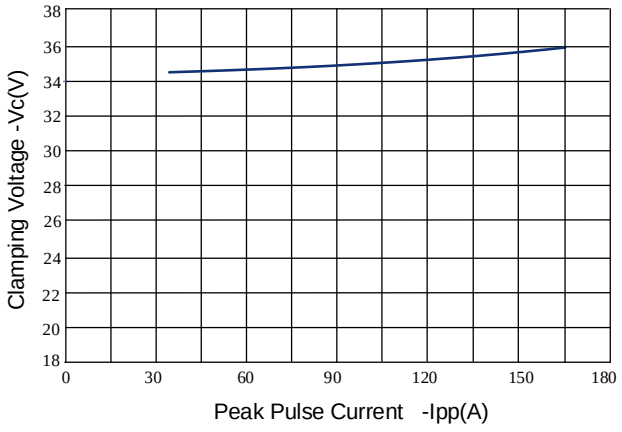


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

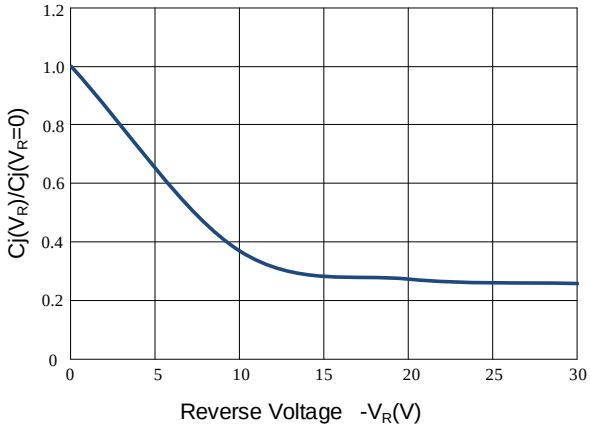


Figure 5: 8/20μs Pulse Waveform

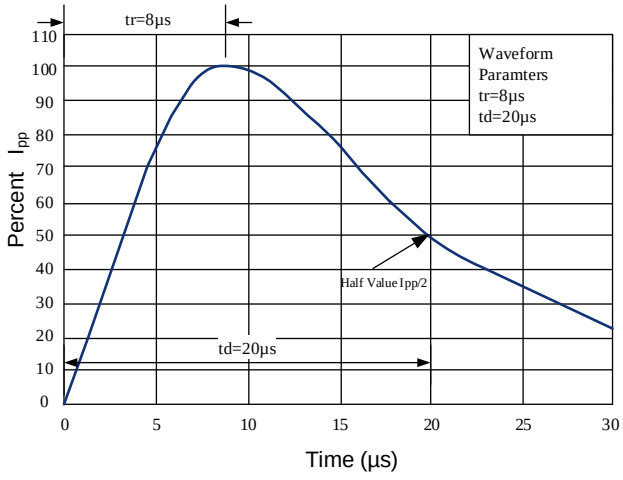
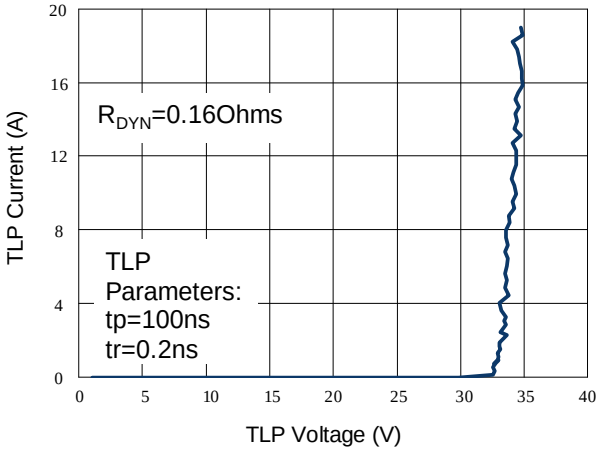
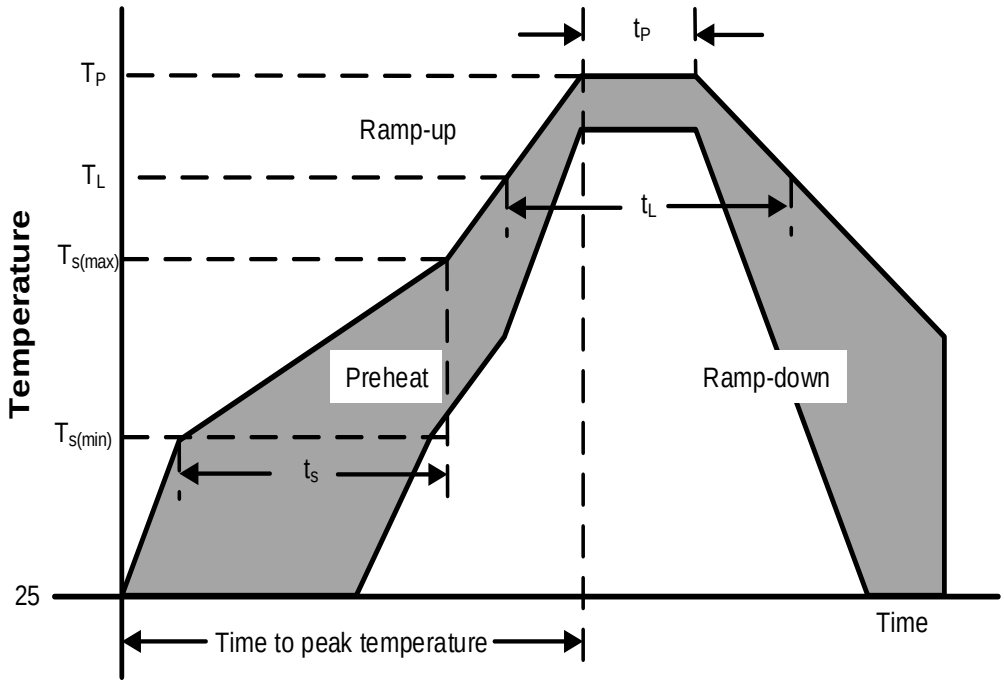


Figure 6: TLP I-V Curve



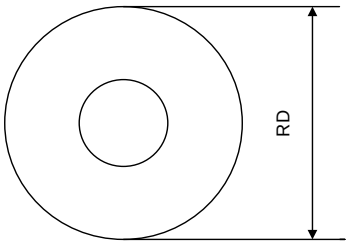
Soldering Parameters

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) (ts)	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

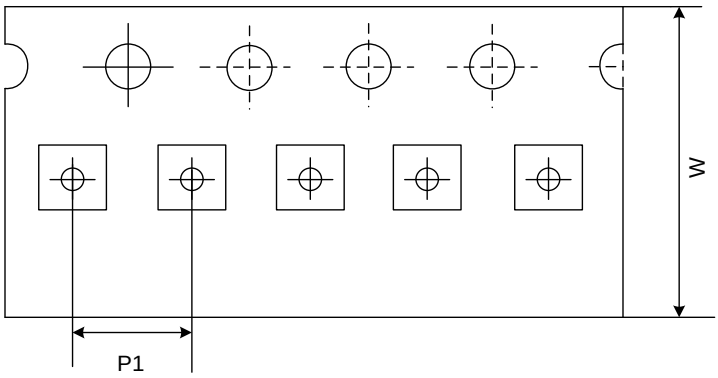


Tape And Reel Information

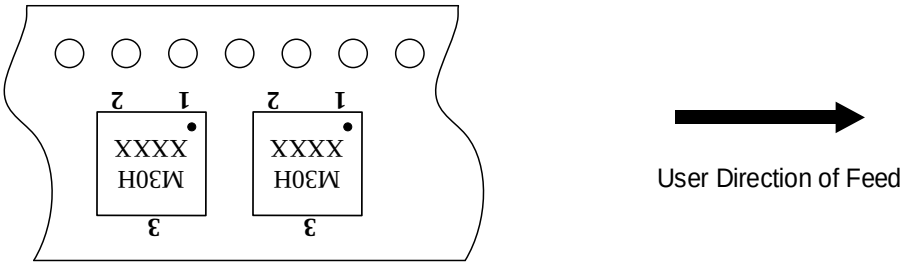
Reel Dimensions



Tape Dimensions



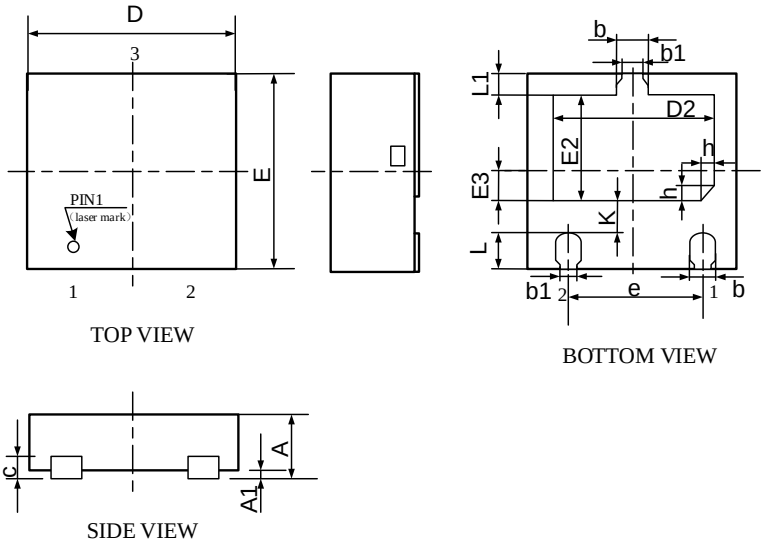
Quadrant Assignments For PIN1 Orientation In Tape

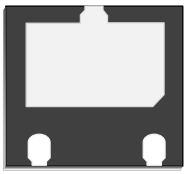


RD	Reel Dimensions	7 inch
W	Overall width of the carrier tape	8 mm
P1	Pitch between successive cavity centers	4mm

Outline Drawing –DFN2020-3L

PACKAGE OUTLINE

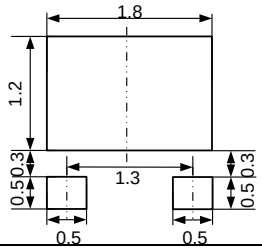




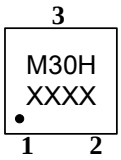
DFN2020-3L

SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A	0.45	0.55	0.60
A1	0.00	0.02	0.05
b	0.25	0.30	0.35
b1		0.20REF	
c		0.152REF	
D	1.90	2.00	2.10
D2	1.40	1.50	1.60
e		1.30BSC	
E	1.90	2.00	2.10
E2	0.95	1.05	1.15
E3	0.20	0.30	0.40
L	0.35	0.40	0.45
L1	0.20	0.25	0.30
h		0.20REF	
K	0.20	0.30	0.40

Land Pattern



Marking Codes

Part Number	Marking Code
WS30P4N3D	 M30H=Specific Device Code XXXX=Lot Code

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.