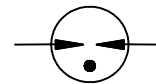


**Description**

The SMD3216 series has been especially designed to meet data transmission protection requirements. The optimized design features a high level of protection against fast rising transients usually caused by lightning disturbances. For use in high frequency data lines, the series offers ultra low capacitances and shows only marginally signal losses up to high frequencies. The devices are extremely reliable and are able to withstand high surge currents without destruction.



**Electrical symbol**



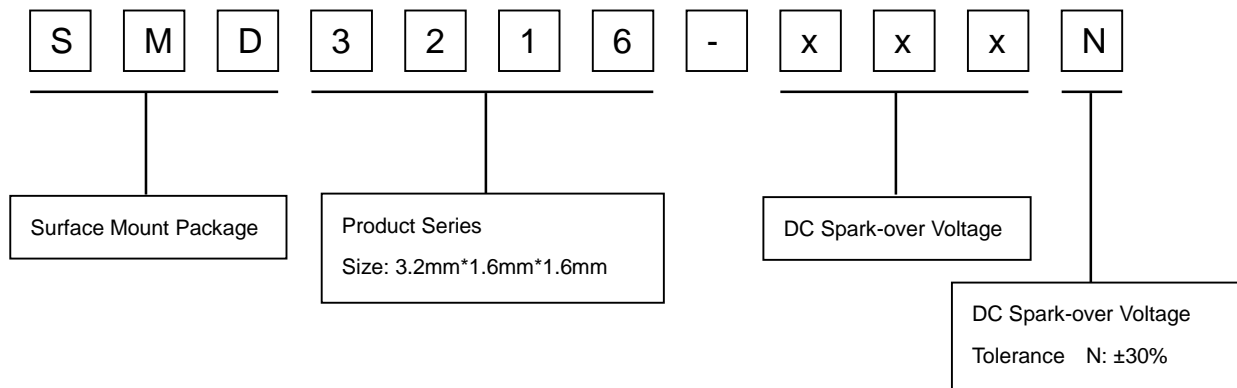
**Features**

- I Excellent response to fast rising transients
- I Stable breakdown voltage
- I GHz working frequency
- I 8/20µs Impulse current capability: 500A
- I Surface Mount package
- I Non-Radioactive
- I Ultra Low capacitance(<0.3pF) and insertion loss
- I Lead-free compliant
- I RoHS and REACH compliant
- I Very Small Size(EIA 1206)
- I Storage and operational temperature: -40~+90°C

**Applications**

- I Ethernet, PoE, xDSL
- I Cable modem, splitters, line cards
- I Wireless antenna protection
- I CATV equipment
- I Switching power supply

**Part Number Code**



## Electrical Characteristics

Part Number	DC Spark-over Voltage <sup>1) 2)</sup> @100V/S	Impulse Spark-over Voltage		Insulation Resistance <sup>3)</sup>	Capacitance @1 MHz	Service life				
		100V/ $\mu$ S	1KV/ $\mu$ S			Impulse Discharge Current @8/20 $\mu$ S		Impulse Withstanding Voltage Capacity @10/700 $\mu$ S, 40W $\pm$ 5 times		
		Max	Max			Min	Max		Nominal $\pm$ 5 times	Max 1 time
		V	V			V	G $\Omega$		pF	A
SMD3216-090N	90 $\pm$ 30%	600	700	1	0.3	500	600	6		
SMD3216-150N	150 $\pm$ 30%	600	700	1	0.3	500	600	6		
SMD3216-200N	200 $\pm$ 30%	650	750	1	0.3	500	600	6		
SMD3216-230N	230 $\pm$ 30%	650	750	1	0.3	500	600	6		
SMD3216-300N	300 $\pm$ 30%	700	800	1	0.3	500	600	6		
SMD3216-350N	350 $\pm$ 30%	750	850	1	0.3	500	600	6		
SMD3216-400N	400 $\pm$ 30%	850	950	1	0.3	500	600	6		
SMD3216-420N	420 $\pm$ 30%	850	950	1	0.3	500	600	6		
SMD3216-470N	470 $\pm$ 30%	1000	1100	1	0.3	500	600	6		
SMD3216-500N	500 $\pm$ 30%	1000	1200	1	0.3	500	600	6		
SMD3216-600N	600 $\pm$ 30%	1200	1400	1	0.3	500	600	6		
Glow Voltage at 10mA.....		~60V								
Arc Voltage at 0.2A.....		~10V								
Glow to Arc transition Current.....		~0.1A								
Weight.....		~0.03g								
Operation and storage temperature.....		-40~+90°C								
Climatic category (IEC 60068-1).....		40/90/21								
Marking.....		Without								
Surface treatment.....		Matte-tin plated								

<sup>1)</sup> At delivery AQL 0.65 level II, DIN ISO 2859

<sup>2)</sup> In ionized mode

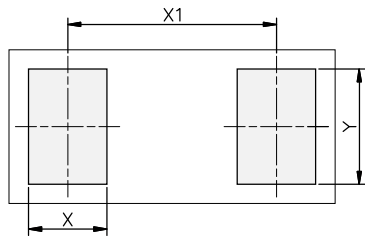
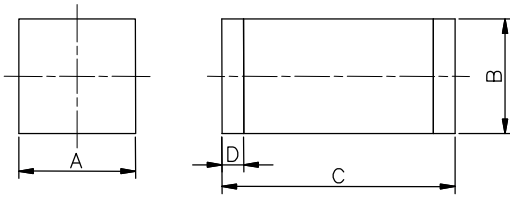
<sup>3)</sup> Insulation Resistance Measuring Voltage:

90V~150V at DC 50V

Other at DC 100V

Terms in accordance with ITU-T Rec. K.12, IEC 61643-311, GB/T 9043.

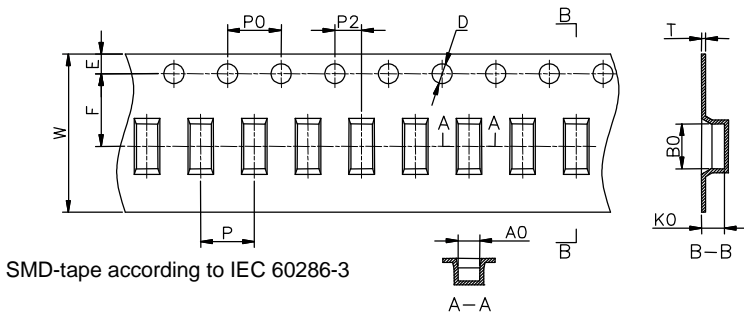
Dimensions



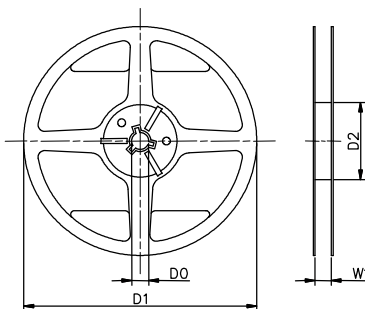
Recommended Soldering Pad Layout

Symbol	Millimeters	Inches
A	1.6±0.2	0.063±0.008
B	1.6±0.2	0.063±0.008
C	3.2±0.3	0.126±0.012
D	0.3±0.1	0.012±0.004
X	1.3	0.051
X1	3.3	0.130
Y	1.8	0.071

Taping and Reel Specifications



SMD-tape according to IEC 60286-3



Symbol	Millimeters	Inches
W	12±0.3	0.472±0.012
A0	1.8±0.1	0.071±0.004
B0	3.4±0.1	0.134±0.004
K0	1.8±0.1	0.071±0.004
P	4.0±0.1	0.157±0.004
F	5.5±0.1	0.217±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
T	0.35±0.05	0.014±0.002
D0	13.3±0.15	0.524±0.006
D1	178±2	7.007±0.079
D2	60+1/-2	2.362+0.039/-0.079
W1	12.5±0.4	0.492±0.016

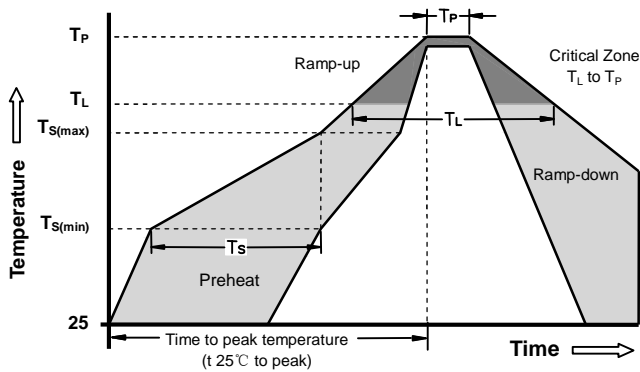
Packaging Quantity:

2,000 PCS per reel (7")

3 reels per inner box

6,000 PCS per inner box

**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**



<b>Reflow Condition</b>		Pb - Free assembly
<b>Pre Heat</b>	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
<b>Average ramp up rate ( Liquids Temp <math>T_L</math> to peak</b>		3°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		5°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
<b>Peak Temperature (<math>T_P</math>)</b>		260 +0/-5°C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		10 - 30 Seconds
<b>Ramp-down Rate</b>		6°C/second max
<b>Time 25°C to peak Temperature (<math>T_P</math>)</b>		8 minutes Max
<b>Do not exceed</b>		260°C

Surface mounted components (SMD) may exhibit a temporary increase in the DC spark-over voltage after the solder reflow process. The components will recover within 24 hours. There is no quality defect nor change in protection levels during the temporary change in DC spark-over voltage.