

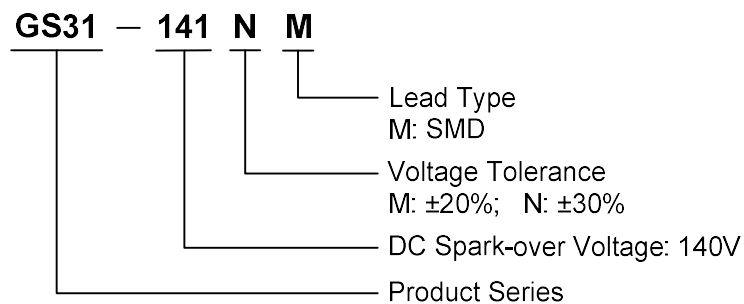
## Features

- Approximately zero leaking current before clamping voltage
- Less decay at on/off state
- High capability to withstand repeated lightning strikes
- Low electrode capacitance( $\leq 0.8\text{pF}$ ) and high isolation( $\geq 100\text{M}\Omega$ )
- Bilateral symmetrical
- Temperature, humidity and lightness insensitive
- RoHS compliant
- Meets MSL level 1, per J-STD-020
- Operating temperature:  $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Storage temperature:  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

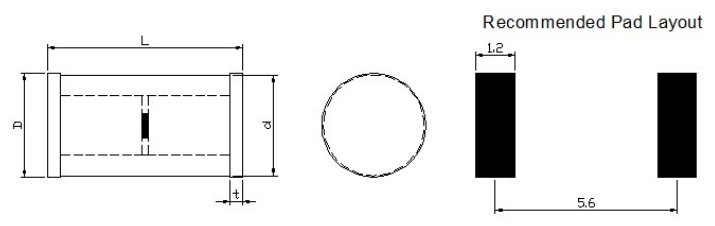
## Applications

- Power Supplies
- Motor sparks eliminating
- Relay switching spark absorbing
- Data line pulse guarding
- Telephone/Fax/Modem
- High frequency signal transmitters/receivers
- Satellite antenna
- Radio amplifiers
- Alarm systems
- Cathode ray tubes in Monitors/TVs

## Part Number Code



## Dimensions

		Symbol	Dimensions(mm)
		L	$6.0 \pm 0.5$
		D	$3.2 \pm 0.5$
		d	$3.1 \pm 0.5$
		t	$0.4 \pm 0.2$

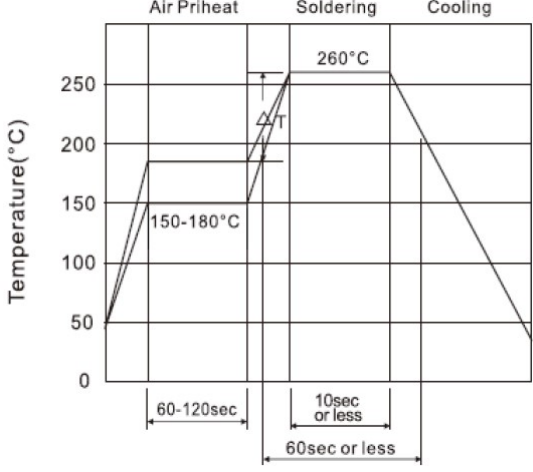
### Electrical Characteristics (T<sub>A</sub>=25°C)

Part Number	DC Spark-over Voltage	Minimum Insulation Resistance		Maximum Capacitance (1KHz-6V <sub>MAX</sub> )	Surge Current Capacity	Surge Voltage Capacity
	V <sub>S</sub>	Test Voltage	I <sub>ROHM</sub>	C	@8/20μs	@10/700μs
GS31-141NM	140V±30%	50V	100MΩ	0.8pF	2000A	4000V
GS31-201MM	200V±20%	100V	100MΩ	0.8pF	2000A	4000V
GS31-301MM	300V±20%	100V	100MΩ	0.8pF	2000A	4000V
GS31-401MM	400V±20%	250V	100MΩ	0.8pF	2000A	4000V
GS31-501MM	500V±20%	250V	100MΩ	0.8pF	2000A	4000V
GS31-701MM	700V±20%	250V	100MΩ	0.8pF	2000A	4000V
GS31-102MM	1000V±20%	500V	100MΩ	0.8pF	2000A	4000V

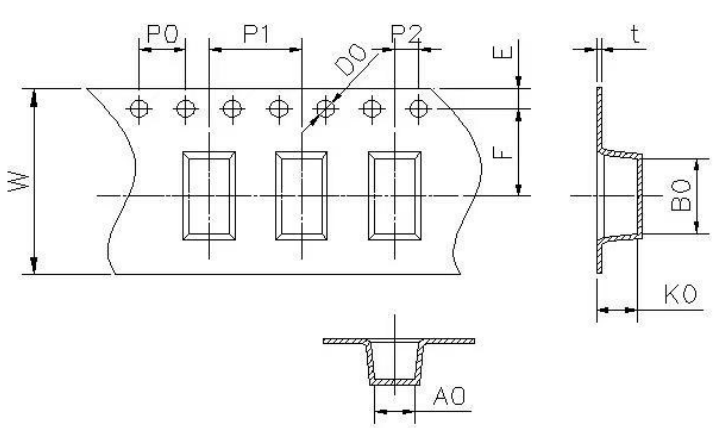
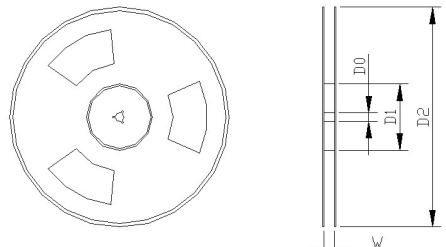
### Test Methods and Results

Items	Test Method	Standard
DC Spark-over Voltage	the DC spark-over voltage ascend up within 500V/s. Test current is 0.5mA max.	Meet specified value
Minimum Insulation Resistance	across the terminal at regular voltage. But the test voltage doesn't over the DC spark-over voltage.	Meet specified value
Maximum Capacitance	by applying a voltage of less than 6V (at 1KHz) between terminals.	Meet specified value
Surge Current Capacity	1.2/50μs & 8/20μs, 2000A, ±5 times, interval 60s.	No crack and no failures
Surge Voltage Capacity	10/700μs, 4000V, ±5 times, interval 60s.	No crack and no failures
Cold Resistance	-40±3°C(1000hrs) / room temp., normal humidity(4hrs) , measure the properties.	Features are conformed to rated spec.
Heat Resistance	125±2°C(1000hrs) / room temp., normal humidity(4hrs) , measure the properties.	Features are conformed to rated spec.
Humidity Resistance	After 85±2°C, 85% RH (1000hrs)/room temp., normal humidity(4hrs) cycle, measure the properties.	Features are conformed to rated spec.
Temperature Cycle	25 times repetition of cycle -40±3°C(30Min.), room temp., (4 Min.), 125±2°C(30 Min.), room temp., normal humidity (4hrs) .	Features are conformed to rated spec.

## Recommended Soldering Conditions

Reflow Soldering	Hand Soldering
 <p>The graph shows a temperature profile for reflow soldering. The y-axis is Temperature (°C) from 0 to 250. The x-axis is time. The profile is divided into three phases: Air Preheat (60-120sec), Soldering (10sec or less), and Cooling (60sec or less). The temperature rises to 150-180°C during preheat, then to 260°C during soldering. A temperature difference ΔT is indicated between the preheat and soldering phases. The cooling phase shows a gradual decrease in temperature.</p>	<p>Solder iron temperature: 350±5°C Heating time: 3 seconds max.</p> <p><b>General attention to soldering</b></p> <ul style="list-style-type: none"> <li>• High soldering temperatures and long soldering times can cause leaching of the termination, decrease in adherence strength, and the change of characteristic may occur.</li> <li>• For soldering, please refer to the soldering curves above. However, please keep exposures to temperatures exceeding 200°C to fewer than 50 seconds.</li> <li>• Please use a mild flux (containing less than 0.2wt% Cl). Also, if the flux is water soluble, be sure to wash thoroughly to remove any residue from the underside of components that could affect resistance.</li> </ul>
<p>1) Time shown in the above figures is measured from the point when chip surface reaches temperature. 2) Temperature difference in high temperature part should be within 110°C. 3) After soldering, do not force cool, allow the parts to cool gradually.</p>	
<p><b>Cleaning</b></p> <p>When using ultrasonic cleaning, the board may resonate if the output power is too high. Since this vibration can cause cracking or a decrease in the adherence of the termination, we recommend that you use the conditions below.</p> <p>Frequency: 40kHz max. Output power: 20W/liter Cleaning time: 5 minutes max.</p>	

## Packaging Specification

Tape	Symbol	Dimension (mm)	
	W	16.0±0.2	
	P0	4.0±0.2	
	P1	8.0±0.1	
	P2	2.0±0.1	
	D0	Φ1.5±0.1	
	E	1.75±0.1	
	F	7.5±0.1	
	A0	3.5±0.1	
	B0	6.5±0.1	
	K0	3.5±0.1	
	t	0.5±0.1	
	<p data-bbox="76 1061 1018 1115">Reel</p> 	D0	13.3±2.0
		D1	100.0±2.0
		D2	330.0±2.0
W		16.5±0.5	
Quantity: 2000pcs			