RUILON
ELECTRONICS

Gas Discharge Tubes

SMD4532-xxxNF Series

361° Circuit Protection System

Specifications are subject to change without notice.

Please refer to http://www.ruilon.com.cn for current information.

RUILON
ELECTRONICS

Gas Discharge Tubes - SMD4532-xxxNF Series

Gas discharge tubes (GDT) use noble gasses enclosed in ceramic tubes to provide an alternate circuit path for voltage spikes.The ceramic envelope and with nickel connectors allow for high loads and Ruilon offers products that function at 0.5KA-200KA.The breakdown voltages of the devices have a wide range (up to 20% tolerance).Major applications are high frequency telecommunication lines,stations, security systems,HID and high quality Surge Protection Devices (SPD).

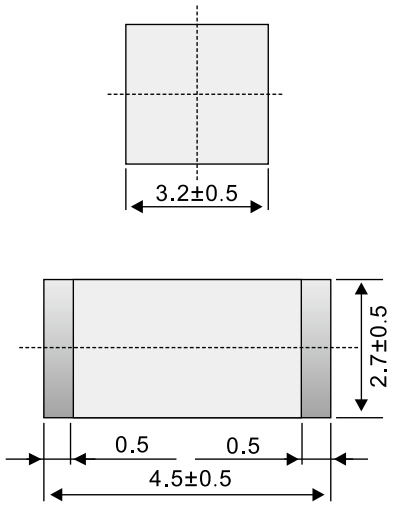
Features

- RoHS & HF compliant
- Size:4.5mm*3.2mm
- DC Spark-over voltage: 70~600V
- Stable breakdown voltage.
- High insulation resistance.
- High holdover voltage.
- Low Capacitance
- Large absorbing transient current capability
- Storage and operational temperature: -40℃ ~ +85℃

Recommended Applications

- Communication equipment
- CATV equipment
- Test equipment
- Data lines
- Power supplies
- Telecom SLIC protection
- Telecommunications

Dimension **unit:(mm)**



Product Name

S	M	D	4	5	3	2	-	X	X	X	N	F

- S M D → Type
- 4 5 3 2 → Dimensions: 4.5*3.2mm
- X X X → DC Spark-over Voltage
- N → Error Range:30%
- F → 8/20μs Level F:2KA

Gas Discharge Tubes - SMD4532-xxxNF Series

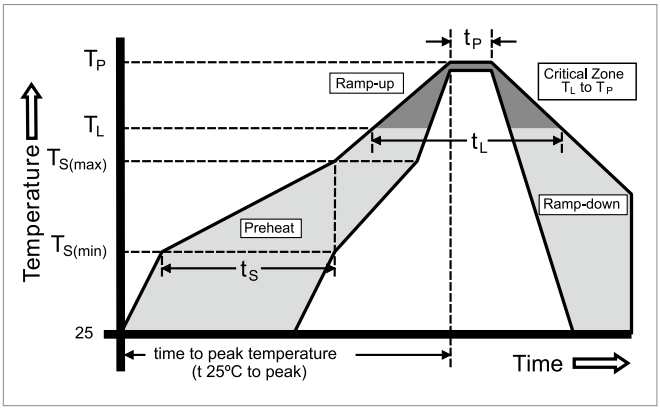
Electriacl Characteristics

Part Number	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage	Minimum Insulation Resistance	Impulse Life Test	Nominal Impulse Discharge Current	Maximum Capacitance
	100V/S	1KV/μs	(GΩ)	8/20 μs,100A	8/20 μs	1MHz
	(V)	(V)		Times	(KA)	(pF)
SMD4532-070NF	70±30%	600	1	300	2	0.5
SMD4532-075NF	75±30%	600	1	300	2	0.5
SMD4532-090NF	90±30%	700	1	300	2	0.5
SMD4532-120NF	120±30%	700	1	300	2	0.5
SMD4532-150NF	150±30%	750	1	300	2	0.5
SMD4532-200NF	200±30%	750	1	300	2	0.5
SMD4532-230NF	230±30%	750	1	300	2	0.5
SMD4532-300NF	300±30%	800	1	300	2	0.5
SMD4532-350NF	350±30%	900	1	300	2	0.5
SMD4532-400NF	400±30%	950	1	300	2	0.5
SMD4532-420NF	420±30%	950	1	300	2	0.5
SMD4532-470NF	470±30%	1000	1	300	2	0.5
SMD4532-500NF	500±30%	1100	1	300	2	0.5
SMD4532-600NF	600±30%	1200	1	300	2	0.5

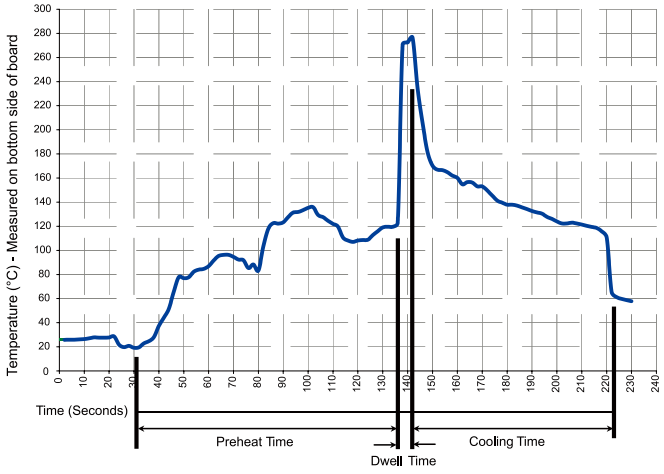
Gas Discharge Tubes - SMD4532-xxxNF Series

Soldering parameters reflow soldering(surface mount devices)

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 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°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 5°C of actual peak Temperature (t_p)		10 – 30 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8minutes Max.
Do not exceed		260°C



Soldering parameters -wave soldering



Recommended process parameters

Wave Parameter	Lead-Free Recommendation
Preheat: (Depends on Flux Activation Temperature)	(Typical Industry Recommendation)
Temperature Minimum:	100° C
Temperature Maximum:	150° C
Preheat Time:	60-180 seconds
Solder Pot Temperature:	280° C Maximum
Solder Dwell Time:	2-5 seconds

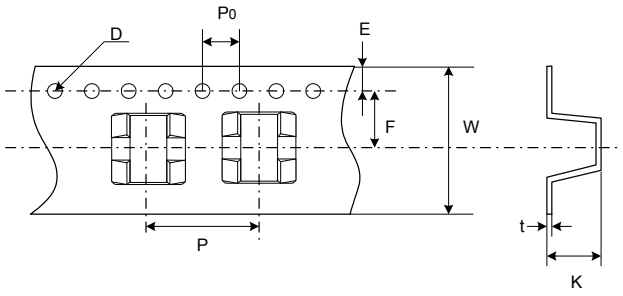
Gas Discharge Tubes - SMD4532-xxxNF Series

Warehouse Storage Condition

<table>
<tr><th>Item</th><th>Test Condition / Description</th><th>Requirement</th></tr>
<tr><td>DC Breakdown Voltage</td><td>The voltage measured at a rise time of 100v/s.</td><td rowspan="8">To meet the specified value</td></tr>
<tr><td>Maximum Impulse Breakdown Voltage</td><td>The maximum breakdown voltage at rise times of 100v/us and 1000v/us.</td></tr>
<tr><td>Maximum Impulse Discharge Current</td><td>The maximum current applying a waveform of 8/20us that can be applied across the terminals of the gas tube without causing the gas tube to change more than ±25% from its initial measured DC breakdown voltage. Dwell time between pulses is 3 minutes.</td></tr>
<tr><td>Alternating Discharge Current</td><td>Rated RMS value of AC current at 50Hz, 1 sec. 10 times. Intervals: 3min. DC breakdown voltage may not change more than ±25% from its initial measured DC breakdown voltage. IR > 10^8 ohms (-20%, +30% for 70 – 90V).</td></tr>
<tr><td>Impulse Life</td><td>The minimum number of impulses of a specified waveform and peak current which a gas tube will conduct without causing the gas tube to change more than ±25% from its initial measured DC breakdown voltage. Dwell time between pulses is 1-2 minutes.</td></tr>
<tr><td>DC Holdover Voltage</td><td>The maximum DC voltage across the two terminals of the gas tube under which it may be expected to return to the high impedance state after the gas tube breakdown.</td></tr>
<tr><td>Insulation Resistance</td><td>The resistance of the gas tube shall be measured each terminal to each other terminal.
<table>
<tr><th>DC Breakdown Voltage (V)</th><th>DC Measuring Voltage (V)</th></tr>
<tr><td>70</td><td>25</td></tr>
<tr><td>90-150</td><td>50</td></tr>
<tr><td>230-350</td><td>100</td></tr>
<tr><td>470-600</td><td>250</td></tr>
<tr><td>800</td><td>500</td></tr>
<tr><td>1000-1600</td><td>1000</td></tr>
</table></td></tr>
<tr><td>Capacitance</td><td>The capacitance of a gas tube shall be measured each terminal to each other terminal. Test frequency: 1MHz In measurements involving 3-electrode gas tubes, the terminal not being tested shall be connected to a ground plane.</td></tr>
</table>

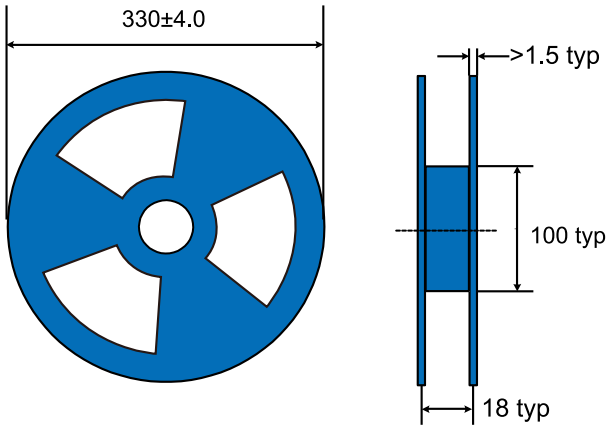
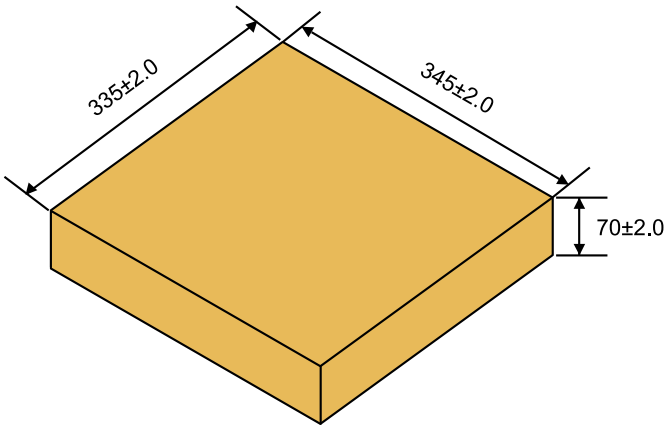
Gas Discharge Tubes - SMD4532-xxxNF Series

Packaging Taping (Unit:mm)



Item	P	PO	W	F	E	D	K	t
Spec.	8.0	4.0	12.0	5.45	1.75	Φ1.55	3.2	0.4
Tolerance	±0.1	±0.1	±0.13	±0.1	±0.1	±0.05	±0.1	±0.05

SMD Packing (Tape & Reel)

Reel packing (330×330×18mm)	Inner Box (335×345×70mm)
	
2500 PCS/ Reel	7500 PCS/ Box

RuiLongYuan Electronics Co., Ltd.

- Reproducing and modifying information of the document is prohibited without permission from Ruilongyuan International Inc.

- Ruilongyuan International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

- Ruilongyuan International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

- Ruilongyuan International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications.Ruilongyuan International Inc. makes no representation or warranty that such applications will be suitable for the specifed use without further testing or modifcation.

- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment,aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fullyindemnify Ruilongyuan International Inc. for any damages resulting from such improper use or sale.

Tel: +86-755-8290 8296 **Fax: +86-755-8290 8002** **E-mail: jack@ruilon.com**