

**PART NO 型号. 3225-471H**
**1 Electrical Characteristics 电气特性**
**1.1 Technical Data 技术数据**

	Symbol	Value	Unit
Maximum allowable continuous AC voltage 最大允许连续交流电压	VRMS	300.0	V
Maximum allowable continuous DC voltage 最大允许连续直流电压	VDC	385.0	V
Varistor voltage Measured 压敏电压	VB	470(10%)	V
Typical capacitance value measured 测量的典型电容值	C	105	pF
Typical capacitance value tolerance 典型电容值公差		±40	%
Maximum clamping voltage measured 测量的最大箝位电压	VC	775	V
Rated peak single pulse transient current at 额定峰值单脉冲瞬态电流	IP	1000	A

**1.2 Reference Data 参考数据**

	Symbol	Value	Unit
Maximum Energy Absorption 10/1000µs 最大能量吸收 10/1000µs	E	30	J
Response time 响应时间	T <sub>rise</sub>	<2	ns
Leakage current at V <sub>DC</sub> (At initial state) VDC 时的泄漏电流 (初始状态下)	I <sub>L</sub>	<30	µA
Leakage current at V <sub>DC</sub> (After reliability Test) VDC 下的泄漏电流 (可靠性试验后)	I <sub>LA</sub>	<100	µA
Operating ambient temperature 工作环境温度		-45~+125	°C
Max Reflow temperature profile(Recommend) 最大回流温度曲线 (推荐)		260	°C

**1.3 Other Data 其它数据**

Body 主体材料	ZnO 氧化锌
Lead 引线	Cu 铜材
Packaging 封装材料	epoxy resin 环氧树脂
Complies with Standard 符合标准	IEC61000-4-5 行业执行标准

### 1.4 Test record:测试记录

- |                                                                          |                                 |
|--------------------------------------------------------------------------|---------------------------------|
| *1 AC voltage at 50~60Hz<br>在 1mA DC 下测得的 50~60Hz 交流电压                   | Measured at 1mA DC 1mA DC       |
| *2 Varistor voltage<br>在 f=1MHz, Vrms=0.5V 时测得的变阻器电压                     | Measured at f=1MHz, Vrms=0.5V   |
| *3 Capacitance<br>通过 8/20μs 脉冲在 10A 下测量的电容                               | Measured at 10A by 8/20μs Pulse |
| *4 Maximum clamping voltage<br>通过 8/20μs 脉冲测量的最大箝位电压                     | Measured by 8/20μs Pulse        |
| *5 Rated peak single pulse transient current<br>在 1mA DC 下测得的额定峰值单脉冲瞬态电流 | Measured at 1mA DC              |

### 1.5 Storage Condition 储存条件

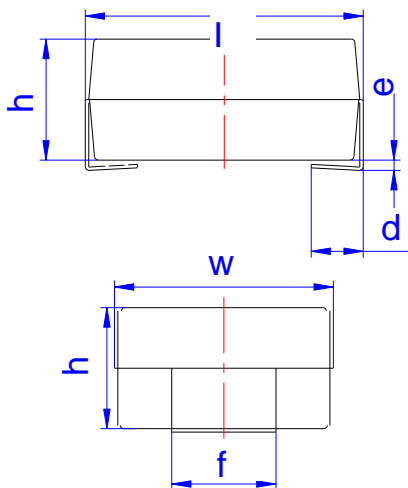
- As far as possible, the components should be employed within 24 months after delivery  
器件应尽可能在交付后 24 个月内使用
- They should be left in their original packing to avoid soldering problems due to oxidized contacts.  
应将其保留在原始包装中，以避免因氧化触点而出现焊接问题。
- Storage temperature: -25 °C to +45 °C 储存温度: -25°C 至 +45°C
- Relative humidity: < 75 % annual average, < 95 % on max. 30 days in a year.  
相对湿度: 年平均 < 75%, 一年中最多 30 天 < 95%。

### 2 Type Code Designation 类型代码名称

3225      —      471      H  
①                                  ②                                  ③

- ① 3225 : Chip size –3225 (8.0 x 6.0 mm) size 尺寸
- ② 471 : Varistor voltage(Breakdown voltage) - 470Vdc 压敏电压值
- ③ H : High absorption 高浪涌吸收

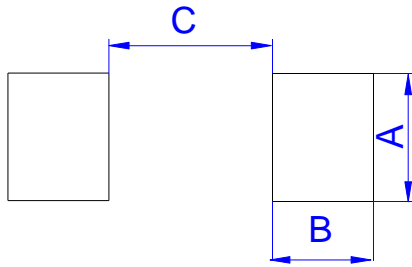
### 3 Dimensional drawings 尺寸图



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
l	7.7		8.3	0.303		0.327
w	6.0		6.6	0.236		0.260
h	3.3		4.0	0.122		0.150
d	1.2		1.8	0.047		0.071
e	0		0.3	0		0.012
f	2.7		3.3	0.106		0.130



#### 4 Recommended solder pad layout 推荐的焊盘布局



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.5			0.138	
B		2.8			0.110	
C		4.5			0.177	

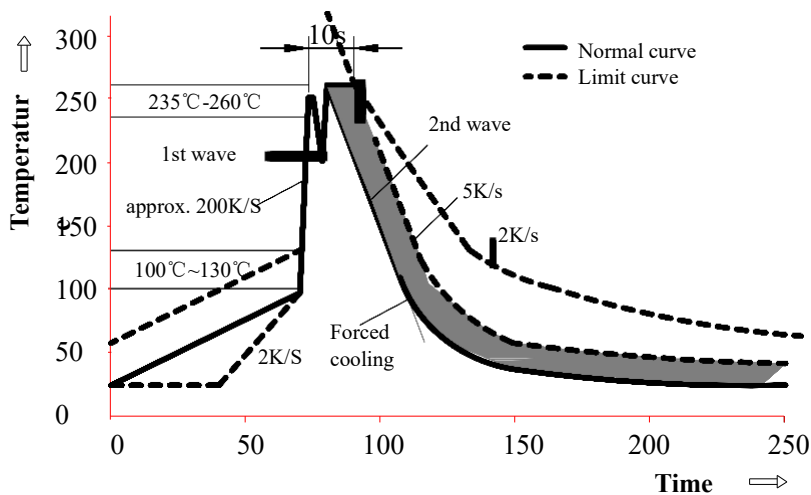
#### 5 Soldering guidelines 焊接指南

The usage of mild, non-activated fluxes for soldering is recommended, as well as proper cleaning of the PCB. 建议使用温和的非活性焊剂进行焊接，并适当清洁PCB

The components are suitable for reflow soldering per JEDEC J-STD-020C

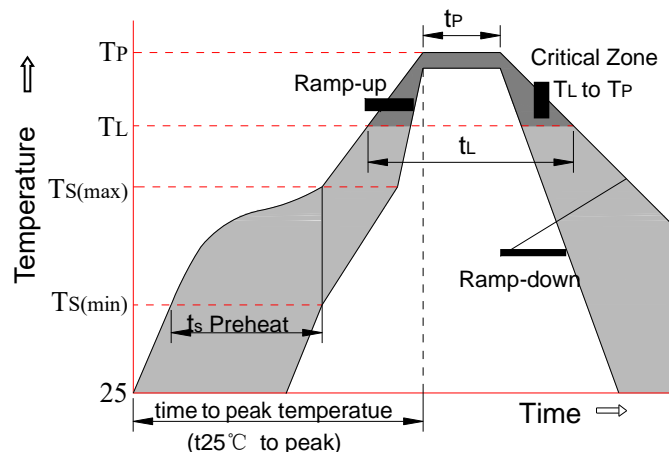
根据 JEDEC J-STD-020C，组件适用于回流焊

##### 5.1 Wave soldering 波峰焊



Temperature characteristics at component terminal with dual-wave soldering

##### 5.2 Reflow soldering 回流焊





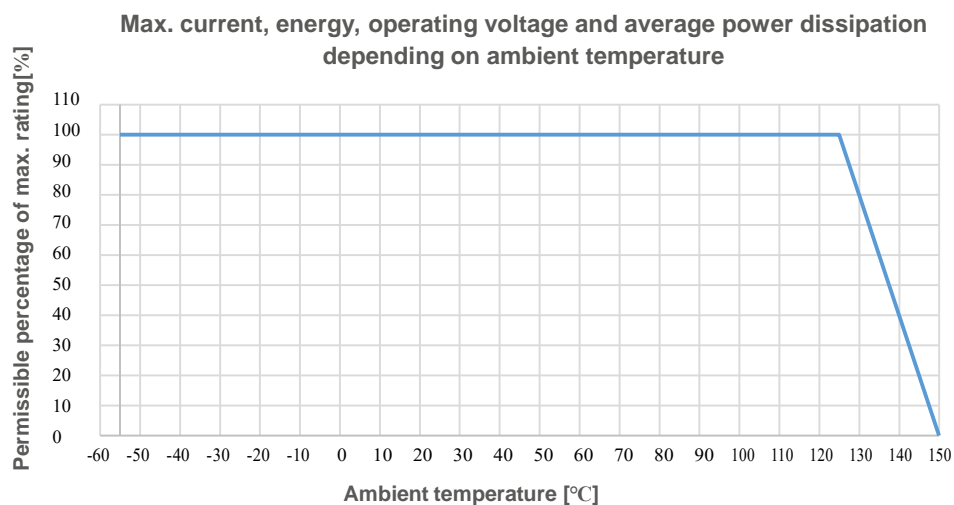
Profile feature产品特性		Sn-Pb assembly有铅焊接	Pb-Free assembly无铅焊接
Average ramp-up rate (TSmax to Tp)		3°C/sec. Max	3°C/sec. Max
Preheat	-Temperature min. (TS(min))	+100°C	+150°C
	-Temperature max.(TS(max))	+150°C	+200°C
	-Time (tSmin to tSmax)	60-120 secs.	60-180 secs.
TS(max) to TL - Ramp-up Rate		3°C/sec. Max	3°C/sec. Max
Time maintained above	-Temperature min. (TL)	+183°C	+217°C
	-Time (tL)	60-150 secs.	60-150 secs.
Peak classification temperature (Tp)		+220°C to +240°C	+240°C to +260°C
Time within 5°C of actual peak temperature (tp)		10 secs. to 30 secs.	20 secs. to 40 secs.
Ramp-down rate		6°C/sec. max.	6°C/sec. max.
Time 25°C to peak temperature		6 min. max.	8 min. max.

Notes: All temperature refer to topside of the package, measured on the package body surface

Maximum number of reflow cycles:所有温度均指包装顶部，在包装体表面测量

最大回流循环次数

## 6 Temperature derating curve 温度下降曲线

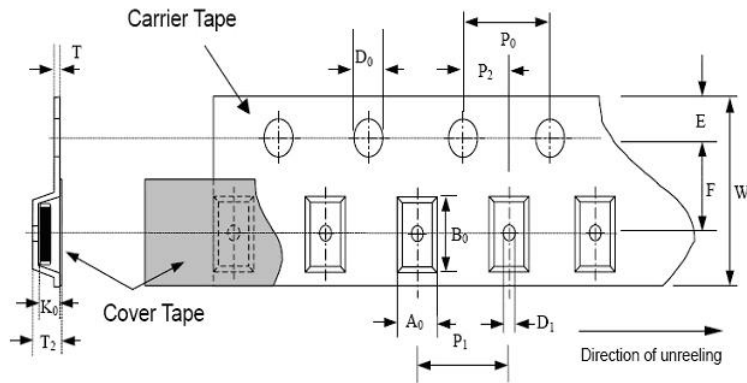


## 7 Taping and packaging Specification

胶带和包装规范

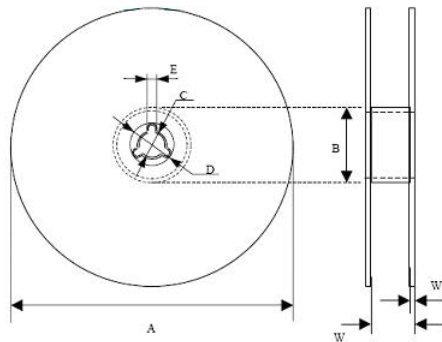
### 7.1 Packaging Specification

包装规格



type	A <sub>0</sub> ±0.20	B <sub>0</sub> ±0.20	K <sub>0</sub> ±0.10	T max	T <sub>2</sub> max	D <sub>0</sub> +0.05	D <sub>1</sub> ±0.05	P <sub>1</sub> ±0.10	P <sub>2</sub> ±0.05	P <sub>0</sub> ±0.1	W ±0.30	E ±0.10	F ±0.05
3225	7.0	8.7	2.80	5.50	5.20	1.55	1.55	12.00	2.00	4.00	16.00	1.75	7.50
4032													

7.2 reel dimension 卷轴尺寸



type	A	B	C	D	E	W-W <sub>1</sub>	W <sub>1</sub>
3225-4032	329.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	17.2±0.7	2.3±0.15

1) Quantity of taping packing(pcs) 胶带包装每盘数量: 1000 只

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