



承认书

SPECIFICATION FOR APPROVAL

制造商 corporation



广东至敏电子有限公司

THERMISTOR-MOV ELECTRONICS CO LTD

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桂林至敏电子科技有限公司

GUILIN SEMISAM ELECTRONIC TECHNOLOGY CO., LTD

Add:Floor 1-3 building 5 B18 standard workshop Suqiao Industrial ParkGuilin economic

and Technological Development ZoneGuilin City Guangxi Zhuang Autonomous Region

客 户 名 称:

CUSTOMER :

产 品 名 称:

PART NAME : 贴片型压敏电阻 Chip Varistor

认 证 型 号:

CERTIFIED MODEL :

产 品 编 码:

Product code:

产 品 料 号:

PART No. : HSV***G/H 系列

客 户 料 号:

CUSTOMER P/N :

其 他 说 明:

REMARK :

编制日期:		修订日期:		版本:	
Compile Date:	2024-04-10	Revision date:		Edition:	1.0

供应商确认 Supplier confirmation			
编 制 Editor	骆忠全	日 期 Date	2024-04-10
审 核 Check	张小华	日 期 Date	2024-04-10
批 准 Approval	张学文	日 期 Date	2024-04-10
加 盖 印 章 Affix a seal			

客户确认 Customer confirmation			
编 制 Editor		日 期 Date	
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加 盖 印 章 Affix a seal			

	产品名称 Product Name	压敏电阻 HSV 系列 Varistor HSV Type	版 本 Edition	1.0
	规格型号 Specification model	HSV***G/H 系列	修订日期 Revision date	2024-04-10

记录清单
REVISED RECORD LIST

版本 Rev.	日期 Date	修订内容 Revised Content
1.0	2024-04-10	初定版 Initial version

	产品名称 Product Name	压敏电阻 HSV 系列 Varistor HSV Type	版 本 Edition	1.0
	规格型号 Specification model	HSV***G/H 系列	修订日期 Revision date	2024-04-10

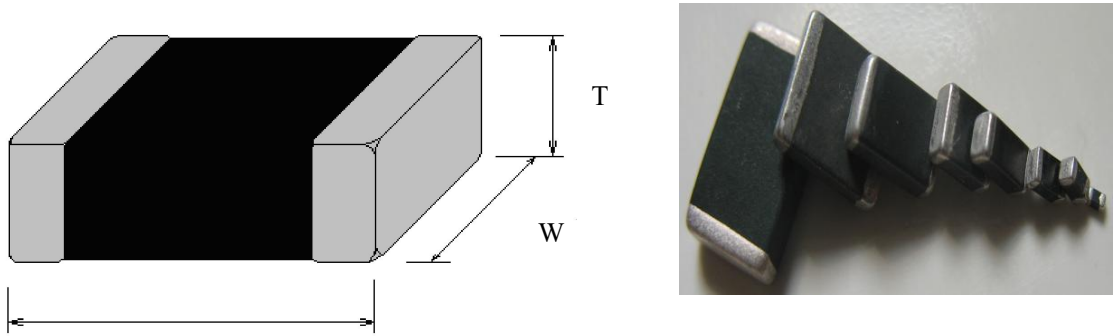
1、产品编码规则 Part Number Code

HSV	0603	G/H	120	K	300	R
1	2	3	4	5	6	7

编号 No.	项目 Item	编码 Code	说明 Specification
1	产品类型 Product Type	HSV	至敏电子压敏电阻 HSV 系列 “SEMISAM” varistor HSV type
2	本体尺寸 Body Size	0603	0603 系列 0603 Series
		3220	3220 系列 3220 Series
3	应用代号 Application Code	G	一般浪涌 The general surge
		H	高浪涌 High waves
4	压敏电压 Varistor Voltage	5V0	5V
		120	$12 \times 10^0 = 12V$
5	压敏电压公差 Varistor voltage tolerance	K	$\pm 10\%$
6	最大峰值电流 Maximum peak curre	300	$30 \times 10^0 = 30A$
7	包装 Packaging	R	编带 Carrier tape

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2、外形尺寸 Shape Size



尺寸 Size	(Unit:mm)									
	0402 (1005)	0603 (1608)	0604 (1610)	0805 (2012)	0806 (2017)	1206 (3216)	1210 (3225)	1812 (4532)	2220 (5650)	3220 (8050)
L	1.00±0.15	1.60±0.20	1.60±0.20	2.00±0.20	2.00±0.20	3.20±0.30	3.20±0.30	4.50±0.35	5.60±0.40	8.00±0.40
W	0.50±0.15	0.80±0.20	1.00±0.20	1.20±0.20	1.70±0.20	1.60±0.20	2.50±0.30	3.20±0.30	5.00±0.40	5.00±0.40
H	0.70max	0.90max	1.30max	1.30max	1.80max	2.00max	2.50max	2.40max	3.50max	3.50max

3、产品特点 Product characteristics

- 低电容设计(0.2pf), 快速数据传输 Low cap design (0.2pf) for fast data transmission
- 快速响应时间 (<0.5ns) Fast response time (<0.5ns)
- 低漏电流 Low leakage current
- 高浪涌能力 High surge current ability
- 工作温度范围: -55℃~+125℃ Operating temperature range: -55℃ ~ + 125℃

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4、电气参数 Electrical parameters

0603 系列 0603 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
0603	HSV0603G3V3K200R	1.4	2	3.0	2.4-3.6	20A	1	9	100V
	HSV0603G5V0K200R	2.4	3.3	5	4.0-6.0	20A	1	12	
	HSV0603G8V0K300R	4	5.5	8.0	6.6-9.9	30A	1	18	
	HSV0603G120K300R	7	9	12	10.2-13.8	30A	1	24	
	HSV0603G180K300R	11	14	18	15.3-21.7	30A	1-10	30	
	HSV0603G220K300R	12	16	22	19.8-24.2	30A	1-10	36	
	HSV0603G240K300R	14	18	24	21.6-26.4	30A	1-10	38	
	HSV0603G270K300R	17	22	27	24.3-29.7	30A	1-10	44	
	HSV0603G300K300R	18	24	30	27.2-33.0	30A	1-10	48	
	HSV0603G330K300R	20	26	33	29.7-36.3	30A	1-10	54	
	HSV0603G360K300R	22	28	36	32.7-39.6	30A	1-10	59	
	HSV0603G390K300R	25	30	39	35.1-42.9	30A	1-10	65	
	HSV0603G420K300R	26	33	42	38.1-46.2	30A	1-10	72	
	HSV0603G470K300R	30	38	47	42.3-51.7	30A	1-10	77	

0604 系列 0604 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
0604	HSV0604G151K300R	95	125	150	136-165	30A	1-2	250	300V & 1000V
	HSV0604G241K300R	150	200	240	216-264	30A	1-2	395	
	HSV0604G271K300R	175	225	270	243-297	30A	1-2	455	
	HSV0604G431K300R	275	350	430	387-473	30A	1-2	710	

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0805 系列 0805 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
0805	HSV0805G3V3K800R	1.4	2	3.0	2.4-3.6	80A	1-10	9	300V
	HSV0805G5V0K800R	2.4	3.3	5	4.0-6.0	80A	1-10	12	
	HSV0805G8V0K800R	4	5.5	8.0	6.6-9.9	80A	1-10	18	
	HSV0805G120K101R	7	9	12	10.2-13.8	100A	1-10	24	
	HSV0805G180K101R	11	14	18	15.3-21.7	100A	1-10	30	
	HSV0805G220K101R	12	16	22	19.8-24.2	100A	1-10	36	
	HSV0805G240K101R	14	18	24	21.6-26.4	100A	1-10	38	
	HSV0805G270K101R	17	22	27	24.3-29.7	100A	1-10	44	
	HSV0805G300K101R	18	24	30	27.2-33.0	100A	1-10	48	
	HSV0805G330K101R	20	26	33	29.7-36.3	100A	1-10	54	
	HSV0805G360K101R	22	28	36	32.7-39.6	100A	1-10	59	
	HSV0805G390K101R	25	30	39	35.1-42.9	100A	1-10	65	
	HSV0805G420K101R	26	33	42	38.1-46.2	100A	1-10	72	
	HSV0805G470K101R	30	38	47	42.3-51.7	100A	1-10	77	
	HSV0805G560K800R	35	45	56	50.4-61.6	80A	1-10	90	
0805	HSV0805G121K101R	75	100	120	108-132	100A	1-10	200	600V & 1000V
	HSV0805G171K101R	110	140	170	154-187	100A	1-10	300	
	HSV0805G201K101R	140	180	220	198-242	100A	1-10	360	
	HSV0805G241K101R	150	200	240	216-264	100A	1-10	395	
	HSV0805G271K101R	175	225	270	243-297	100A	1-10	455	
	HSV0805G361K500R	230	300	360	324-396	50A	1-10	595	
	HSV0805G391K500R	250	320	270	351-429	50A	5-10	650	
	HSV0805G431K500R	275	350	430	387-473	50A	5-10	710	
	HSV0805G471K500R	300	385	470	423-517	50A	5-10	775	

0806 系列 0806 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
0806	HSV0806G151K201R	95	125	150	136-165	200A	1-10	250	600V & 2000V
	HSV0806G241K201R	150	200	240	216-264	200A	1-10	395	
	HSV0806G271K201R	175	225	270	243-297	200A	1-10	455	
	HSV0806G431K101R	275	350	430	387-473	100A	1-10	710	
	HSV0806G471K700R	300	385	470	427-517	70A	1-10	770	
	HSV0806G511K700R	320	415	470	463-561	70A	1-10	845	

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	规格型号 Specification model	HSV***G/H 系列	修订日期 Revision date	2024-04-10

1206 系列 1206 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		V
		VAC	VDC	VB		Ip	A	V	
1206	HSV1206G5V0K101(201)R	2.4	3.3	5	4.0-6.0	100A(200A)	1-10	12	≥500V
	HSV1206G8V0K101(201)R	4	5.5	5.5	6.6-9.9	100A(200A)	1-10	18	
	HSV1206G120K121(201)R	7	9	12	10.2-13.8	120A(200A)	1-10	24	
	HSV1206G180K121(201)R	11	14	18	15.3-21.7	120A(200A)	1-10	30	
	HSV1206G220K121(201)R	12	16	22	19.8-24.2	120A(200A)	1-10	36	
	HSV1206G240K121(201)R	14	18	24	21.6-26.4	120A(200A)	1-10	38	
	HSV1206G270K121(201)R	17	22	27	24.3-29.7	120A(200A)	1-10	44	
	HSV1206G300K121(201)R	18	24	30	27.2-33.0	120A(200A)	1-10	48	
	HSV1206G330K121(201)R	20	26	33	29.7-36.3	120A(200A)	1-10	54	
	HSV1206G360K121(201)R	22	28	36	32.7-39.6	120A(200A)	1-10	59	
	HSV1206G390K121(201)R	25	30	39	35.1-42.9	120A(200A)	1-10	65	
	HSV1206G420K121(201)R	26	33	42	38.1-46.2	120A(200A)	1-10	72	
	HSV1206G470K121(201)R	30	38	47	42.3-51.7	120A(200A)	1-10	77	
	HSV1206G560K121(201)R	35	45	56	50.4-61.6	120A(200A)	1-10	90	
	HSV1206G680K121(201)R	40	56	68	61.2-74.8	120A(200A)	1-10	110	
	HSV1206G760K121(201)R	45	60	76	69.1-83.6	120A(200A)	1-10	126	
	HSV1206G820K121(201)R	50	65	82	73.8-90.2	120A(200A)	1-10	135	
	HSV1206G101K101(201)R	60	85	100	90-110	100A(200A)	1-10	165	
1206 High	HSV1206G121K201R	75	100	120	108-132	200A	1-10	200	600V & 2000V
	HSV1206G171K201R	110	140	170	154-187	200A	1-10	300	
	HSV1206G201K201R	130	170	200	185-225	200A	1-10	340	
	HSV1206G221K201R	140	180	220	198-242	200A	1-10	360	
	HSV1206G241K201R	150	200	240	216-264	200A	1-10	395	
	HSV1206G271K201R	175	225	270	243-297	200A	1-10	455	
	HSV1206G391K101R	250	320	270	351-429	100A	1-10	650	
	HSV1206G431K101R	275	350	430	387-473	100A	1-10	710	
	HSV1206G471K101R	300	385	470	423-517	100A	1-10	775	
	HSV1206H391K201R	250	320	270	351-429	200A	1-10	650	≥2000V
	HSV1206H431K201R	275	350	430	387-473	200A	1-10	710	

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1210 系列 1210 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
1210	HSV1210G(H)5V0K251(401)R	2.4	3.3	5	4.0-6.0	250A(400A)	1-10	12	600V & 2000V
	HSV1210G(H)8V0K251(401)R	4	5.5	5.5	6.6-9.9	250A(400A)	1-10	18	
	HSV1210G(H)120K251(401)R	7	9	12	10.2-13.8	250A(400A)	1-10	24	
	HSV1210G(H)180K251(401)R	11	14	18	15.3-21.7	250A(400A)	1-10	30	
	HSV1210G(H)220K251(401)R	12	16	22	19.8-24.2	250A(400A)	1-10	36	
	HSV1210G(H)240K251(401)R	14	18	24	21.6-26.4	250A(400A)	1-10	38	
	HSV1210G(H)270K251(401)R	17	22	27	24.3-29.7	250A(400A)	1-10	44	
	HSV1210G(H)300K251(401)R	18	24	30	27.2-33.0	250A(400A)	1-10	48	
	HSV1210G(H)330K251(401)R	20	26	33	29.7-36.3	250A(400A)	1-10	54	
	HSV1210G(H)360K251(401)R	22	28	36	32.7-39.6	250A(400A)	1-10	59	
	HSV1210G(H)390K251(401)R	25	30	39	35.1-42.9	250A(400A)	1-10	65	
	HSV1210G(H)420K251(401)R	26	33	42	38.1-46.2	250A(400A)	1-10	72	
	HSV1210G(H)470K251(401)R	30	38	47	42.3-51.7	250A(400A)	1-10	77	
	HSV1210G(H)560K251(401)R	35	45	56	50.4-61.6	250A(400A)	1-10	90	
	HSV1210G(H)680K251(401)R	40	56	68	61.2-74.8	250A(400A)	1-10	110	
	HSV1210G(H)760K251(401)R	45	60	76	69.1-83.6	250A(400A)	1-10	126	
	HSV1210G(H)820K251(401)R	50	65	82	73.8-90.2	250A(400A)	1-10	135	
	HSV1210G(H)101K251(401)R	60	85	100	90-110	250A(400A)	1-10	165	
1210 High	HSV1210G121K201R	75	100	120	108-132	200A	5-10	200	600V & 2000V
	HSV1210G171K201R	110	140	170	154-187	200A	5-10	300	
	HSV1210G201K201R	130	170	200	185-225	200A	5-10	340	
	HSV1210G221K201R	140	180	220	198-242	200A	5-10	360	
	HSV1210G241K201R	150	200	240	216-264	200A	5-10	395	
	HSV1210G271K201R	175	225	270	243-297	200A	5-10	455	
	HSV1210G391K201R	250	320	270	351-429	200A	5-10	650	
	HSV1210G431K201R	275	350	430	387-473	200A	5-10	710	
	HSV1210G471K201R	300	385	470	423-517	200A	5-10	775	
	HSV1210H221K501R	140	180	220	198-242	500A	5-10	360	600V & 2000V
	HSV1210H241K501R	150	200	240	216-264	500A	5-10	395	
	HSV1210H271K501R	175	225	270	243-297	500A	5-10	455	
	HSV1210H391K401R	250	320	270	351-429	400A	5-10	650	
	HSV1210H431K401R	275	350	430	387-473	400A	5-10	710	
	HSV1210H471K401R	300	385	470	423-517	400A	5-10	775	

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1812 系列 1812 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		
		VAC	VDC	VB		Ip	A	V	V
1812	HSV1812G(H)8V0K501(801)R	4	5.5	5.5	6.6-9.9	500A/800A	1-10	18	1000V & 2000V
	HSV1812G(H)120K501(801)R	7	9	12	10.2-13.8	500A/800A	1-10	24	
	HSV1812G(H)180K501(801)R	11	14	18	15.3-21.7	500A/800A	1-10	30	
	HSV1812G(H)220K501(801)R	12	16	22	19.8-24.2	500A/800A	1-10	36	
	HSV1812G(H)240K501(801)R	14	18	24	21.6-26.4	500A/800A	1-10	38	
	HSV1812G(H)270K501(801)R	17	22	27	24.3-29.7	500A/800A	1-10	44	
	HSV1812G(H)300K501(801)R	18	24	30	27.2-33.0	500A/800A	1-10	48	
	HSV1812G(H)330K501(801)R	20	26	33	29.7-36.3	500A/800A	1-10	54	
	HSV1812G(H)360K501(801)R	22	28	36	32.7-39.6	500A/800A	1-10	59	
	HSV1812G(H)390K501(801)R	25	30	39	35.1-42.9	500A/800A	1-10	65	
	HSV1812G(H)420K501(801)R	26	33	42	38.1-46.2	500A/800A	1-10	72	
	HSV1812G(H)470K501(801)R	30	38	47	42.3-51.7	500A/800A	1-10	77	
	HSV1812G(H)560K501(801)R	35	45	56	50.4-61.6	500A/800A	1-10	90	
	HSV1812G(H)680K501(801)R	40	56	68	61.2-74.8	500A/800A	1-10	110	
	HSV1812G(H)760K501(801)R	45	60	76	69.1-83.6	500A/800A	1-10	126	
	HSV1812G(H)820K501(801)R	50	65	82	73.8-90.2	500A/800A	1-10	135	
	HSV1812G(H)101K501(801)R	60	85	100	90-110	500A/800A	1-10	165	
	HSV1812G(H)121K501(801)R	75	100	120	108-132	500A/800A	1-10	200	
1812 High	HSV1812G171K501R	110	140	170	154-187	500A	5-10	300	1000V & 2000V
	HSV1812G201K501R	130	170	200	185-225	500A	5-10	340	
	HSV1812G221K501R	140	180	220	198-242	500A	5-10	360	
	HSV1812G241K501R	150	200	240	216-264	500A	5-10	395	
	HSV1812G271K501R	175	225	270	243-297	500A	5-10	455	
	HSV1812G391K501R	250	320	270	351-429	500A	5-10	650	
	HSV1812G431K501R	275	350	430	387-473	500A	5G10	710	
	HSV1812G471K501R	300	385	470	423-517	500A	5-10	775	
	HSV1812G511K401R	320	415	510	459-561	400A	5-10	845	
	HSV1812H221K801R	140	180	220	198-242	800A	5-10	360	1000V & 2000V
	HSV1812H241K102R	150	200	240	216-264	1000A	5-10	395	
	HSV1812H271K102R	175	225	270	243-297	1000A	5-10	455	
	HSV1812H391K102R	250	320	270	351-429	1000A	5-10	650	
	HSV1812H431K102R	275	350	430	387-473	1000A	5-10	710	
	HSV1812H471K102R	300	385	470	423-517	1000A	5-10	775	

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2220 系列 2220 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		V
		VAC	VDC	VB		Ip	A	V	
2220	HSV2220G(H)240K801(122)R	14	18	24	21.6-26.4	800A/1200A	1-10	38	2000V & 2500V
	HSV2220G(H)270K801(122)R	17	22	27	24.3-29.7	800A/1200A	1-10	44	
	HSV2220G(H)300K801(122)R	18	24	30	27.2-33.0	800A/1200A	1-10	48	
	HSV2220G(H)330K801(122)R	20	26	33	29.7-36.3	800A/1200A	1-10	54	
	HSV2220G(H)360K801(122)R	22	28	36	32.7-39.6	800A/1200A	1-10	59	
	HSV2220G(H)390K801(122)R	25	30	39	35.1-42.9	800A/1200A	1-10	65	
	HSV2220G(H)420K801(122)R	26	33	42	38.1-46.2	800A/1200A	1-10	72	
	HSV2220G(H)470K801(122)R	30	38	47	42.3-51.7	800A/1200A	1-10	77	
	HSV2220G(H)560K801(122)R	35	45	56	50.4-61.6	800A/1200A	1-10	90	
	HSV2220G(H)680K801(122)R	40	56	68	61.2-74.8	800A/1200A	1-10	110	
	HSV2220G(H)760K801(122)R	45	60	76	69.1-83.6	800A/1200A	1-10	126	
	HSV2220G(H)820K801(122)R	50	65	82	73.8-90.2	800A/1200A	1-10	135	
	HSV2220G(H)101K801(122)R	60	85	100	90-110	800A/1200A	1-10	165	
2220 High	HSV2220G201K501R	130	170	200	185-225	500A	5-10	340	1000V
	HSV2220G221K501R	140	180	220	198-242	500A	5-10	360	
	HSV2220G241K501R	150	200	240	216-264	500A	5-10	395	
	HSV2220G271K501R	175	225	270	243-297	500A	5-10	455	
	HSV2220G391K501R	250	320	270	351-429	500A	5-10	650	
	HSV2220G431K501R	275	350	430	387-473	500A	5-10	710	
	HSV2220G471K501R	300	385	470	423-517	500A	5-10	775	
	HSV2220G511K401R	320	415	510	459-561	400A	5-10	845	
	HSV2220H221K801R	140	180	220	198-242	800A	5-10	360	2000V
	HSV2220H241K102R	150	200	240	216-264	1000A	5-10	395	
	HSV2220H271K102R	175	225	270	243-297	1000A	5-10	455	
	HSV2220H391K102R	250	320	390	351-429	1000A	5-10	650	
	HSV2220H431K102R	275	350	430	387-473	1000A	5-10	710	
	HSV2220H471K102R	300	385	470	423-517	1000A	5-10	775	
	HSV2220H511K102R	320	415	510	459-561	1000A	5-10	845	
	HSV2220H561K102R	350	460	620	558-682	1000A	5-10	920	
	HSV2220H391K152R	250	320	390	351-429	1500A	5-20	650	3000V
	HSV2220H391K202R	250	320	390	351-429	2000A	5-20	650	4000V
	HSV2220H471K152R	300	385	470	423-517	1500A	5-20	710	3000V
	HSV2220H471K202R	300	385	470	423-517	2000A	5-20	710	4000V

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3220 系列
 3220 size

目录 PartNumber		工作电压 Working Voltage		压敏电压 Varistor Voltage		峰值电流 Peak Current	钳位电压 Clamping Voltage		冲击电压 Surge Voltage
		AC	DC	@1mADC		8/20uS	8/20uS		V
		VAC	VDC	VB		Ip	A	V	
3220 High	HSV3220G201K501R	130	170	200	185-225	500A	5-10	340	1000V
	HSV3220G221K501R	140	180	220	198-242	500A	5-10	360	
	HSV3220G241K501R	150	200	240	216-264	500A	5-10	395	
	HSV3220G271K501R	175	225	270	243-297	500A	5-10	455	
	HSV3220G391K501R	250	320	270	351-429	500A	5-10	650	
	HSV3220G431K451R	275	350	430	387-473	450A	5-10	710	
	HSV3220G471K451R	300	385	470	423-517	450A	5-10	775	
	HSV3220G511K451R	320	415	510	459-561	450A	5-10	845	
	HSV3220H221K801R	140	180	220	198-242	800A	5-10	360	2000V
	HSV3220H241K102R	150	200	240	216-264	1000A	5-10	395	
	HSV3220H271K102R	175	225	270	243-297	1000A	5-10	455	
	HSV3220H391K102R	250	320	270	351-429	1000A	5-10	650	
	HSV3220H431K102R	275	350	430	387-473	1000A	5-10	710	
	HSV3220H471K102R	300	385	470	423-517	1000A	5-10	775	
	HSV3220H511K102R	320	415	510	459-561	1000A	5-10	845	
	HSV3220H561K102R	350	460	620	558-682	1000A	5-10	920	
	HSV3220H471K152R	300	385	470	423-517	1500A	5-20	710	3000V
	HSV3220H471K302R	300	385	470	423-517	3000A	5-20	710	6000V

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5、环境可靠性试验 Enviromental Reliability Test

序号 No	项目 Items	测试条件/方法 Test conditions / Methods			要求 Requirements
1	高温存放 High Temp. Storage	温度 Temperature: 125±2℃ 保持时间 Duration: 1000±24 h.			① 无可见机械损伤; No visible mechanical damage. ② 试验前后压敏电压变化率≤10%。 ΔV1mA/V1mA ≤10%
2	低温存放 Low Temp. Storage	温度 Temperature: -40±2℃ 保持时间 Duration: 1000±24 h.			① 无可见机械损伤; No visible mechanical damage. ② 试验前后压敏电压变化率≤10%。 ΔV1mA/V1mA ≤10%
3	高温负载 High Temp. Load	温度 Temperature: 85±2℃ 加载电压 Loading Voltage: VDC. 保持时间 Duration: 1000±24 h.			① 无可见机械损伤; No visible mechanical damage. ② 试验前后压敏电压变化率≤10%。 ΔV1mA/V1mA ≤10%
4	湿热负载 Damp Heat Load	温度 Temperature: 40±2℃ 湿度 Humidity: 90% ~ 95% RH. 加载电压 Loading Voltage: VDC. 保持时间 Duration: 500±12 h.			① 无可见机械损伤; No visible mechanical damage. ② 试验前后压敏电压变化率≤10%。 ΔV1mA/V1mA ≤10%
5	温度循环 Temperature Cycle	温度急变按下表条件循环 5 个周期。 The temperature abrupt change cycled for 5 cycles according to the following conditions.			① 无可见机械损伤; No visible mechanical damage. ② 试验前后压敏电压变化率≤10%。 ΔV1mA/V1mA ≤10%
		步骤 step	温度 temperatu (℃)	时间 (分) time(min)	
		1	-40±3	30±3	
		2	室温 room temperature	5±3	
		3	125±2	30±3	
		4	室温 room temperature	5±3	

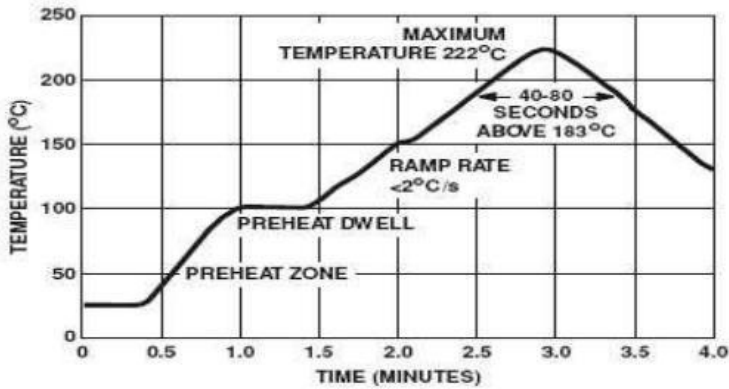
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6、焊接建议 Soldering Recommendations

6.1 回流焊 Reflow Soldering

当回流焊时，设备将焊膏放置在基板上，当焊膏被加热时，它重新流动并将焊点焊接到基板上。在使用回流过程时，应注意确保 MLCV 不会受到大于每秒 4 度的热梯度的影响；理想的梯度为每秒 2 度。在焊接过程中，预热至焊点峰值温度 100 度以内是减少热冲击的关键。以下是典型的概况。

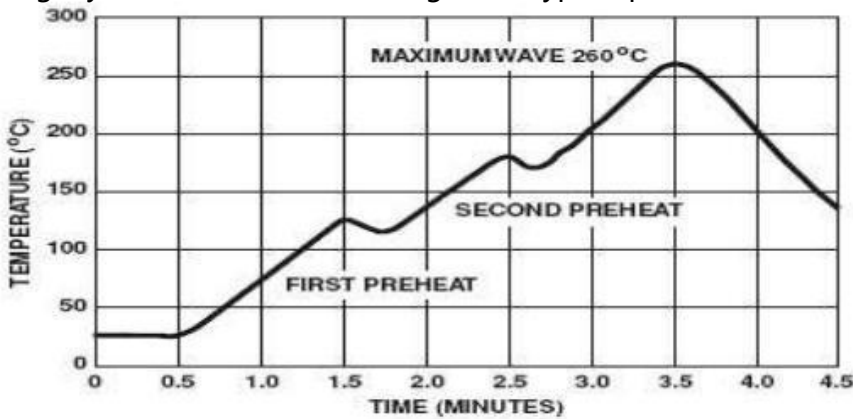
When reflow soldering, the device is placed a solder paste on the substrate ,as the solder paste is heated, it re-flows and solders the unite to board. When using a reflow process ,care should be taken to ensure that the MLCV is not subjected to an thermal gradient steeper than 4 degrees per second; the ideal gradient being 2degrees per second. During the soldering process, preheating to within 100 degrees ofthe soldier' s peak temperature is essential to minimize thermal shock. The following is typical profile.



6.2 波峰焊 wave Soldering

波峰焊时，MLCV 通过粘合剂粘在电路板上，然后将组件放在传送带上，通过焊接过程与波峰接触。波峰焊是最费力的过程。为了避免由于热冲击而产生应力的可能性，建议在焊接过程中进行预热，并严格控制焊接过程的峰值温度。以下是典型的概况。

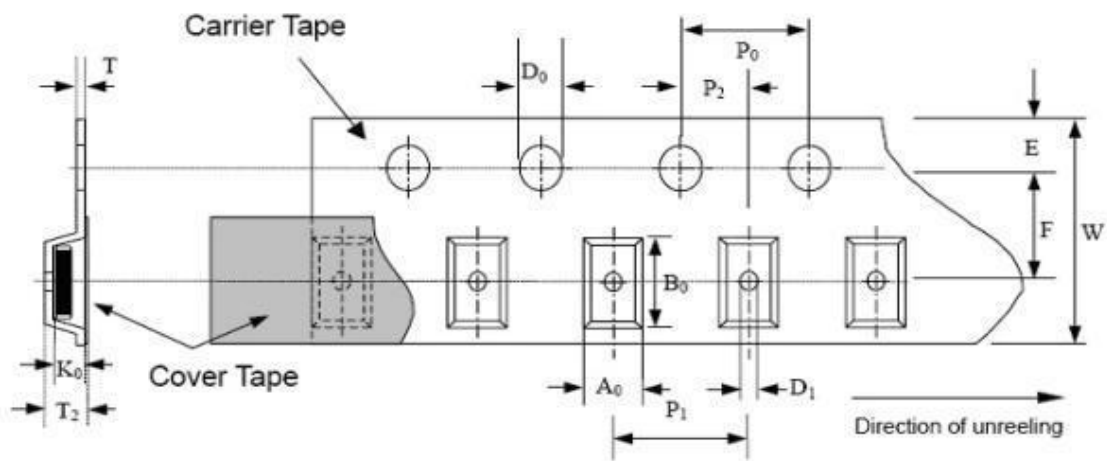
When wave soldering. The MLCV is attach to the circuit board by means of an adhesive. The assembly is then place on a conveyor and run though the soldering process to contact the wave. Wave soldering is the most strenuous of the processes. To avoid the possibility of generating stresses due to thermal shock., a preheat stage in the soldering process is recommended, and the peak temperature of the solder process should be rigidly controlled. The following is the typical profiles.



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7、包装规格 Packaging Specification

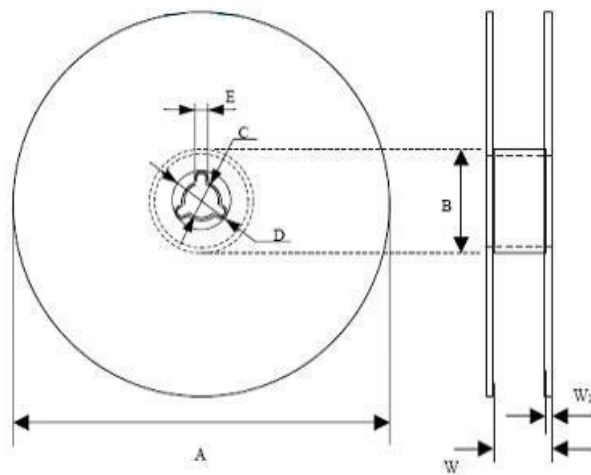
- 7.1.载体胶带透明盖胶带应热密封携带产品，并使用卷轴卷轴载体胶带。
Carrier tape transparent cover tape should be heat-sealed to carry the products, and the reel should be used to reel the carrier tape.
- 7.2.热封盖胶带的粘附度应为 40 + 20/+15 克。
The adhesion of the heat-sealed cover tape shall be 40 +20/-15 grams.
- 7.3.卷轴包装和 SMT 自动拾取机的头部和末端均应为空。操作人员手柄的胶带头应连接一根普通纸带。
Both the head and the end portion of taping shall be empty for reel package and SMT auto-pickup machine. And a normal paper tape shall be connected in the head of taping for the operator handle.



type	A0 ±0.10	B0 ±0.10	K0 ±0.10	T ±0.05	T2 ±0.05	D0 +0.10 -0.00	D1 ±0.05	P1 ±0.10	P2 ±0.05	P0 ±0.05	W ±0.20	E ±0.10	F ±0.05
0402	0.85	1.25	0.65	0.22	0.87	1.50	1.00	3.00	2.00	4.00	8.00	1.75	3.5
0603	1.08	1.88	0.95	0.22	1.17	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
0604	1.08	1.88	0.95	0.22	1.17	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
0805	1.42	2.30	0.95	0.22	1.26	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
0806	1.42	2.30	0.95	0.22	1.60	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
1206	1.88	3.50	1.27	0.20	1.49	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
1210	2.18	3.46	1.45	0.22	1.77	1.50	1.00	4.00	2.00	4.00	8.00	1.75	3.5
1812	3.66	4.95	1.74	0.25	1.99	1.50	1.50	8.00	2.00	4.00	12.00	1.75	5.5
2220	5.10	5.97	2.80	0.25	3.05	1.50	1.50	8.00	2.00	4.00	12.00	1.75	5.5
2225	5.10	6.57	2.80	0.25	3.05	1.50	1.50	8.00	2.00	4.00	12.00	1.75	5.5
3220	5.50	8.50	2.80	1.00	3.05	1.50	1.50	8.00	2.00	4.00	12.00	1.75	7.5

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8、卷轴尺寸 Reel Dimension



type	A	B	C	D	E	W	W1
0402	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
0603	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
0604	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
0805	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
0806	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
1206	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
1210	178.0±1.0	60.0±0.5	13.0±0.2	21.0±0.2	2.0±0.5	9.0±0.50	1.5±0.15
1812	178.0±1.0	60.0±0.5	13.5±0.1	21.0±0.2	2.0±0.5	13.6±0.2	1.5±0.15
2220	178.0±1.0	60.0±0.5	13.5±0.1	21.0±0.2	2.0±0.5	13.6±0.2	1.5±0.15
3220	178.0±1.0	60.0±0.5	13.5±0.1	21.0±0.2	2.0±0.5	13.6±0.2	1.5±0.15

type		0402	0603	0805		1206	1210	1812	2220	3220
quantity	paper	10000	4000	4000	/	/	/	/	/	/
	plastic	/	/	/	3000	3000	3000	500/1000	500/1000	1000
Minimumordering		/	4000	4000	3000	3000	3000	500/1000	500/1000	1000