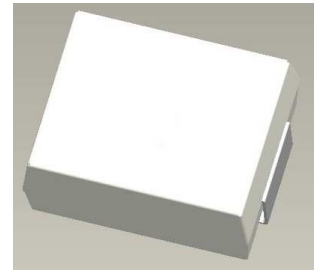


## FEATURES

- Improved component design in a compact case
- High surge current capability of up to 1.25kA
- Superior performance at high temperature
- White package design without shadow in LED lighting application
- SMD mountable disk varistors, suitable for lead-free Reflow/wave soldering



## APPLICATIONS

- Power supplies for telecommunication systems
- Protection for LED circuits
- Protection for consumer, industrial equipment
- Protection for automotive electronics

## APPLICABLE STANDARDS

- UL1449
- IEC61051-1, -2, -2-2, IEC60950-1 Annex Q
- GB/T10193, GB/T10194, GB4943.1, GB8898
- IEC61000-4-5

## TYPE CODE DESIGNATION

JJ	SV	3225	K	471	G2
JJ: Series		SV: SMD disk varistors		Tape and reel (1000 pcs/reel)	
3225: 32/100''×25/100''(8.0mm×6.3mm)			Varistor voltage V <sub>1mA</sub> : 47×10 <sup>1</sup> =470 V		
			Tolerance of varistor voltage at 1 mA: ±10%(V <sub>1mA</sub> )		

## GENERAL TECHNICAL DATA

Parameter	Value	Unit
Operating temperature	-55 to +125	°C
Storage temperature	-55 to +150	°C
Electric strength	≥2.5	kV <sub>RMS</sub>
Insulation resistance	≥100	MΩ

**ELECTRICAL CHARACTERISTICS**( $T_A=125^{\circ}\text{C}$ )

SMD Types (EIA Case 32×25 in inch)	Continuous Voltage		Peak Current (8/20 $\mu\text{s}$ )		Energy (2 ms)	Rated Power
	Max		Max		Max	
	$V_{\text{RMS}}$	$V_{\text{DC}}$	(1 time)	(2 times)	(1 time)	
	[V]	[V]	[A]	[A]	[J]	
JJSV3225K180G2	11	14	500	250	0.4	20
JJSV3225K220G2	14	18	500	250	0.5	20
JJSV3225K270G2	17	22	500	250	0.7	20
JJSV3225K330G2	20	26	500	250	0.8	20
JJSV3225K390G2	25	31	500	250	0.9	20
JJSV3225K470G2	30	38	500	250	1.1	20
JJSV3225K560G2	35	45	500	250	1.3	20
JJSV3225K680G2	40	56	500	250	1.6	20
JJSV3225K820G2	50	65	1250	1000	2.5	200
JJSV3225K101G2	60	85	1250	1000	3.0	200
JJSV3225K121G2	75	100	1250	1000	3.5	200
JJSV3225K151G2	95	125	1250	1000	4.5	200
JJSV3225K181G2	115	150	1250	1000	4.5	200
JJSV3225K201G2	130	170	1250	1000	6.0	200
JJSV3225K221G2	140	180	1250	1000	6.5	200
JJSV3225K241G2	150	200	1250	1000	7.5	200
JJSV3225K271G2	175	225	1250	1000	8.0	200
JJSV3225K331G2	210	270	1250	1000	9.5	200
JJSV3225K361G2	230	300	1250	1000	11.0	200
JJSV3225K391G2	250	320	1250	1000	12.0	200
JJSV3225K431G2	275	350	1250	1000	13.5	200
JJSV3225K471G2	300	385	1250	1000	15.0	200
JJSV3225K511G2	320	420	1250	1000	16.0	200
JJSV3225K561G2	350	460	1250	1000	16.5	200
JJSV3225K621G2	385	505	1250	1000	17.0	200
JJSV3225K681G2	420	560	1250	1000	18.0	200
JJSV3225K751G2	460	615	1250	1000	18.5	200

**ELECTRICAL CHARACTERISTICS**( $T_A=25^{\circ}\text{C}$ ,continued)

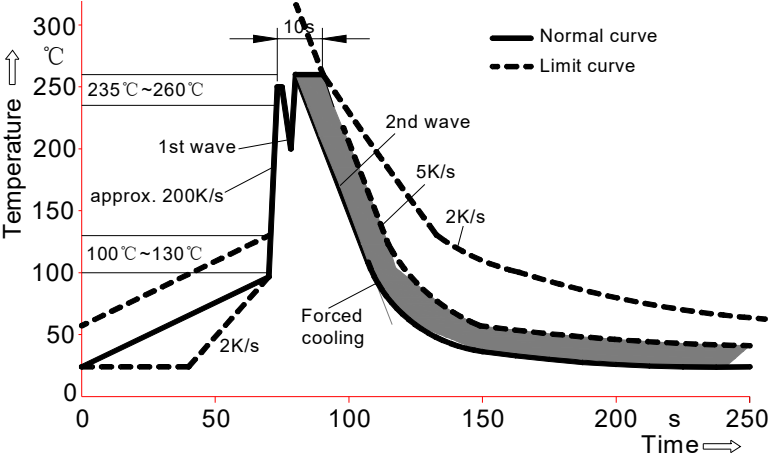
SMD Types (EIA Case 32×25 in inch)	Varistor Voltage at 1 mA	Clamping Voltage at Class Current (8/20μs)	Class Current (8/20μs)	Capacitance
	(±10%)			Max
	[V]	[V]	[A]	(at 1 kHz) [pF]
JJSV3225K180G2	18	36	2.5	3000
JJSV3225K220G2	22	43	2.5	2500
JJSV3225K270G2	27	53	2.5	2000
JJSV3225K330G2	33	65	2.5	1800
JJSV3225K390G2	39	77	2.5	1000
JJSV3225K470G2	47	93	2.5	1500
JJSV3225K560G2	56	110	2.5	1250
JJSV3225K680G2	68	135	2.5	1200
JJSV3225K820G2	82	135	10	900
JJSV3225K101G2	100	165	10	600
JJSV3225K121G2	120	200	10	420
JJSV3225K151G2	150	250	10	350
JJSV3225K181G2	180	300	10	300
JJSV3225K201G2	200	340	10	240
JJSV3225K221G2	220	360	10	220
JJSV3225K241G2	240	395	10	200
JJSV3225K271G2	270	455	10	170
JJSV3225K331G2	330	545	10	155
JJSV3225K361G2	360	595	10	140
JJSV3225K391G2	390	650	10	120
JJSV3225K431G2	430	710	10	120
JJSV3225K471G2	470	775	10	110
JJSV3225K511G2	510	845	10	105
JJSV3225K561G2	560	930	10	100
JJSV3225K621G2	620	1025	10	95
JJSV3225K681G2	680	1120	10	90
JJSV3225K751G2	750	1240	10	75

# SOLDERING GUIDELINES

The usage of mild, non-activated fluxes for soldering is recommended, as well as proper cleaning of the PCB.

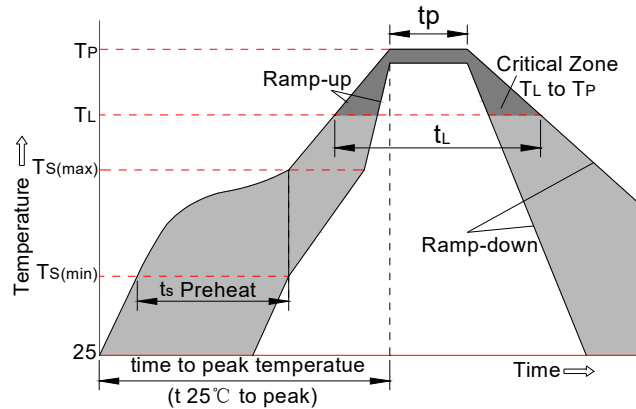
The components are suitable for reflow soldering per JEDEC J-STD-020C.

## - Wave soldering



Temperature characteristics at component terminal with dual-wave soldering

## - Reflow soldering



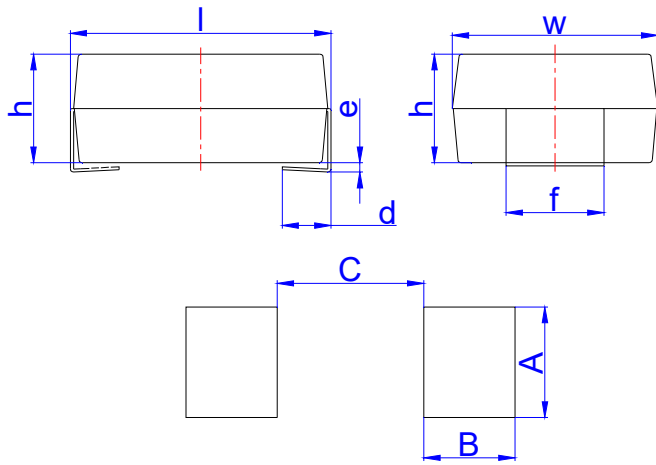
Profile feature		Sn-Pb assembly	Pb-Free assembly
Average ramp-up rate ( $T_{Smax}$ to $T_p$ )		3°C/sec. Max	3°C/sec. Max
Preheat	-Temperature min. ( $T_{s(min)}$ )	+100°C	+150°C
	-Temperature max. ( $T_{s(max)}$ )	+150°C	+200°C
	-Time ( $t_{smin}$ to $t_{smax}$ )	60-120 secs.	60-180 secs.
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max	3°C/sec. Max
Time maintained above	-Temperature min. ( $T_L$ )	+183°C	+217°C
	-Time ( $t_L$ )	60-150 secs.	60-150 secs.
Peak classification temperature ( $T_p$ )		+220°C to +240°C	+240°C to +260°C
Time within 5°C of actual peak temperature ( $t_p$ )		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: 3

## STORAGE CONDITION

- As far as possible, the components should be employed within 24 months after delivery from JieJie Semiconductor.
- They should be left in their original packing to avoid soldering problems due to oxidized contacts.
- Storage temperature: - 25 up to + 45°C.
- Relative humidity: < 75 % annual average, < 95 % on max. 30 days in a year.

## DIMENSIONAL DRAWINGS

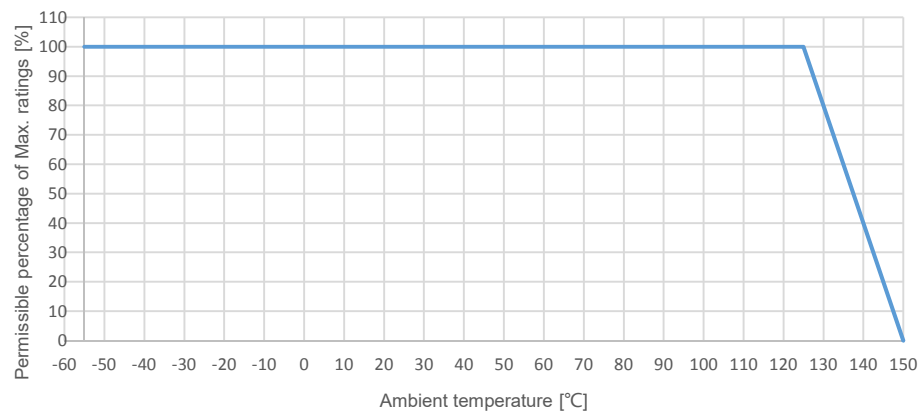


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
l	7.80		8.60	0.307		0.339
w	6.00		6.60	0.236		0.260
h	3.30		4.00	0.130		0.157
d	1.20		1.80	0.047		0.071
e	0		0.30	0		0.012
f	2.70		3.30	0.106		0.130
A		3.50			0.138	
B		2.80			0.110	
C		4.50			0.177	

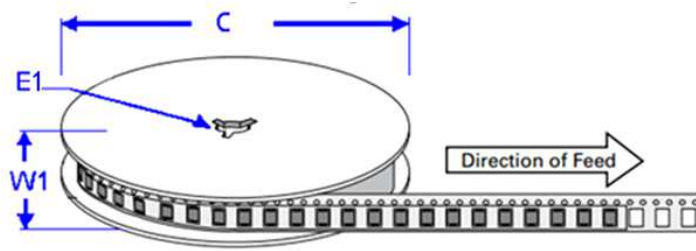
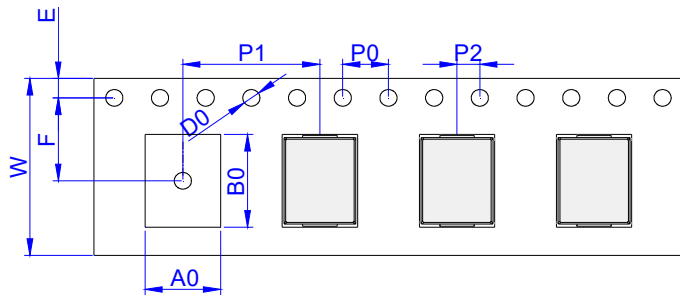
Recommended solder pad layout

## TEMPERATURE RATING CURVE

Max. current, energy, operating voltage and average power dissipation depending on ambient temperature



## TAPING AND PACKAGING SPECIFICATION-SMD-3225



Ref.	Dimensions	
	Millimeters	Inches
A0	6.60 ± 0.30	0.260 ± 0.012
B0	8.40 ± 0.30	0.331 ± 0.012
C	330.0	13.0
D0	1.50 ± 0.10	0.059 ± 0.004
E	1.75 ± 0.20	0.069 ± 0.008
E1	13.3 ± 0.3	0.524 ± 0.012
F	7.50 ± 0.20	0.295 ± 0.008
P0	4.00 ± 0.20	0.157 ± 0.008
P1	12.00 ± 0.20	0.472 ± 0.008
P2	2.00 ± 0.20	0.079 ± 0.008
W	16.00 ± 0.20	0.630 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

OUTLINE	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
TAPING	0.5607	1,000	8,000	13 inch reel pack