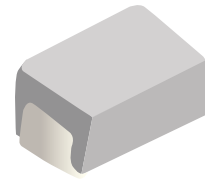


## FEATURES

- | Improved component design in a compact case
- | High surge current capability
- | Superior performance at high temperature
- | SMD mountable disk varistors, suitable for lead-free reflow / wave soldering



3220

## APPLICATIONS

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

## APPLICABLE STANDARDS

- | UL1449
- | TUV RH IEC61051-1

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## GENERAL TECHNICAL DATA

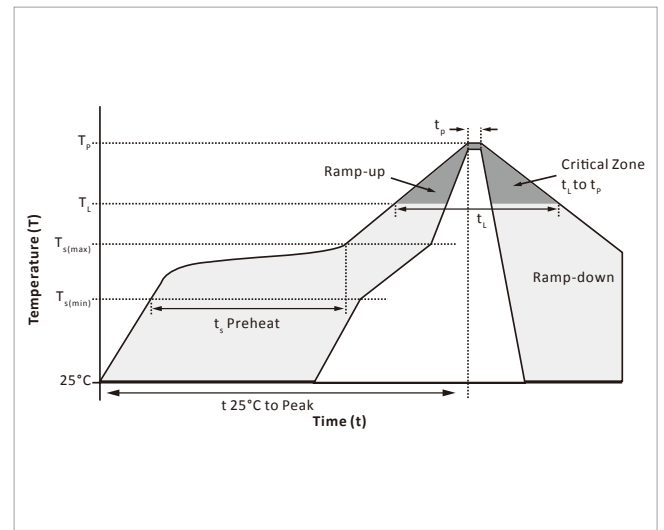
Parameter	Value	Unit
Operating temperature	-55 to +125	°C
Storage temperature	-55 to +150	°C
Electric strength	≥2.5	kV <sub>RMS</sub>
Insulation resistance	≥100	MQ

## ELECTRICAL CHARACTERISTICS

Part Number	Continious Voltage		Peak Current (8/20us)		Energy	Rated Power ( $T_a=125^{\circ}\text{C}$ ) (mW)	Varistor Voltage at 1mA ( $\pm 10\%$ ) (V)	Clamping Voltage at Class Current (8/20 ps) (V)	Class Current (8/20 ps) (A)	Capacitance ( $T_a=125^{\circ}\text{C}$ ) Max (at 1 kHz) Max (PF)
	Max		Max		Max					
	$V_{\text{RMS}}$	$V_{\text{DC}}$	H 1time	H-J 1time	2ms1time					
	(V)	(V)	(A)	(A)	(J)					
SMV3220-180H/H-J	11	14	250	500	0.4	20	18	36	2.5	3000
SMV3220-220H/H-J	14	18	250	500	0.5	20	22	43	2.5	2500
SMV3220-270H/H-J	17	22	250	500	0.7	20	27	53	2.5	2000
SMV3220-330H/H-J	20	26	250	500	0.8	20	33	65	2.5	1800
SMV3220-390H/H-J	25	31	250	500	0.9	20	39	77	2.5	1000
SMV3220-470H/H-J	30	38	250	500	1.1	20	47	93	2.5	1500
SMV3220-560H/H-J	35	45	250	500	1.3	20	56	110	2.5	1250
SMV3220-680H/H-J	40	56	250	500	1.6	20	68	135	2.5	1200
SMV3220-820H/H-J	50	65	1250	1500	2.5	200	82	135	10	900
SMV3220-101H/H-J	60	85	1250	1500	3.0	200	100	165	10	600
SMV3220-121H/H-J	75	100	1250	1500	3.5	200	120	200	10	420
SMV3220-151H/H-J	95	125	1250	1500	4.5	200	150	250	10	350
SMV3220-181H/H-J	115	150	1250	1500	4.5	200	180	300	10	300
SMV3220-201H/H-J	130	170	1250	1500	6.0	200	200	340	10	240
SMV3220-221H/H-J	140	180	1250	1500	6.5	200	220	360	10	220
SMV3220-241H/H-J	150	200	1250	1500	7.5	200	240	395	10	200
SMV3220-271H/H-J	175	225	1250	1500	8.0	200	270	455	10	170
SMV3220-331H/H-J	210	270	1250	1500	9.5	200	330	545	10	155
SMV3220-361H/H-J	230	300	1250	1500	11.0	200	360	595	10	140
SMV3220-391H/H-J	250	320	1250	1500	12.0	200	390	650	10	120
SMV3220-431H/H-J	275	350	1250	1500	13.5	200	430	710	10	120
SMV3220-471H/H-J	300	385	1250	1500	15.0	200	470	775	10	110
SMV3220-511H/H-J	320	420	1250	1500	16.0	200	510	845	10	105
SMV3220-561H/H-J	350	460	1250	1500	16.5	200	560	930	10	100
SMV3220-621H/H-J	385	505	1250	1500	17.0	200	620	1025	10	95
SMV3220-681H/H-J	420	560	1250	1500	18.0	200	680	1120	10	90
SMV3220-751H/H-J	460	615	1250	1500	18.5	200	750	1240	10	75

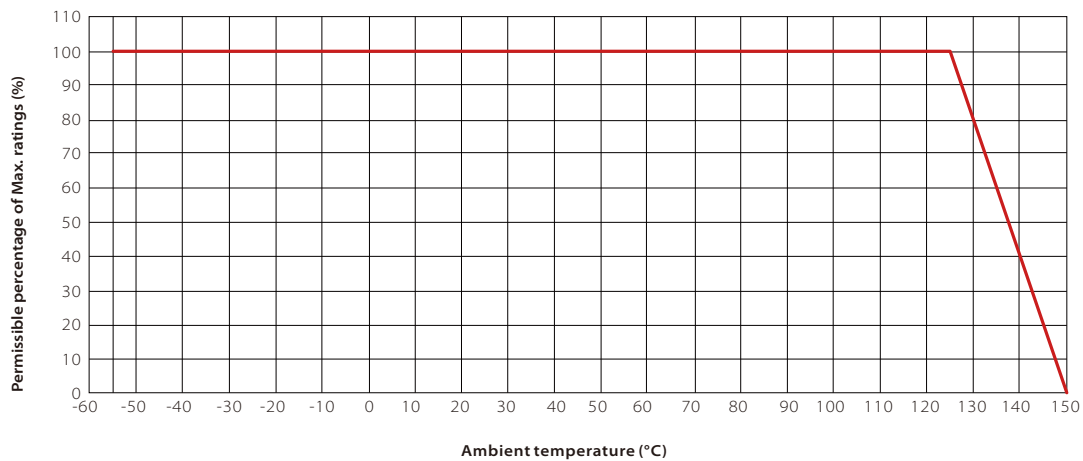
## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	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		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C

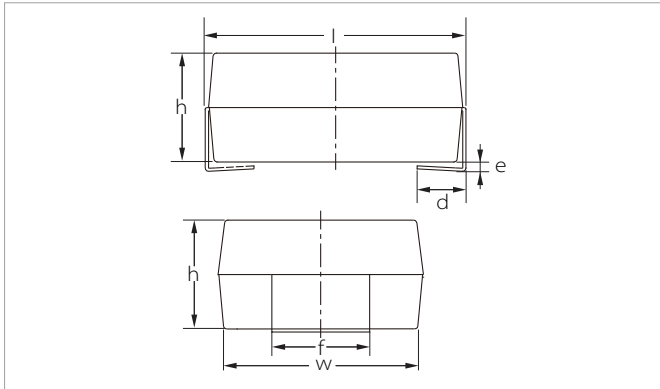


## TEMPERATURE RATING CURVE

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

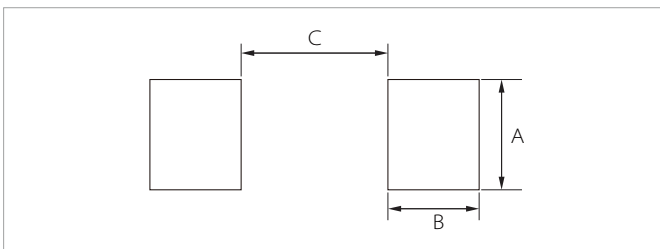


## PACKAGE INFORMATION



Ref.	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

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.50			0.138	
B		2.80			0.110	
C		4.50			0.177	

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SMV3220 series	3220	1000PCS	13"

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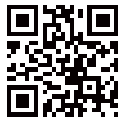
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