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

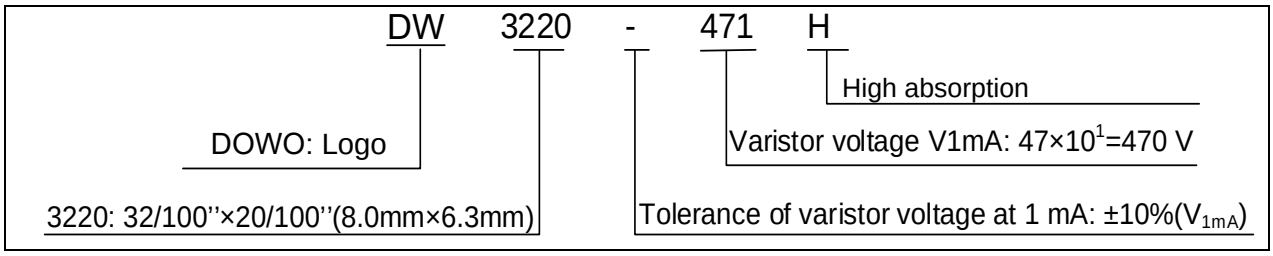
APPLICATIONS

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

APPLICABLE STANDARDS

- UL1449
- VDE (IEC61051-1, -2, -2-2, IEC60950-1Annex Q)

TYPE CODE DESIGNATION



GENERALTECHNICALDATA

Parameter	Value	Unit
Operating temperature	-55 to +125	℃
Storage temperature	-55 to +150	℃
Electric strength	⩾2.5	kV_{RMS}
Insulation resistance	⩾100	MΩ

ELECTRICAL CHARACTERISTICS

(Ta=125℃)

SMD Types (EIA Case 32×20 in inch)	Continious Voltage		Peak Current	Energy	Rated Power
	Max		Max	Max	
	V_{RMS}	V_{DC}	(8/20 μs, 1 time)	(2 ms, 1 time)	
	[V]	[V]	[A]	[J]	[mW]
DW3220 - 271H	175	225	1000	8.0	200
DW3220 - 391H	250	320	1000	12.0	200
DW3220 - 431H	275	350	1000	13.5	200
DW3220 - 471H	300	385	1000	15.0	200
DW3220 - 511H	320	420	1000	16.0	200
DW3220 - 561H	350	460	1000	16.5	200

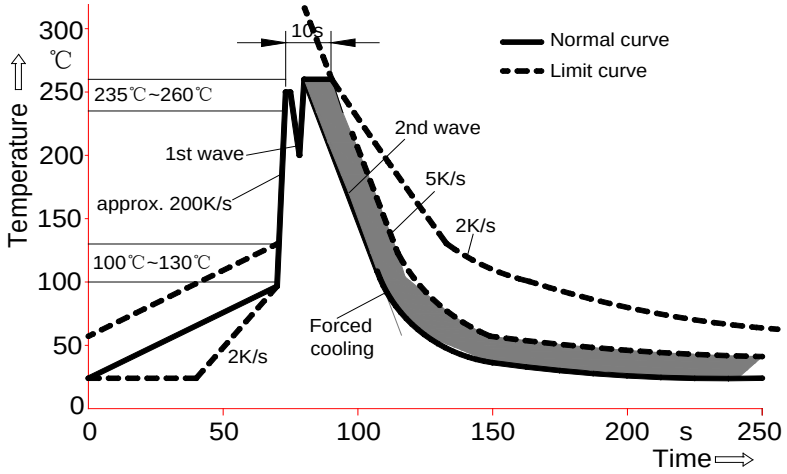
(Ta=25℃)

SMD Types (EIA Case 32×20 in inch)	Varistor Voltage at 1 mA	Clamping Voltage at Class Current (8/20 μs)	Class Current (8/20 μs)	Capacitance
	(±10%)			Max (at 1 kHz)
	[V]	[V]	[A]	[pF]
DW3220 - 271H	270	455	10	170
DW3220 - 391H	390	650	10	120
DW3220 - 431H	430	710	10	120
DW3220 - 471H	470	775	10	110
DW3220 - 511H	510	845	10	105
DW3220 - 561H	560	930	10	100

SOLDERING GUIDELINES

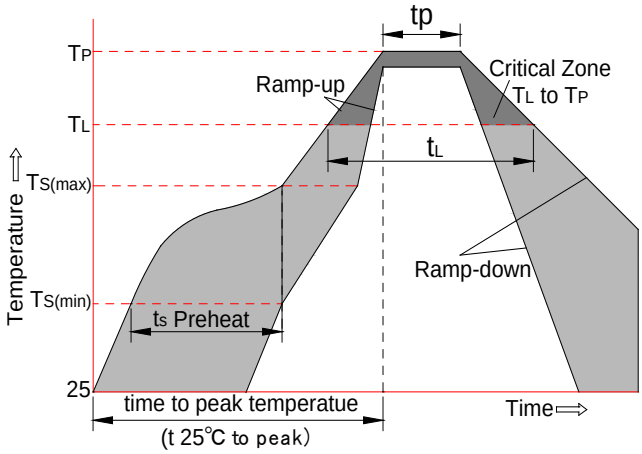
The usage of mild, non-activated fluxes for soldering is recommended, as well as proper cleaning of the PCB.
The components are suitable for reflow soldering per JEDEC J-STD-020C.

- Wave soldering



Temperature characteristics at component terminal with dual-wave soldering

- Reflow soldering



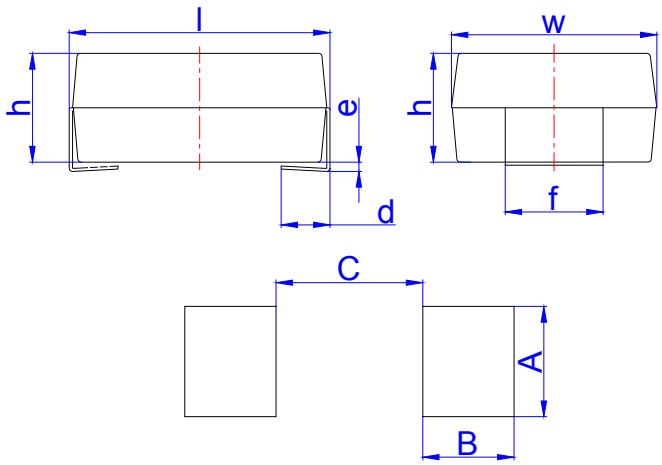
Profile feature		Sn-Pb assembly	Pb-Free assembly
Average ramp-up rate (T_{Smax} to T_p)		3℃/sec. Max	3℃/sec. Max
Preheat	-Temperature min. ($T_{s(min)}$)	+100℃	+150℃
	-Temperature max.($T_{s(max)}$)	+150℃	+200℃
	-Time (t_{Smin} to t_{Smax})	60-120 secs.	60-180 secs.
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max	3℃/sec. Max
Time maintained above	-Temperature min. (T_L)	+183℃	+217℃
	-Time (t_L)	60-150 secs.	60-150 secs.
Peak classification temperature (T_p)		+220℃ to +240℃	+240℃ to +260℃
Time within 5℃of actual peak temperature (t_p)		10 secs. to 30 secs.	20 secs. to 40 secs.
Ramp-down rate		6℃/sec. max.	6℃/sec. max.
Time 25℃ 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 Kangtai 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.

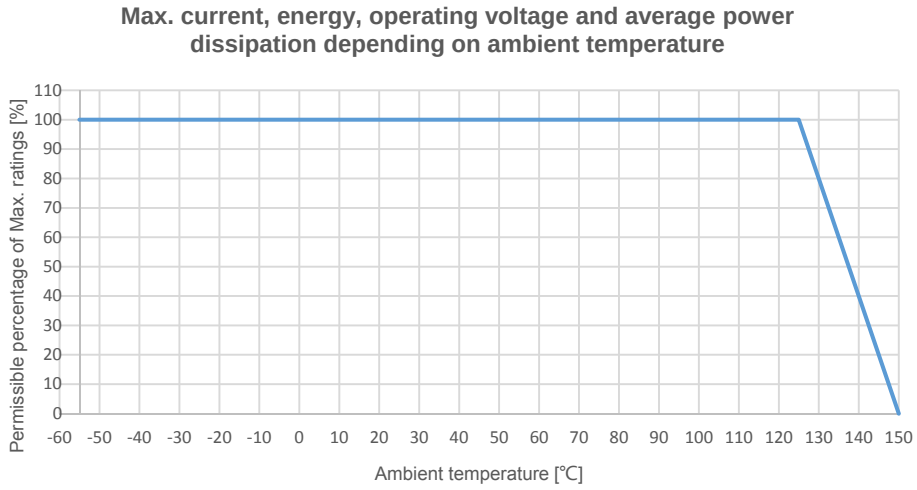
DIMENSIONAL DRAWINGS



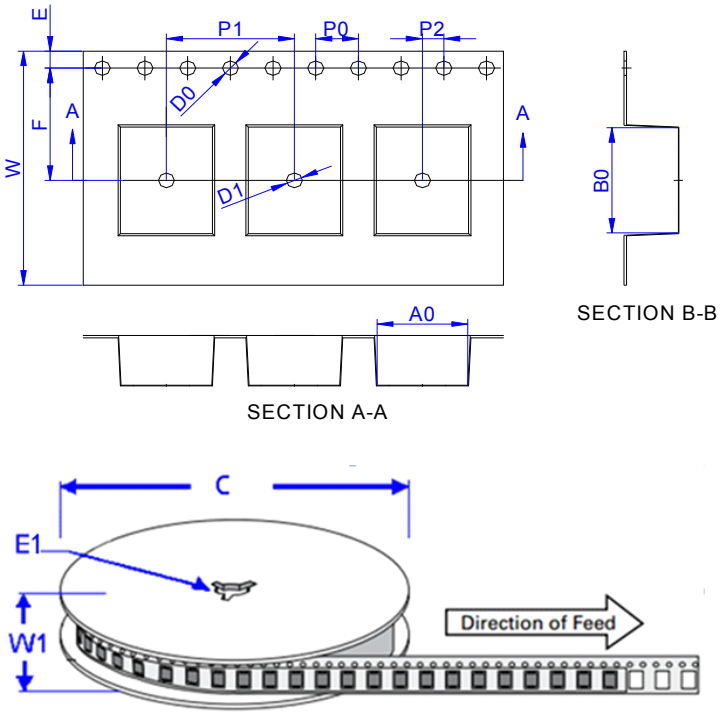
Recommended solder pad layout

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
l	7.80		8.80	0.307		0.339
w	5.80		6.50	0.236		0.260
h	3.30		4.50	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	

TEMPERATURE RATING CURVE



TAPING AND PACKAGING SPECIFICATION-SMD- 3220



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
D1	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	20.7±2.0	0.815±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