

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)
- CQC (GB/T10193, GB/T10194, GB4943.1, GB8898)

TYPE CODE DESIGNATION

Leiditech: logo 3220: 32/100''×20/100''(8.0mm×6.3mm)	LDT 3220	-	471 Varistor voltage V_{1mA}: 47×10¹=470 V	H High absorption Tolerance of varistor voltage at 1 mA: ±10%(V_{1mA})
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GENERAL TECHNICAL DATA

Parameter	Value	Unit
Operating temperature	-55 to +125	°C
Storage temperature	-55 to +150	°C
Electric strength	≥2.5	kV _{RMS}
Insulation resistance	≥100	MΩ

ELECTRICAL CHARACTERISTICS

(Ta=125°C)

SMD Types (EIA Case 32×20 in inch)	Continuous 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]
LDT3220 - 271H	175	225	1250	8.0	200
LDT3220 - 391H	250	320	1250	12.0	200
LDT3220 - 431H	275	350	1250	13.5	200
LDT3220 - 471H	300	385	1250	15.0	200
LDT3220 - 511H	320	420	1250	16.0	200
LDT3220 - 561H	350	460	1250	16.5	200
LDT3220 - 681H	420	560	1250	18.0	200

(Ta=25°C)

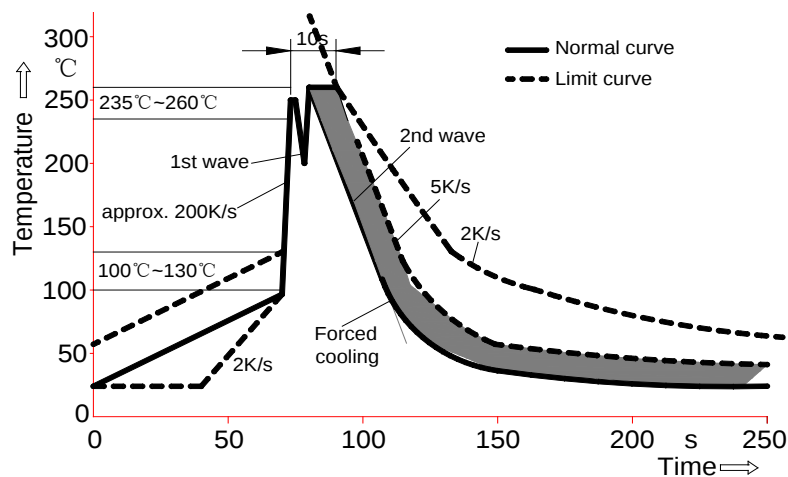
SMD Types (EIA Case 32×20 in inch)	Varistor Voltage at 1 mA	Clamping Voltage at Class Current (8/20 μs)	Class Current (8/20 μs)	Capacitance
	(±10%)			Max
	[V]	[V]	[A]	(at 1 kHz) [pF]
LDT3220 - 271H	270	455	10	170
LDT3220 - 391H	390	650	10	120
LDT3220 - 431H	430	710	10	120
LDT3220 - 471H	470	775	10	110
LDT3220 - 511H	510	845	10	105
LDT3220 - 561H	560	930	10	100
LDT3220 - 621H	620	1025	10	95
LDT3220 - 681H	680	1120	10	90

SOLDERING GUIDELINES

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

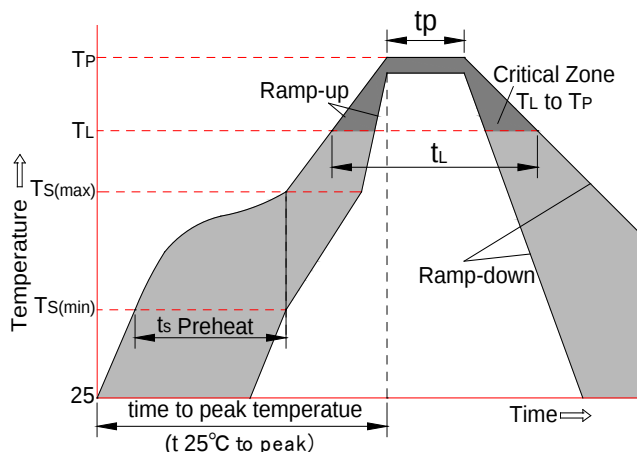
The components are suitable for reflow soldering per JEDEC J-STD-020C.

- Wave soldering



Temperature characteristics at component terminal with dual-wave soldering

- Reflow soldering



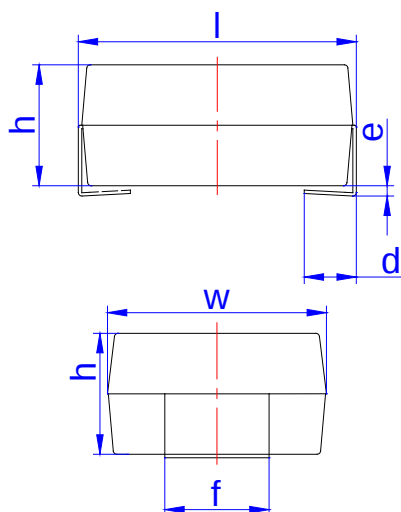
Profile feature		Sn-Pb assembly	Pb-Free assembly
Average ramp-up rate (T _{Smax} to T _p)		3°C/sec. Max	3°C/sec. Max
Preheat	-Temperature min. (T _{S(min)})	+100°C	+150°C
	-Temperature max.(T _{S(max)})	+150°C	+200°C
	-Time (t _{Smin} to t _{Smax})	60-120 secs.	60-180 secs.
T _{S(max)} to T _L - Ramp-up 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

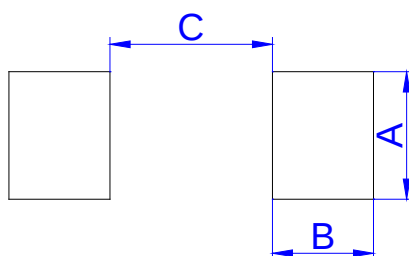
- As far as possible, the components should be employed within 24 months after delivery from Kangtai Semiconductor.
- They should be left in their original packing to avoid soldering problems due to oxidized contacts.
- Storage temperature: – 25 up to + 45°C.
- Relative humidity: < 75 % annual average,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

DIMENSIONAL DRAWINGS



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	3.1		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

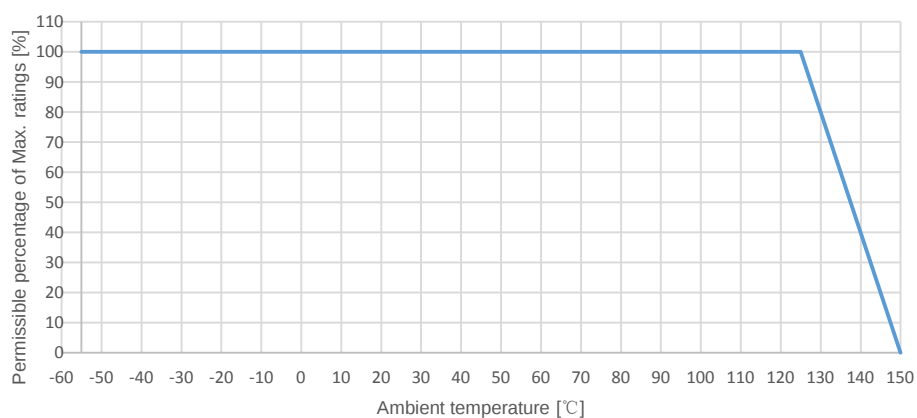
RECOMMENDED SOLDER PAD LAYOUT



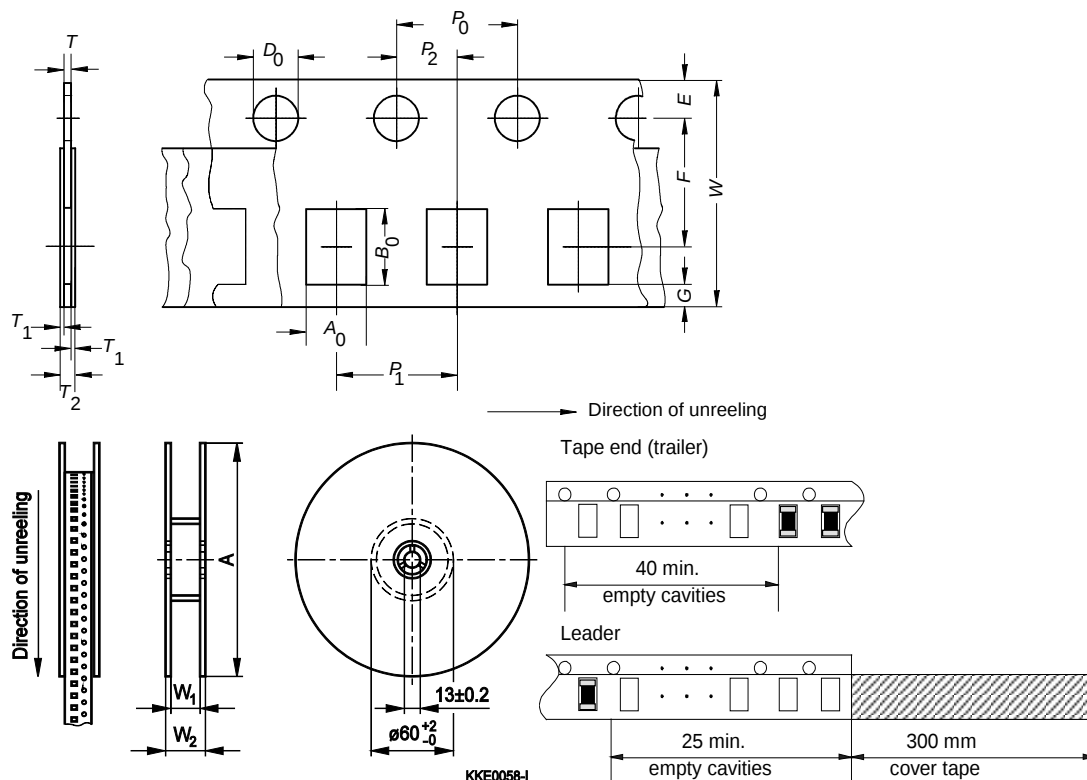
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.5			0.138	
B		2.8			0.110	
C		4.5			0.177	

TEMPERATURE DERATING CURVE

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



TAPING AND PACKAGING SPECIFICATION ACCORDING TO IEC 60286-3



- Dimensions of packing

Definition	Symbol	Dimension					
		Millimeters			inches		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Compartment width	A ₀	6.8	7.0	7.2	0.268	0.276	0.283
Compartment length	B ₀	8.5	8.7	8.9	0.335	0.343	0.350
Sprocket hole diameter	D ₀	1.5	-	1.6	0.059	-	0.063
Sprocket hole pitch	P ₀	4.1	4.2	4.3	0.154	0.157	0.161
Distance center hole to center compartment	P ₂	1.95	2.00	2.05	0.077	0.079	0.081
Pitch of the component compartments	P ₁	11.9	12.0	12.1	0.469	0.472	0.476
Tape width	W	15.7	16.0	16.3	0.618	0.630	0.642
Distance edge to center of hole	E	1.65	1.75	1.85	0.065	0.069	0.073
Distance center hole to center compartment	F	7.45	7.50	7.55	0.293	0.295	0.297
Distance compartment to edge	G	0.75	-	-	0.030	-	-
Overall thickness	T ₂	-	-	5.5	-	-	0.217
Thickness tape	T	-	-	0.3	-	-	0.012
Reel diameter	A	328	-	330	12.91		12.99
Reel width (inside)	W ₁	16.4	-	17.9	0.646	-	0.705
Reel width (outside)	W ₂	-	-	22.4	-	-	0.882

1) Quantity of taping packing(pcs): 1000