

SMD Varistors



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



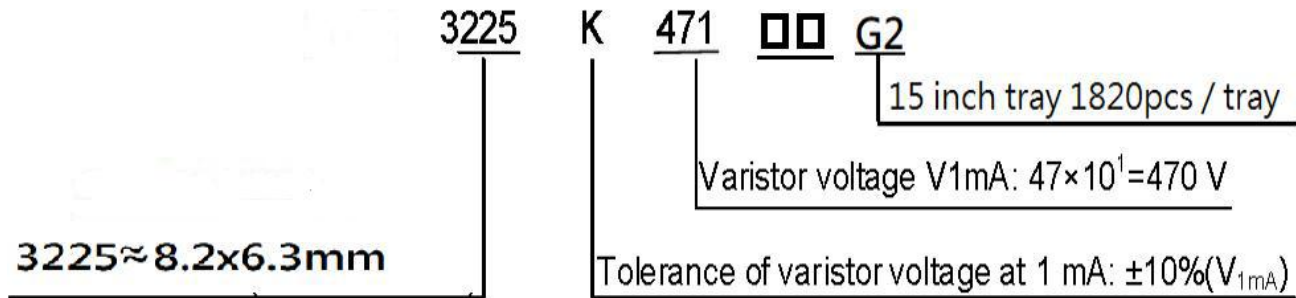
Applications

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

Applicable Standards

- UL1449 TYPE5
- TUV B115439 001 IEC61051-1, -2, -2-2, IEC60950-1Annex Q IEC 62368-1:2018/G.8.1
- IEC61000-4-5
- GB/T10193-1997 GB/T10194-1997/GB8898 GB4943.1

Type code Designation

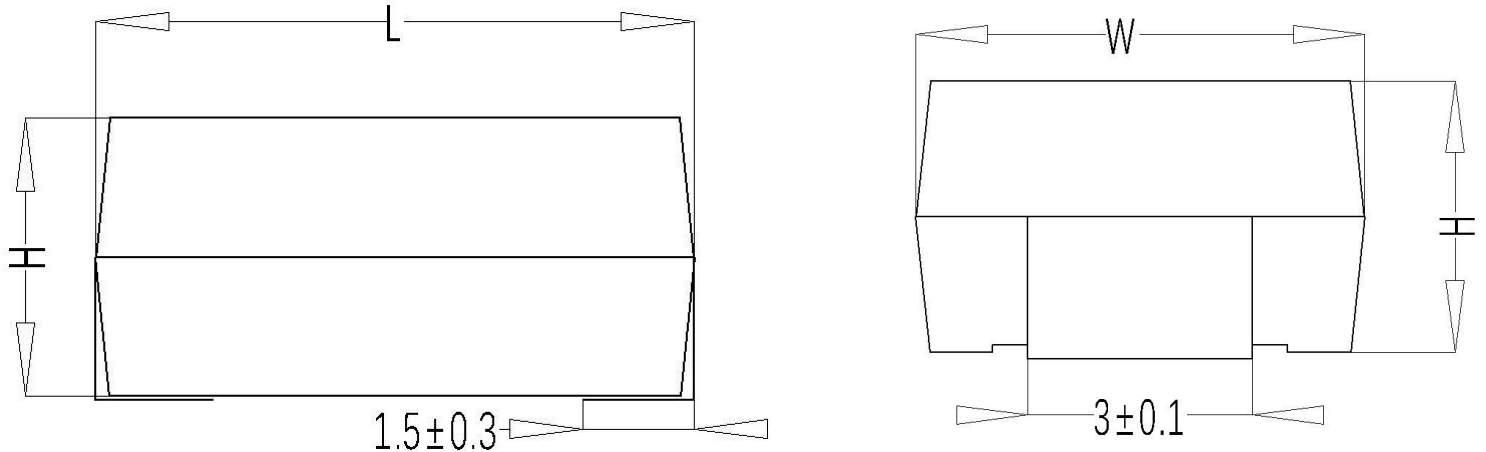




General parameters

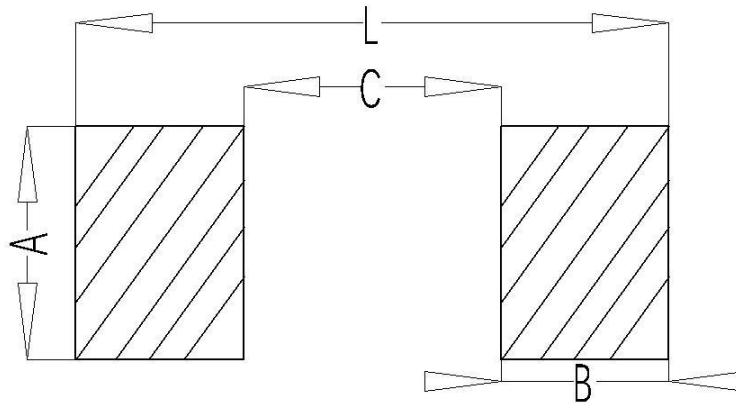
Parameter name	Parameter value
working temperature	-55℃ — +125℃
Storage temperature	-55℃ — +125℃
Withstand voltage	≥2.5KVRMS
Insulation resistance	≥100MΩ

Structure and Size



Size	Part number	L	W	H
3225	3225K201 ~ 3225K681	8.2mm±0.3	6.3mm±0.3	4.3mm±0.3

Welding Size

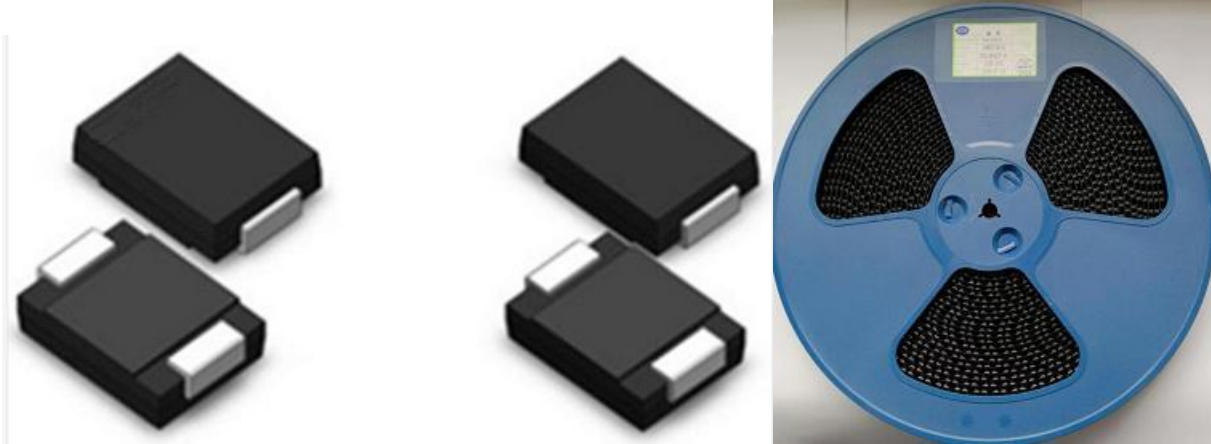


Size	A	B	C	L
3225	3.5mm	2.8mm	4.5mm	10.1mm

Electrical Characteristics (Standard)



Part Number	Maximum Allowable Voltage		Varistor Voltage V _{1mA} (V)	Maximum Clamping Voltage V _c (V)AT 10A	Max Surge Current 8/20μs I _{max}	Maximum Energy (10/1000μs) (J)	Typical Capacitance (Reference) 1KHz(pf)	Safety Certification	
	V _{AC} (V)	V _{DC} (V)						UL / CUL	VDE
3225K201	130V	170V	200V(180~220)	340V	1200A	15	200	√	√
3225K221	140V	180V	220V(198~242)	360V	1200A	18	180	√	√
3225K241	150V	200V	240V(216~264)	395V	1200A	18.5	170	√	√
3225K271	175V	225V	270V(243~297)	455V	1200A	21	150	√	√
3225K361	230V	300V	360V(324~396)	595V	1200A	23	115	√	√
3225K391	250V	320V	390V(351~429)	650V	1200A	25	105	√	√
3225K431	275V	350V	430V(387~473)	710V	1200A	29	95	√	√
3225K471	300V	385V	470V(423~517)	775V	1200A	30	90	√	√
3225K511	320V	415V	510V(459~561)	845V	1200A	33	85	√	√
3225K561	350V	460V	560V(504~616)	925V	1200A	33	80	√	√
3225K621	385V	505V	620V(558~682)	1025V	1200A	35	78	√	-
3225K681	420V	560V	680V(612~748)	1120V	1200A	35	75	√	-



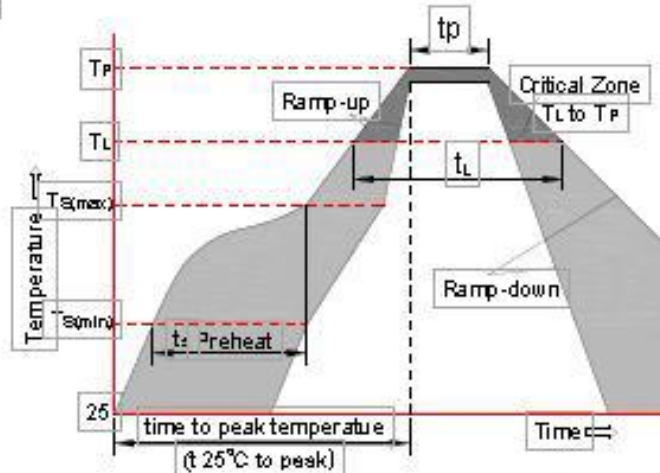
Electrical Characteristics (High energy)



Part Number	Maximum Allowable Voltage		Varistor Voltage V _{1mA} (V)	Maximum Clamping Voltage V _c (V)AT 10A	Max Surge Current 8/20μs I _{max}	Maximum Energy (10/1000μs) (J)	Typical Capacitance (Reference) 1KHz(pf)	Safety Certification	
	V _{Ac} (V)	V _{Dc} (V)						UL / CUL	VDE
High energy MOV	V _{Ac} (V)	V _{Dc} (V)	V _{1mA} (V)	V _c (V)AT 10A	I _{max}	(J)	1KHz(pf)	UL / CUL	VDE
3225K201-H	130V	170V	200V(180~220)	340V	1750A	17	200	√	√
3225K221-H	140V	180V	220V(198~242)	360V	1750A	19	180	√	√
3225K241-H	150V	200V	240V(216~264)	395V	1750A	21	170	√	√
3225K271-H	175V	225V	270V(243~297)	455V	1750A	24	150	√	√
3225K361-H	230V	300V	360V(324~396)	595V	1750A	26	115	√	√
3225K391-H	250V	320V	390V(351~429)	650V	1750A	28	105	√	√
3225K431-H	275V	350V	430V(387~473)	710V	1750A	32	95	√	√
3225K471-H	300V	385V	470V(423~517)	775V	1750A	35	90	√	√
3225K511-H	320V	415V	510V(459~561)	845V	1750A	40	85	√	√
3225K561-H	350V	460V	560V(504~616)	925V	1750A	42	80	√	√
3225K621-H	385V	505V	620V(558~682)	1025V	1750A	45	78	√	-
3225K681-H	420V	560V	680V(612~748)	1120V	1750A	49	75	√	-



- 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 ($t_{s(min)}$ to $t_{s(max)}$)	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

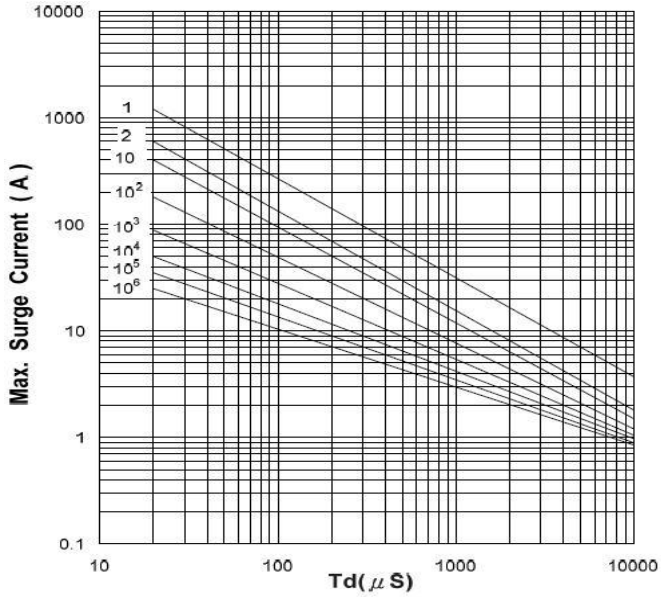
Maximum number of reflow cycles: 3

STORAGE CONDITION

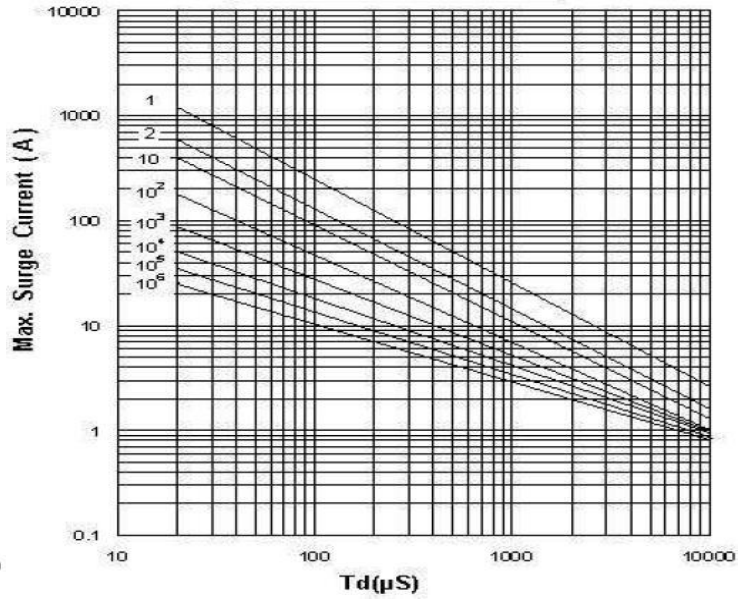
- As far as possible, the components should be employed within 24 months after delivery from Kangtai Semiconductor.
- They should be left in their original packing to avoid soldering problems due to oxidized contacts.
- Storage temperature: - 25 up to + 45°C.
- Relative humidity: < 75 % annual average,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

V/I CHARACTERISTICS V-I

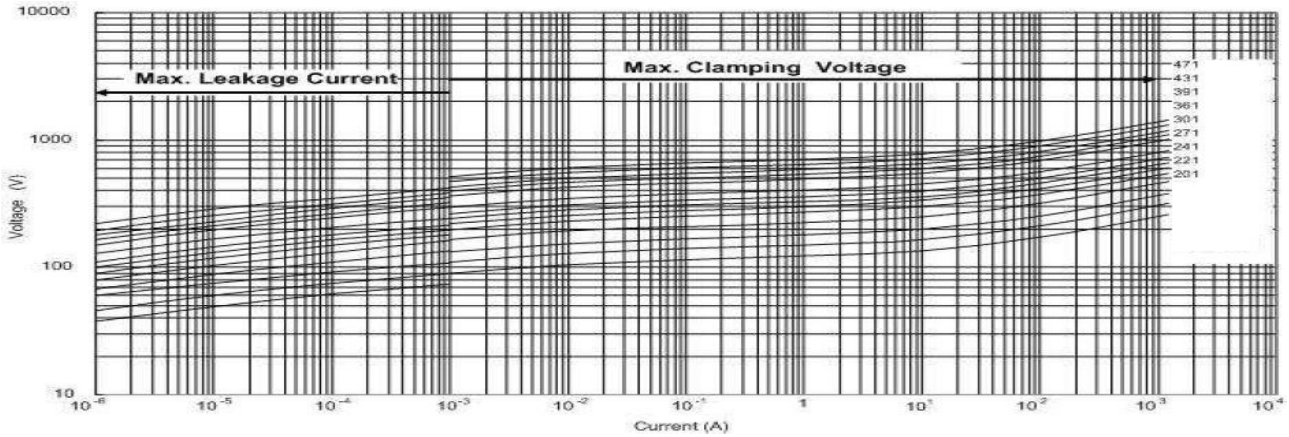
3225K201 – 3225K471(-H)



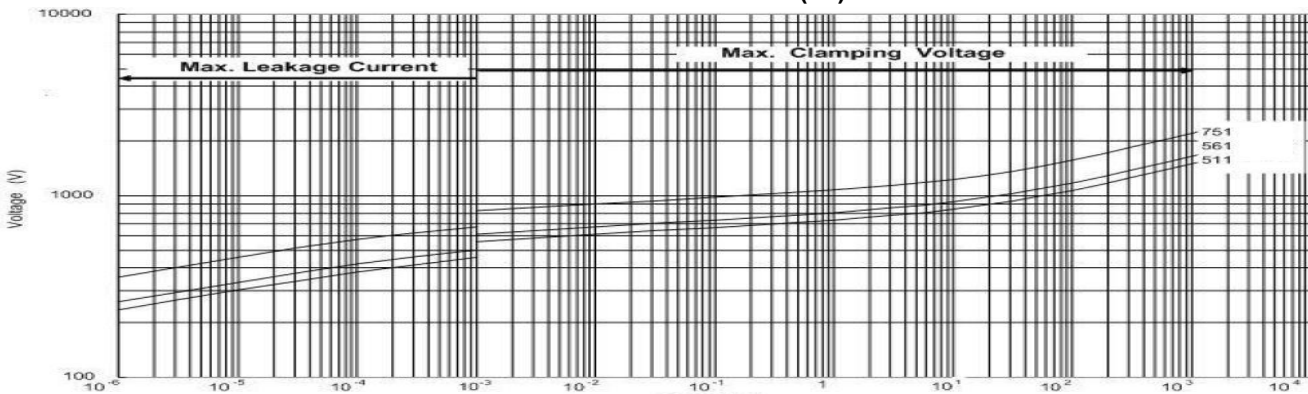
3225K511 – 3225K681(-H)



3225K201 – 3225K471(-H)

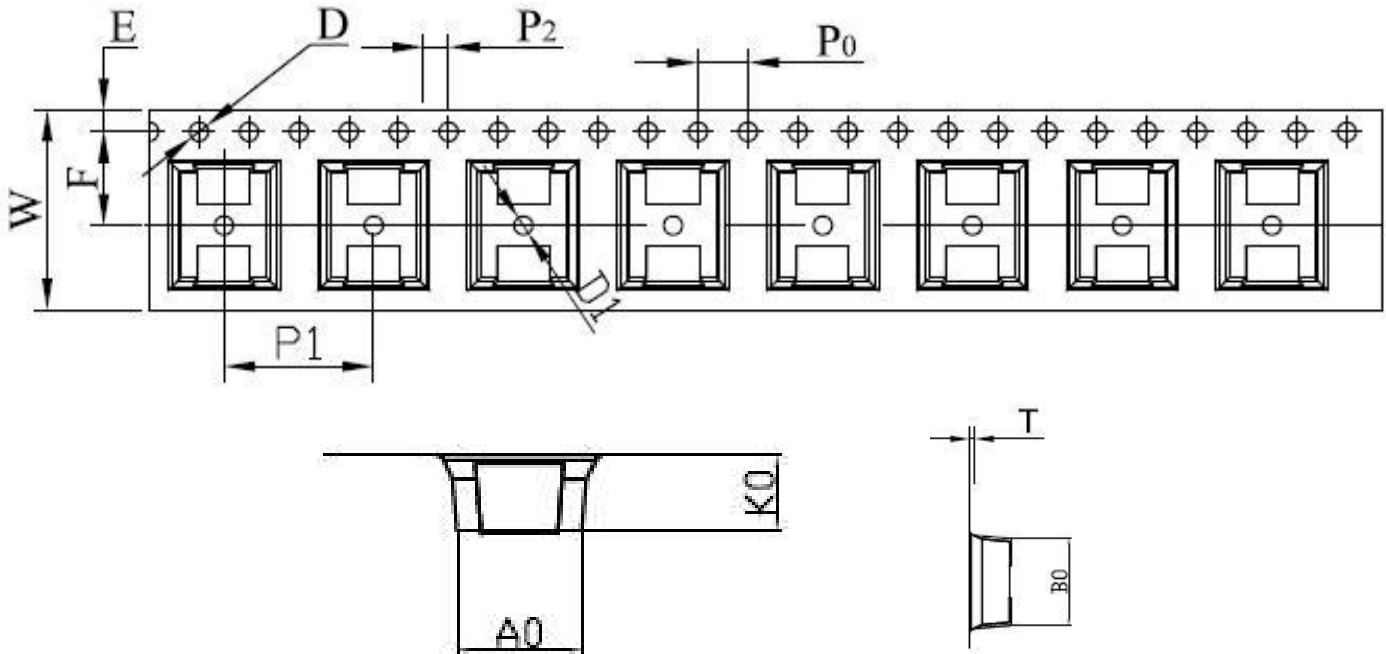


3225K511 – 3225K681(-H)

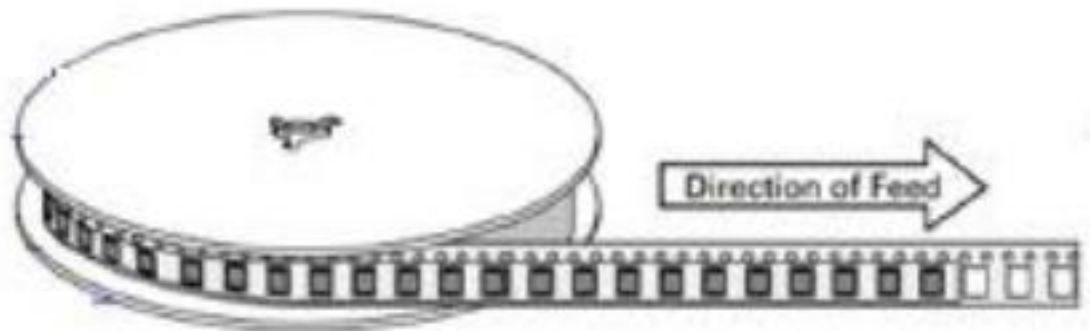


Packing

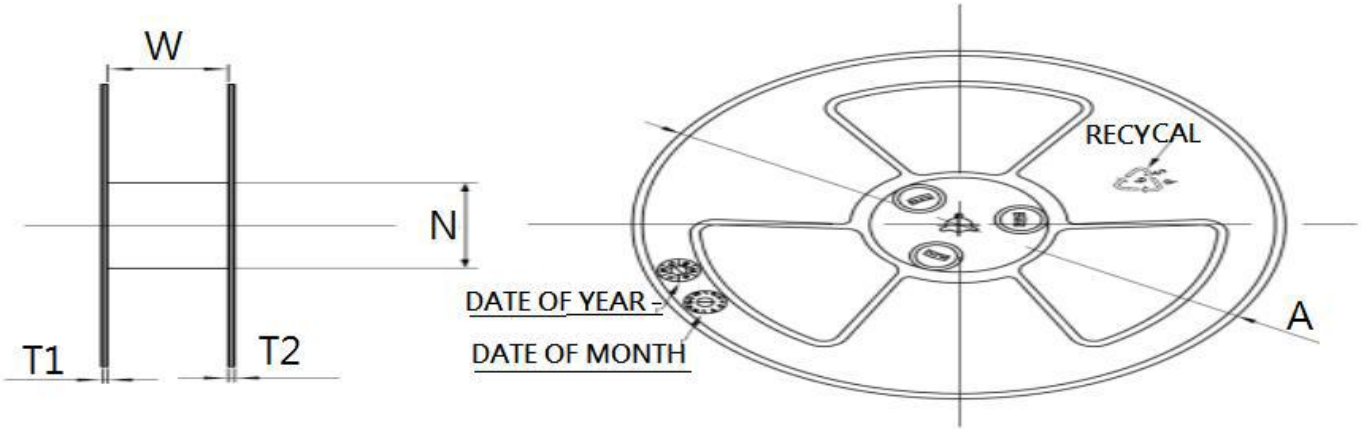
Tape packing method description 16mm tape size



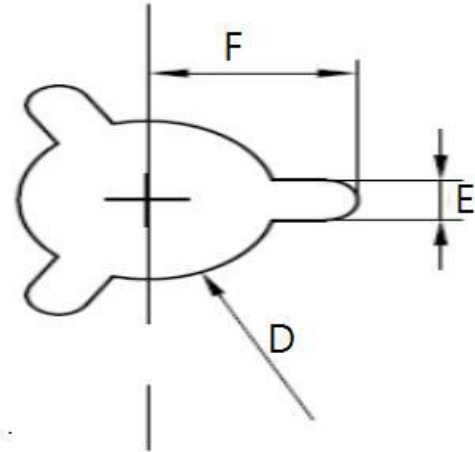
symbol	A0	BO	KO	PO	P1	P2	长度/盘
Spec	6.60±0.1	8.70±0.1	4.50±0.1	4.00±0.10	12.0±0.10	2.00±0.10	24000mm
symbol	W	T	E	F	DO	D1	元件/盘
Spec	16.0±0.3	0.40±0.05	1.75±0.10	7.5±0.1	1.50 ^{+0.1} ₋₀	1.50±0.10	1820 pcs



15 inch rubber disc size



SPEC	16
E±0.5	2.3
F±0.5	10.75
W±0.5	16.4
T1±0.3	2.2
T2±0.3	2.2
A +0-2	∅ 380
N ±3.0	∅ 100
D ±0.3	13.3



Packing carton

