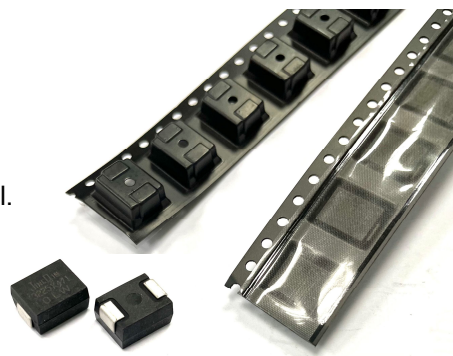


Descriptions:

SMD disk varistors are disk shaped varistors that are encapsulated in a plastic housing. They are suitable for SMD assembly. The encapsulation is made of flame-retardant material.



Features:

1. Encapsulation: Thermoplastic, flame-retardant to UL 94 V-0.
2. Electrical equivalents to leaded types: 10D Series
3. SMD plastic package, available in tape and reel
4. Lead free and RoHS and REACH compliant.
5. Good solderability

Approvals:

CQC no.: V2021CQC001008-783237
V2021CQC001008-783234

TUV no: 6810021002201
6810021002301

UL no.: 4789854187 (Temp. no.)(Under review)



How to Order:

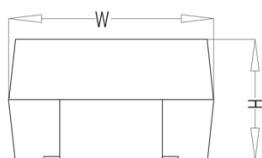
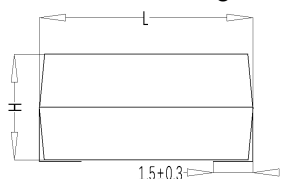
JQ	4032	K	471	G2
↓	↓	↓	↓	↓
Series Name	Case size: 4032 10.0 x 8.2mm	Voltage Tol. K=±10%	V1mA 47*10 ¹ =470V	Taping Mode: G2=Taped, 380mm plastic Reel 1500pcs / Reel

General Technical Data:

Operating temperature	-55 - +125	°C
Storage temperature	-55 - +125	°C
Coating Insulation Voltage Capability	≥ 2.5	K _V RMS
Coating Insulation Resistance	≥ 100	MΩ

Product Dimensions:

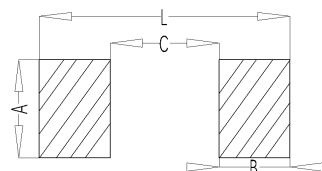
Dimensional drawing



Dimensions in mm

Chip size	V _{RMS,max}	L	W	H
4032	201-681	11.0 ± 0.3	8.2 ± 0.1	4.8 ± 0.3
	751-821			5.5 ± 0.3

Recommended solder pad layout



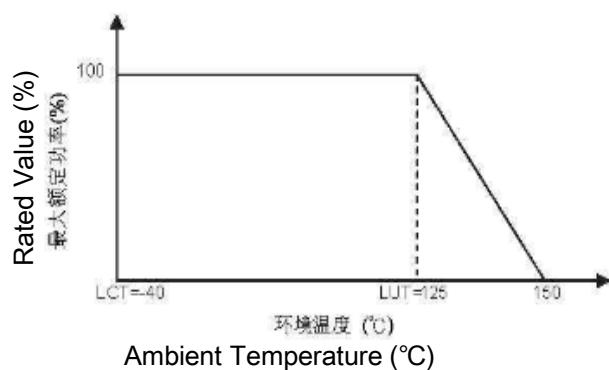
Dimensions in mm

Chip size	A	B	C	L
4032	3.5	2.8	6.5	12.1

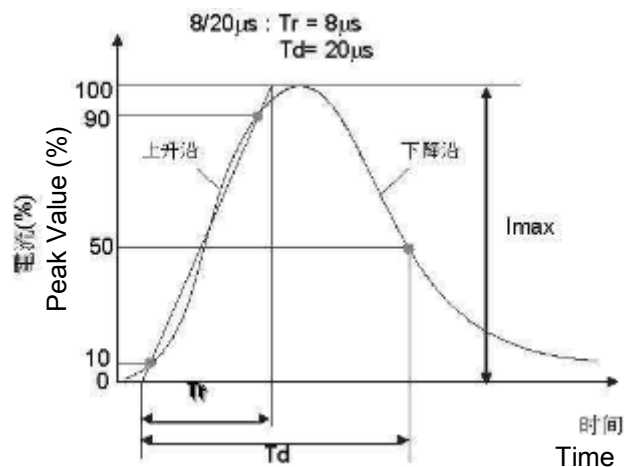
Ratings and Specifications:

TYPE	Varistor Voltage	Maximum Rating					Maximum Clamping		Rated	Typical
	(@1mA DC)	Continuous		Transient			Voltage		Power	Capacitance
	V _{1mA}	V _{AC}	V _{DC}	Energy	Peak Current (8/20μs)		(8/20μs)			@1KHZ
	(V)	(V)	(V)	^{10 x 1000μs} (J)	I max (A)	40 times (KV/KA)	V _p (V)	I _p (A)	P (W)	C (PF)
4032K201	200(180-220)	130	170	25	2500	3.5KV/1.75KA	340	25	0.4	500
4032K221	220(198-242)	140	180	27	2500	3.5KV/1.75KA	360	25	0.4	450
4032K241	240(216-264)	150	200	30	2500	3.5KV/1.75KA	395	25	0.4	420
4032K271	270(243-297)	175	225	35	2500	3.5KV/1.75KA	455	25	0.4	370
4032K301	300(270-330)	195	250	40	2500	3.5KV/1.75KA	500	25	0.4	330
4032K331	330(297-363)	210	275	42	2500	3.5KV/1.75KA	550	25	0.4	300
4032K361	360(324-396)	230	300	45	2500	3.5KV/1.75KA	595	25	0.4	280
4032K391	390(351-429)	250	320	50	2500	3.5KV/1.75KA	650	25	0.4	260
4032K431	430(387-473)	275	350	55	2500	3.5KV/1.75KA	710	25	0.4	230
4032K471	470(423-517)	300	385	60	2500	3.5KV/1.75KA	775	25	0.4	210
4032K511	510(459-561)	320	410	67	2500	3.5KV/1.75KA	845	25	0.4	200
4032K561	560(504-616)	350	450	69	2500	3.5KV/1.75KA	930	25	0.4	180
4032K621	620(558-682)	395	510	70	2500	3.5KV/1.75KA	1020	25	0.4	160
4032K681	680(612-748)	420	560	72	2500	3.5KV/1.75KA	1120	25	0.4	150
4032K751	750(675-825)	460	615	75	2500	3.5KV/1.75KA	1235	25	0.4	130

Peak Current, Energy and Power Derating Curve

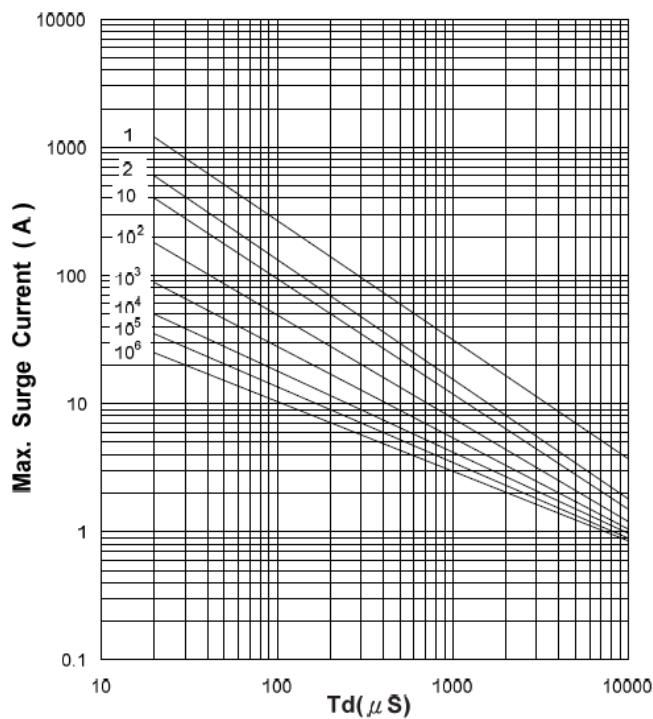


Peak Pulse Current Test Waveform for Clamping Voltage

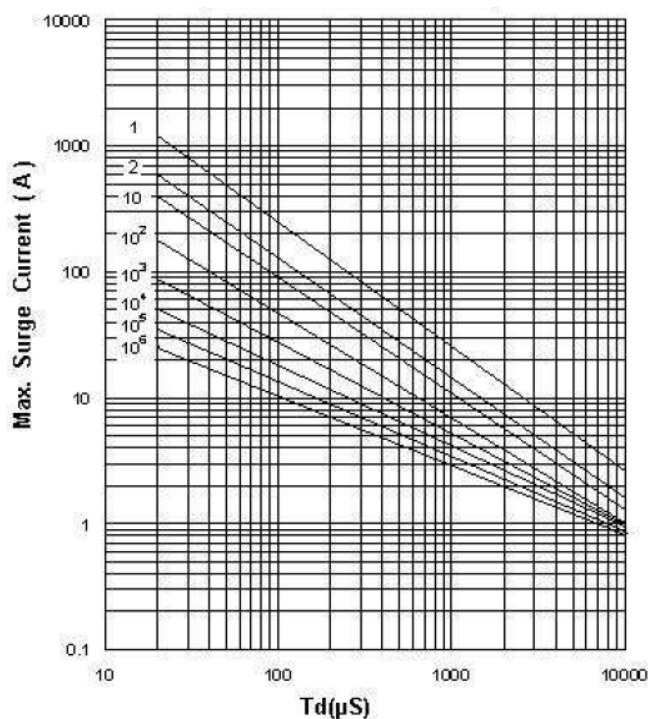


Derating Curves:

4032K201-4032K471

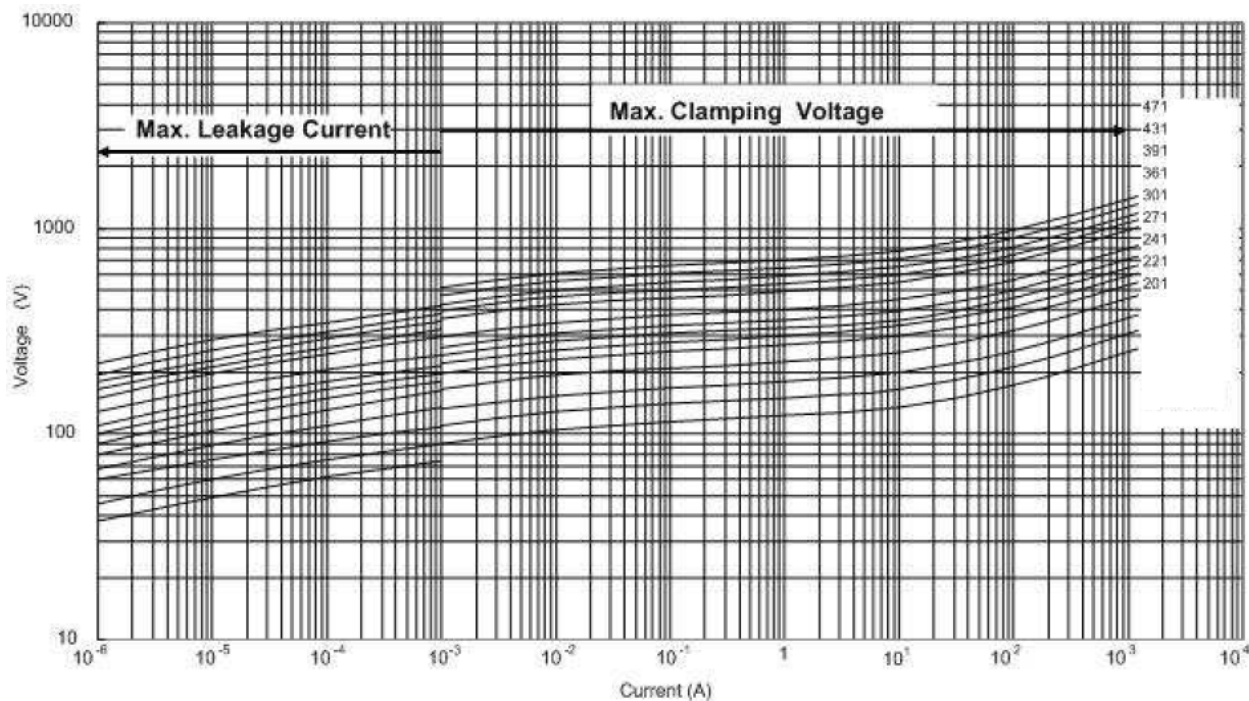


4032K511-4032K821

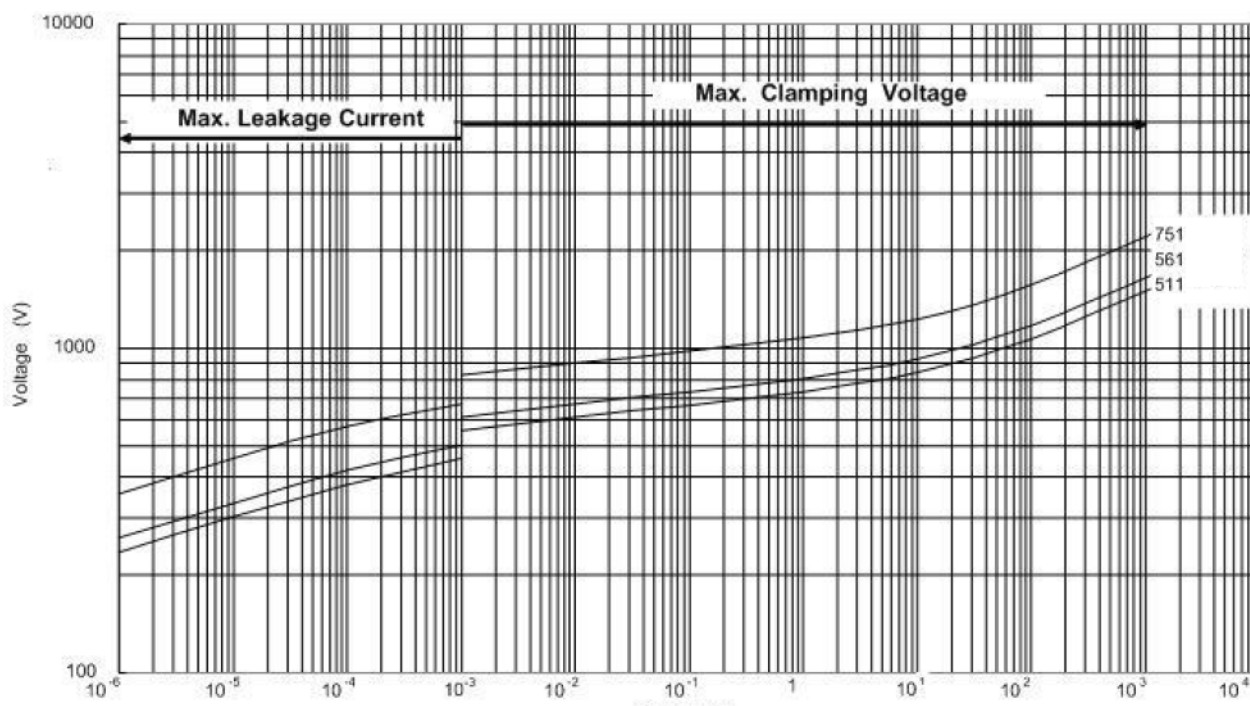


V/I Characteristics:

4032K201- 4032K471



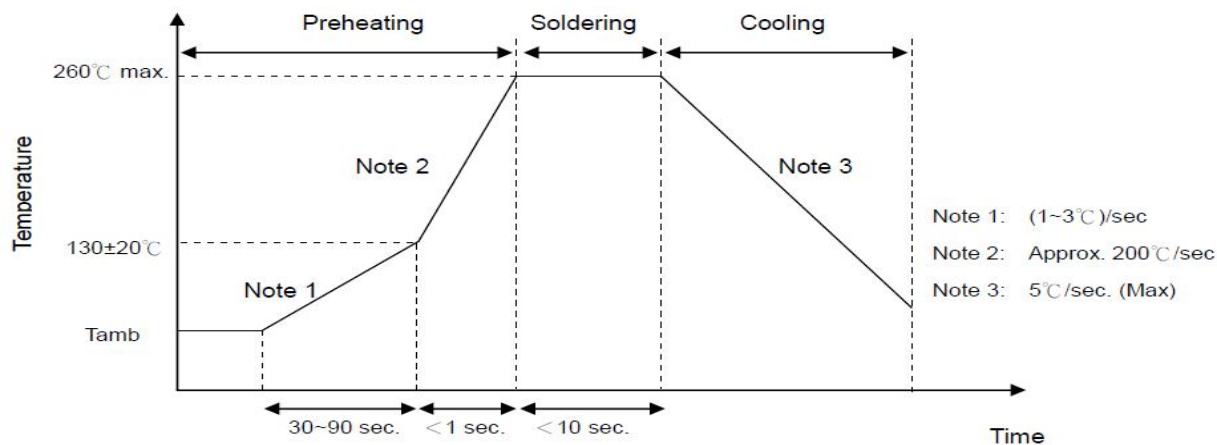
4032K511-4032K751



All data is subject to change, please visit our website at <http://www.shin-hang.com.tw> for updates.

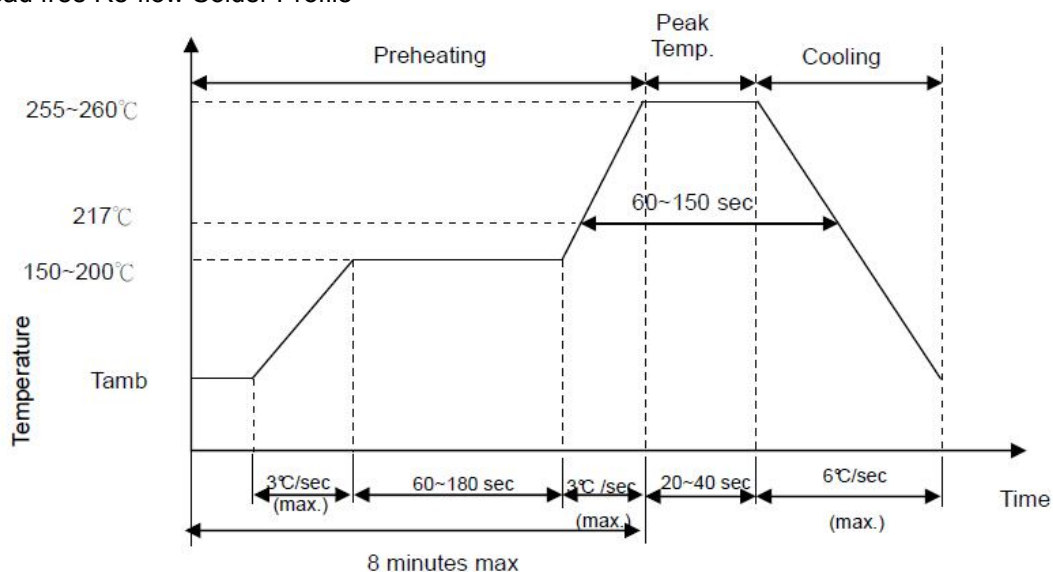
Lead (Pb) Soldering Recommendations:

Wave Solder Profile



Lead-free (Pb-free) Soldering Recommendations:

Lead free Re-flow Solder Profile



Environmental Specifications:

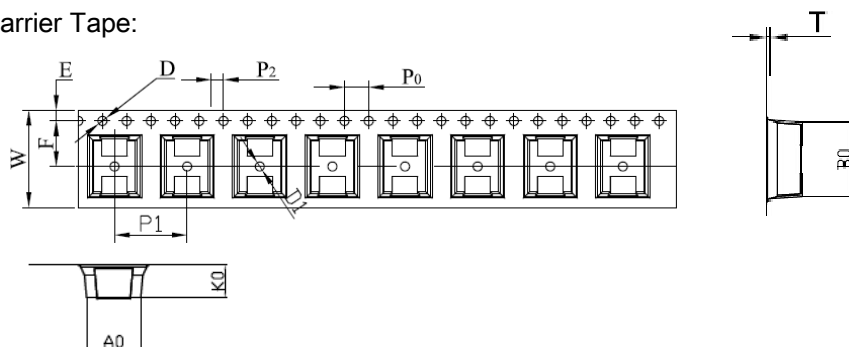
Maximum Soldering-iron head Temperature	360	$^{\circ}\text{C}$
Time within	3	s
Maximum Soldering bit diameter	$\Phi 3$	mm

Reliability Data:

Test	Standard	Test Methods/Conditions	Requirement															
Vibration	IEC 1051-1	Amplitude: 0.75mm or 98 m/s ² Frequency range: 10Hz - 55Hz-10Hz Duration: 6h (3*2h) After repeatedly applying a single harmonic vibration according to the table above. The change of Vv shall be measured and the specimen shall be visually examined.	$I \Delta V/V_{1mA} \leq 5\%$ No visible damage															
Solderability	IEC 60068-2-20	Solder bath T= 235°C±5°C t= 2s	The terminations shall be uniformly tinned for soldering test.															
Resistance to soldering heat	IEC 60068-2-20	Solder bath T: 350 °C±10 °C d= 10 ± 1s	$I \Delta V/V_{1mA} \leq 5\%$ No visible damage															
High Temp. Storage	IEC 60068-2-2	The specimen shall be stored at 125 ± 5°C for 1000h, then stored at room temperature for 1 to 2h. Thereafter, the change of varistor voltage shall be measured.	$I \Delta V/V_{1mA} \leq 5\%$															
Damp heat., steady state	IEC60068-2-3	1. The specimen shall be subjected to 40 ± 2°C, 95% R.H. for 1000h. 2. The specimen shall be subjected to 40 ± 2°C, 95% R.H., with maximum continuous DC operating voltage V _{DC} for 1000h.	$I \Delta V/V_{1mA} \leq 10\%$ Rins≥100MΩ No visible damage															
Rapid change of temperature	IEC 60068-2-14	Dwell time 30 mins. 5 cycles, then stored at room temperature for 1 to 2h. Thereafter, the change of Varistor voltage shall be measured. <table><tr><th>Step</th><th>Temperature(°C)</th><th>Period(minutes)</th></tr><tr><td>1</td><td>-40±3</td><td>30±3</td></tr><tr><td>2</td><td>Room temperature</td><td>5±3</td></tr><tr><td>3</td><td>+125±2</td><td>30±3</td></tr><tr><td>4</td><td>Room temperature</td><td>5±3</td></tr></table>	Step	Temperature(°C)	Period(minutes)	1	-40±3	30±3	2	Room temperature	5±3	3	+125±2	30±3	4	Room temperature	5±3	$I \Delta V/V_{1mA} \leq 5\%$ No visible damage
Step	Temperature(°C)	Period(minutes)																
1	-40±3	30±3																
2	Room temperature	5±3																
3	+125±2	30±3																
4	Room temperature	5±3																
Endurance at high temperature	IEC 61051-4.20	After having continuously applied the maximum allowable AC coltage at 125 ± 2°C for 1000h. The specimen should be stored at room temperature 1 to 2h. Thereafter, the change of varistor voltage shall be measured.	$I \Delta V/V_{1mA} \leq 10\%$ No visible damage															
Temp. Coefficient of clamping voltage	See specification	$\frac{V_{1mA} \text{ at } 125^{\circ}\text{C} - V_{1mA} \text{ at } 25^{\circ}\text{C}}{V_{1mA} \text{ at } 25^{\circ}\text{C}} \times \frac{1}{100} \times 100(\%/^{\circ}\text{C})$	-0.05 ≤ Tc ≤ 0(%/°C)															
Coating isolation voltage capability	IEC61051-4.8	Dielectric must withstand AC 2500V for one minute.	No visible damage															

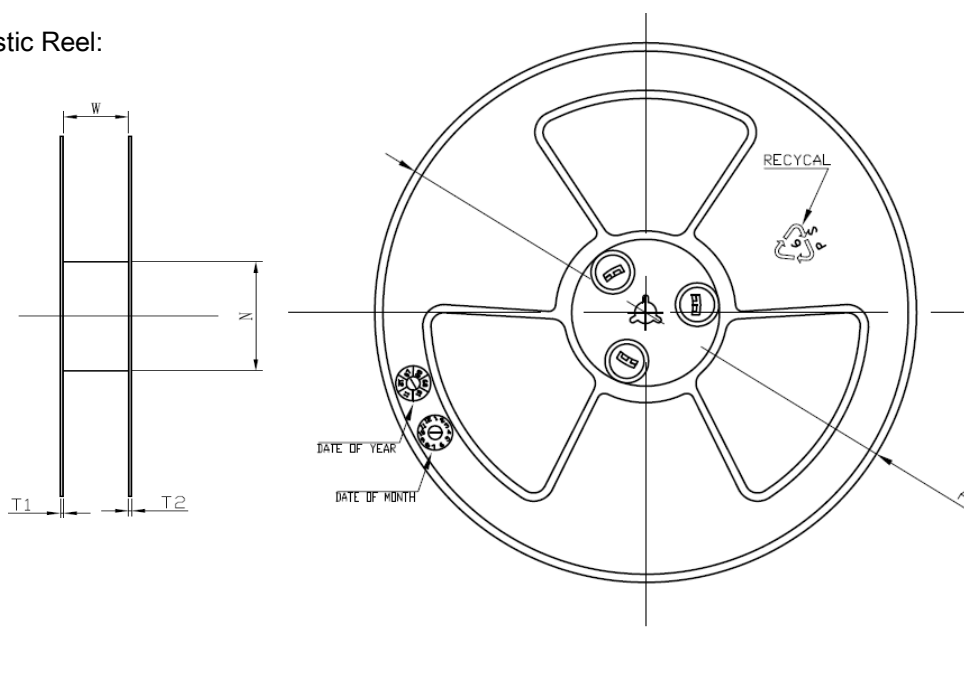
Tape & Reel Specification:

Carrier Tape:



Part	A0	B0	K0	P0	P1	P2	Reel size
mm	8.50 ± 0.1	11.50 ± 0.1	5.30 ± 0.1	4.00 ± 0.10	12.0 ± 0.10	2.00 ± 0.10	18300
Part	W	T	E	F	D0	D1	Packing unit
mm	24.0 ± 0.3	0.40 ± 0.05	1.75 ± 0.10	11.50 ± 0.1	1.50 +0.1/-0	1.50 ± 0.10	1500pcs

Plastic Reel:



SPEC	24
E±0.5	2.3
F±0.5	10.75
W±0.2	24.4
T1±0.3	2.2
T2±0.3	2.2
A +0 -2	ø380
N±3.0	ø100
D±0.3	13.3

Carton:

