

CSC Series

NTC Power Thermistor



◆ Product Introduction

The NTC power thermistor is a circuit protection and temperature control component with a negative temperature coefficient characteristic. Its core is made of semiconductor ceramic materials such as manganese oxide and cobalt oxide, functioning as an "intelligent inrush current suppressor" and "temperature sensor" for equipment. Its operating mechanism stems from the unique properties of semiconductor materials: when temperature rises, carrier concentration within the material increases significantly, causing resistance to decrease exponentially. Conversely, it maintains high resistance at low temperatures. This characteristic enables precise response to circuit startup surges and temperature variations.

◆ Features

1. Complies with RoHS and halogen-free requirements
2. Body size: $\Phi 5\text{mm} \sim \Phi 30\text{mm}$
3. Radial lead type with resin encapsulation
4. High rated power
5. Wide resistance range
6. Low cost
7. Operating temperature range:
 - $\Phi 5\text{mm}$: -40°C to $+150^{\circ}\text{C}$
 - $\Phi 8\text{mm} \sim \Phi 10\text{mm}$: -40°C to $+170^{\circ}\text{C}$
 - $\Phi 13\text{mm} \sim \Phi 30\text{mm}$: -40°C to $+200^{\circ}\text{C}$
8. Safety certifications: UL / cUL / TUV / CQC

◆ Applications

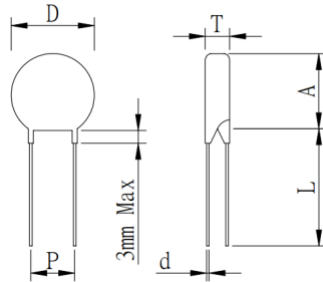
1. Switching Power Supplies
2. Electronic Motors
3. Transformers
4. Adapters
5. Projectors
6. Halogen Lamps
7. LED Driver Circuits

◆ Coding Principles

1	2	3	4	5	6	7	8	9	10	11	12		
Product type		Body size		25°C(R ₂₅) Zore power resistance		Resistance value tolerance		Package style		Lead length		Package method	
CSC	NTC power thermistor	05	Φ 5mm	0R5	0.5 Ω	M: ±20% H: ±25% N: ±30% T: ±40% P: ±50%	S	Straight lead	A	The code does not represent a specific length unit. It is only used to distinguish different length options.	S/ blank	Bulk	
		08	Φ 8mm	2R5	2.5 Ω		I	Inward bent lead			B	Taping	
		10	Φ 10mm	0R0	8 Ω		O	Outward folded lead					
				200	20 Ω		E	Outward bent lead					
				500	50 Ω		Y	Y Kink					
				121	120 Ω		L	L 型					
				103	10K Ω								
				104	100K Ω								
				502	5K Ω								

◆ Structure and Dimensions

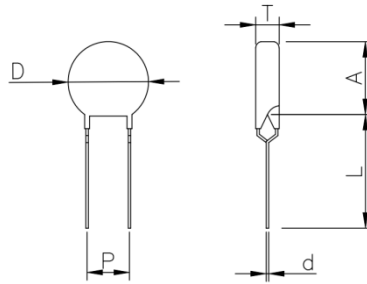
S Type (Straight Lead Type)



Series	Dmax.	P.	d	Amax.	Lmin.	Tmax.	W
CSC05	4.5~6.5	4±0.5	0.8±0.02	6.5	31	2.0~5.0	1.9±0.2
CSC08	6.0~9.5	5±0.5	0.8±0.02	9.5	31	2.5~5.0	2.1±0.3
CSC10	9.0~11.5	5±0.5	0.8±0.02	11.5	31	2.5~5.0	2.1±0.3
CSC13	11.5~14.5	7.5±0.5	0.8±0.02	14.5	30	2.5~6.0	2.3±0.3
CSC15	13.0~16.5	7.5±0.5	1.0±0.02	16.5	29	3.0~6.0	2.5±0.3
CSC20	18.0~21.5	7.5±0.5	1.0±0.02	21.5	26	3.5~6.0	2.6±0.3
CSC25	23.0~29.0	7.5±1	1.0±0.02	29.0	25	4.0~6.0	3.1±0.5
CSC30	30.0~36.0	7.5±1	1.0±0.02	36.0	23	4.0~6.0	3.1±0.5

(Unit: mm)

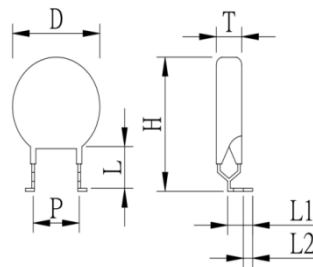
Y Type (Y-shaped Lead Type)



Series	Dmax.	P.	d	Amax.	Lmin.	Tmax.
CSC05	4.5~6.5	4±0.5	0.8±0.02	11.0	29	2.0~5.0
CSC08	6.0~9.5	5±0.5	0.8±0.02	13.0	29	2.5~5.0
CSC10	9.0~11.5	5±0.5	0.8±0.02	15.0	29	2.5~5.0
CSC13	11.5~14.5	7.5±0.5	0.8±0.02	17.5	27	2.5~6.0
CSC15	13.0~16.5	7.5±0.5	1.0±0.02	19.0	26	3.0~6.0
CSC20	18.0~21.5	7.5±0.5	1.0±0.02	24.5	25	3.5~6.0
CSC25	23.0~29.0	7.5±1	1.0±0.02	35.0	22	4.0~6.0
CSC30	30.0~36.0	7.5±1	1.0±0.02	42.0	22	4.0~6.0

(Unit: mm)

L Type (L-shaped Lead Type)



(Unit: mm)

Series	Dmax.	P.	d	Tmax.	L	Hmax.	L1	L2
CSC08	6.0~9.5	5±0.5	0.8±0.02	2.5~5.0	5.0±0.5	15	7.8±1.0	3.5±0.5
CSC10	9.0~11.5	5±0.5	0.8±0.02	2.5~5.0	5.0±0.5	17	7.8±1.0	3.5±0.5
CSC13	11.5~14.5	7.5±0.5	0.8±0.02	2.5~6.0	5.0±0.5	19	7.8±1.0	3.5±0.5
CSC15	13.0~16.5	7.5±0.5	1.0±0.02	3.0~6.0	4.0±0.5	21	9.0±1.0	3.5±0.5
CSC20	18.0~21.5	7.5±0.5	1.0±0.02	3.5~6.0	4.5±0.5	26	9.0±1.0	3.5±0.5

◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current@ 25°C	Residual Resistance at Maximum Steady-State Current @25°C	Recommended Capacitance @240Vac	Maximum Rated Power@ 25°C	Dissipation factor	Thermal time consistence	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _{lmax} (Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC05050□	5	2	0.429	100	1.8	Approx.15	Approx.17	- 40~+150
CSC05080□	8	1	1.089	68				
CSC05100□	10	1	1.126	100				
CSC05120□	12	1	1.184	68				
CSC05200□	20	0.3	5.560	100				
CSC08040□	4	2	0.441	220	2.3	Approx.16	Approx.38	- 40~+170
CSC084R7□	4.7	2	0.445	220				
CSC08050□	5	3	0.261	220				
CSC08060□	6	3	0.283	220				
CSC08070□	7	3	0.287	220				
CSC08080□	8	2	0.520	220				
CSC08100□	10	2	0.542	220				
CSC08150□	15	2	0.548	100				
CSC08200□	20	1	1.544	100				
CSC08300□	30	0.5	4.094	100				
CSC10010□	1	5	0.091	470	2.4	Approx.17	Approx.43	- 40~+170
CSC101R3□	1.3	5	0.095	330				
CSC101R5□	1.5	5	0.101	330				
CSC102R5□	2.5	5	0.120	470				
CSC10030□	3	5	0.127	560				
CSC10040□	4	4	0.161	560				
CSC10050□	5	4	0.180	470				
CSC106R8□	6.8	3	0.270	330				
CSC10080□	8	3	0.278	330				
CSC10100□	10	3	0.297	330				
CSC10120□	12	3	0.301	470				
CSC10130□	13	3	0.356	330				
CSC10150□	15	2.5	0.442	330				
CSC10160□	16	2.5	0.471	330				
CSC10200□	20	2	0.646	330				

Note: □ = R₂₅ tolerance

◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current@ 25°C	Residual Resistance at Maximum Steady-State Current @25°C	Recommended Capacitance @240Vac	Maximum Rated Power@ 25°C	Dissipation factor	Thermal time consistency	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _{Imax} (Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC10200□	20	2	0.646	330	2.4	Approx.17	Approx.4 3	-40~+170
CSC10220□	22	2	0.659	220				
CSC10250□	25	2	0.674	330				
CSC10300□	30	2	0.700	330				
CSC10470□	47	2	0.720	330				
CSC10500□	50	2	0.813	330				
CSC10800□	80	1	2.236	220				
CSC10101□	100	1	2.318	200				
CSC10121□	120	1	2.406	200				

Note:□=R₂₅ tolerance

YAGEO SENSOR

◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current@ 25°C	Residual Resistance at Maximum Steady-State Current @ 25°C	Recommended Capacitance @240Vac	Maximum Rated Power @25°C	Dissipation factor	Thermal time consistency	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _I max(Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC13010□	1	3	0.174	560	3.1	Approx.18	Approx.66	-40~+200
CSC131R3□	1.3	7	0.070	470				
CSC132R5□	2.5	6	0.094	560				
CSC13040□	4	5	0.132	560				
CSC134R7□	4.7	4	0.168	560				
CSC13050□	5	5	0.166	560				
CSC13070□	7	4	0.184	470				
CSC13080□	8	4	0.206	470				
CSC13100□	10	4	0.217	470				
CSC13120□	12	4	0.230	560				
CSC13150□	15	3	0.343	560				
CSC13160□	16	3	0.348	560				
CSC13180□	18	3	0.365	560				
CSC13200□	20	3	0.410	470				
CSC150R7□	0.7	8	0.051	680	3.6	Approx.21	Approx.75	-40~+200
CSC15010□	1	8	0.054	680				
CSC151R3□	1.3	8	0.064	680				
CSC151R5□	1.5	8	0.068	800				
CSC15020□	2	8	0.078	680				
CSC152R5□	2.5	8	0.086	680				
CSC15030□	3	7	0.091	820				
CSC15040□	4	6	0.117	800				
CSC15050□	5	6	0.121	820				
CSC15060□	6	5	0.159	680				
CSC15070□	7	5	0.161	820				
CSC15080□	8	5	0.165	680				
CSC15100□	10	5	0.178	820				
CSC15120□	12	5	0.185	680				
CSC15150□	15	4	0.261	820				

Note:□=R₂₅ tolerance

◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current @25°C	Residual Resistance at Maximum Steady-State Current @ 25°C	Recommended Capacitance @240Vac	Maximum Rated Power @25°C	Dissipation factor	Thermal time consistence	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _{imax} (Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC15160□	16	4	0.265	820	3.6	Approx.21	Approx.75	-40~+200
CSC15180□	18	4	0.273	680				
CSC15160□	16	4	0.265	820				
CSC15180□	18	4	0.273	680				
CSC15200□	20	4	0.283	820				
CSC15220□	22	4	0.308	560				
CSC15250□	25	3	0.425	680				
CSC15300□	30	3	0.461	680				
CSC15330□	33	3	0.484	560				
CSC15400□	40	3	0.511	680				
CSC15470□	47	3	0.517	680				
CSC15800□	80	2.5	0.693	560				
CSC15120□	120	2	1.010	560				

Note: □ = R₂₅ tolerance

YAGEO SENSOR

◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current @25°C	Residual Resistance at Maximum Steady-State Current @ 25°C	Recommended Capacitance @240Vac	Maximum Rated Power@ 25°C	Dissipation factor	Thermal time consistence	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _I max(Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC200R7□	0.7	15	0.035	1000	4.9	Approx.28	Approx. 113	-40~+200
CSC20010□	1	13	0.034					
CSC201R5□	1.5	10.5	0.041					
CSC20020□	2	10	0.062					
CSC202R5□	2.5	9	0.083					
CSC20030□	3	8.5	0.078					
CSC20040□	4	8	0.080					
CSC204R7□	4.7	7.5	0.114					
CSC20050□	5	7.5	0.118					
CSC20060□	6	7	0.120					
CSC206R8□	6.8	6.5	0.130					
CSC20700□	7	6.5	0.132					
CSC20800□	8	6	0.161					
CSC20100□	10	5.5	0.196					
CSC20120□	12	5	0.197					
CSC20130□	13	5	0.213					
CSC20150□	15	4.5	0.258					
CSC20160□	16	4.5	0.276					
CSC20180□	18	4	0.280					
CSC20200□	20	4	0.306					
CSC25010□	1	20	0.020	1200	7.0	Approx.30	Approx. 130	-40~+200
CSC251R5□	1.5	18.5	0.023					
CSC25020□	2	18	0.025					
CSC252R5□	2.5	15	0.032					
CSC25030□	3	14.5	0.042					
CSC25040□	4	14	0.044					
CSC254R7□	4.7	13	0.052					
CSC25050□	5	12	0.061					
CSC256R8□	6.8	10.5	0.082					
CSC25070□	7	10	0.092					

Note: □ = R₂₅ tolerance

◆ electrical characteristics

型号	零功率 电阻 @25°C	最大稳 态电流 @ 25°C	最大稳态 电流下的 残余电阻 @25°C	建议电容 值 @240Vac	最大额定 功率 @25°C	耗散系数	热时 常数	工作温度范 围
	R ₂₅ (Ω)	I _{max} (A)	R _{Imax} (Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC25080□	8	9	0.115	1200	7.0	Approx.30	Approx. 130	-40~+200
CSC25070□	7	10	0.092					
CSC25080□	8	9	0.115					
CSC25100□	10	8	0.141					
CSC25120□	12	7.5	0.164					
CSC25150□	15	6.5	0.210					
CSC25180□	18	5.5	0.231					
CSC25200□	20	5	0.270					

Note:□=R₂₅ tolerance

YAGEO SENSOR

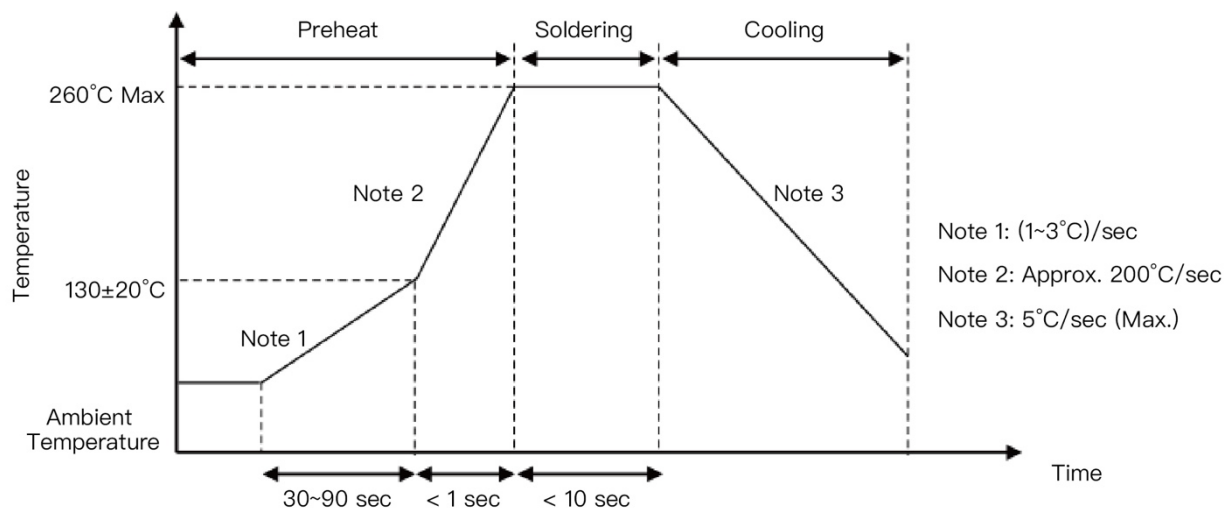
◆ electrical characteristics

Part No	Zero power resistance @25°C	Maximum Steady-State Current @25°C	Residual Resistance at Maximum Steady-State Current @25°C	Recommended Capacitance @240Vac	Maximum Rated Power @25°C	Dissipation factor	Thermal time consistence	Operation temperature range
	R ₂₅ (Ω)	I _{max} (A)	R _{Imax} (Ω)	C _T (μF)	P _{max} (W)	δ(mW/°C)	τ(Sec.)	T _L ~T _U (°C)
CSC30010□	1	30	0.016	1500	8.0	Approx.40	Approx.190	-40~+200
CSC301R5□	1.5	25	0.020					
CSC30020□	2	23	0.022					
CSC302R5□	2.5	18	0.030					
CSC30030□	3	17	0.035					
CSC30040□	4	16	0.048					
CSC304R7□	4.7	15	0.055					
CSC30050□	5	14	0.057					
CSC306R8□	6.8	12	0.077					
CSC30070□	7	11.5	0.084					
CSC30080□	8	10.5	0.100					
CSC30100□	10	10	0.115					
CSC30120□	12	9	0.142					
CSC30150□	15	8	0.175					
CSC30180□	18	7	0.210					
CSC30200□	20	6	0.233					

Note: □ = R₂₅ tolerance

◆ Recommended Soldering Conditions

● Reflow Soldering Profile



● Recommended Rework Soldering Conditions

Item	Condition
Soldering Iron Tip Temperature	360°C (max.)
Soldering Time	3 sec. (max.)
Distance Between Soldering Point and Coating Layer	2 mm (min.)

◆ Reliability

Test Item	Test Standard	Test Condition / Method	Performance Requirement															
Terminal Strength	IEC 60068-2-21	Apply the specified load gradually and maintain it at a fixed position for 10 ± 1 seconds. <table><tr><td>Lead Diameter (mm)</td><td>Lead Pull Strength (Kg)</td></tr><tr><td>0.5<d≤0.80</td><td>1.0</td></tr><tr><td>0.8<d≤1.25</td><td>2.0</td></tr></table>	Lead Diameter (mm)	Lead Pull Strength (Kg)	0.5<d≤0.80	1.0	0.8<d≤1.25	2.0	$ \Delta R_{25}/R_{25} \leq 10\%$									
Lead Diameter (mm)	Lead Pull Strength (Kg)																	
0.5<d≤0.80	1.0																	
0.8<d≤1.25	2.0																	
Solderability	IEC 60068-2-20	245 ± 3°C, 3 ± 0.3 sec	Solder coverage≥95%															
Resistance to Soldering Heat	IEC 60068-2-20	260 ± 3°C, 10 ± 1 sec	No visible damage $ \Delta R_{25}/R_{25} \leq 10\%$															
High Temperature Storage	IEC 60068-2-2	Tu ± 5 °C, 1000± 24 hours	No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C, 90~95% RH, 1000 ± 24 hours	No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Rapid Temperature Change	IEC 60068-2-14	Temperature cycling: 5 cycles (see table below). <table><tr><td>Step</td><td>Temperature(°C)</td><td>Duration (min.)</td></tr><tr><td>1</td><td>T_L ± 5</td><td>30±3</td></tr><tr><td>2</td><td>Room Temperature</td><td>5±3</td></tr><tr><td>3</td><td>T_U ± 5</td><td>30±3</td></tr><tr><td>4</td><td>Room Temperature</td><td>5±3</td></tr></table>	Step	Temperature(°C)	Duration (min.)	1	T _L ± 5	30±3	2	Room Temperature	5±3	3	T _U ± 5	30±3	4	Room Temperature	5±3	No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$
Step	Temperature(°C)	Duration (min.)																
1	T _L ± 5	30±3																
2	Room Temperature	5±3																
3	T _U ± 5	30±3																
4	Room Temperature	5±3																
Maximum Current (I _{max})	IEC 60539-1 4.26.1	25 ± 5°C, I _{max} ., 1000± 24 hours	No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Durability (OnOff)	Specification Standard	25 ± 5°C, I _{max} ., C _{th} , 1 min. ON / 5 min. OFF × 1000 cycles C _{th} = Recommended capacitance value at 240 Vac	No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Insulation Test	MIL-STD-202F - Method 302	1000V _{DC} , 1 minute	≥500 MΩ															

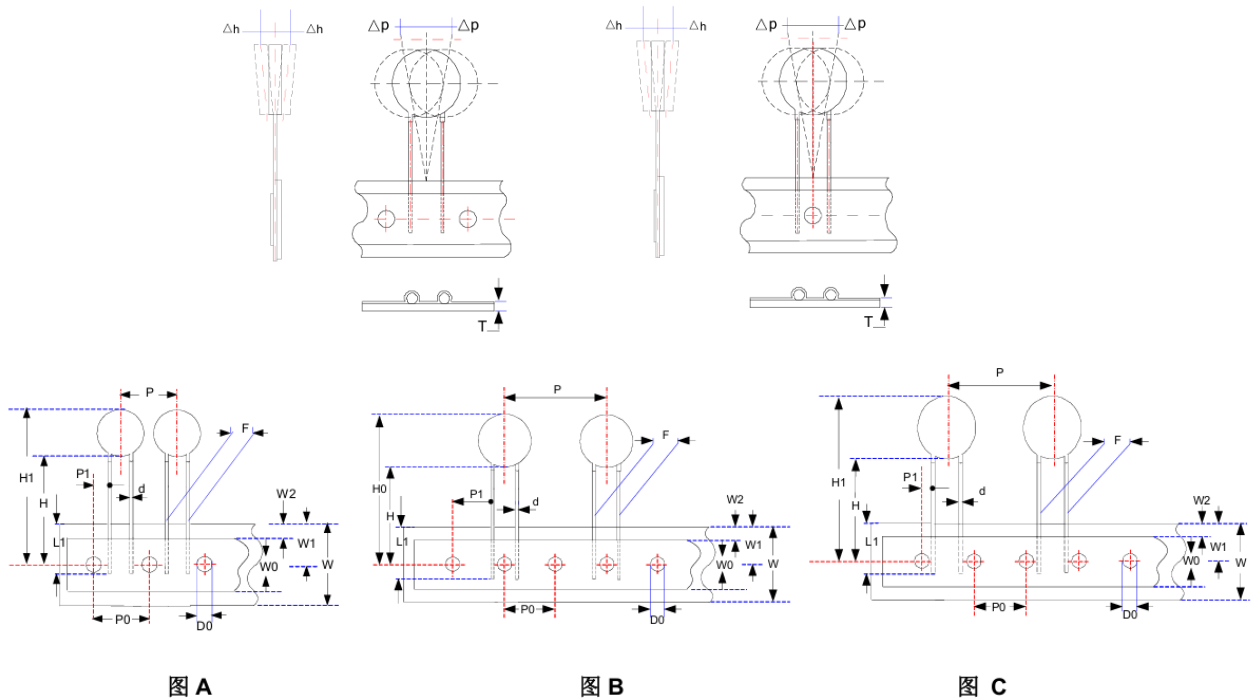
◆ Packaging Method

● Taping Packaging

S Type (Straight Lead Type)

Tape Dimensions	Body Dimensions	P ₀	F	P	P ₁	H	H ₁	d	W ₀	W ₁	W ₂	W	ΔP	Δh	L ₁	D ₀	T	Figure
		±0.3	±0.5	±1	±0.7	+2/-0	MAX	±0.02	±1.5	+0.75/-0.5	Max.	+1/-0.5	Max.	Max.	Min.	±0.2	±0.2	
P ₀ =12.7	05	12.7	4.0	12.7	4.35	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	12.7	5.0	12.7	3.85	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	12.7	5.0	12.7	3.85	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	12.7	7.5	25.4	8.95	18	35	0.8	12	9	3	18	1	2	9	4	0.6	B
	15	12.7	7.5	25.4	8.95	18	37	1.0	12	9	3	18	1	2	9	4	0.6	B
	20	12.7	7.5	25.4	8.95	18	42	1.0	12	9	3	18	1	2	9	4	0.6	B
P ₀ =15.0	05	15.0	4.0	15.0	5.50	18	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	15.0	5.0	15.0	5.00	18	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	15.0	5.0	15.0	5.00	18	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	15.0	7.5	15.0	3.75	18	35	0.8	12	9	3	18	1	2	9	4	0.6	A
	15	15.0	7.5	30.0	3.75	18	37	1.0	12	9	3	18	1	2	9	4	0.6	C
	20	15.0	7.5	30.0	3.75	18	42	1.0	12	9	3	18	1	2	9	4	0.6	C

(Unit: mm)



Y Type (Y-shaped Lead Type)

Tape Dimension s	Body Dimen sion	P ₀	F	P	P ₁	H	H ₁	d	W ₀	W ₁	W ₂	W	ΔP	Δh	L ₁	D ₀	T	Fig ure
		±0.3	± 0.5	±1	±0.7	+2/ -0	MAX	± 0.02	± 1.5	+0.75 /-0.5	Max.	+1/ -0.5	Max.	Max.	Min.	± 0.2	±0.2	
P ₀ =12.7	05	12.7	4.0	12.7	4.35	16	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	12.7	5.0	12.7	3.85	16	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	12.7	5.0	12.7	3.85	16	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	12.7	7.5	25.4	8.95	16	35	0.8	12	9	3	18	1	2	9	4	0.6	B
	15	12.7	7.5	25.4	8.95	16	37	1.0	12	9	3	18	1	2	9	4	0.6	B
	20	12.7	7.5	25.4	8.95	16	42	1.0	12	9	3	18	1	2	9	4	0.6	B
P ₀ =15.0	05	15.0	4.0	15.0	5.50	16	28	0.8	12	9	3	18	1	2	9	4	0.6	A
	08	15.0	5.0	15.0	5.00	16	30	0.8	12	9	3	18	1	2	9	4	0.6	A
	10	15.0	5.0	15.0	5.00	16	32	0.8	12	9	3	18	1	2	9	4	0.6	A
	13	15.0	7.5	15.0	3.75	16	35	0.8	12	9	3	18	1	2	9	4	0.6	A
	15	15.0	7.5	30.0	3.75	16	37	1.0	12	9	3	18	1	2	9	4	0.6	C
	20	15.0	7.5	30.0	3.75	16	42	1.0	12	9	3	18	1	2	9	4	0.6	C

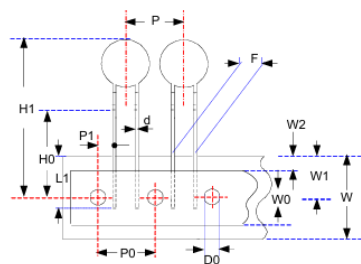


图 A

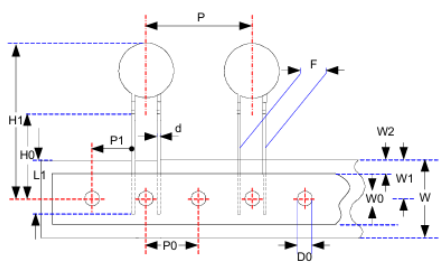


图 B

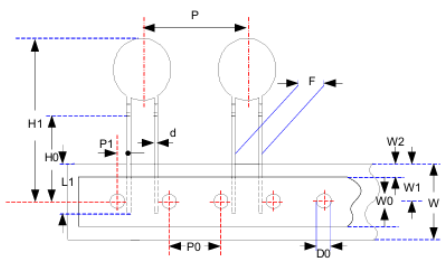
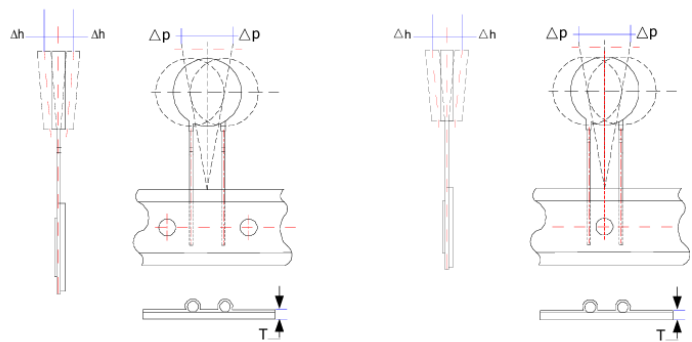


图 C



(Unit: mm)

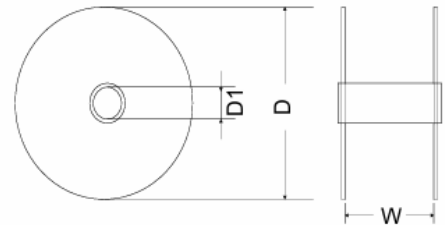
◆ Packaging Quantity

● Bulk Packaging

Series	S Type Quantity (pcs/bag)	Y Type Quantity (pcs/bag)	L Type Quantity (pcs/bag)
CSC05	250	500	---
CSC08	250	250	200
CSC10	200	250	200
CSC13	100	200	100
CSC15	100	100	100
CSC20	500 (pcs/box)	50	50
CSC25	396 (pcs/box)	396 (pcs/box)	---
CSC30	396 (pcs/box)	396 (pcs/box)	---

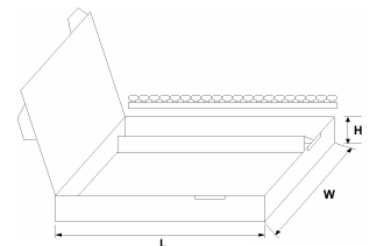
● Reel Packaging

Series	D (mm)	D1 (mm)	W (mm)	Quantity (pcs/reel)
CSC05	340±10	31±1	46±1	1,500
CSC08				1,500
CSC10				1,500
CSC13				750
CSC15			55±1	750
CSC20				500



● Box Packaging

Series	Quantity (pcs/box)
CSC05	1,500
CSC08	1,300
CSC10	1,300
CSC13	600 (P0 12.7mm) / 1,000 (P0 15.0mm)
CSC15	500
CSC20	500



◆ Warehouse Storage Conditions

● Storage Conditions :

1. Storage Temperature: -10°C to +40°C
2. Relative Humidity: ≤75% RH
3. Do not store this product in environments containing corrosive gases or exposed to direct sunlight.

● Storage Period: 1 year

Body Dimension	L	W	H
Φ5~Φ20	345	275	55