

# Power NTC Thermistors For Limiting Inrush Current-PP Series (Phenolic Resin Coating) Data Sheet



## Feature

- Wide diameter range from  $\phi 5$  to  $\phi 20$
- Operating Temperature:  $-40^{\circ}\text{C} \sim 155^{\circ}\text{C}$
- Storage Temperature:  $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$

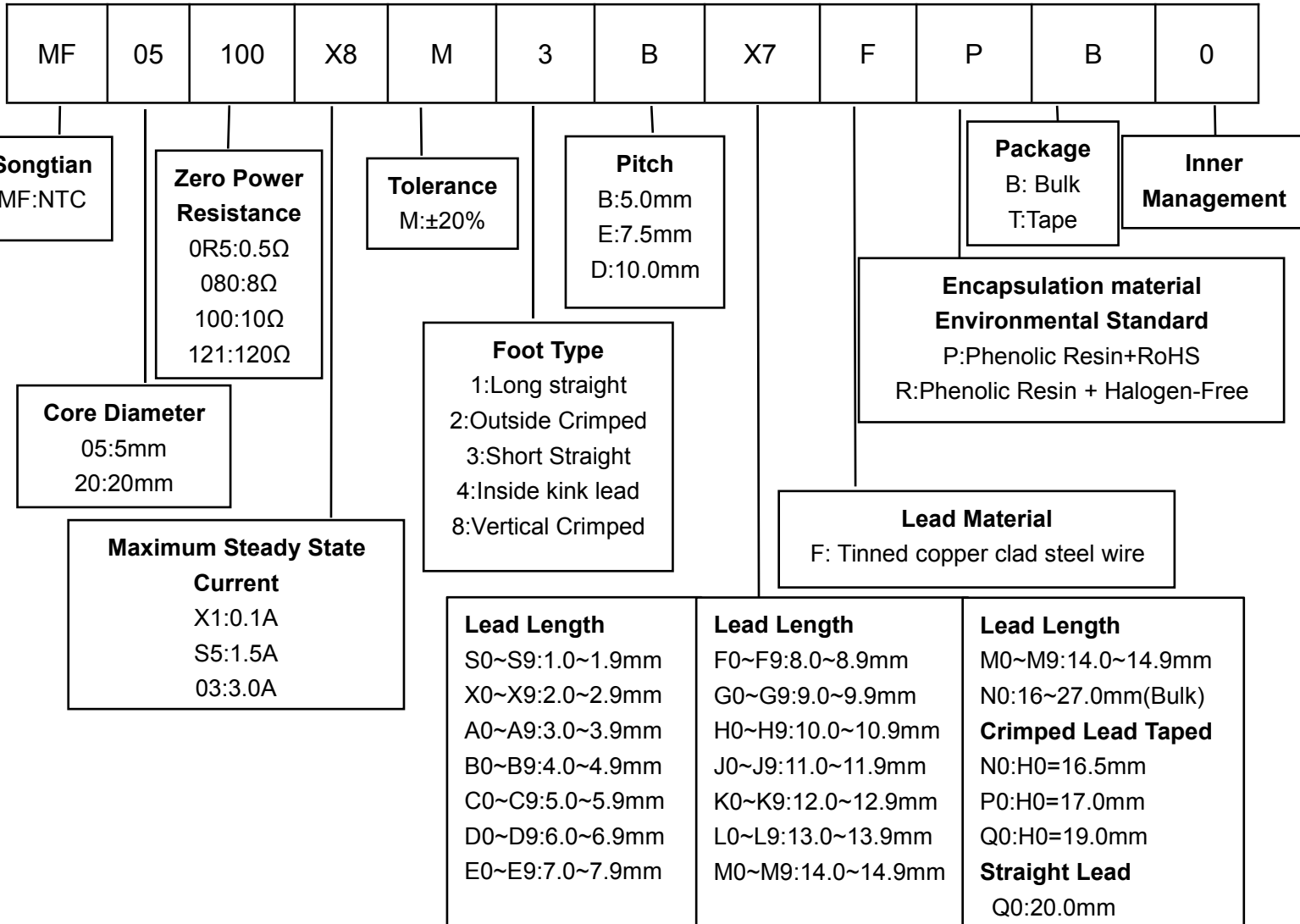
## Applications

- Suitable for power supply, electronic motors, transformers, adapters, projectors, halogen machines, LED drive circuits, etc.

## Applicable Standard

Approval		Organization	Safety Standards	Certificate No.
China		CQC	GB/T 6663.1	CQC15001128226
USA Canada		UL	UL 1434	E474052

## Part Number Code



## Electrical Characteristics

### □ D-5 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
5D-5	5	1	0.353	2500	<20	>6	-40°C~155°C	√	√
8D-5	8	0.8	0.675	2600	<20	>6	-40°C~155°C		
10D-5	10	0.7	0.771	2600	<20	>6	-40°C~155°C	√	√
15D-5	15	0.6	1.53	2600	<20	>6	-40°C~155°C	√	√
20D-5	20	0.5	1.253	2600	<20	>6	-40°C~155°C	√	√
22D-5	22	0.6	2.06	2600	<20	>6	-40°C~155°C	√	√
30D-5	30	0.4	2.227	2600	<20	>6	-40°C~155°C	√	√

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
33D-5	33	0.4	1.324	2600	<20	>6	-40°C~155°C	√	√
50D-5	50	0.4	2.653	2800	<18	>6	-40°C~155°C	√	√
60D-5	60	0.3	1.878	2800	<18	>6	-40°C~155°C	√	√

## □D-7 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
3D-7	3	2	0.218	2600	<30	>10	-40°C~155°C	√	
5D-7	5	2	0.283	2600	<30	>10	-40°C~155°C	√	√
8D-7	8	1	0.539	2600	<28	>9	-40°C~155°C	√	√
10D-7	10	1	0.616	2800	<27	>9	-40°C~155°C	√	√
12D-7	12	1	0.816	2800	<27	>9	-40°C~155°C	√	√
16D-7	16	0.7	1.003	2800	<27	>9	-40°C~155°C	√	√
20D-7	20	0.6	1.102	2800	<27	>9	-40°C~155°C	√	√
22D-7	22	0.6	1.108	2800	<27	>9	-40°C~155°C	√	√
30D-7	30	0.5	3.7059	2800	<28	>10	-40°C~155°C	√	√
33D-7	33	0.2	1.485	2800	<28	>10	-40°C~155°C	√	√
50D-7	50	0.5	1.653	2800	<28	>10	-40°C~155°C	√	√

## □D-9 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
3D-9	3	3	0.120	2600	<35	>11	-40°C~155°C	√	√
4D-9	4	3	0.190	2600	<35	>11	-40°C~155°C	√	√
5D-9	5	3	0.210	2600	<34	>11	-40°C~155°C	√	√
6D-9	6	2	0.315	2600	<34	>11	-40°C~155°C	√	√

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
7D-9	7	2	0.3265	2800	<34	>11	-40°C ~ 155°C	√	√
8D-9	8	2	0.400	2800	<32	>11	-40°C ~ 155°C	√	√
10D-9	10	2	0.458	2800	<32	>11	-40°C ~ 155°C	√	√
12D-9	12	1	0.652	2800	<32	>11	-40°C ~ 155°C	√	√
16D-9	16	1	0.802	2800	<31	>11	-40°C ~ 155°C	√	√
20D-9	20	1	0.864	3000	<30	>11	-40°C ~ 155°C	√	√
22D-9	22	1	0.950	3000	<30	>11	-40°C ~ 155°C	√	√
30D-9	30	1	1.022	3000	<30	>11	-40°C ~ 155°C	√	√
33D-9	33	1	1.124	3000	<30	>11	-40°C ~ 155°C	√	√
50D-9	50	1	1.252	3200	<30	>11	-40°C ~ 155°C	√	√
60D-9	60	0.8	1.502	3200	<31	>11	-40°C ~ 155°C	√	√
80D-9	80	0.8	2.010	3200	<30	>11	-40°C ~ 155°C	√	√
120D-9	120	0.8	3.015	3200	<30	>11	-40°C ~ 155°C	√	√
200D-9	200	0.5	5.007	3400	<32	>11	-40°C ~ 155°C	√	√

## □D-11 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
2.5D-11	2.5	4	0.095	2600	<43	>13	-40°C ~ 155°C	√	√
3D-11	3	4	0.100	2600	<43	>13	-40°C ~ 155°C	√	√
4D-11	4	3	0.150	2600	<44	>13	-40°C ~ 155°C	√	√
5D-11	5	3	0.156	2800	<45	>13	-40°C ~ 155°C	√	√
6D-11	6	3	0.240	2800	<45	>13	-40°C ~ 155°C	√	√
7D-11	7	3	0.2824	2800	<45	>13	-40°C ~ 155°C	√	√
8D-11	8	3	0.255	2800	<47	>14	-40°C ~ 155°C	√	√
10D-11	10	3	0.275	2800	<47	>14	-40°C ~ 155°C	√	√
12D-11	12	2	0.462	2800	<48	>14	-40°C ~ 155°C	√	√
15D-11	15	2	0.468	2800	<50	>14	-40°C ~ 155°C	√	√
16D-11	16	2	0.470	2800	<50	>14	-40°C ~ 155°C	√	√
20D-11	20	2	0.512	3000	<52	>15	-40°C ~ 155°C	√	√

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
22D-11	22	2	0.563	3000	<52	>15	-40°C~155°C	√	√
25D-11	25	2	0.623	3000	<52	>15	-40°C~155°C	√	√
30D-11	30	1.5	0.667	3000	<52	>15	-40°C~155°C	√	√
33D-11	33	1.5	0.734	3000	<52	>15	-40°C~155°C	√	√
47D-11	47	1.5	1.002	3200	<52	>15	-40°C~155°C	√	√
50D-11	50	1.5	1.021	3200	<52	>15	-40°C~155°C	√	√
60D-11	60	1.5	1.215	3200	<52	>15	-40°C~155°C	√	√
80D-11	80	1.2	1.656	3200	<52	>15	-40°C~155°C	√	√
120D-11	120	1.1	2.253	3000	<50	>15	-40°C~155°C	√	√

### □D-13 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
2.5D-13	2.5	5	0.088	2600	<60	>13	-40°C~155°C	√	√
3D-13	3	5	0.092	2600	<60	>14	-40°C~155°C	√	√
4D-13	4	4	0.120	2800	<67	>15	-40°C~155°C	√	√
4.7D-13	4.7	4	0.1469	2800	<67	>15	-40°C~155°C	√	√
5D-13	5	4	0.125	2800	<68	>15	-40°C~155°C	√	√
6D-13	6	3	0.170	2800	<65	>15	-40°C~155°C	√	√
7D-13	7	3	0.188	3000	<65	>15	-40°C~155°C	√	√
8D-13	8	3	0.194	3000	<60	>15	-40°C~155°C	√	√
10D-13	10	3	0.206	3000	<65	>15	-40°C~155°C	√	√
12D-13	12	3	0.316	3200	<65	>16	-40°C~155°C	√	√
15D-13	15	3	0.335	3200	<60	>16	-40°C~155°C	√	√
16D-13	16	3	0.338	3200	<60	>16	-40°C~155°C	√	√
18D-13	18	3	0.356	3200	<60	>16	-40°C~155°C	√	√
20D-13	20	3	0.372	3200	<65	>16	-40°C~155°C	√	√
22D-13	22	3	0.625	3200	<65	>16	-40°C~155°C	√	√
25D-13	25	2.5	0.422	3200	<65	>16	-40°C~155°C	√	√
30D-13	30	2.5	0.517	3200	<65	>16	-40°C~155°C	√	√

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
33D-13	33	2.5	0.592	3200	<65	>16	-40°C~155°C	√	√
47D-13	47	2	0.810	3200	<65	>17	-40°C~155°C	√	√
50D-13	50	2	1.161	3200	<65	>13	-40°C~155°C	√	√
120D-13	120	1.2	2.124	3400	<65	>17	-40°C~155°C	√	√

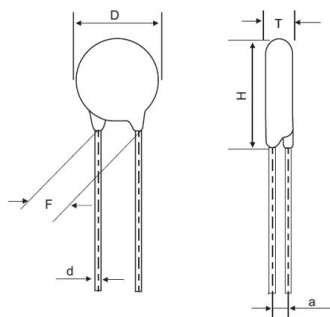
## □D-15 Series

Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C (Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
3D-15	3	6	0.075	2800	<76	>18	-40°C~155°C	√	√
4D-15	4	5	0.1985	2800	<76	>18	-40°C~155°C	√	√
5D-15	5	5	0.112	3000	<76	>20	-40°C~155°C	√	√
6D-15	6	4	0.155	3000	<80	>20	-40°C~155°C	√	√
7D-15	7	4	0.173	3000	<80	>20	-40°C~155°C	√	√
8D-15	8	4	0.178	3000	<80	>20	-40°C~155°C	√	√
10D-15	10	4	0.180	3200	<75	>20	-40°C~155°C	√	√
12D-15	12	3	0.250	3200	<75	>20	-40°C~155°C	√	√
15D-15	15	3	0.268	3200	<85	>21	-40°C~155°C	√	√
16D-15	16	3	0.276	3200	<70	>21	-40°C~155°C	√	√
18D-15	18	3	0.3375	3200	<70	>21	-40°C~155°C	√	√
20D-15	20	3	0.288	3200	<86	>21	-40°C~155°C	√	√
22D-15	22	3	0.3812	3200	<86	>21	-40°C~155°C	√	√
25D-15	25	3.5	0.358	3200	<86	>21	-40°C~155°C	√	√
30D-15	30	3.5	0.438	3200	<75	>21	-40°C~155°C	√	√
33D-15	33	3	0.571	3200	<86	>21	-40°C~155°C	√	√
40D-15	40	3	0.587	3200	<86	>21	-40°C~155°C	√	√
47D-15	47	3	0.680	3200	<86	>21	-40°C~155°C	√	√
50D-15	50	3	0.734	3200	<86	>21	-40°C~155°C	√	√
120D-15	120	1.8	1.652	3400	<87	>22	-40°C~155°C	√	√

## □D-20 Series

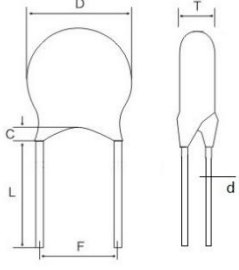
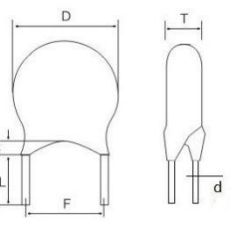
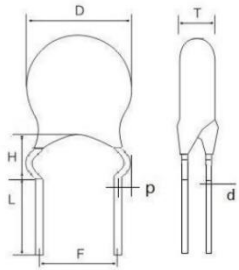
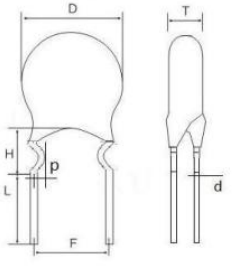
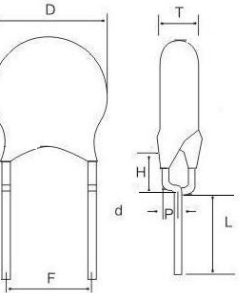
Part Number	Rated Zero Power Resistance @25°C (Ω)	Maximum Steady Current @25°C (A)	Residual Resistor At Maximum Steady Current @25°C(Ω)	B Value (K) ±10%	Thermal Time Constant (S)	Heat Dissipation Coefficient (mW/°C)	Operating Temperature Range (°C)	Approval	
								CQC	cUL
6D-20	6	5	0.113	3000	<103	>25	-40°C~155°C	√	√
8D-20	8	5	0.142	3000	<105	>25	-40°C~155°C	√	√
10D-20	10	5	0.162	3200	<102	>25	-40°C~155°C	√	√
12D-20	12	4	0.195	3200	<100	>25	-40°C~155°C	√	√
16D-20	16	4	0.212	3200	<100	>25	-40°C~155°C	√	√

## Dimensions (mm) and Approval



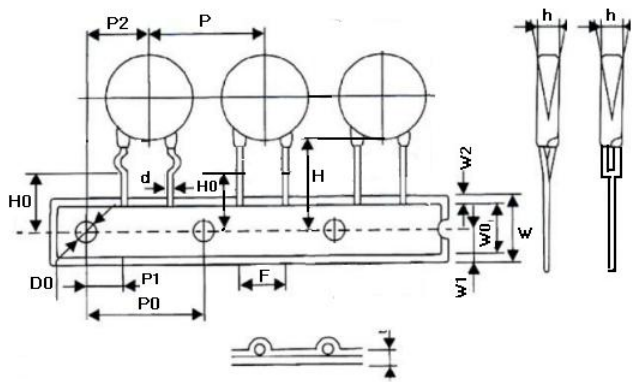
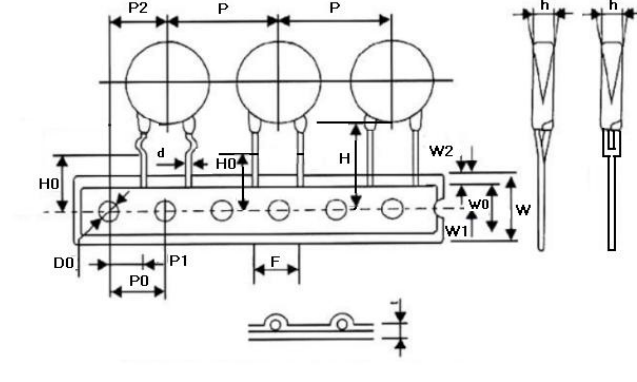
Part No.	Size (mm)			
	D Max.	T Max.	F±0.8	d±0.05
□D-5	7.0	4.5	5.0	0.6
□D-7	9.0	5.0	5.0	0.6
□D-9	11.0	6.0	5.0	0.7
□D-11	13.0	6.5	7.5	0.7
□D-13	15.5	7.0	7.5	0.7
□D-15	17.5	7.0	7.5	0.7
□D-20	22.5	7.0	10.0	1.0

## Lead Configuration

Lead Style	Drawing	Lead Length L (mm)	Coating Lead Length C (mm)	Height H (mm)
Long Straight		16.0 min	3.0 Max	/
Short Straight		① $[2.5 \leq L < 6.0] \pm 0.5$ ; ② $[6.0 \leq L \leq 10] \pm 1.0$	3.0 Max	/
Outside Crimped		① $[2.5 \leq L < 6.0] \pm 0.5$ ; ② $[6.0 \leq L \leq 10] \pm 1.0$	Not exceed the bend point	5.0mm Max
Inner Crimped		① $[2.5 \leq L < 6.0] \pm 0.5$ ; ② $[6.0 \leq L \leq 10] \pm 1.0$	Not exceed the bend point	6.0mm Max
Vertical Crimped		① $[2.5 \leq L < 6.0] \pm 0.5$ ; ② $[6.0 \leq L \leq 10] \pm 1.0$	Not exceed the bend point	4.0mm Max



## Taping And Dimensions (mm)

Figure	Fig.1		Fig.2		
	Symbol	P=5.0	P=7.5		
	Po	12.7±0.3	12.7±0.3		
	P	12.7±1.0	25.4±1.0		
	P1	3.85±0.7	8.95±0.7		
	P2	6.35±1.3	12.7±1.3		
	F	5±0.8	7.5±0.8		
	Δh	0±2.0	0±2.0		
	W	18.0+1.5/-1.0	18.0 +1.5/-1.0		
	Wo	10.5 Max	10.5 Max		
	W1	9.0+0.75/-0.5	9.0+0.75/-0.5		
	W2	3.0 Max	3.0 Max		
	Do	4.0±0.2	4.0±0.2		
	H	20+1.5/-1.0	20+1.5/-1.0		
	Ho	16.5&17.0&19.0 +1.5/-1.0	16.5&17.0&19.0 +1.5/-1.0		
	L	Straight Lead	Crimped Lead	Straight Lead	Crimped Lead
		11.0 Max	9.0 Max	11.0 Max	9.0 Max
	t1	0.5±0.2	0.5±0.2		
	Fig.1 (P=5.0)	t2	1.7 Max	1.7 Max	
	Fig.2 (P=7.5)				

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