

Features

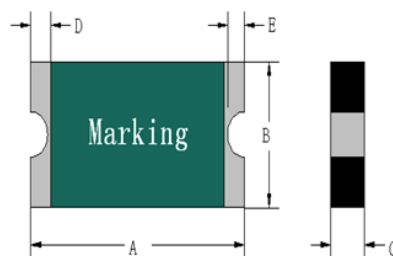
- ◇ Small size of 0603
- ◇ Fast tripping resettable circuit protection
- ◇ Surface mount packaging for automated assembly
- ◇ Agency recognition: UL、CSA、TUV



Product Dimensions

Size 1608mm/0603mils

Part number	A	B	C	D	E
	Max.	Max.	Max.	Min.	Min.
DW-TSM004	1.80	1.00	0.75	0.15	0.10
DW-TSM005	1.80	1.00	0.75	0.15	0.10
DW-TSM010	1.80	1.00	0.75	0.15	0.10
DW-TSM016	1.80	1.00	0.75	0.15	0.10
DW-TSM020	1.80	1.00	0.80	0.15	0.10
DW-TSML035	1.80	1.00	0.75	0.15	0.10
DW-TSML050	1.80	1.00	0.75	0.15	0.10
DW-TSML050/8	1.80	1.00	0.75	0.15	0.10
DW-TSML075	1.80	1.00	1.00	0.15	0.10
DW-TSML075/8	1.80	1.00	1.00	0.15	0.10
DW-TSML100	1.80	1.00	1.00	0.15	0.10
DW-TSML100/8	1.80	1.00	1.00	0.15	0.10
DW-TSML125	1.80	1.00	1.00	0.15	0.10
DW-TSML150	1.80	1.00	1.00	0.15	0.10
DW-TSML175	1.80	1.00	1.00	0.15	0.10
DW-TSML200	1.80	1.00	1.10	0.15	0.10
DW-TSML250	1.80	1.00	1.10	0.15	0.10
DW-TSML260	1.80	1.00	1.10	0.15	0.10
DW-TSML300	1.80	1.00	1.10	0.15	0.10

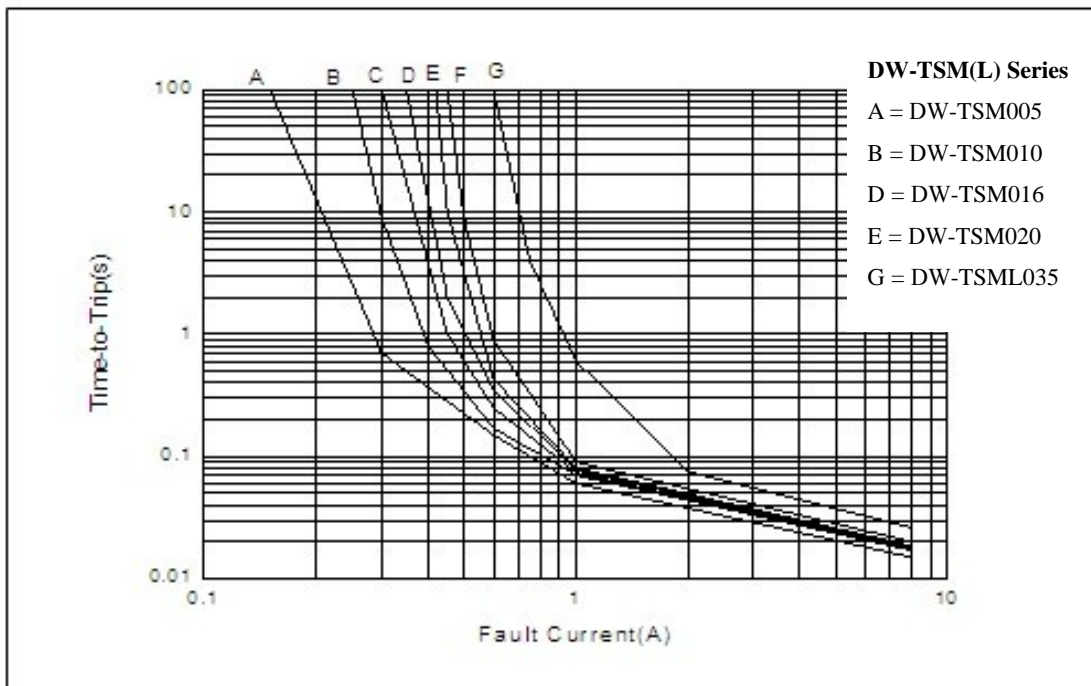


Thermal Derating Chart-IH(A)

Size 1608mm/0603mils

Part number	Maximum ambient operating temperatures(°C)									
	-40	-20	0	20	25	40	50	60	70	85
DW-TSM004	0.065	0.055	0.048	0.045	0.04	0.033	0.028	0.024	0.02	0.015
DW-TSM005	0.08	0.07	0.06	0.055	0.05	0.04	0.035	0.03	0.025	0.02
DW-TSM010	0.14	0.13	0.12	0.11	0.10	0.08	0.07	0.06	0.05	0.03
DW-TSM016	0.21	0.19	0.18	0.17	0.16	0.13	0.12	0.10	0.09	0.06
DW-TSM020	0.27	0.25	0.23	0.21	0.20	0.17	0.14	0.12	0.10	0.07
DW-TSML035	0.47	0.41	0.38	0.36	0.35	0.29	0.26	0.24	0.20	0.14
DW-TSML050	0.67	0.58	0.54	0.52	0.50	0.51	0.37	0.34	0.28	0.20
DW-TSML050/8	0.67	0.58	0.54	0.52	0.50	0.51	0.37	0.34	0.28	0.20
DW-TSML075	1.00	0.87	0.81	0.77	0.75	0.62	0.56	0.51	0.43	0.30
DW-TSML075/8	1.00	0.87	0.81	0.77	0.75	0.62	0.56	0.51	0.43	0.30
DW-TSML100	1.34	1.17	1.08	1.02	1.00	0.82	0.74	0.68	0.57	0.40
DW-TSML100/8	1.34	1.17	1.08	1.02	1.00	0.82	0.74	0.68	0.57	0.40
DW-TSML125	1.65	1.43	1.35	1.28	1.25	1.05	0.92	0.85	0.72	0.51
DW-TSML150	2.05	1.75	1.60	1.55	1.50	1.20	1.09	1.00	0.84	0.62
DW-TSML175	2.30	2.00	1.85	1.79	1.75	1.42	1.28	1.20	0.98	0.71
DW-TSML200	2.63	2.27	2.10	2.05	2.00	1.63	1.45	1.37	1.12	0.82
DW-TSML250	3.20	2.85	2.65	2.56	2.50	2.02	1.82	1.70	1.40	1.02
DW-TSML260	3.41	2.96	2.75	2.66	2.60	2.11	1.90	1.77	1.45	1.05
DW-TSML300	3.92	3.42	3.17	3.07	3.00	2.42	2.20	2.06	1.68	1.20

Typical Time-to-Trip Charts at 25°C



Electrical Characteristics at 25°C

Size 1608mm/0603mils

Part number	I_H	I_T	V_{max}	I_{max}	Max.Time-to-trip		P_{dtyp}	R_{min}	R_{1max}
	(A)	(A)	(V)	(A)	(A)	(S)	(W)	(Ω)	(Ω)
DW-TSM004	0.04	0.12	15	3.5	0.20	1.00	0.5	4.000	40.000
DW-TSM005	0.05	0.15	15	40	0.25	1.00	0.5	2.000	40.000
DW-TSM010	0.10	0.25	15	40	0.50	1.00	0.5	0.900	6.000
DW-TSM016	0.16	0.40	9	40	0.80	1.00	0.5	0.700	4.200
DW-TSM020	0.20	0.50	9	40	1.00	0.60	0.5	0.550	3.500
DW-TSML035	0.35	0.75	6	40	8.00	0.10	0.5	0.200	1.000
DW-TSML050	0.50	1.00	6	50	8.00	0.60	0.5	0.120	0.400
DW-TSML050/8	0.50	1.00	8	50	8.00	0.60	0.5	0.120	0.400
DW-TSML075	0.75	1.50	6	50	8.00	1.00	0.5	0.080	0.250
DW-TSML075/8	0.75	1.50	8	50	8.00	1.00	0.5	0.080	0.250
DW-TSML100	1.00	1.80	6	50	8.00	2.00	0.5	0.050	0.220
DW-TSML100/8	1.00	1.80	8	50	8.00	2.00	0.5	0.050	0.220
DW-TSML125	1.25	2.50	6	50	8.00	3.00	0.5	0.035	0.180
DW-TSML150	1.50	3.00	6	50	8.00	4.00	0.5	0.025	0.120
DW-TSML175	1.75	3.50	6	50	8.00	5.00	0.5	0.015	0.070
DW-TSML200	2.00	4.00	6	50	8.00	5.00	0.5	0.012	0.065
DW-TSML250	2.50	5.00	6	50	8.00	5.00	0.5	0.010	0.060
DW-TSML260	2.60	5.20	6	50	8.00	5.00	0.5	0.008	0.055
DW-TSML300	3.00	6.00	6	50	8.00	5.00	0.5	0.008	0.050

I_H =Hold current: maximum current at which the device will not trip at 25°C still air.

I_T =Trip current: minimum current at which the device will always trip at 25°C still air.

V_{max} =Maximum voltage device can withstand without damage at rated current.

I_{max} =Maximum fault current device can withstand without damage at rated voltage.

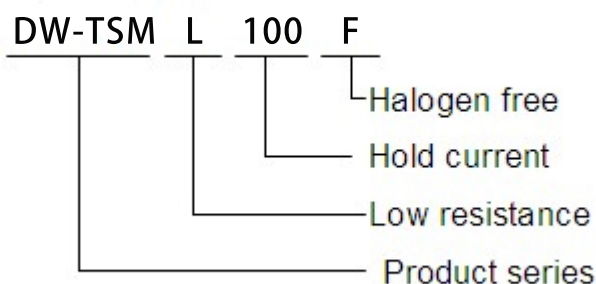
T_{trip} =Maximum time to trip at assigned current.

P_{dtyp} =Typical power dissipation: typical amount of power dissipated by the device when in state air environment.

R_{min} =Minimum device resistance at 25°C prior to tripping.

R_{1max} =Maximum device resistance measured in the nontripped state 1 hour post reflow.

Part Numbering System



Test Procedures And Requirements

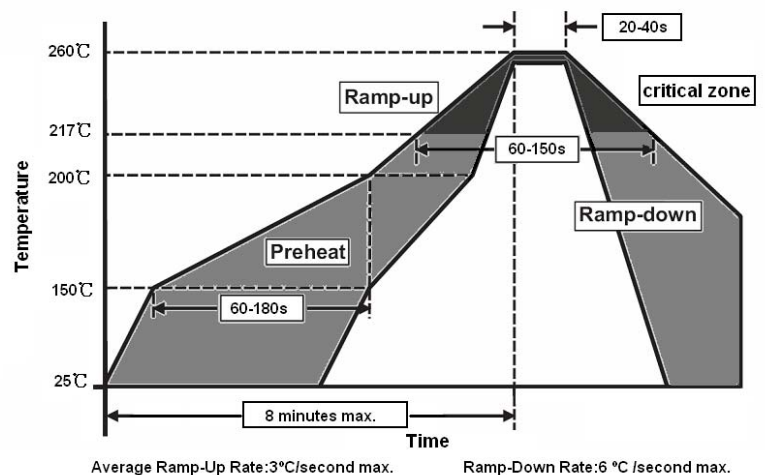
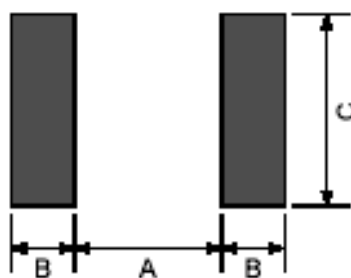
Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @ 25°C	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current, V_{max} , 25°C	$T \leq$ maximum Time to Trip
Hold Current	30min, at I_H	No trip
Trip Cycle Life	V_{max} , I_{max} , 100cycles	No arcing or burning
Trip Endurance	V_{max} , 24hours	No arcing or burning

Packaging and Marking Information

Size 1608mm/0603mils

Part number	Tape & Reel Quantity	Tape spc code	Part Marking	Recommended Pad Layout Figures[mm(In.)]						Agency Recognition
				Dimension A(Nom.)		Dimension B(Nom.)		Dimension C(Nom.)		
				mm	In.	mm	In.	mm	In.	
DW-TSM004	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSM005	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSM010	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSM016	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSM020	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML035	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML050	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML050/8	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML075	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML075/8	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML100	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML100/8	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML125	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML150	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML175	5000	0603A	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML200	3000	0603B	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML250	3000	0603B	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML260	3000	0603B	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV
DW-TSML300	3000	0603B	/	0.60	(0.021)	1.10	(0.041)	1.00	(0.039)	UL,CSA,TUV

Solder Pad Layouts



* Recommended reflow methods: IR, Vapor phase oven, hot air oven, wave solder.

* Devices can be cleaned using standard industry methods and solvents.

Notes:

If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

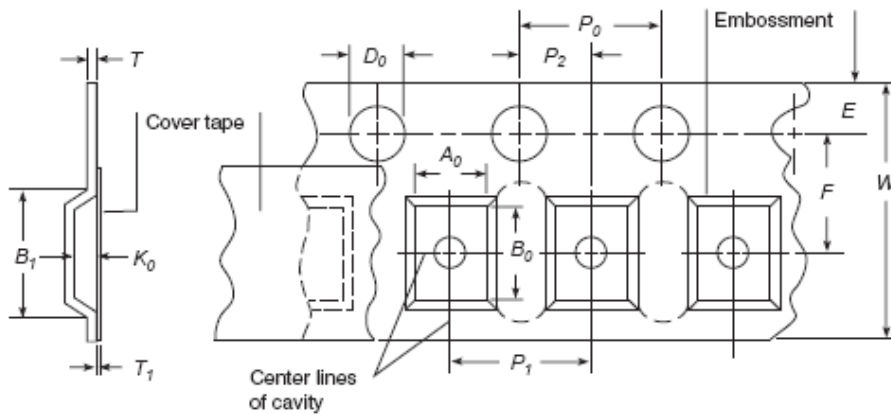
Caution:

Operation beyond the rated voltage or current may result in rupture electrical arcing or flame.

Contamination of the PPTC material with certain silicone-based oils or some aggressive solvents adversely impact the performance of the devices

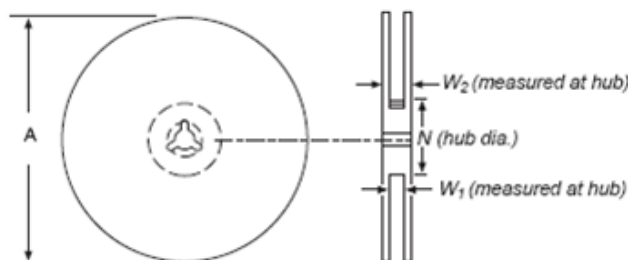
Tape Specification And Reel Dimensions

Tape spec code	W	P0	P1	P2	A0	B0	D	F	E	T	K0
0603(A)	8.00± 0.10	4.00± 0.10	4.00± 0.10	2.00± 0.10	1.10± 0.10	1.90± 0.10	1.55± 0.05	3.50± 0.10	1.75± 0.10	0.22± 0.05	0.62± 0.10
0603(B)	8.00± 0.30	4.00± 0.10	4.00± 0.10	2.00± 0.10	1.10± 0.05	1.90± 0.05	1.55± 0.05	3.50± 0.10	1.75± 0.10	0.20± 0.05	1.05± 0.10



Reel Dimensions

Tape spec code	A	N	W1	W2
0603(A)	180+0/-1.5	60+1/-0	9.0+1/-0	13.0+1/-0
0603(B)	180+0/-1.5	60+1/-0	9.0+1/-0	13.0+1/-0



Storage

The maximum ambient temperature shall not exceed 40°C. Storage temperatures higher than 40°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 70%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present.

Warning:

PPTC devices are intended for protection against occasional over-current or over-temperature fault conditions, and should not be used when repeated fault conditions are anticipated. Operation beyond maximum ratings or improper use may result in device damage and possible electrical arcing and flame.