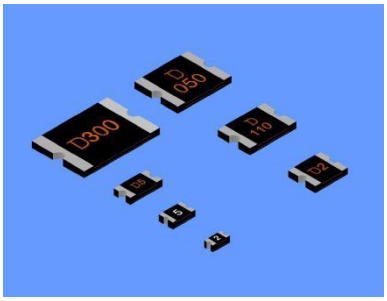
DT-0805 Low-R Series Surface Mount PPTC Devices



Features

- Ultra low resistance
- RoHS compliant and lead-free
- Halogen-free
- Fast response to fault current
- Symmetrical design

Applications

- USB port protection - USB 2.0, 3.0&OTG
- Li-ion/Li-Polymer battery packs
- PDAs / digital cameras
- Computer peripherals
- PC motherboards-plug and play protection

HF RoHS REACH Pb Free

1.Electrical Characteristics

Model	I-hold	I-trip	Vmax	Imax	Pd typ	Max. Time to trip		R0 min	R1max
						Current	Time		
	(A)	(A)	(Vdc)	(A)	(W)	(A)	(Sec.)	(Ohm)	(Ohm)
DT-0805-075L	0.75	1.50	9	50	1.20	8.00	0.20	0.025	0.300
DT-0805-075/12L	0.75	1.50	12	50	1.20	8.00	0.20	0.025	0.300
DT-0805-110L	1.10	2.20	9	50	1.20	8.00	0.30	0.020	0.120
DT-0805-110/12L	1.10	2.20	12	50	1.20	8.00	0.30	0.020	0.120
DT-0805-125L	1.25	2.50	9	50	1.20	8.00	5.00	0.015	0.100
DT-0805-125/12L	1.25	2.50	12	50	1.20	8.00	5.00	0.015	0.100
DT-0805-150L	1.50	3.00	9	50	1.20	8.00	5.00	0.013	0.080
DT-0805-150/12L	1.50	3.00	12	50	1.20	8.00	5.00	0.013	0.080
DT-0805-175L	1.75	3.50	9	50	1.20	8.00	5.00	0.010	0.065
DT-0805-175/12L	1.75	3.50	12	50	1.20	8.00	5.00	0.010	0.065
DT-0805-200L	2.00	4.00	9	50	1.20	8.00	5.00	0.008	0.050
DT-0805-200/12L	2.00	4.00	12	50	1.20	8.00	5.00	0.008	0.050
DT-0805-260L	2.60	5.20	9	50	1.20	8.00	5.00	0.007	0.030
DT-0805-260/12L	2.60	5.20	12	50	1.20	8.00	5.00	0.007	0.030
DT-0805-300L	3.00	6.00	9	50	1.20	8.00	5.00	0.005	0.020
DT-0805-300/12L	3.00	6.00	12	50	1.20	8.00	5.00	0.005	0.020
DT-0805-350L	3.50	7.00	9	50	1.50	8.00	5.00	0.004	0.018
DT-0805-350/12L	3.50	7.00	12	50	1.50	8.00	5.00	0.004	0.018
DT-0805-380L	3.80	7.60	9	50	1.50	8.00	5.00	0.002	0.016
DT-0805-380/12L	3.80	7.60	12	50	1.50	8.00	5.00	0.002	0.016
DT-0805-400L	4.00	8.00	9	50	1.50	8.00	5.00	0.002	0.014
DT-0805-400/12L	4.00	8.00	12	50	1.50	8.00	5.00	0.002	0.014
DT-0805-450L	4.50	9.00	9	50	1.50	22.50	5.00	0.002	0.012
DT-0805-450/12L	4.50	9.00	12	50	1.50	22.50	5.00	0.002	0.012

I-hold: Holding Current: maximum current at which the device will not trip in 25℃ still air.

I-trip: Tripping Current: minimum current at which the device will trip in 25℃ still air.

Vmax: Maximum voltage device can withstand without damage at rated current(Imax).

I max: Maximum fault current device can withstand without damage at rated voltage(Vmax).

Pd typ:Typical power dissipated from device when in the tripped state at 25℃ still air.

R0 min:Minimum resistance of device in initial (un-soldered) state.

R1 max:Maximum resistance of device at 25℃ measured one hour after tripping or reflow soldering of 260℃ for 20 sec.

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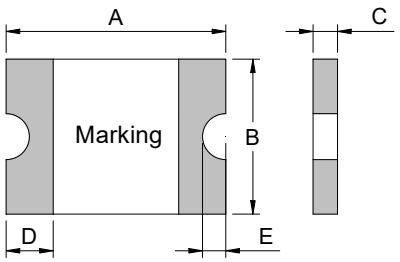
2020/04/05 Revision：A

2.Product Dimensions(mm)&Marking



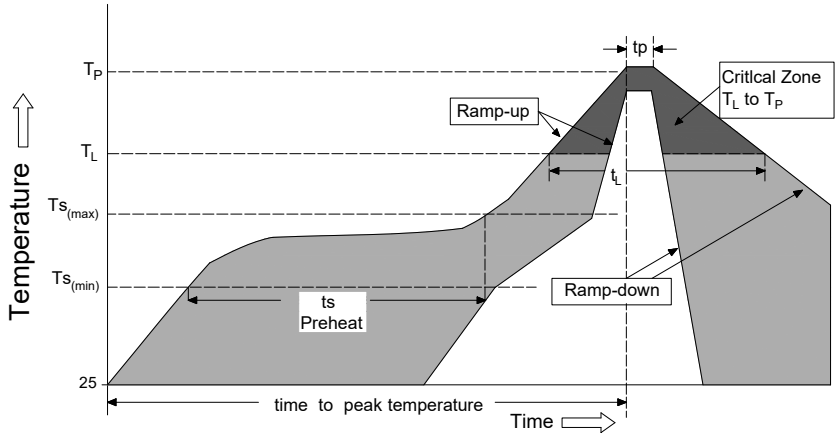
Model	A		B		C		D		E	Marking
	Min	Max	Min	Max	Min	Max	Min	Max	Min	
DT-0805-075L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	C
DT-0805-075/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	C
DT-0805-110L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	D
DT-0805-110/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	D
DT-0805-125L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	E
DT-0805-125/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	E
DT-0805-150L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	F
DT-0805-150/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	F
DT-0805-175L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	H
DT-0805-175/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	H
DT-0805-200L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	I
DT-0805-200/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	I
DT-0805-260L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	J
DT-0805-260/12L	2.00	2.30	1.20	1.50	0.35	0.75	0.20	0.55	0.10	J
DT-0805-300L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	K
DT-0805-300/12L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	K
DT-0805-350L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	L
DT-0805-350/12L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	L
DT-0805-380L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	N
DT-0805-380/12L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	N
DT-0805-400L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	O
DT-0805-400/12L	2.00	2.30	1.20	1.50	0.60	1.00	0.20	0.55	0.10	O
DT-0805-450L	2.00	2.30	1.20	1.50	0.70	1.10	0.20	0.55	0.10	P
DT-0805-450/12L	2.00	2.30	1.20	1.50	0.70	1.10	0.20	0.55	0.10	P

3.Thermal Derating Chart

Model	Ambient Operating Temperature								
	-40℃	-20℃	0℃	25℃	40℃	50℃	60℃	70℃	85℃
DT-0805-075L	1.10	0.99	0.86	0.75	0.66	0.58	0.52	0.45	0.36
DT-0805-075/12L	1.10	0.99	0.86	0.75	0.66	0.58	0.52	0.45	0.36
DT-0805-110L	1.61	1.45	1.26	1.10	0.96	0.85	0.77	0.67	0.52
DT-0805-110/12L	1.61	1.45	1.26	1.10	0.96	0.85	0.77	0.67	0.52
DT-0805-125L	1.83	1.65	1.43	1.25	1.09	0.96	0.87	0.76	0.60

DT-0805-125/12L	1.83	1.65	1.43	1.25	1.09	0.96	0.87	0.76	0.60
DT-0805-150L	2.19	1.98	1.72	1.50	1.31	1.15	1.05	0.91	0.71
DT-0805-150/12L	2.19	1.98	1.72	1.50	1.31	1.15	1.05	0.91	0.71
DT-0805-175L	2.56	2.31	2.00	1.75	1.53	1.34	1.22	1.06	0.83
DT-0805-175/12L	2.56	2.31	2.00	1.75	1.53	1.34	1.22	1.06	0.83
DT-0805-200L	2.92	2.64	2.29	2.00	1.75	1.54	1.39	1.21	0.95
DT-0805-200/12L	2.92	2.64	2.29	2.00	1.75	1.54	1.39	1.21	0.95
DT-0805-260L	3.80	3.43	2.98	2.60	2.27	2.00	1.81	1.57	1.24
DT-0805-260/12L	3.80	3.43	2.98	2.60	2.27	2.00	1.81	1.57	1.24
DT-0805-300L	4.38	3.96	3.43	3.00	2.62	2.31	2.09	1.82	1.43
DT-0805-300/12L	4.38	3.96	3.43	3.00	2.62	2.31	2.09	1.82	1.43
DT-0805-350L	5.11	4.62	4.01	3.50	3.06	2.69	2.44	2.12	1.67
DT-0805-350/12L	5.11	4.62	4.01	3.50	3.06	2.69	2.44	2.12	1.67
DT-0805-380L	5.55	5.02	4.35	3.80	3.32	2.92	2.65	2.30	1.81
DT-0805-380/12L	5.55	5.02	4.35	3.80	3.32	2.92	2.65	2.30	1.81
DT-0805-400L	5.84	5.28	4.58	4.00	3.49	3.07	2.79	2.42	1.91
DT-0805-400/12L	5.84	5.28	4.58	4.00	3.49	3.07	2.79	2.42	1.91
DT-0805-450L	6.57	5.94	5.15	4.50	3.93	3.46	3.14	2.72	2.14
DT-0805-450/12L	6.57	5.94	5.15	4.50	3.93	3.46	3.14	2.72	2.14

4.Soldering parameters



Profile Feature		Pb-Free Assembly
Average Ramp-Up Rate ($Ts_{(max)}$ to T_P)		3°C/second max
Pre Heat:	Temperature Min ($Ts_{(min)}$)	150°C
	Temperature Max ($Ts_{(max)}$)	200°C
	Time (Min to Max) (t_s)	60 – 180 secs
Time Maintained Above:	Temperature (T_L)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak / Classification Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.

◆All temperature refer to topside of thepackage, measured on the package body surface

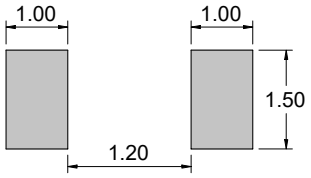
◆If reflow temperature exceeds the recommended profile,devices may not meet the performance requirements

◆Recommended reflow methods: IR,vapor phase oven,hot air oven,,N2 environment for lead

◆Recommended maximum paste thickness is 0.25mm (0.010inch)

◆Devices can be cleaned using standard industry methods and solvents

5.Recommended Pad Layout(mm) & Physical Specifications



Terminal Material	Tin-Plated Nickle-Copper (Solder Material: Matte Tin (Sn))
Lead Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3.

6.Environmental Specifications

Operating Temperature	-40 °C to +85 °C
Maximum Device Surface Temperature in Tripped State	125°C
Passive Aging	+85 °C, 1000 hours ; ±10 % typical resistance change
Humidity Aging	+85 °C, 85 % R.H. 100 hours; ±15 % typical resistance change
Thermal Shock	MIL–STD–202, Method 107; +85 °C to -40 °C, 20 times;-30 % typical resistance change
Solvent Resistance	MIL–STD–202, Method 215 ; No change
Vibration	MIL–STD–883, Method 2007, Condition A; No change
Moisture Sensivity Level	Level 2, J–STD–020
Storage Conditions	+30 °C Max. 60% RH Max. Packed in original packaging.

7.Test Procedures And Requirements

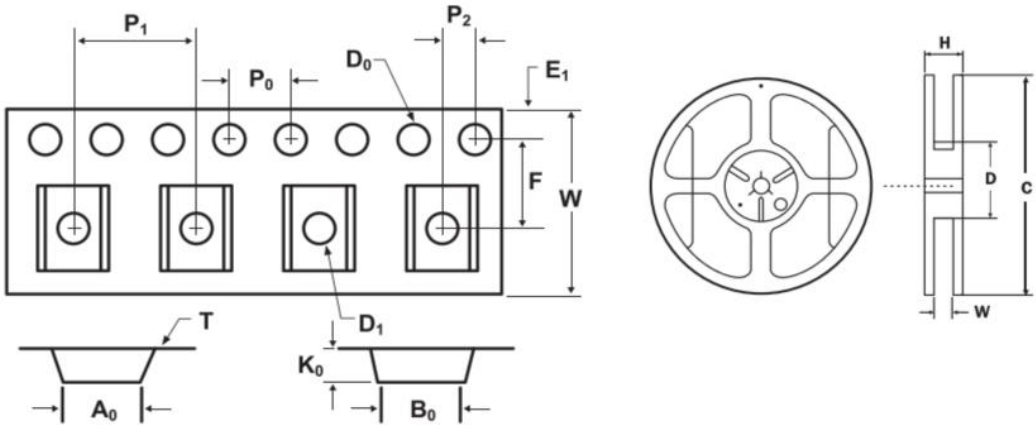
No.	Test	Test Conditions	Accept/Reject Criteria
1	R0 min	Resistance measurement at 25℃	R0min ≤ R ≤ R1max
2	R1 max	Resistance measurement one hour after post trip	R0min ≤ R ≤ R1max
3	I-hold	Hold rated current 1800 second without trip, @ 25℃	No trip
4	I-trip	Device must trip within 900 second under rated current, @25℃	Trip
5	Max. time to trip	At specified current, 25 °C	T ≤ max. time to trip (seconds)
6	Trip Cycle Life	Vmax, Imax, 100 cycles	No arcing or burning
7	Trip Endurance	Vmax,Imax 24 hours	No arcing or burning
8	Solderability	ANSI/J-STD-002	95 % min. coverage

8.Tape and Reel Specifications&Packaging quantity per Reel

Item	DT-0805-075L DT-0805-075/12L DT-0805-110L DT-0805-110/12L DT-0805-125L DT-0805-125/12L DT-0805-150L DT-0805-150/12L DT-0805-175L DT-0805-175/12L DT-0805-200L DT-0805-200/12L DT-0805-260L DT-0805-260/12L	DT-0805-300L DT-0805-300/12L DT-0805-350L DT-0805-350/12L DT-0805-380L DT-0805-380/12L DT-0805-400L DT-0805-400/12L DT-0805-450L DT-0805-450/12L
W	8.00±0.10	8.10±0.10
F	3.50±0.05	3.50±0.05
E1	1.75±0.10	1.75±0.10
D0	1.55±0.05	1.55±0.05
D1	1.00 min	1.00 min
P0	4.0±0.10	4.0±0.10
P1	4.0±0.10	4.0±0.10
P2	2.0±0.05	2.0±0.05
A0	1.70±0.10	1.70±0.10

REEL DIMENSIONS: EIA-481-1 (mm)	
C	Ø178±1.0
D	Ø60.2±0.5
W	9.0±1.5
H	11.0±0.5

B0	2.45±0.10	2.45±0.10
T	0.20±0.05	0.25±0.05
K0	0.80±0.10	0.95±0.10
Leader	390mm	390mm
Trailer	160mm	160mm
Q'ty	5,000pcs/Reel	4,000pcs/Reel



9. Part Ordering Number System

DT- 0805- □□□ / □□ L

- L: Low resistance
- □□: Special voltage rating(Optional)
- □□□: Holding current rating
- 0805-: PPTC size
- DT-: DUNTE symbol

APPLICATION NOTICE

1. Operation of these PPTC devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire;
   PPTC 器件在超过规定的最大值额定值运行可能会导致器件损坏以及导致电弧和/或火灾。
2. These PPTC devices are intended to protect against the effects of temporary over-current or over-temperature conditions and shall not be taken for use as switch.
   PPTC 的作用是防止临时的过流或过温造成的不良影响，不能当作开关使用。
3. Exposure to lubricants, silicon-based oils, solvents, gels, electrolytes, acids, and other related or similar materials may adversely affect the performance of PPTC devices.
   PPTC 接触润滑剂、硅基油、溶剂、凝胶、电解质、酸和其他相关或类似材料可能会对 PPTC 器件的性能有不利影响。
4. Circuits with inductance may generate a voltage above the rated voltage of the PPTC device and should be thoroughly evaluated within the user's application during the PPTC selection and qualification process.
   带有电感的电路可能产生高于 PPTC 额定电压的电压，因此客户在选型和认定过程中应进行彻底的评估。
5. Please do not smash, clamp, pull, dent or twist by tool during assembling process, as they may result in the PPTC damage.
   在装配过程中，避免有砸、挤、拉、扭等方式外力作用于 PPTC 本体上，因为它们可能导致 PPTC 损坏。
6. Hand-soldering of PPTC devices on boards is generally not recommended.Users shall define and verify this process if needed.
   不推荐使用手工焊接的方式焊接 PPTC。如果需要，用户需要定义和验证此过程。
7. Recommended storage conditions should be followed at all times，The MSL classification of DTE's low resistance PPTC is grade 2.
   必须始终遵守推荐的保存条件要求，DTE 低阻 PPTC 的 MSL 等级为 2 级。