THINKING ELECTRONIC INDUSTRIAL CO., LTD.

HEAD OFFICE: 12F, No.93, Dashun 1st Rd., Zuoying Dist., Kaohsiung, Taiwan
TEL: 886-7-5577660 FAX: 886-7-5570560

MANUFACTURING SITE

☑ KAOHSIUNG FACTORY 1:No. 51, Kaifa Rd., N.E.P.Z, Kaohsiung City 81170, Taiwan
TEL: 886-7-9616668 FAX: 886-7-9616698

☐ KAOHSIUNG FACTORY 2:No. 2-2, Xinjian S. Rd., N.E.P.Z., Kaohsiung City 81170, Taiwan
TEL: 886-7-9630001 FAX: 886-7-3635113

☐ CHANGZHOU FACTORY: No.6 Longmen Rd., Wujin High & New-Tech Industrial Development Zone, Changzhou, Jiangsu, China 213161
TEL:86-519-86578999 FAX:86-519-86558643

☐ DONG GUAN FACTORY: No.45, East Rd., Sha-Tao Dist., Chang-An Town, Dongguan City, Guangdong, China 523863
TEL:86-769-85542016 FAX:86-769-85546890

☐ YICHANG FACTORY: No. 283 Xiaoting Avenue, Xiaoting Dist., Yichang City 443007, Hubei, China
TEL:86-717-6510010 FAX:86-717-6511430

SPECIFICATION FOR APPROVAL

CUSTOMER	立創電子
CERTIFIED MODEL/TYPE	TPM1P471M100
PART NO.	TPM1P471M100R (RoHS+HF)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Dec. 29, 2020
REV. NO.	
REV. DATE	

FOR CUSTOMER APPROVAL	CHECKED BY
	Shu Ling Fu
	APPROVED BY
	Chun Chu Tu

REVISED RECORD SHEET

REV. NO	REV. DATE	REVISED CONTENT

INDEX

	Page
Part Number Code	1
Structure and Dimensions	2
Electrical Characteristics	2
Reliability	3
Soldering Recommendation	4
Recommended Soldering Pad Dimensions	5
RoHS Compliant Declaration	5
Warehouse Storage Conditions of Products	5
Packaging	6
Safety Approvals & Certificates & Test Report	7
Protective Threshold Current Range	8

Part Number Code

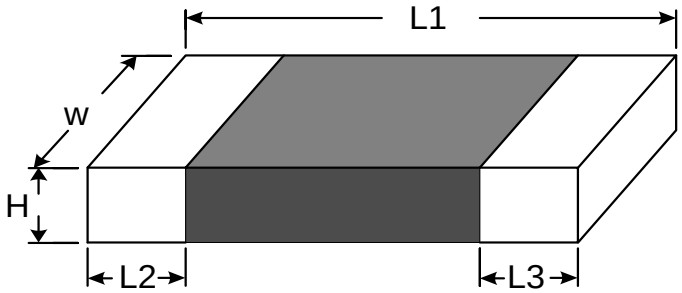
Example :

TPM 1 P 471 M 100 R

(1) (2) (3) (4) (5) (6) (7)

No.	Item	Digit	Specification
(1)	Product Type	TPM	Thinking CPTC thermistor TPM type
(2)	Size (EIA)	1	0603
(3)	Type Series	P	Over current protection series
(4)	Zero Power Resistance at 25℃	471	$47x10^1$= 470Ω
(5)	Tolerance of R_{25}	M	± 20%
(6)	Curie Point Temperature	100	Tc=100℃
(7)	Packaging	R	Reel

Structure and Dimensions



(unit : mm)

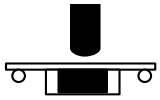
L1	W	H max.	L2 and L3
1.60±0.15	0.80±0.15	0.95	0.40±0.20

Electrical Characteristics

Part No.	Curie Point Temperature	Zero Power Resistance at 25℃	Non-operating Current		Trip Current	
	Tc (℃)	R_{25} (Ω)	(at +60℃) (mA)	(at +25℃) (mA)	(at+25℃) (mA)	(at -10℃) (mA)
TPM1P471M100R	100±10	470±20%	7	10	21	25

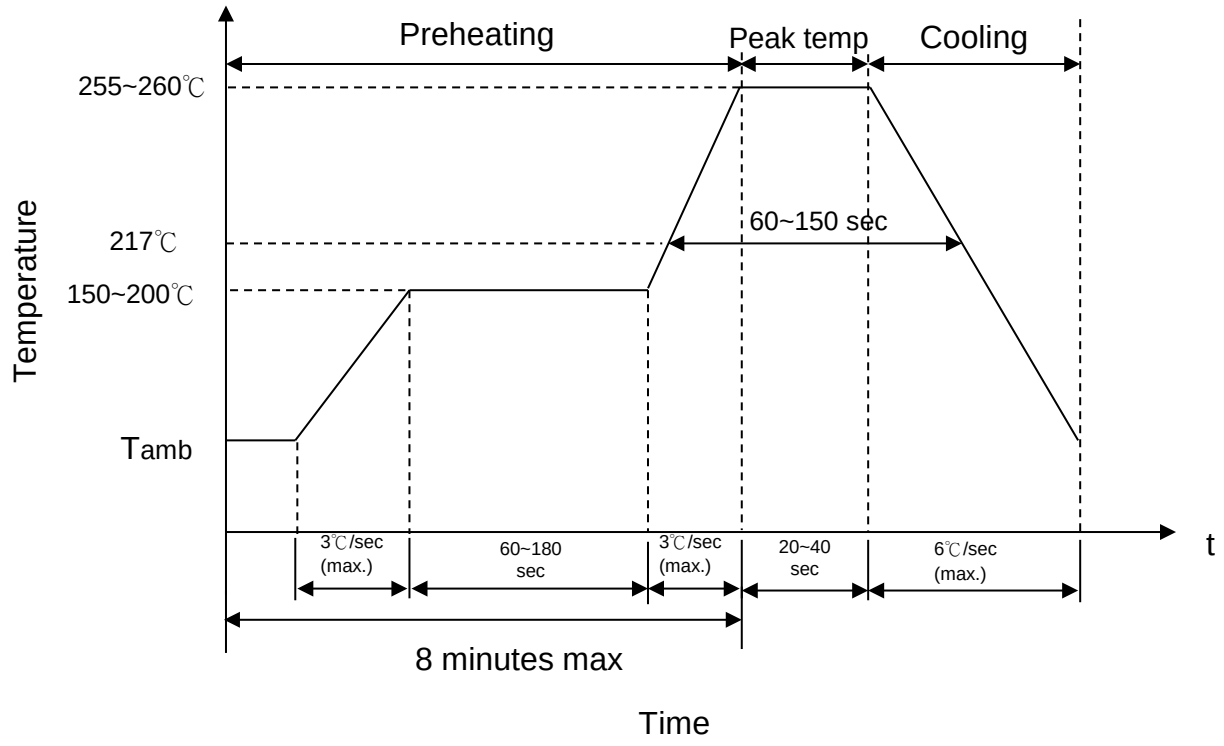
Part No.	Max. Voltage	Max. Current	Operating Temperature Range(at V=0)	Operating Temperature Range(at Vmax.)
	Vmax. (V_{DC})	Imax. (mA)	(℃)	(℃)
TPM1P471M100R	24	60	-40 ~ +125	-10 ~ +60

Reliability

Item	Standard	Test conditions / Methods	Specifications
Bending Strength	IEC 60068-2-21	Warp : 2mm ; Speed ＜ 0.5mm/sec. Duration : 10 sec on PCB. 	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 10\ \%$
Damp Heat, Steady State	IEC 60068-2-78	60 ± 2 ℃ , 90 ~ 95% RH , 1000± 24 hrs	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
High Temp. Storage	IEC 60068-2-2	125 ± 3 ℃ , 1000 ± 24 hrs	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
Low Temp. Storage	IEC 60068-2-1	-40 ± 3 ℃ , 1000 ± 24 hrs	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
Rapid Change of Temperature	IEC 60068-2-14	The conditions shown below shall be repeated 5 cycles on PCB Step / Temperature (℃) / Period (minutes) 1 / -40 ± 5 / 30 ± 3 2 / Room temperature / 5 ± 3 3 / 125 ± 5 / 30 ± 3 4 / Room temperature / 5 ± 3	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
High Temp. Endurance Load	Specification Standard	60 ± 3 ℃ , Vmax. for 1.5hrs on / 0.5hrs off , 1000 ± 24 hrs	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
Climatic Sequence	IEC 60738-1 7.22	a. 125℃ x 16 hrs b. 1st cycle : 40 ℃ 95 %RH x 24 hrs c. -40 ℃ x 2 hrs d. 5 cycles : 40℃ 95% RH x 24 hrs / Cycle	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$
Solderability	IEC 60068-2-58	245 ± 5 ℃ , 3 ± 0.3 sec	At least 95% of terminal electrode is covered by new solder
Resistance to Soldering Heat	IEC 60068-2-58	8.1.2.2 Solder reflow method Preheating: 150~180°C ,60~120 secs. Peak temp.: 245~255°C ,≦20 secs. (reflow)	No visible damage $\lvert \triangle R_{25}/R_{25} \rvert \leqq 20\ \%$

Soldering Recommendation

■ IR-Reflow Soldering Profile

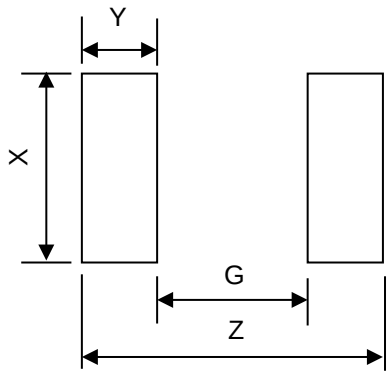


Note : Suitable for reflow soldering only.

■ Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	3 sec (max.)
Diameter of Soldering Iron-tip	ϕ 3mm (max.)
Caution:Not to touch the component surface with soldering iron directly to prevent component damage.	

Recommended Soldering Pad Dimensions



Size (EIA)	0603
Z	2.8 mm
G	0.8 mm
X	1.0 mm
Y	1.0 mm

RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

Warehouse Storage Conditions of Products

(I) Storage Conditions :

1.Storage Temperature : -10℃~+40℃

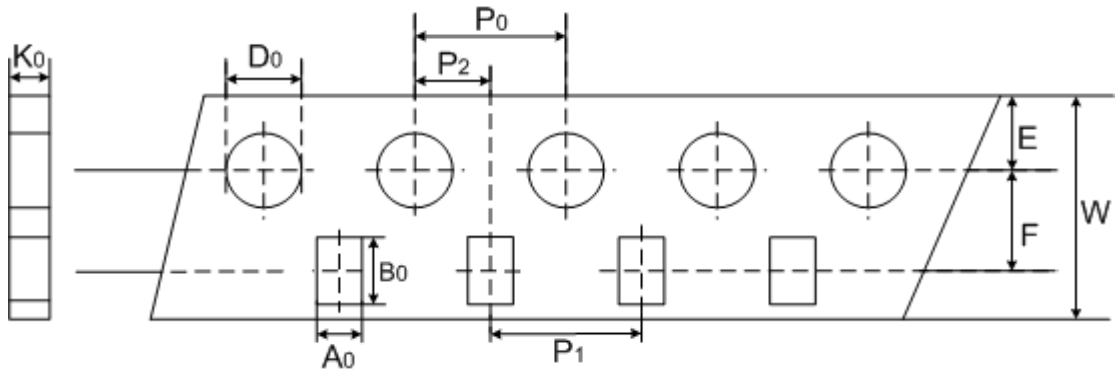
2.Relative Humidity : ≦75%RH

3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year

Packaging

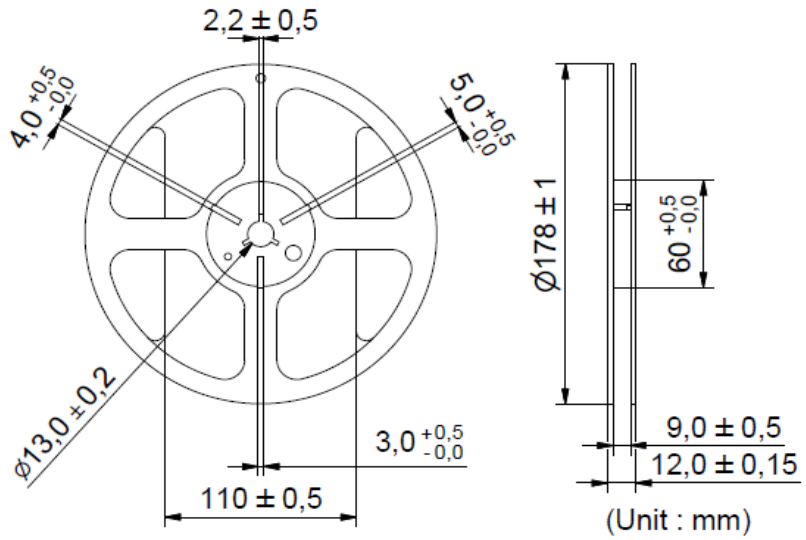
■ Taping specification (0603 Series)



(Unit : mm)

Index / Size	A_0	B_0	W	E	F	P_1	P_2	P_0	D_0	K_0
	±0.2	±0.2	±0.2	±0.1	±0.05	±0.1	±0.05	±0.1	±0.1	±0.1
0603	1.1	1.9	8	1.75	3.5	4	2	4	1.55	0.95

■ Quantity (4000 pcs / reel)



Safety Approvals **(Certified Model/Type : TPM1P471M100)**

* UL 1434 / cUL recognized (File # E138827)

. .

* TUV recognized (File # R 50193877)

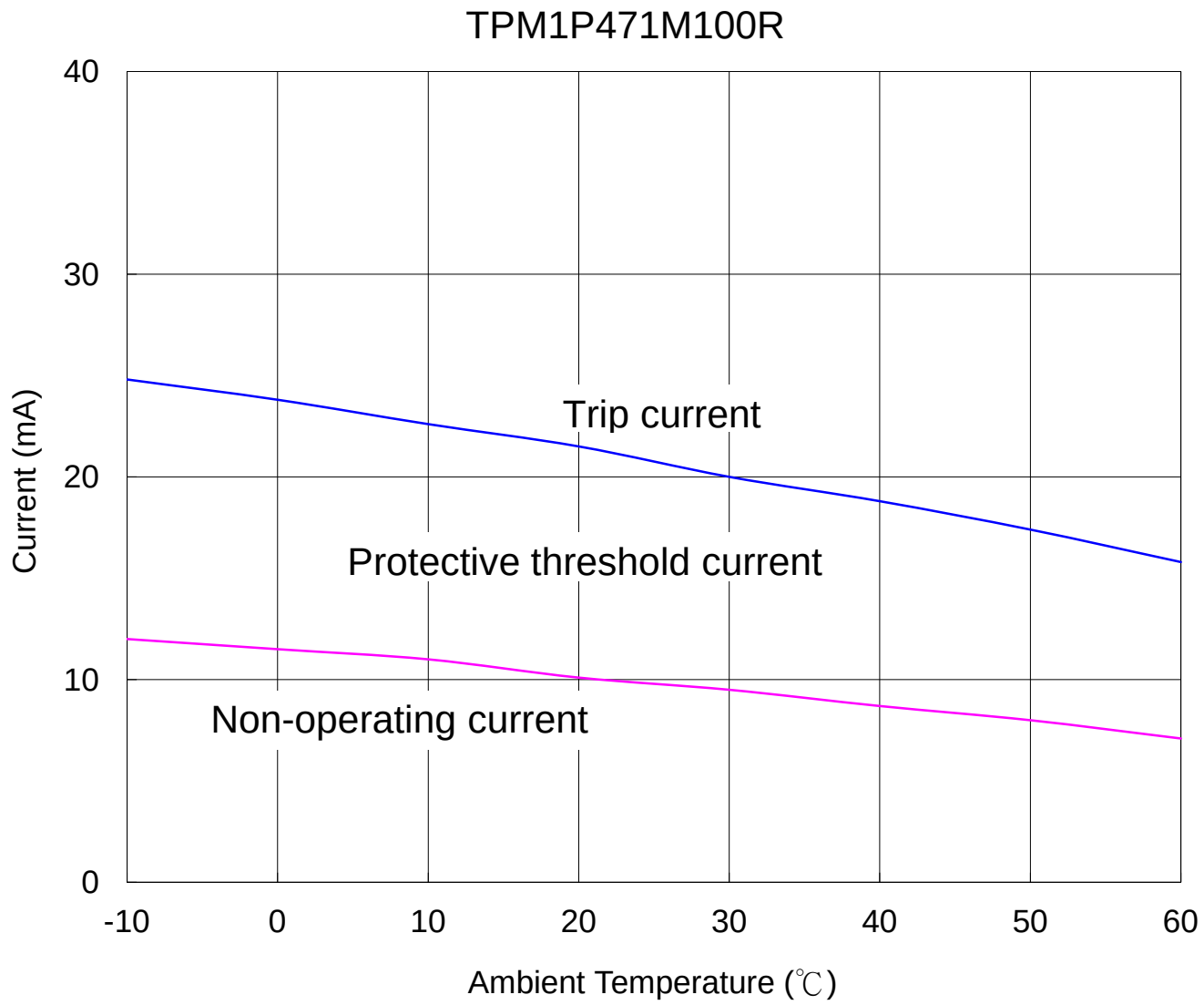
Certificates

(1) IATF 16949 certificate
(2) ISO 9001 certificate
(3) QC 080000 certificate

Test Report

(1) RoHS test report
(2) Halogen-free test report

Protective Threshold Current Range



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for PTC (Positive Temperature Coefficient) Thermistors ***category:***

Click to view products by TKS ***manufacturer:***

Other Similar products are found below :

PTCAUX7-36-5C PTCCL09H251FBE PTCTL3MR100GTE B59346A1502P020 B59860C 130A 70 B59980C0160A070 PTCTT95R100GTE PTCLL05P131TBE B59841C0135A070 TFPT0805L1800FV B59725T1120A062 B59116S0225B010 B59008C0150A040 B59100M1090A070 B59100M1145A070 B59873C0120A070 102PS1G B59300M1150A070 B59339A1501P020 B59770B0120A070 B59955C0120A070 B59995C0120A070 YQR100R060 YQS5751PTO YQS5856PTF YQS5930PTO YS5675 YS5918PTO YS5677 YQS5898PTO YQS5868PTF YQD100N1000 KTY82/222,215 KTY81/110,112 KTY81/210,112 B59219J130A20 B59771B0120A070 B59807A90A62 B59641A0135A062 B59960C160A70 PTGL10ARR27M1B51A0 P5005C090S500H YQD120N0025 PTGL12AS4R7K6B51B0 PTGL12AR100M6C01B0 PTGL07AS2R7K2B51A0 PTGL07AS1R8K2B51B0 PTGL13AR0R8H2B71B0 PTGL12AR1R2H2B51B0 PTGL10AR3R9M3P51B0