

深圳市华微讯半导体有限公司

承 认 书

SPECIFICATION FOR APPROVAL

客户名称 Customer name	
客户料号 Customer material No.	
产品名称 Product name	PTC自恢复保险丝
产品型号/规格 specification	
送样日期 Deliver date	

本司确认（HWX APPROVAL）

检验 Inspection	校对 Proofreading	批准 Approval	签章 Signature
张淑敏	张伟杰		

客户确认（CUSTOMER APPROVAL）

检验 Inspection	校对 Proofreading	批准 Approval	签章 Signature

确认结果Verify the results:

☐合格Qualified

☐不合格Unqualified

☐其他Other

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1、Description

H	S	M	D	1	8	1	2	—	1	6	0	—	1	2	V
Logo		SMD		1812 Series				Hold Current				Vmax			

Solderability:

Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3



A		B		C		D		E	Marking
MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	
4.37	4.73	3.07	3.41	0.35	1.50	0.30	1.20	0.20	D160/D16

2、Electrical performance

Part Number	Vmax	I _{max}	I _{hold}	I _{trip}	Pd _{max}	Max Time T _{rip}		Resistance	
	(V)	(A)	(A)	(A)	(W)	(A)	(s)	R _{min}	R _{1max}
								(Ω)	(Ω)
HSMD1812-160	12	100	1.60	3.20	0.8	8.00	0.50	0.03	0.11

I_h: Maximum operating current of the HPTC at an ambient temperature of 25°C

I_t: The HPTC initiated the minimum current for protection at an ambient temperature of 25°C

V_{max}: Maximum operating voltage of the HPTC

I_{max}: Maximum current that the HPTC can withstand

R_{min}: Minimum resistance at 25°C of stationary air

R_{1max}: Maximum resistance of product

3、Table of Operating Current with Temperature (A) (for reference only)

Model	Ambient Operating Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
HSMD1812-160	2.20	2.06	1.91	1.60	1.36	1.17	1.09	0.85	0.72

4、 Test Procedures And Requirements

test	Test Condition	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	$T \leq \text{maximum Time to Trip}$
Trip Cycle Life	V_{max} , I_{max} , 100cycles	No arcing or burning
Trip Endurance	V_{max} , 1 hours	No arcing or burning
Terminal materials :	Tin-Plated Nickle-copper	
Soldering zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.	
Environmental Specifications		
Passive aging	85°C, 1000hours	$\pm 10\%$
Humidity aging	85°C/85%RH. 1000 hours	$\pm 5\%$
Thermal shock	MIL-STD-202, Method 107G +85°C/-40°C, 20times	-30% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change
Vibration	ML-STD-883C, Test Condition A	No chage

5、 Soldering parameters



Profile Feature		
Average Ramp-Up Rate ($T_{s(max)}$ to T_P)		3°C/second max
Pre Heat:	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	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 the package, 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

6、 Package Information

storage condition:

Storage conditions: 30° C max, 60% R.H.Devices may not meet specified performance if storage conditions are exceeded.

W	12.0±0.10
F	5.50±0.05
E1	1.75±0.10
D0	1.55±0.05
D1	1.50 min
P0	4.0±0.10
P1	8.0±0.10
P2	2.0±0.05
A0	3.58±0.10
B0	4.93±0.10
T	0.25±0.05
K0	0.87±0.10
Leader	390mm
Trailer	160mm
Q'ty	2,000pcs/Reel

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



6、 WARNING

- 1、 Use PPTC exceed by the maximum rating and improper use may result in device damage and possible electrical arcing and flame.
- 2、 PPTC are designed for protection against over current or temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- 3、 Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- 4、 Use PPTC with a large inductance in circuit will generate a circuit voltage above the rated voltage of the PPTC.
- 5、 Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- 6、 If any quality problems caused by improper use mentioned above,our company is not responsible.