

S0603 Series Data Sheet

Features

- RoHS Compliant & Halogen Free
- Faster Tripping
- Operating temperature: -40°C ~ +85°C
- Hold Current: 0.05A~0.35A
- Maximum Voltage: 6V~15V

Applications

- Set-top-box and HDMI
- Mobile phones and PDAs
- USB peripherals
- Game console port protection

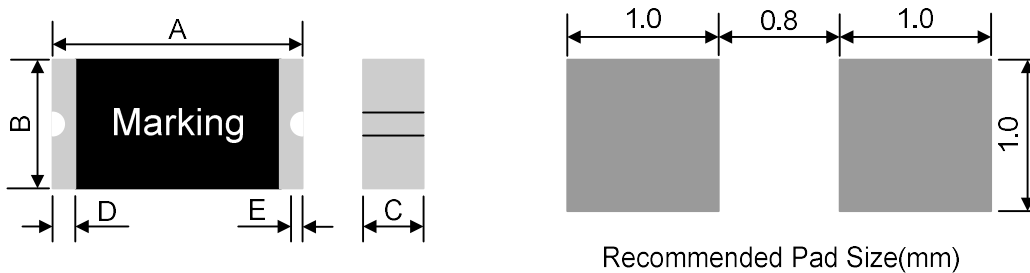
Part Number Code

S0603 H005

S0603: 0603 Dimension Surface Mount Device

H005: $I_{Hold}=0.05A$

Dimensions (Unit: mm)



Model	Marking	A		B		C		D	E
		Min.	Max.	Min.	Max.	Min.	Max.		
S0603H005	1	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.40
S0603H010	1	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.40
S0603H020	2	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.40
S0603H025	3	1.45	1.85	0.65	1.05	0.40	1.00	0.15	0.40
S0603H030	5	1.45	1.85	0.65	1.05	0.60	1.55	0.15	0.40
S0603H035	5	1.45	1.85	0.65	1.05	0.60	1.55	0.15	0.40

Electrical Characteristics

Model	I_{Hold}	I_{Trip}	V_{Max}	I_{Max}	$P_{d Typ}$	Maximum time to trip		Resistenc	
	(A)	(A)	(V _{DC})	(A)	(W)	Current(A)	Time(Sec)	Ri _{Min} (Ω)	R1 _{Max} (Ω)
S0603H005	0.05	0.15	24	20	0.50	0.20	1.00	3.00	35.00
S0603H010	0.10	0.30	15	40	0.50	0.50	1.00	0.90	8.00
S0603H020	0.20	0.40	9	40	0.50	1.00	0.60	0.55	3.50
S0603H025	0.25	0.55	9	40	0.50	8.00	0.08	0.50	3.00
S0603H030	0.30	0.70	6	40	0.50	8.00	0.10	0.30	2.00
S0603H035	0.35	0.75	6	40	0.50	8.00	0.10	0.20	1.40

- ◆ I_{Hold} =Hold Current. Maximum current device will not trip in 25°C still air.
- ◆ I_{Trip} =Trip Current. Minimum current at which the device will always trip in 25°C still air.
- ◆ V_{Max} =Maximum operating voltage device can withstand without damage at rated current (I_{Max}).
- ◆ I_{Max} =Maximum fault current device can withstand without damage at rated voltage (V_{Max}).
- ◆ $P_{d Typ}$ =Typical power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.
- ◆ Ri_{Min/Max}=Minimum/Maximum device resistance prior to tripping at 25°C.
- ◆ R1_{Max}=Maximum device resistance is measured one hour post reflow.

Thermal Derating Chart-I_H (A)

Model	Maximum ambient operating temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
S0603H005	0.07	0.06	0.055	0.05	0.04	0.35	0.30	0.25	0.15
S0603H010	0.14	0.12	0.11	0.10	0.80	0.70	0.60	0.50	0.30
S0603H020	0.28	0.25	0.23	0.20	0.17	0.14	0.12	0.10	0.07
S0603H025	0.35	0.31	0.29	0.25	0.21	0.18	0.15	0.13	0.09
S0603H030	0.42	0.38	0.35	0.30	0.26	0.21	0.18	0.15	0.11
S0603H035	0.47	0.44	0.39	0.35	0.30	0.27	0.24	0.20	0.14

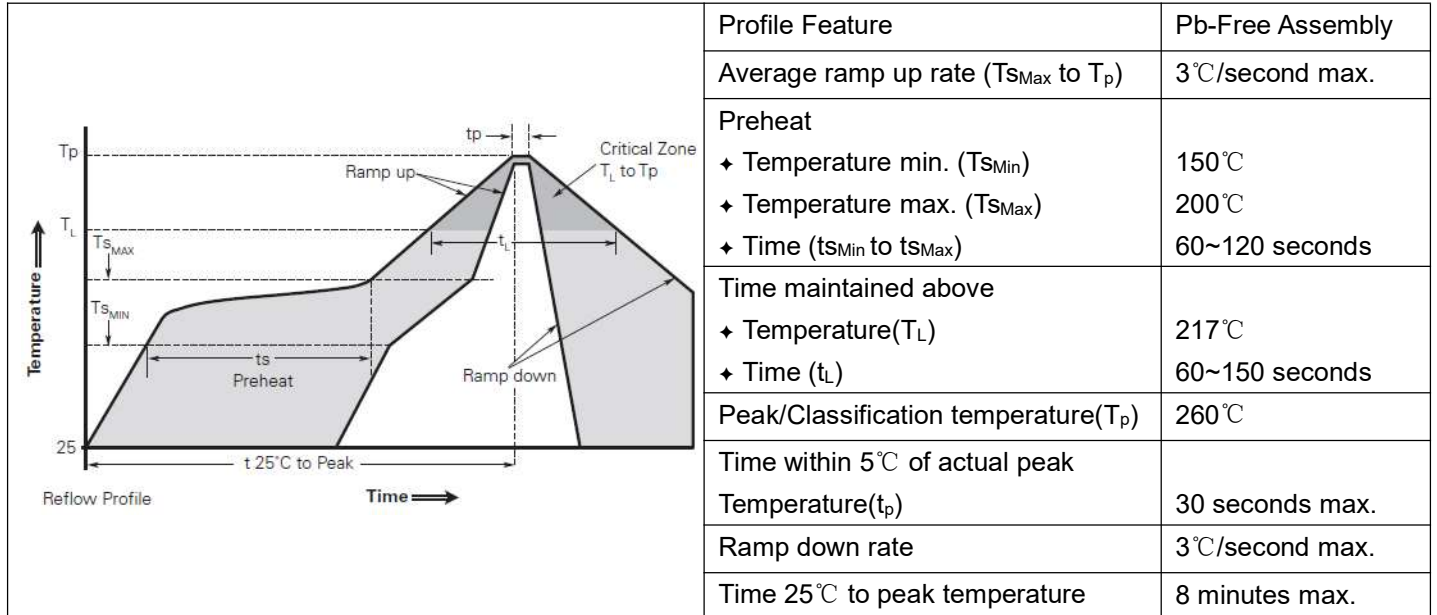
Physical Characteristics

Terminal materials	Soldering zone
Tin-Plated Nickle-copper	Meets EIA specification RS 186-9E and ANSI/J-STE-002 Category 3.

Environmental Specifications

Test	Conditions	Resistance Change
Passive aging	85°C, 1000 hours	±10%
Humidity aging	85°C/85%RH.1000 hours	±5%
Thermal shock	MIL-STD-202, Method 107G +85°C/-40°C, 20 times	-30% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215	No change
Vibration	ML-STD-883C, Test Condition A	No change

Reflow Soldering



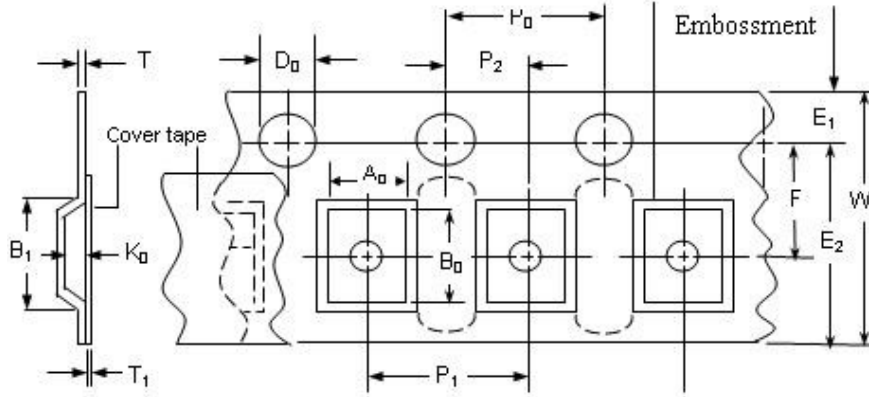
Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.

- ◆ Devices are not designed to be wave soldered to the bottom side of the board.
- ◆ Recommended maximum paste thickness is 0.25mm (0.010inch).
- ◆ Devices can be cleaned using standard industry methods and solvents.
- ◆ Soldering temprature profile meets RoHs leadfree process.

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

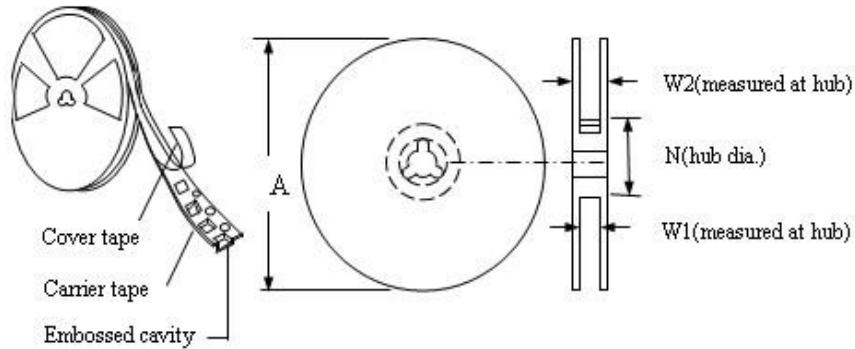
Packaging

EIA Tape Component Dimensions



Item	W	P ₀	P ₁	P ₂	A ₀	B ₀
Dimensions(mm)	8.00±0.10	4.00±0.10	4.00±0.10	2.00±0.05	0.95±0.10	1.85±0.10
Item	D ₀	F	E ₁	T	Leader min.	Trailer min.
Dimensions(mm)	1.55±0.05	3.50±0.05	1.75±0.10	0.20±0.02	390	160

EIA Reel Dimensions



Item	A	N	W ₁	W ₂
Dimensions(mm)	178±1.0	59±1.0	8.5+1.0/-0.2	12.0±1.0

Packaging Quantity

Model	Quantity(pcs)	Model	Quantity(pcs)
S0603H005	5000	S0603H025	5000
S0603H010	5000	S0603H030	4000
S0603H020	5000	S0603H035	4000

Storage

The maximum ambient temperature shall not exceed 38°C. Storage temperatures higher than 38°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 60%. 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

- ◆ Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- ◆ PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- ◆ Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- ◆ Use PPTC with a large inductance in circuit will generate a circuit voltage ($L di/dt$) above the rated voltage of the PPTC.
- ◆ Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- ◆ Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices. PPTC SMD can be cleaned by standard methods.
- ◆ Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profile could negatively impact solderability performance of our devices.