Terminal Finish and Soldering Process Information for Caddock Resistor Products

Group 1: Caddock Resistor Products that are compatible with "Lead(Pb)-Free" wave soldering, utilizing a "through hole" circuit board wave soldering process.

Caddock Resistor Products	Terminal Finish and underplate	"Lead Free" Soldering Process utilizing Sn/Ag or Sn/Ag/Cu solder alloys
Type HVD	Sn/Ag Solder Coated	See "Solder Processing Note 1"
Type MG	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type ML	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type MM	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
MP Models MP2060 MP915 MP825 MP916 MP850 MP925 MP930 MP9100	Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 1"
MP820 MP821	Matte Tin (Sn)	See "Solder Processing Note 1"
Type MS	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
MX500 Series	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type MV	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type TF	Matte Tin (Sn)	See "Solder Processing Note 1"
Type TG	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type THV	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type USF	Matte Tin (Sn)	See "Solder Processing Note 1"
Type USG	Ultra-thin Gold (Au) over Nickel layer (Ni)	See "Solder Processing Note 1"
Type USVD	Matte Tin (Sn)	See "Solder Processing Note 1"
Type VMN	Sn/Ag Solder Coated	See "Solder Processing Note 1"
Type T912 / T914	Sn/Ag Solder Coated	See "Solder Processing Note 1"
1776 Models 1776-XXX	Matte Tin (Sn) or Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 1"
1776-**C**XXX	Sn/Ag Solder Coated	See "Solder Processing Note 1"
Type 1787	Matte Tin (Sn) or Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 1"
Type 1789	Sn/Ag Solder Coated	See "Solder Processing Note 1"
Type T1794	Sn/Ag Solder Coated	See "Solder Processing Note 1"

Solder Processing Note 1: Wave soldering with 260°C peak temperature (maximum) with a maximum time at peak temperature of 10 seconds.

Group 2: Caddock SMD Resistor Products that are compatible with "Lead-Free" SMD reflow soldering.

Caddock Resistor Products	Terminal Finish and underplate	"Lead Free" Soldering Process ultilizing Sn/Ag or Sn/Ag/Cu solder alloys
Type CC	Metallization or Sn/Ag/Cu coating	See "Solder Processing Note 2"
Type CHR	Metallization	See "Solder Processing Note 2"

Solder Processing Note 2: SMD reflow soldering with 260°C peak temperature (maximum) with a maximum time at peak temperature of 10 seconds.

Group 3: Caddock Resistor Products that are compatible with "Lead(Pb)-Free" wave soldering but only with special conditions that control the maximum terminal temperature adjacent to the resistor body.

Caddock Resistor Products	Terminal Finish and underplate	"Lead Free" Soldering Process utilizing Sn/Ag or Sn/Ag/Cu solder alloys
Type MK	Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 3"
Type TK	Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 3"

Solder Processing Note 3: This part is not normally compatible with the high temperature soldering process used in common "Lead(Pb)-Free" wave soldering. This part may only be used in "Lead(Pb)-Free" wave soldering when the temperature of the resistor terminal adjacent to the resistor body is maintained below 219°C during soldering. This can be accomplished: 1) By shielding the resistor body from top side heating to help accomplish this terminal temperature requirement; 2) When using Sn/Ag or Sn/Ag/Cu soldering alloys, managing the temperature of the resistor terminal, by spacing the resistor a distance above the circuit board or by using heat sink clips on the terminals adjacent to the resistor body to avoid exceeding the maximum lead temperature.

Group 4: Caddock SMD Resistor Products that are NOT recommended for common "Lead-Free" SMD reflow soldering.

Caddock Resistor Products	Terminal Finish and underplate	Comments
Type CD	Sn/Ag or Aluminum (Al)	See "Solder Processing Note 4"
Model MP725	Matte Tin (Sn) over Nickel flash (Ni)	See "Solder Processing Note 4"

Solder Processing Note 4: This part is not compatible with the high temperature soldering process used in common "Lead-Free" SMD reflow soldering. The soldering profile must not cause the body of these resistors to exceed 219°C. See Caddock Applications Engineering Note AEN-0108

Group 5: Caddock Resistor Products that are NOT recommended for common "Lead-Free" wave soldering.

Caddock Resistor Products	Terminal Finish and underplate	Comments
Type LC	Sn/Ag Solder coated	See Solder Processing Note 5
Type SR	Sn/Ag or Matte Tin (Sn)	See Solder Processing Note 5

Solder Processing Note 5: This part is not compatible with the high temperature soldering process used in common "Lead-Free" wave soldering. The soldering profile must not cause the body of these resistors to exceed 219°C.