

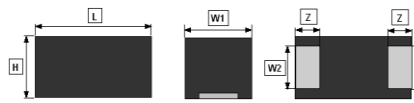
# SPECIFICATION

- Supplier : Samsung Electro-Mechanics
- Product : Polymer Tantalum Capacitor

- Samsung P/N : TCPCF0J476MNAR201T
- Description : CAP,TANTAL,47 $\mu$ F,6.3V, $\pm$ 20%,2012-08

## A. Samsung Part Number

TC      PCF      0J      476      M      N      A      R      201      T  
 ①      ②      ③      ④      ⑤      ⑥      ⑦      ⑧      ⑨      ⑩

① Tantalum Capacitor	TC			
② Series	PCF			
③ Rated Voltage	6.3V			
④ Capacitance	47 $\mu$ F			
⑤ Capacitance tolerance	$\pm$ 20%			
⑥ Case size code	2012-08		L: 2.0 $\pm$ 0.2 mm H: 0.8 $\pm$ 0.1 mm	W1: 1.25 $\pm$ 0.2 mm W2: 0.9 $\pm$ 0.1 mm
⑦ Packing code	7" reel			
⑧ Taping code	Taping direction code			
⑨ ESR	200 m $\Omega$	20 $\times$ 10 <sup>1</sup>		
⑩ Height	0.9mm max			

## B. Reliability Test and Judgment Condition

Item	Performance	Test condition
Capacitance	Within specified tolerance	120Hz, maximum 1.0Vrms, 1.0~2.0V D.C, at 25 $^{\circ}$ C
Tan $\delta$ (DF)	Within specified value	120Hz, maximum 1.0Vrms, 1.0~2.0V D.C, at 25 $^{\circ}$ C
Impedance(Z) & ESR	Within specified value	100kHz at 25 $^{\circ}$ C
Leakage current	Within specified value	The rated DC voltage shall be applied to terminals across the test capacitor. Charge time : 5mins
Temperature Characteristics	"-55 $^{\circ}$ C : $\Delta$ C/C -20~0% "+105 $^{\circ}$ C : $\Delta$ C/C 0~+30%	From -55 $^{\circ}$ C to 105 $^{\circ}$ C
Adhesion Strength (Shear Strength)	No peeling shall be occur on the terminal electrode	1005mm size : 2N, for 10 $\pm$ 1 sec. 1608~7343mm size : 5N, for 10 $\pm$ 1 sec.
Electrode Strength (Bending Strength)	Within specified tolerance Tan $\delta$ , LC : initial spec.	Bending to the limit (3mm) with 1.0mm/sec.
Solder ability	More than 95% of terminal surface is to be soldered newly	Sn-3Ag-0.5Cu solder : 245 $\pm$ 2 $^{\circ}$ C, 3 $\pm$ 0.3sec
Resistance to Soldering heat	Capacitance change : within $\pm$ 20% Tan : 1.3 times of Initial specification. LC : 3 times of Initial specification.	Solder pot : 260 $\pm$ 5 $^{\circ}$ C, 10 $\pm$ 1sec.
Vibration Test	Capacitance change : within $\pm$ 5% Tan $\delta$ , LC : initial spec.	Amplitude : 1.5mm From 10Hz to 55Hz (return : 1min.) 2hours $\times$ 3 direction (x, y, z)
Resistance to Moisture	Capacitance change : -30~+35% Tan : 1.5 times of Initial specification. LC : 3 times of Initial specification.	40 $\pm$ 2 $^{\circ}$ C, 90~95%RH, 500 +8/-0hrs
Load life (High Temperature Resistance)	Capacitance change : -30~+30% Tan : 85 $^{\circ}$ C $\rightarrow$ 1.5times of Initial specification. 105 $^{\circ}$ C $\rightarrow$ 3 times of Initial specification. LC : 1.5 times of Initial specification.	Rated voltage at 85 $^{\circ}$ C Derated voltage(0.8Vr) at 105 $^{\circ}$ C 2000 +48/-0hrs
Temperature Cycling	Capacitance change : within $\pm$ 20% Tan : within initial specification. LC : 3 times of Initial specification.	1 cycle condition (-55 $^{\circ}$ C $\rightarrow$ 25 $^{\circ}$ C $\rightarrow$ 105 $^{\circ}$ C $\rightarrow$ 25 $^{\circ}$ C) 5 cycles

## C. Recommended Soldering method

Reflow ( Reflow Peak Temperature : 260 $^{\circ}$ C +0/-5 $^{\circ}$ C, 5sec max)

## D. Ratings & Part Number Reference

Part Number	Capacitance	Leakage Current	DF	ESR
TCPCF0J476MNAR201T	47 $\mu$ F	59.2 $\mu$ A	10%	200m $\Omega$

Allowable ripple current (100kHz @ 25 $^{\circ}$ C): 440mArms