

# SPECIFICATION

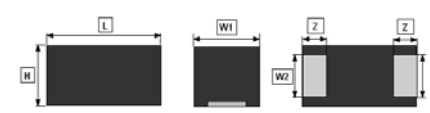
• Supplier : Samsung Electro-Mechanics  
 • Product : Polymer Tantalum Capacitor

• Samsung P/N : TCPCF0J476MRAR0150  
 • Description : CAP,TANTAL,47 $\mu$ F,6.3V, $\pm$ 20%,2012-09

## A. Samsung Part Number

**TC**    **PCF**    **0J**    **476**    **M**    **R**    **A**    **R**    **0150**  
 ①    ②    ③    ④    ⑤    ⑥    ⑦    ⑧    ⑨

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	2012-09	L: 2.0 $\pm$ 0.2 mm H: 0.9 $\pm$ 0.1 mm	W1: 1.25 $\pm$ 0.2 mm W2: 0.9 $\pm$ 0.1 mm	Z: 0.5 $\pm$ 0.2 mm				
⑦ Packing code	7" reel							
⑧ Taping code	Taping direction code							
⑨ ESR	150 m $\Omega$							



## 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 : 5min.
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	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	Within specified tolerance Tan $\delta$ , LC : initial spec.	Bending to the limit (3mm) with 1.0mm/sec.
Solderability	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 $\delta$ : 1.3 times of Initial specification. LC : 3 times of Initial specification.	Solder pot : 260 $\pm$ 5 $^{\circ}$ C, 10 $\pm$ 1sec.
Vibration	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 : -20~+35% Tan $\delta$ : 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 : -20~+30% Tan $\delta$ : 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 $\delta$ : 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 +0/-5 $^{\circ}$ C, 5sec max)

## D. Ratings & Part Number Reference

Part Number	Capacitance	Leakage Current	DF	ESR	Allowable Ripple Current
TCPCF0J476MRAR0150	47 $\mu$ F	59.2 $\mu$ A	10%	150m $\Omega$	510mA

Ripple current (100kHz @25 $^{\circ}$ C)