

Buck Converter Using μ PC494

Table of component models used in the DesignKit

Code	Classification	Part No.	Manufacturer	SPEC
IC1	SWITCHING REGULATOR CONTROL CIRCUIT	μ PC494	NEC Electronics Corporation	
Q1	Bipolar Junction Transistor	2SA1680	Toshiba	$V_{CE0}=-50V, I_C=-2A$
D1	Schottky Barrier Diode	XBS104V14R	TOREX SEMICONDUCTOR	40V, 1A (IFSM=20A)
Lo	Choke coil	8RHB	TOKO	330uF ,0.54A
Co	Aluminum Electrolytic Capacitor	RJJ-35V221MG5-T20	ELNA Co.,Ltd.	220uF ,35V

Simulation files are stored in folders, as shown in list below.

Simulations

Folder name

- | | |
|---|------------|
| 1. Transient simulation (@ $V_{IN}=12V, R_L=10\Omega$)..... | Transient |
| 2. Efficiency (@ $V_{IN}=12V, R_L=10\Omega$)..... | Efficiency |
| 3. Step-load response (@ $V_{IN}=12V, I_{OUT}=250mA / 500mA$)..... | Step-load |
| 4. Power switch devices losses (Q1 and D1)..... | Losses |
| 5. Output inductor..... | Lout |
| 6. Output capacitor..... | Cout |
| 7. Voltage control feedback loop..... | Feedback |

※ Please copy the folder named “Simulations” to your PC. Library files (.lib) are added already.

Design document: **Buck Converter Using μ PC494**

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