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LAMPIRAN

Algorithm 1 Source code parameter pada PSpice

```
------------------------PARAMETER-----------------------

.param Vin = 9 V              ;Vin Parameter
.param L = 131 uH             ;Inductor Parameter
.param C = 39 uF              ;Capasitor Parameter
.param V_low = 0 V            ;Vlow Parameter
.Param V_high = 9 V           ;Vgate Parameter
.param Fs = 50 kHz            ;Frequency Parameter
.param Percent_Duty = 22 ;Duty Cycle Percent
.param Td = 0 us              ;Time delay
.param Tf = 0.1 n             ;Time Fll
.param Tr = 0.1 n             ;Time Rise
```

Algorithm 2 Source code controller pada PSpice

```
-------------------------------PWM---------------------------

Vpulse 111 0 PULSE ( {V_low} {V_high} {Td} {Tr} {Tf} {{Percent_Duty}* 0.01* (1/{Fs})}
{1/{Fs}} )
```

Algorithm 3 Source code circuit pada PSpice

```
--------------------------CIRCUIT---------------------------

Vin 1 0 9V
Vx  1 1a DC 0V
Vy  3 3a DC 0V
L1  2 3 {L}
D1 0 2 D1N3883 ; Diode Fast Recovery
C1 3 0 {C}
LED 3a 0 D1N5765; DIODA LED
M1 1 111 2 2 IRFP040 ; MOSFET with a model IRFP040
```

Algorithm 4 Source code modelling diode fast recovery pada PSpice

```
-----------------DIODE FAST RECOVERY----------------

.model D1N3883 D ( Is=1.058E-10 Rs=11.56m Ikf=2.349 N=1 Xti=14 Eg=1.11
Cjo=113.2p M=.2834 Vj=.75 Fc=.5 Isr=994.9n Nr=2 Tt=369.9n )
```

Algorithm 5 Source code modelling MOSFET pada PSpice

```
----------MOSFET----------

.model IRFP040 NMOS(Level=3 Gamma=0 Delta=0 Eta=0 Theta=0 Kappa=0.2 Vmax=0
Xj=0 Tox=100n Uo=600 Phi=.6 Rs=3.627m Kp=20.75u W=.9 L=2u Vto=2.453
Rd=5.485m Rds=222.2K Cbd=5.068n Pb=.8 Mj=.5 Fc=.5 Cgso=1.795n Cgdo=1.038n
Rg=10.46 Is=2.179p N=1 Tt=118n)
```

Algorithm 6 Source code modelling LED pada PSpice

```
----------DIODA LED ----------

.MODEL D1N5765 LED
+ IS = 3.0E-19
+ RS = 8
+ N = 3
+ TT = 10.0E-09
+ CJO = 8.285237E-11
+ VJ = 1.2076937
+ M = 0.4053107
+ EG = 1.664
+ XTI = 10.78
+ KF = 0
+ AF = 1
+ FC = 0.4340008
+ BV = 5.0
+ IBV = 1E-4
```

Algorithm 7 Source code graphics post-processor pada PSpice

```
----------VIEW RESULT----------

.TRAN 0us 500ms 10uS UIC
.OPTIONS ABSTOL=1uA CHGTOL=0.01nC ITL2=100 ITL4=150 RELTOL=0.1
.PROBE  V(1,0) , V(3a,0)  , V(112,0) , V(1a,2)
.PROBE W(2,112)
.PROBE I(Vx)
.PROBE I(Vy)
.PROBE I(DLED1)
.END
```