LTspice Model
フォトカプラ
Avago
QCPL-032H-500E

Model Information

Model	A macro model
Call Name	MDC_QCPL-032H-500E_LT
Pin Assign	1:NC 2;ANODE 3:CATHODE 4:NC 5:VEE 6:VO 7:NC 8:VCC
File List	Model Library MDC_QCPL-032H-500E_LT01.lib
	Model Report MDC_QCPL-032H-500E_LT.pdf(this file)

Verified Simulator Version   LTspice XVII

Note

References
The information which was used for modeling is as follow:

[Data Sheet]
●Date/Version   N.A.
●Product name   QCPL-032H-500E
●Company name   Avago

[Characteristics listed]
●Characteristics   IF-VF,IR-VR,Capacitance
VOH-IOH,VOL-IOL,ICCH-VCCH,ICCL-VCCL,VO-IF
TP-VCC,TP-IF,TP-Rg,TP-Cg

Simulation Condition

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.
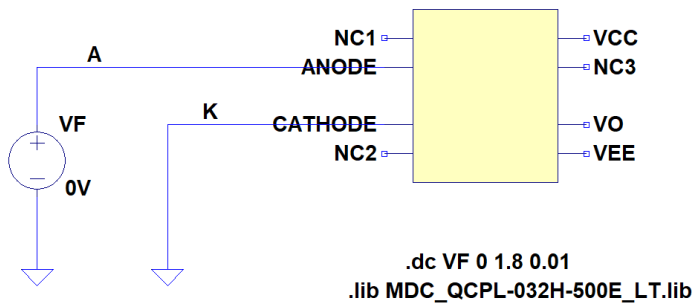
Item	Condition	Unit
Temperature	25	deg C

Model Functions Table

Functions	Implemented
IF-VF	◯
IR-VR	◯
Capacitance	◯
VOH-IOH	◯
VOL-IOL	◯
ICCH-VCCH	◯
ICCL-VCCL	◯
VO-IF	◯
TP-VCC	◯
TP-IF	◯
TP-Rg	◯
TP-Cg	◯

IF-VF Testbench

Referred to Data Sheet

.dc VF 0 1.8 0.01
.lib MDC_QCPL-032H-500E_LT.lib

Simulation results are following.
Explanatory notes   ― : simulated

IF-VF

IR-VR Testbench

Referred to Data Sheet

.dc VR 0 6 0.1
.lib MDC_QCPL-032H-500E_LT.lib
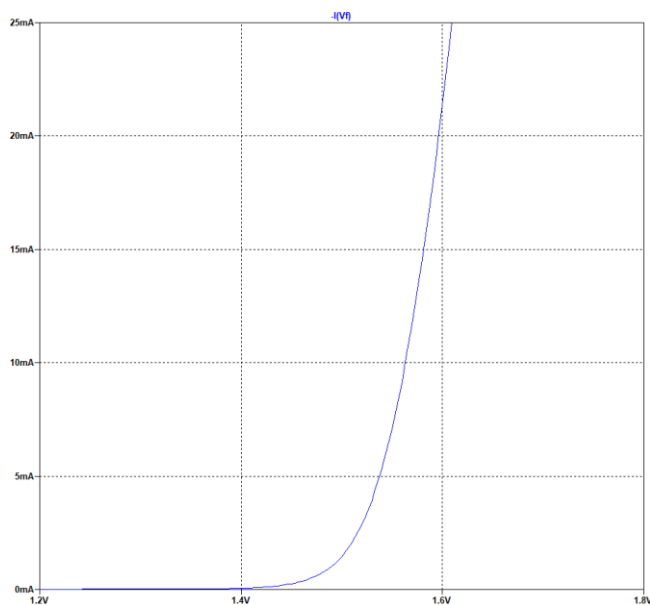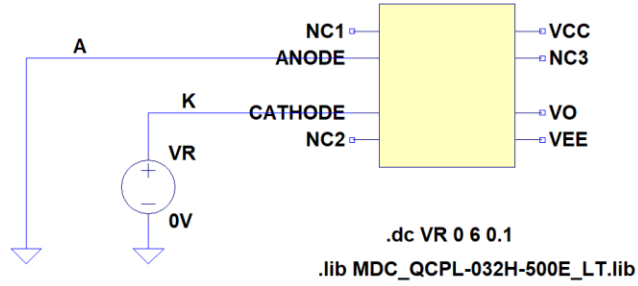
Simulation results are following.
Explanatory notes　　— : simulated

IR-VR
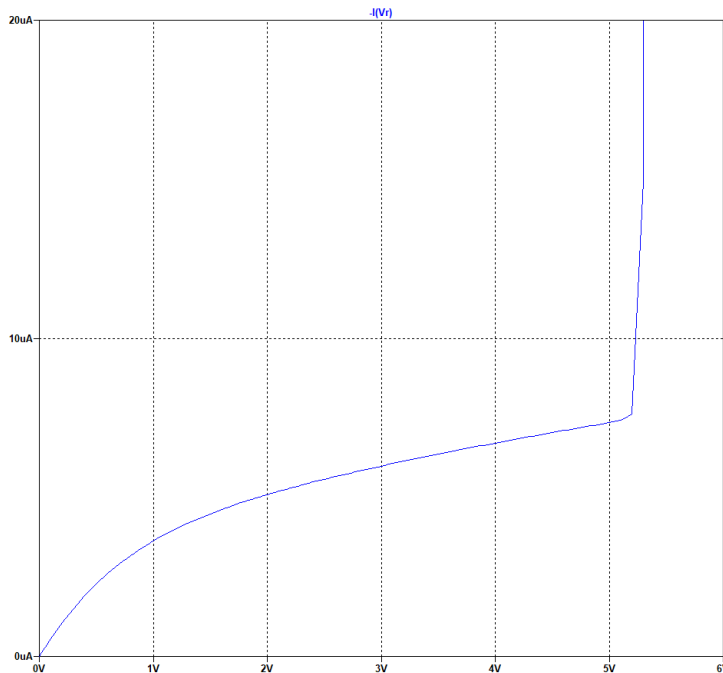
Capacitance Testbench

Referred to Data Sheet

.ac dec 1 1Meg 1Meg
.step param VR 0 10 0.1

NC1	VCC
ANODE	NC3
CATHODE	VO
NC2	VEE

A

K

VR

0V
AC 1

.lib MDC_QCPL-032H-500E_LT.lib
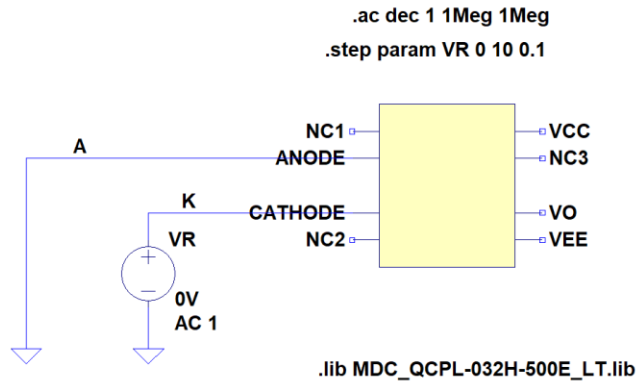
Simulation results are following.
Explanatory notes 　－ : simulated
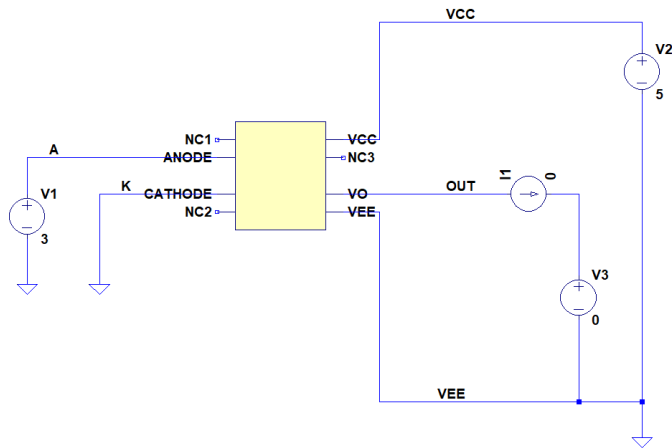
Capacitance
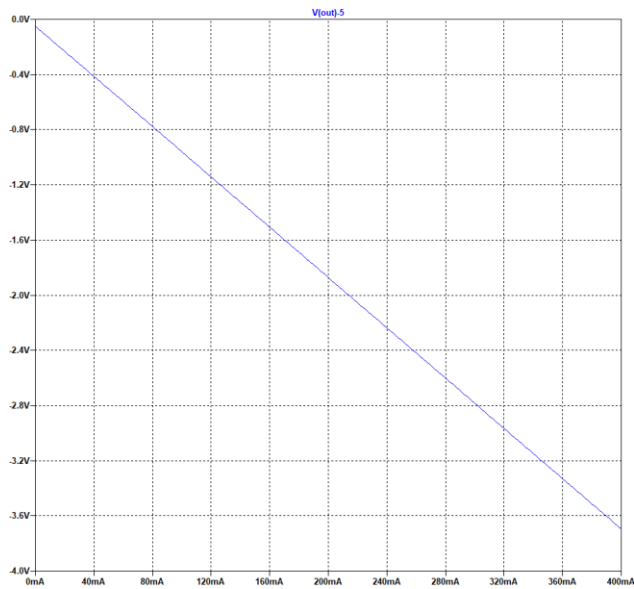
1/((2*PI*1Meg)*IM(1/I(Vr)))
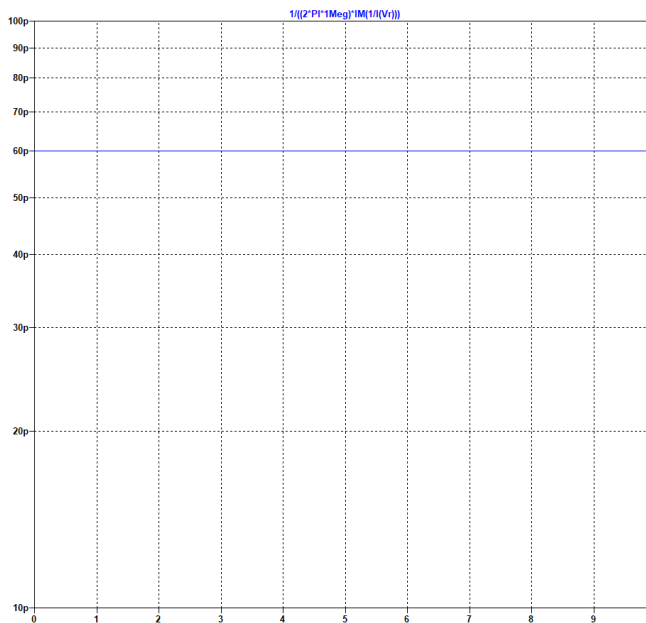
VOH-IOH Testbench

Referred to Data Sheet

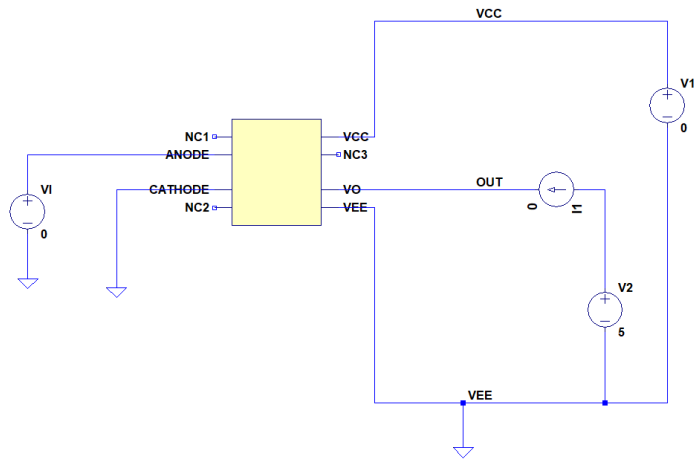.dc I1 0 0.4 0.01
.lib MDC_QCPL-032H-500E_LT.lib

Simulation results are following.
Explanatory notes　　 ― : simulated

VOH-IOH

VOL-IOL Testbench

Referred to Data Sheet

.dc I1 0 0.4 0.01
.lib MDC_QCPL-032H-500E_LT.lib

Simulation results are following.
Explanatory notes   — : simulated

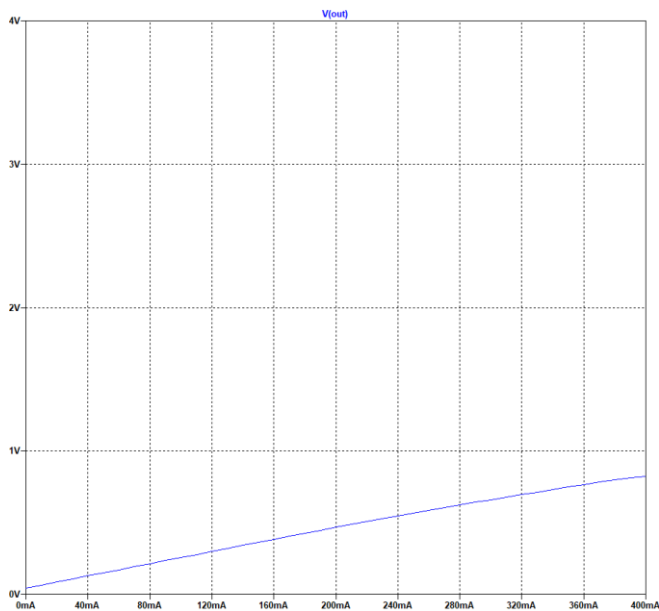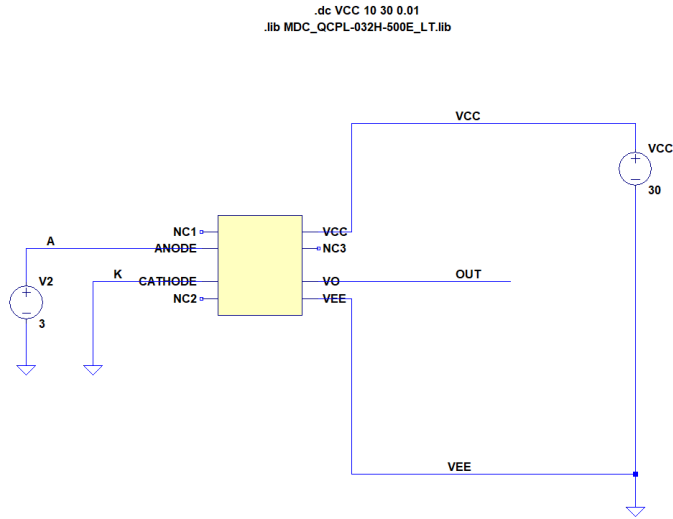**VOL-IOL**
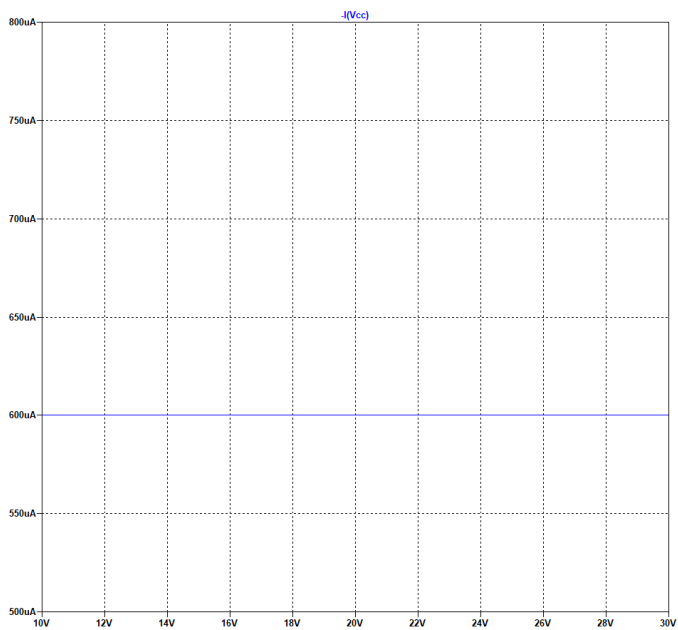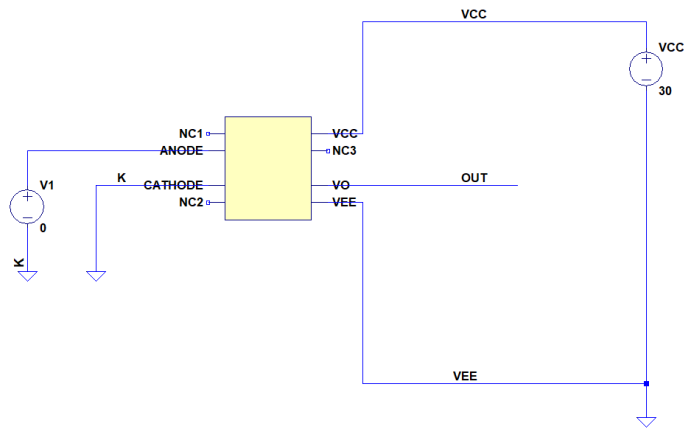
ICCH-VCCH Testbench

Referred to Data Sheet

.dc VCC 10 30 0.01
.lib MDC_QCPL-032H-500E_LT.lib

VCC

VCC

30

NC1	VCC
ANODE	NC3
CATHODE	VO
NC2	VEE

A

V2

3

K

OUT

VEE

Simulation results are following.
Explanatory notes　　─ : simulated

ICCH-VCCH

-I(Vcc)

ICCL-VCCL Testbench

Referred to Data Sheet

Simulation results are following.
Explanatory notes 　 － : simulated

ICCL-VCCL

VO-IF Testbench

Referred to Data Sheet

Simulation results are following.
Explanatory notes — : simulated

VO-IF

TP-VCC Testbench

Referred to Data Sheet

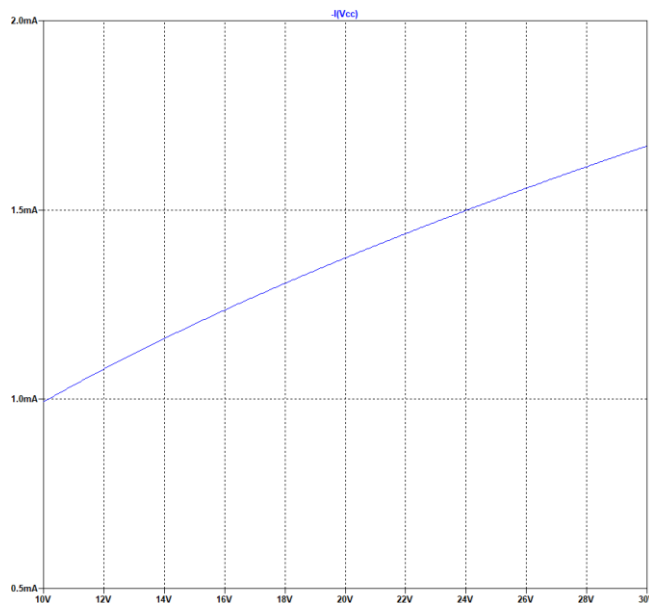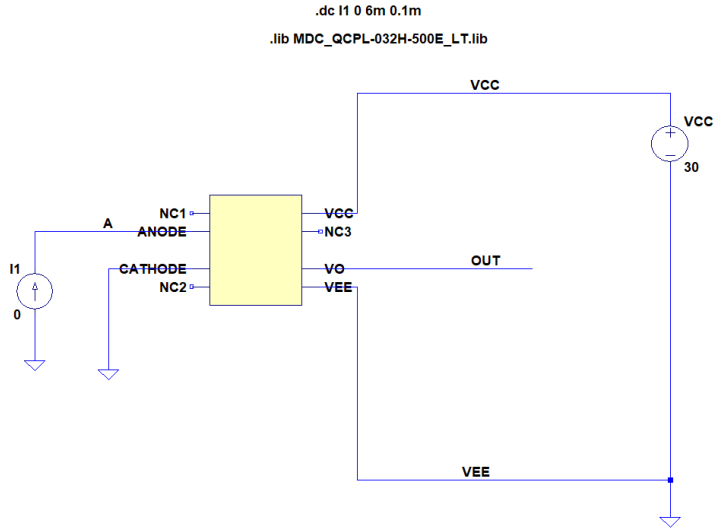Simulation results are following.
Explanatory notes 　 － : simulated

TP-VCC

TP-IF Testbench

Referred to Data Sheet

.meas TRAN TPLH TRIG -I(VF)=8m RISE=1 TARG V(out)=15 RISE=1
.meas TRAN TPHL TRIG -I(VF)=8m FALL=1 TARG V(out)=15 FALL=1

.tran 250u
.lib MDC_QCPL-032H-500E_LT.lib
.step param IOUT 6m 18m 4m

Simulation results are following.
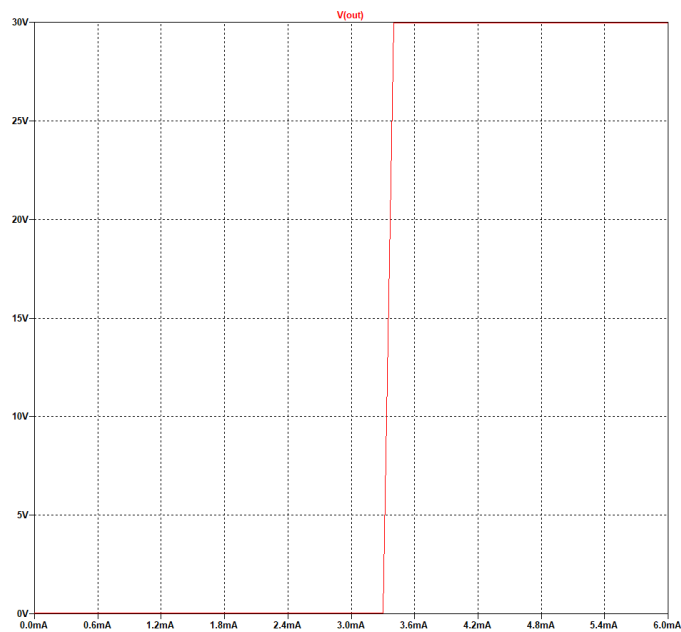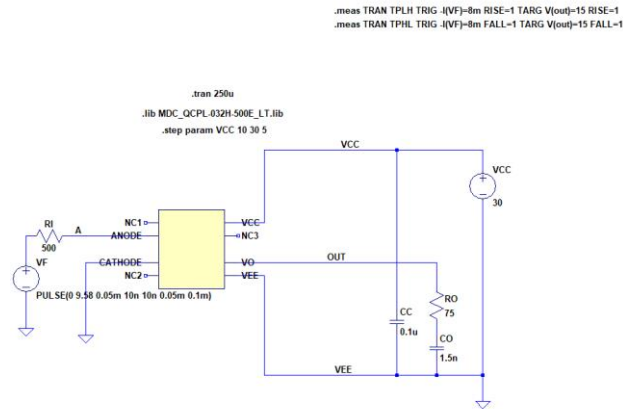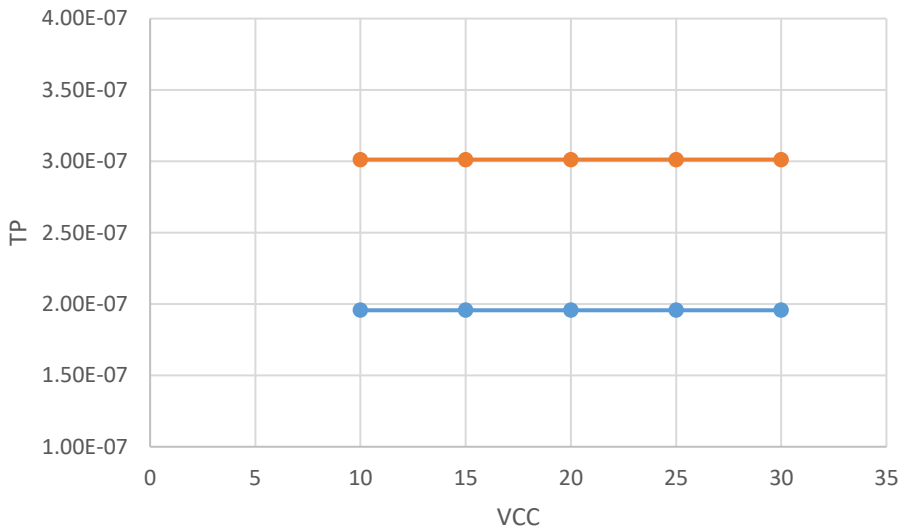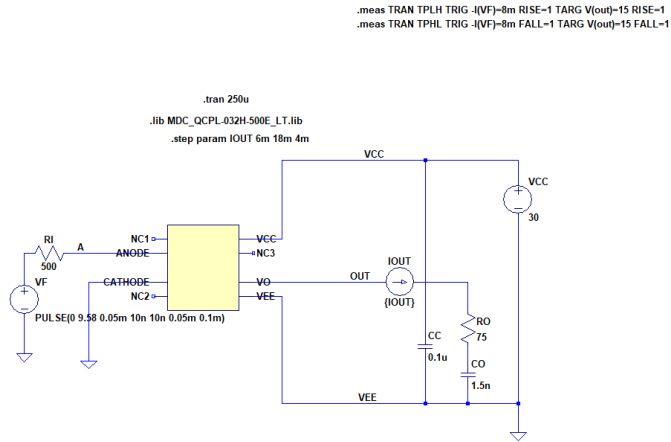Explanatory notes   ─ : simulated

TP-IF

TP-Rg Testbench

Referred to Data Sheet

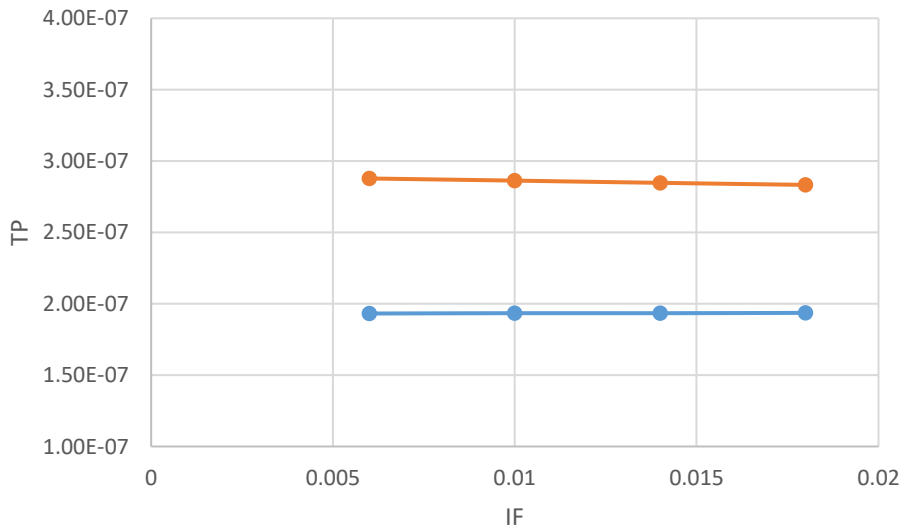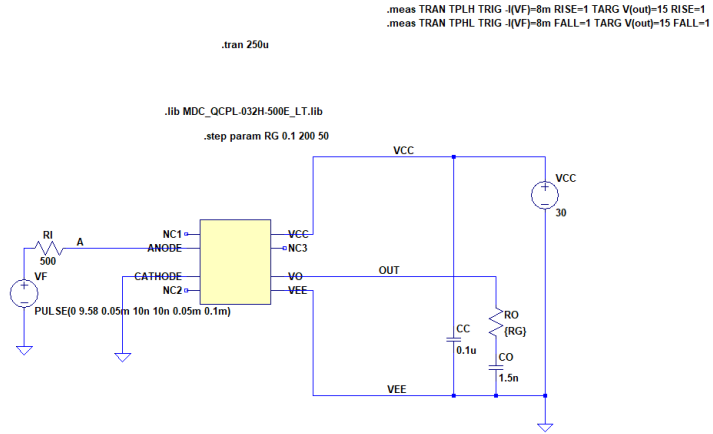Simulation results are following.
Explanatory notes   ─ : simulated

TP-Rg
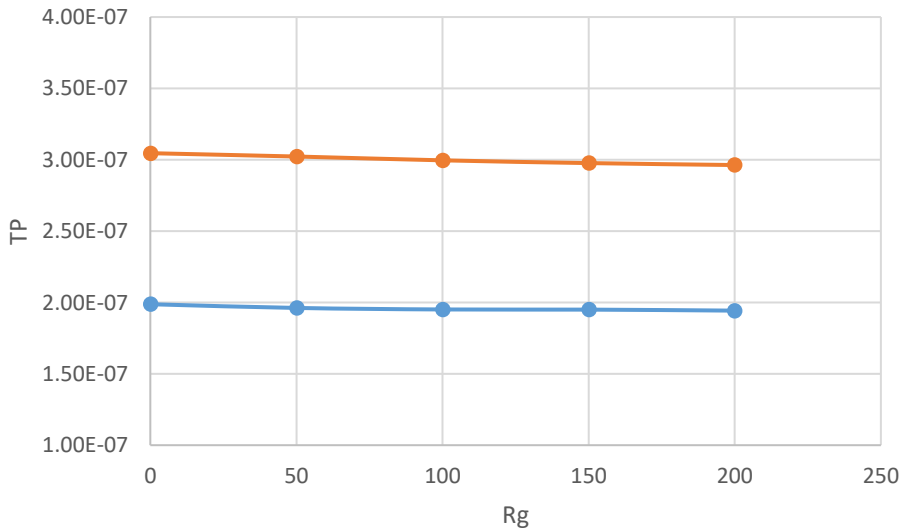
TP-Cg Testbench

Referred to Data Sheet

.meas TRAN TPLH TRIG -I(VF)=8m RISE=1 TARG V(out)=15 RISE=1
.meas TRAN TPHL TRIG -I(VF)=8m FALL=1 TARG V(out)=15 FALL=1

.step param CG 0 100n 20n
.tran 250u
.lib MDC_QCPL-032H-500E_LT.lib
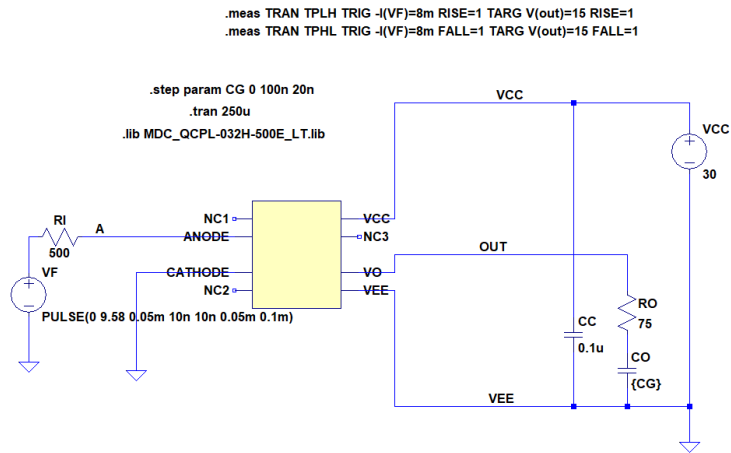
Simulation results are following.
Explanatory notes   － : simulated

TP-Cg
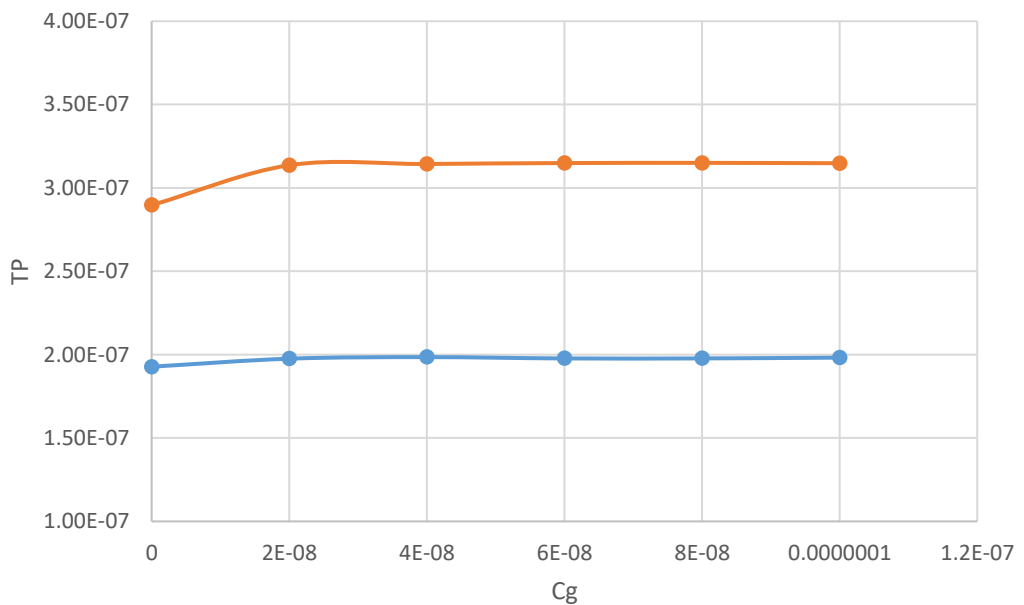
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