



Wide Vin 50V Non-synchronous Boost/Flyback/SEPIC Controller

FEATURES

x < LVPOQ, ZXZBP, VML_ZY
x , 0. < < LVPOb TS_SP 1ZVWb TYR=P W%
/ PaTP PX PL_P2 LOP % . Z
, XMPY: PL_TYR PX PL_P=L_YRP
/ PaTP 3-8 0>/ . W TNL_ZY 7PaPV3
/ PaTP. / 8 0>/ . W TNL_ZY 7PaPW -
x B TP 4' _AZWLP=L_YRP% A A
x 7Zb >S_QZb Y. PY_
x 7Zb < P_NPY: PL_TYR. PY%
x 1PPOMLNV=PQ_PYNP AZWLP
x , QJ_LMP>b_TNSTR 1 P PYNd% 63e Z
8 3e
x 4PRL_PO 1 P PYNd / TSP_Q 08 48 TRL_ZY
x 0c_P_YLW P PYNd>dNS_ZYN
x 0c_P_YLW ZX PYL_ZY
x WP>VT TYR 8 ZOP
x > Z_LOOTZYLVW P. ZX PYL_ZY
x X 4P_YLVW ZQ_L_TK P
x 4PRL_PO ZPN_ZY 1PL_P
. ZY_LY_PLV. PY_ZPN_ZY SP SZW
: aP 4' _AZWLP
: _ : aP aZWLP ZPN_ZY
, QJ_LMP YOP aZWLP 7ZMZ_
3 TN : aP 7ZLO ZPN_ZY
SP XLWS_QZb Y ZPN_ZY%
x 8>: 7 XX XX

APPLICATIONS

x 8 WZ _ 1 VMLNV
x 70/ -T > W
x Z_LMP> PLVP > W
x -L Pd Zb PPO-ZZ_1 VMLNV>0 4 L VML_ZY

DESCRIPTION

SP >. < CPaTP T L b TP TY _ YZY
dNS_ZYZ MZZ_NZY_ZWV SP CPaTP_NLYMP PO
TY-ZZ_>0 4 LYO1 VMLNVZYaP_P

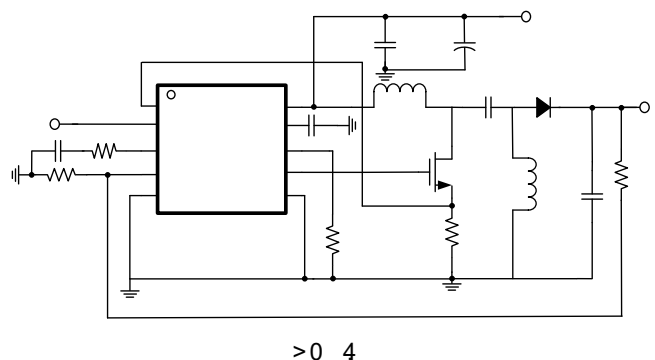
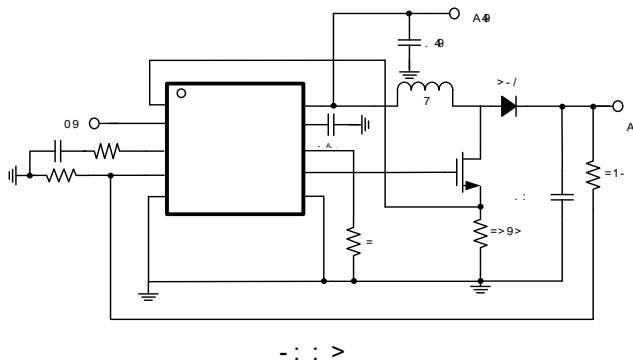
SP b_TNSTRQP PYNd ZQSP>. < CPaTP_NLY
MPLQJ_PO_ZLYdaLWP MPb PPY V3eLYO 8 3e
Ml TYRL TYRW Pcp_YLWP T_Z Z Ml dNS_ZYETIR
T_ZLYPcp_YLVWV. PY_XZOP_NZY_ZW ZaTP
_P_Z_MLYOb_DS_LYO_LY_PY_P ZY_P_TYLOOTZY
Z NdNV_Ml NdNV N PY_VK_TYR. PY_VK_T_T
LOJ_LMPV_SZ RS_LYPcp_YLWP T_Z

SP >. < T LY 0 VNL_ZXLRYP_TN 4P_Q_PYNP
08 4 QPYO/NZY_ZWV b_TS_TK VXPY_TYR_Z_TK BP
OP_RY_Q 08 4 PO_N_ZY SP>. < Q_L_P
1 P PYNd> PLO> PN_X 1>> b_TS UTP_TYR
LY_ZQ_SP b_TNSTRQP PYNd LYO_XZO_W_ZY_L_P
ZQ b_TNSTRQP PYNd_Z PO NP_SP_NZYO_NPO
08 4

SP>. < CPaTP SL M TWY ZPN_ZYQ_L_P
NSL_SP_XLWS_QZb Y SZ_NTN_T_ZPN_ZYLYO
ZaPaZWLP ZPN_ZY ZbP LaTYR_S_QZb Y_XZOP
PO NP_SP_ZLW_WN PY_Z, 4PRL_PO
N PY_W_PNZX PYL_ZY TK WP SP OP_RYLYO
QYPPQOQ_PNTNL_VML_ZY_NLYMP_TNPL_PO
TYRL TYRW P T_Z

SP CPaTP T LaL_TWVP TYL 8>: 7 XX XX
LNLRP

TYPICAL APPLICATION



REVISION HISTORY

9: 0% LRP Y XMP QZ PaZ PaTZY XLd OQZ QZX LRP Y XMP TY_SPN PY_aP ZY
 =PaTZY %PWL PO_Z 8 L VP_
 =PaTZY % Z PN_ A7: P T_Z OQZ P L_ZY
 =PaTZY % CO- L AZWRP PN_ZY
 =PaTZY % QLP / PaTP: OP 4QZ XL_ZY
 =PaTZY % QLP, MZWP 8 LcTK X =L_TR LOO8>7 TY / PaTP: OP 4QZ XL_ZY QLP 1R P LYO

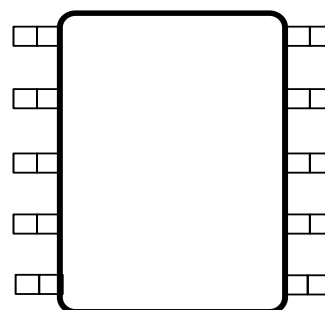
DEVICE ORDER INFORMATION

>.	<8=/=	L P =PPW		<		7PLO XX XX W_N8>:

ABSOLUTE MAXIMUM RATINGS

: aP Z PL TRQPLT PX PL_ P YW ZSP bTP YZPO			
A4 A7: J09			A
A. . / = / . aZWRP			A
A. . / = LY PY_Q ' Y			A
409 .: 8 1- 1, >D9. >/			A
PLV/ TP : _ _ PY_			,
5 YN_ZY PX PL_ P			.
> Z LRP PX PL_ P > 2			.

PIN CONFIGURATION



> P P MPdZYO SZ P WPO YOP , MZWP 8 LcTK X =L_TR XLd NL P OPaTP P XLYPY_QLXLRP SP OPaTP T YZ_R L LLYPPO_Z
 QYN_ZYZ _TP ZQT =PNZXXPYOPO: PL_ZY. ZYOTZY
 2 LLYPPOMI OP TY YZ_P PO TY ZO N_ZY
 SP 4 TMMOP ZaP PX PL_ P ZPN_ZY Z ZPN SP OPaTP O TR ZaP WLONZYOTZY 5 YN_ZY PX PL_ Pb TWPcNPO
 bSPYZaP PX PL_ P ZPN_ZYT LN_TP . ZYTY Z Z PL_ZYLMZaP SP PNQOXLcTK X Z PL_TRUYN_ZY PX PL_ Pb TW
 PO NP WTPX

PIN FUNCTIONS

409		. PY PY P TY _ TY . ZYYPN_Z SP Z TP TP ZQSPN PY PY P P T Z SZ RSL SZ LS
A7: J09		YOP aZWRP WNVZ _ ZRLXXTR TY SP NZYaP P L _ LYO S QZb Y WpWNLYMP ZRLXXPOMINZYYPNTR ST TY Z SP WaZWRP SZ RSL P T Z OQZP ST TYX _ YZ MP WQZL TR . ZYYPN ZA4 TY QYZ PO
.: 8		: _ ZQ SP TY P YLW_LYNZYONLYNP P Z LX WOP . ZYYPN SP WZ NZX PY L ZYNZX ZYPY MP bPPY ST TYLYORZ YO
1-		4aP TR TY _ ZQSP P Z LX WOP . ZYYPN L aZWRP OQZP QZX SP Z _ Z ST TY Z P_Z _ aZWRP SP OPaTP PR WP 1- aZWRP Z SP TY P YLW PQ PYNP aLWP ZQ A d TLW
, 29/		, YL WRRZ YO TY

PIN FUNCTIONS (continued)

1, >D9. >/		>b TINSTYR QP PYND P TYR TY SP b TINSTYR QP PYND T ZRLXXPO M L TYR P T Z MP b PPY ST TYLYO, 29/ SP TY P YL WZNVNLYMP dYNS ZYEP O Z LY P c P YL WZNVN, SRS W aPVZY ST TY QZ b TW _ Y SP OPaTP ZQ LYO SP OPaTP b TWSPYOLb, QZX SP W d TL W
29/		Zb P R Z YO TY
/ =		9 NSLYPW8: >10 RL P O TP Z _ _ . ZYYPN OTPN W Z SP RL P ZQ SP 9 NSLYPW8: >10 SZ RSL SZ Wb TYO NL YNP L S
A.		: _ _ ZQ SP TY P YLVA. PR WZ LYO W aZW RP TY ZQ SP 8: >10 O TP . ZYYPN L NPLX NM L NL LNTZ QZX ST TY Z 29/
A4		Zb P W TY _ TY. ZYYPN L NPLX NM L NL LNTZ QZX ST TY Z 29/

RECOMMENDED OPERATING CONDITIONS

: aP Z PL TYR QP LT PX PL P LYRP YW Z SP b TP YZ PO

A4	4Y aZW RP LYRP			A
A.	A. aZW RP LYRP			A
5	: PL TYRU YN ZY PX PL P			.

ESD RATINGS

A0>/	3 XLY- ZQd 8 ZOPW8 - 8 P, 0. <			VA
	. SL RPO / PaTP 8 ZOPW / 8 P, 0. <			VA

THERMAL INFORMATION

= 5.	5 YN ZY Z LXMPY SP XLWP T L YNP			. B
= 5. Z	5 YN ZY Z NL P Z SP XLWP T L YNP			
= 5-	5 YN ZY Z MZL O SP XLWP T L YNP			

>. ZaTP = 5 LYO = 5 Y XMP ZYWL PQ PYNP ZP XLPU YN ZY PX PL P ZQ SP OPaTP = 5 LYO = 5 L P YZ L
NSL LNP T NZQ LNL RP T P W M ZQXLYd Z SP d PX W aPVNSL LNP T N NSL SP OP RYLYO W aZ ZQ SP TY PONTIN T
MZL O . - ZYb STS SP >. < T XZ YPO SP XLWLO TP LYOPc P YLWP aTZYXPYL W aNZ SP . - MZL OT L SPL
TYV SL T ZOP PO Z SP WLO LYO SP XLWLO ZQ SP >. < . SL YRTR SP OP RYZ NZYCR L ZY ZQ SP . - MZL ONSLYRP
SP PONTIN ZQ SP SPL TYVLYO SP PQ P SP LN LW 5 LYO = 5

ELECTRICAL CHARACTERISTICS

A₀(A 5(. i . d TLV_WLWP L P P PO YOP .

A ₀	: P L_TYR TY _aZW _W RP			A
A _{0J} A7:	4Y _ A7: 3d P P T	A ₀ TTYR		A XA
4/	>S _OZb YN PY_	A ₁ , >D. 9 >/ (A Z A A7: J09(		,
4	< P NPY_N PY_QZX A ₀	YZ W LO YZ b TNS _W TYR A ₁ -(A		,
4 7D	> W. PY_	=1, >D9. >/ (V b TNS _W TYR YZ W LOLYO b TSZ Pc P YL V _W : >10		X,

A .	4Y P YLW _W PL PR W _Z	A ₀) A		A
A . J a _W				A
A . J a _W Sd				XA
A .	A . >Z NTYR N PY_V _W K T_			X,

A A7: >09	YOP aZW _W RP 7ZNVZ _ PQ PYNP aZW _W RP	A A7: LX TYR		A
4 A7:	A7: Z NPN PY_			,
A A7: >/	A7: S _OZb YaZW _W RP	A A7: LX TYR OZb Y		A

A=01	=PQ PYNP aZW _W RP ZQ1 -			A
4-	1- TY W LVLRPN PY_	A ₁ -(A		Y,
2 0,	0 Z LX W P _LY NZYO NL _W YNP	A : 8 (A		>
4: 8 J>=.	0 Z LX W P XLc _W TX X Z NP N PY_	A ₁ -(A=01 XA A : 8 (A		,
4: 8 J>96	0 Z LX W P XLc _W TX X TV N PY_	A ₁ -(A=01 XA A : 8 (A		,
A : 8 J3	. : 8 SRSN W XX	A ₁ -(A		A
A : 8 J7	. : 8 W b N W XX	A ₁ -(A		A

=/>: 9J :	/ W P b TNSZY P T_LYNP Z	4=(,		
=/>: 9J7: B	/ W P b TNSZY P T_LYNP MZ_ZX	4=(,		

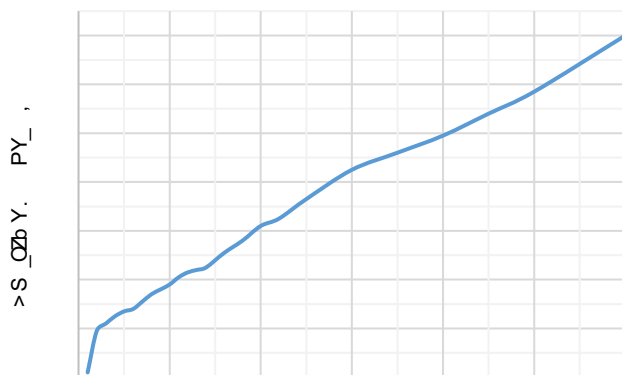
A PYP	. PY_ PY P SP SZ W			XA
A>7	4Y P YLV _W ZX PY L_ZY=LX aZW _W RP			XA
. 34 . / 07	3 TN XZCP LN W L_ZYCP W d	. W NVN W N W b TS _W N PY_ V _W K TYR MPQ P STN Z W TKPLN W L PO >>JQZY		N W N W

ELECTRICAL CHARACTERISTICS (continued)

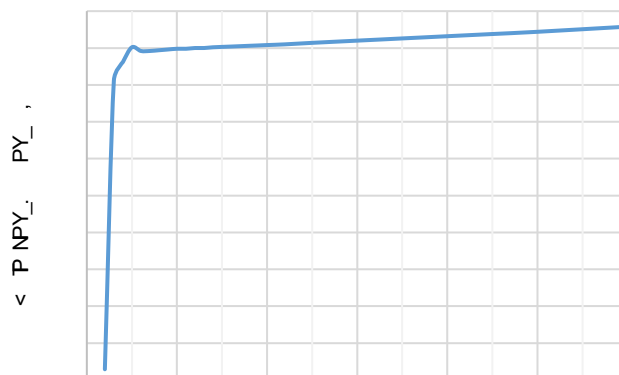
A₀(A₅(. i . d TLWLWP L P P PO YCP .

. 34 .	3 TN XZCP ZQ TKPLQ LN EL_ZY	. VNVNINP b TS YZ b TINSTR QZb POMI >> PVL P		NdINP
>>	>ZQ L _ TKP			X
1>B	>b TINSTRQP PYnd	=1, >D9. >/ (V		V3e
1>>	1 P PYnd> PLO=L YRP			
V>D9J34	S P SZWQZ >d'NS ZYEL_ZYZY 1, >D9. >/ TY	>d'NS ZYEL_ZYaZW RP T TYR		A
V>D9J7:		>d'NS ZYEL_ZYaZW RP Q WWR		A
/ 8, c	8 LcTX X / _d. dNP	=1, >D9. >/ (V		
. 9J8 0	8 TYK X ZY TKP	1 b (V3e		Y
A>/J34	>S_QZb Y TYLWSP SZWZY 1, >D9. >/ TY	>S_QZb YaZW RP T TYR		A
A>/J7:		>S_QZb YaZW RP Q WWR		A
4/J762	1, >D9. >/ TY7PL ' ' 8			

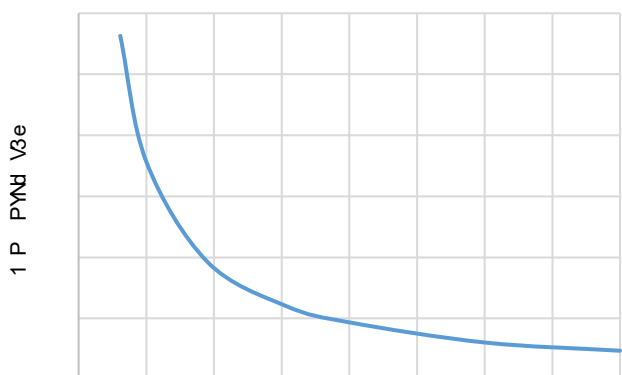
TYPICAL CHARACTERISTICS



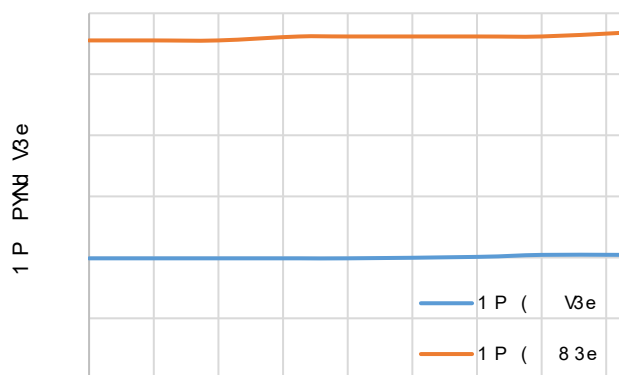
4Y _AZWRP A
1R P 4/ a 4Y _AZWRP



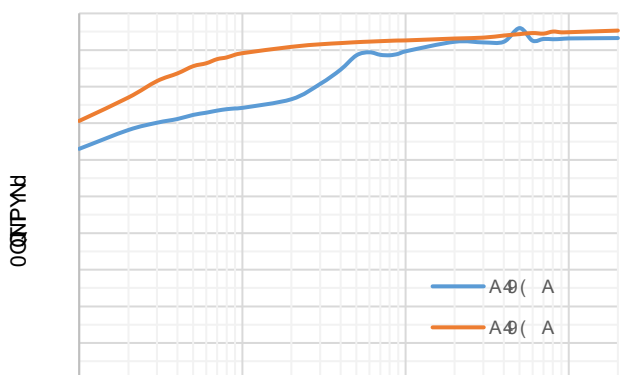
4Y _AZWRP A
1R P 4 a 4Y _AZWRP



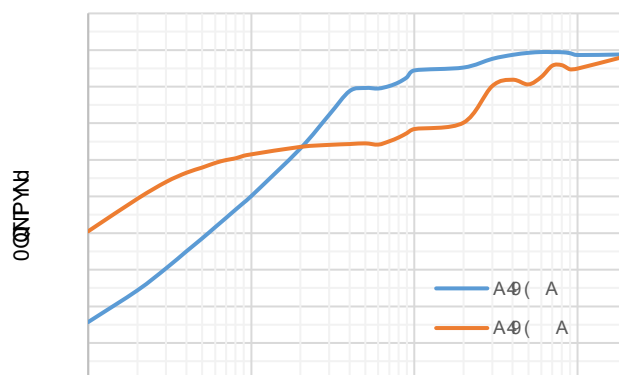
=P T_Z = V
1R P >b T_NSTR1 P PYnd a =



PX PL_P °.
1R P >b T_NSTR1 P PYnd a PX PL_P

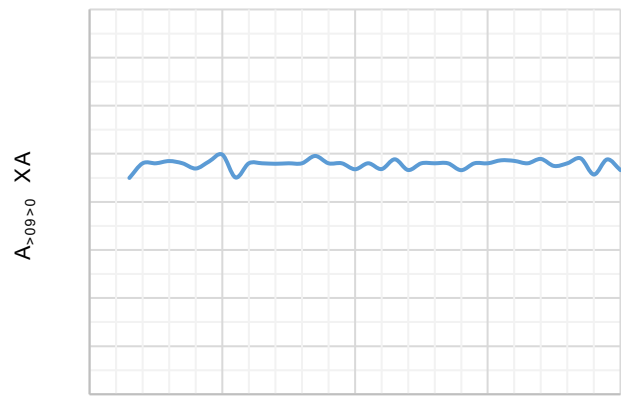


: _ _ PY_
1R P 000PYNd a 7ZLO. PY_-ZZ_A (A

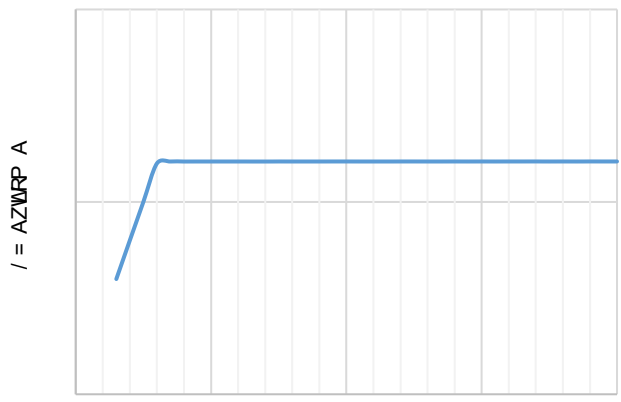


: _ _ PY_
1R P 000PYNd a 7ZLO. PY_>0 4 A (A

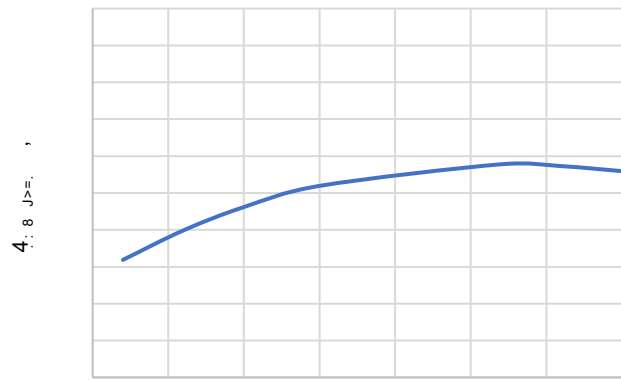
TYPICAL CHARACTERISTICS



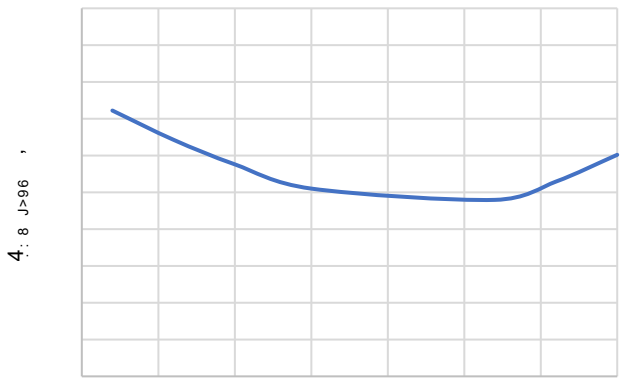
1R P . PY>PY P SP SZW a 4/_AZWRP



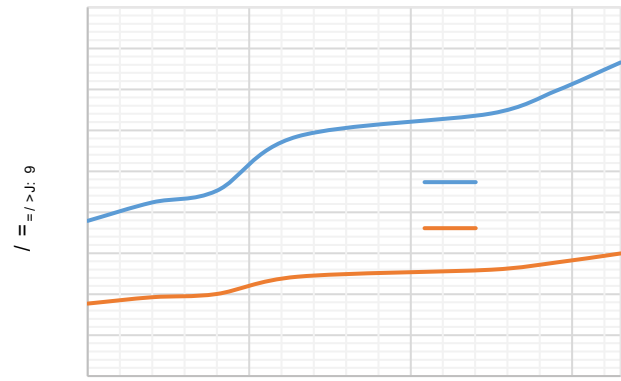
1R P / = AZWRP a 4/_AZWRP



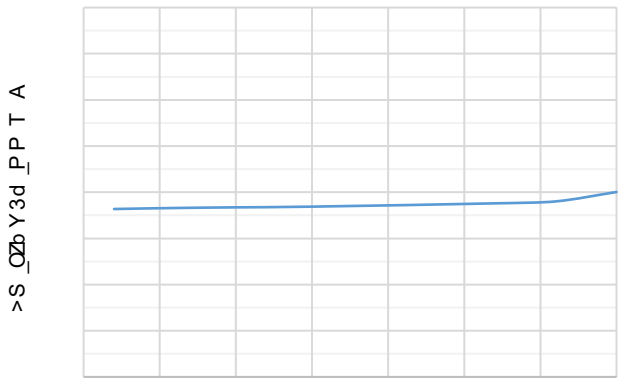
1R P .: 8 >Z NP. PY_a PX PL_P



1R P .: 8 >TV. PY_a PX PL_P

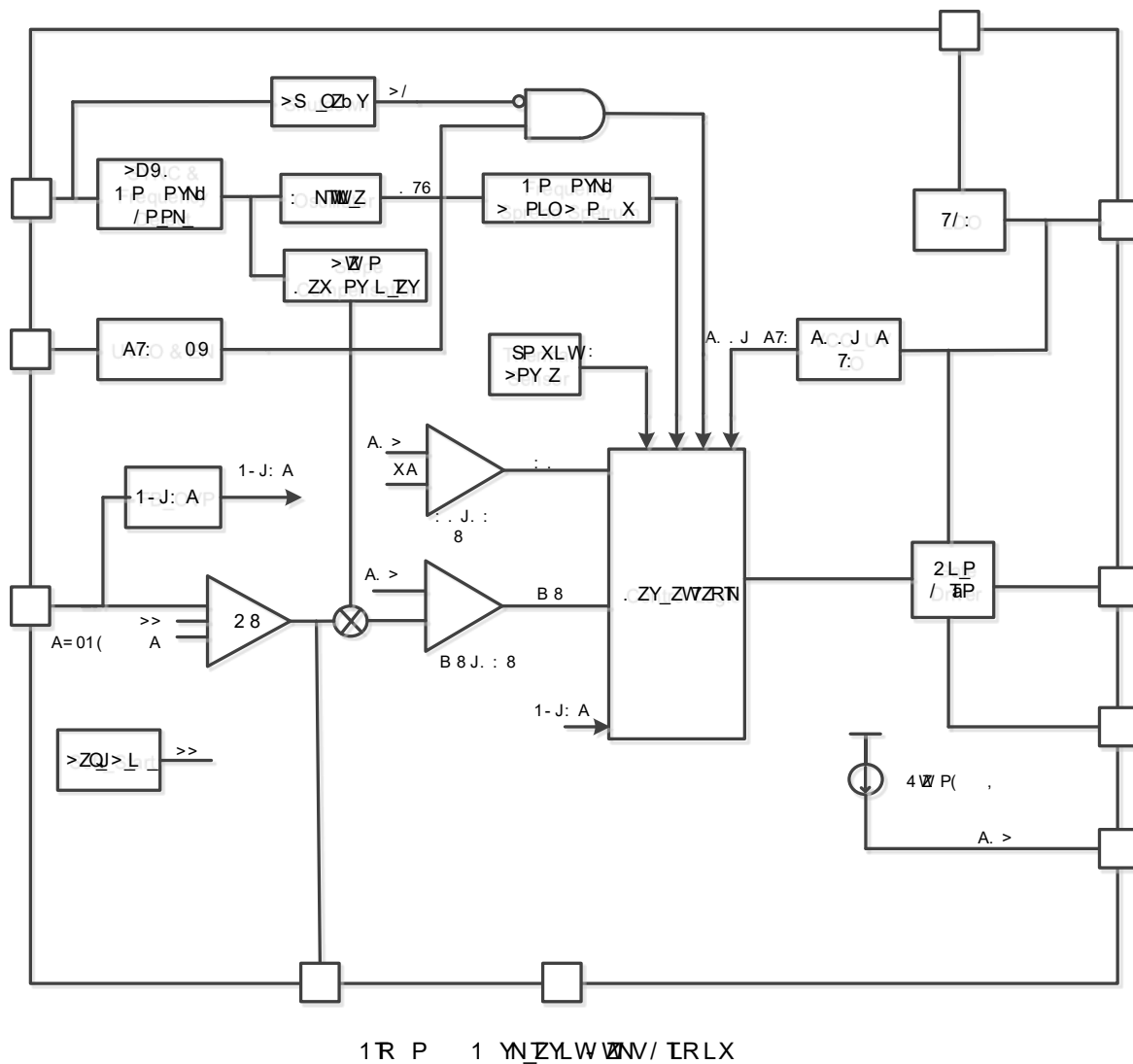


1R P / = =P T_L WPa PX PL_P



1R P >S_Qb Y SP SZW 3d_PPT a PX PL_P

FUNCTIONAL BLOCK DIAGRAM



OPERATION

SP>. < OPaTP T L b TP TY _LYRP YZY dVNSZYZ MZZ _NZY_ZWV SL_ P PLVN PY_XZOP
NZY_ZW SP OPaTP NLYMP POTVMZZ _>0 4 LYOOVMLNV_Z ZVZRP

4YL_d TLWV VML ZYNTN T SP PLVN PY_SZ RS SP P c_P YLV8: >10 T PY PO SZ RSLYP c_P YLWPY P
P T Z SP aZW/RP LNZ ST P T Z T QOTYZ SP 49> TY ST aZW/RP T QOTYZ SP Z TAP TY ZQ SP
B 8 NZX L L Z SP Z _aZW/RP T LWZ PY PO SZ RSLYP c_P YLV8 POMLN P T Z OaTP YP b Z VLYOQO
TYZ SP P Z LX WLP YPRL AP TY SP Z _ZQ SP P Z LX WLP .: 8 TY T LOOPO Z SP W/P
NZX PY L ZY LX LYOQOTYZ SP YPRL AP TY ZQ SP B 8 NZX L L Z , SP L ZQLYd b TNSTYRNdNWP SP
Z NTW/Z P SP=> WNS TYR SP b TNSVZTNMZN ST Q NP L SRS RYLWZY SP / = TY RL P ZQ SP P c_P YLW
8: >10 LYO SP P c_P YLV8: >10 Y ZY B SPY SP aZW/RP ZY SP Z TAP TY ZQ SP B 8 NZX L L Z
PcNPPO SP YPRL AP TY SP=> WNS T P P LYO SP P c_P YLV8: >10 Y ZQ SP aZW/RP PY POLNZ
SP PY P P T Z RPYP L W/NZYLTY Z YZTP TP SP P TP NLYQNP SP B 8 NZX L L Z Z P P
SP=> WNS PXL PW Z PaPY SP P TP QZX P P TYR SP WNS L MWWVZ NTN T TY TP SP 4 PaPY
SP B 8 NZX L L Z QZX P P TYR SP WNS Q L SZ O L ZYLQ SP WNS T P ST O L ZYT NLWVO SP
MWWVTR TY P aLVYOT PNTPOL XTYK XZY TP TY SP 0VN TLW SL LNPT T N PNZY YOP Pc_PXPW
VRS VLOZ YZ VLO NZYOTZY SP PYP Rd CPWP PO Z SP Z _NL LNTZ b SPY SP P c_P YLV8: >10 TY ZY
O TYR SP MWWVTR TY P aLWT XZP SLY b SL T CPWP PO Z SP VLO , Y ZaP aZW/RP NZX L L Z TY TP SP
>. < PaPY SP Z _aZW/RP QZX TTYR YOP SP P NZYOTZY SP ZaP aZW/RP NZX L L Z PY P
SP QPOMLV 1- TY aZW/RP LYO P P SP=> WNS SP WNS PXLTY TY P P LP YWSP Z _CPNd Z
SP YZX TLW VLP

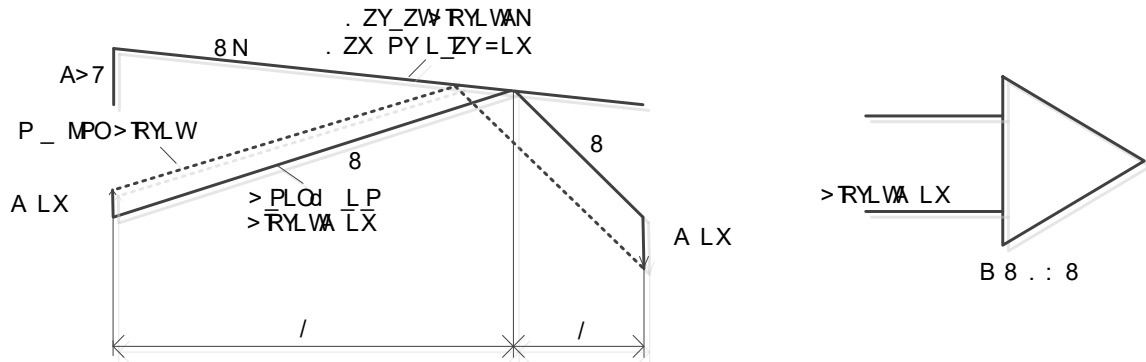
SP>. < b Z V L_ WP VT XZOP ZQ SP TNPL P SP P ONPYnd TY VRS VLO NZYOTZY

SP P NPY_N PY_ZQ>. < T , d TLW YOP YZ VLO NZYOTZY LYO YZ b TNSTYR / TLMWTR SP
OPaTP SP d TLW W S OZb YN PY_ZYA4 TYT ,

SP>. < SL ZaP aZW/RP ZPNZY: A Q SP Z _aZW/RP: A T PY POL SP QPOMLV TY 1-
4L LYd TP SP aZW/RP L SP QPOMLV TY TP Z A d : A T TRP PO: A b TML P SP / = TY Z
RZ Vb Q NTYR SP Zb P 8: >10 ZQB TS SP 8: >10 ZQ SP Z _aZW/RP b TMDZ SP>. < MPRTY
b TNSTYR LRL TY b SPY SP QPOMLV aZW/RP PLNSP A d

SP TY P YLVML ZQ SP>. < NZXP QZX PTSP SP TY P YLVML aZW/RP RPYP L Z Z OTPN V/QZX SP
aZW/RP L SP A4 TY , TY aZW/RP Vb P SLY A SP TY P YLVML T SP TY aZW/RP LYOL aZW/RP
LMZaP A SP TY P YLVML aZW/RP RPYP L Z ZQ SP>. < ZaTP SP ML SP RL P O AP WaZW/RP
A . P TP LY P c_P YLVML L NL LNTZ =PNXXPYO A . NL LNTLYNP T 1 QZ YZ WNP NL LNTLYNP
PcNPPOTYR 1 / ZYZ ML SP A . TY ML LY P c_P YLVML aZW/RP Z NP

SP>. < P L N PY_XZOP NZY_ZWNSXP SP XLTYLOaLYLRP ZQN PY_XZOP NZY_ZW P TYSP PY
NdNWP ML NdNWP N PY_VKTQ SP b TNSLYO TX W NZY_ZWVZ NSL LNPT T N 3Zb PaP N PY_XZOP NZY_ZW
SL L > MSL XZYNT: NTW ZYb SPYO d NdNWP TRPL P SLY Z PaPY SP> MSL XZYNTZ NTW ZY L
NZX PY L ZY LX T LOOPO Z SP NZY_ZWRYLW



1R P > M3L XZYNI: $\frac{N_{ZY}}{Z} /)$ LYO. ZX PY L_ZY=LX $\frac{Z}{Z}$, aZD> M3L XZYNI: $\frac{N_{ZY}}{Z}$

SPN PY_XZOPN_ZY_ZWNSPX P LX $\frac{W}{W}$ SP TO N_Z N PY_4 LYONZX LP SP LX $\frac{W}{W}$ RYLWA LX $\frac{Z}{Z}$ L
 TP_YL $\frac{W}{W}$ RP_YL_PONZY_ZWRYLVAN SPN PY_PYP P T_Z =>09 L Szb YTY1R P NZYaP SP LX $\frac{W}{W}$
 TO N_Z N PY_4 $\frac{Z}{Z}$ SP aZW $\frac{W}{W}$ RYLWA LX $\frac{S}{S}$ T Z Z_ZYLWZ 4 NS_S

$$I_{JTc} \quad E_{FA}$$

1R P $\frac{W}{W}$ L_P SP SPZdbSd> M3L XZYNI: $\frac{N_{ZY}}{Z}$ SL PY SP TTRLYO $\frac{W}{W}$ $\frac{W}{W}$ P 8 LYO 8
 P PN $\frac{W}{W}$ ZQA LX LP LWZ Z Z_ZYLWZ SP TO N_Z N PY_TTRLYO $\frac{W}{W}$ $\frac{W}{W}$ P 8ZYLYO 8Z
 P PN $\frac{W}{W}$ B SPP 8ZYT SP TO N_Z $\frac{W}{W}$ PO TR SP b $\frac{W}{W}$ NSZY_XPLYO 8ZOT SP TO N_Z $\frac{W}{W}$ PO TR SP
 b $\frac{W}{W}$ NSZ $\frac{W}{W}$ XPLYOL P PWPO_Z 8 LYO 8 M

$$a \quad E_{FA}$$

$$(\quad E_{FA}$$

1Z SP MZZ $\frac{Z}{Z}$ ZVRd%

$$a \quad E_{FA} \quad I a \quad E_{FA} \%$$

$$(\quad E_{FA} \quad I \quad I a \quad E_{FA} \%$$

41R P L XL $\frac{W}{W}$ NPL PTY SPVLON PYNL P SP LX $\frac{W}{W}$ RYLWZ TNPL PM A LX SP P $\frac{W}{W}$ N_ZQ
 ST VLONSLYP A LX L SP PYOZQ SP Q b $\frac{W}{W}$ INSTRND $\frac{W}{W}$ T

$$' I_{JTc} \quad \frac{(\quad V}{V} \quad ' I_{JTc}$$

>Z B SPY9ZNZX PYL_ZY LX RYLW LOOPO b SNS 8 NT eP Z SPY%

$$' I_{JTc} \quad \frac{(\quad ' I_{JTc} \quad \frac{(\quad ' I_{JTc}$$

B SPY , / YT)

SP NZX PY L_ZY LX SL MPPY LOOPO TYP YLW TYP SP >. < SP W P ZQ ST NZX PY L_ZY LX SL
MPPY P W NPO Z L T Q XZ L W L_ZY LYOT aLVP OP PYO ZY SP b T NSTR QP PYNH ST W P NLYMP
NLW WPO TYP SP Q X W%

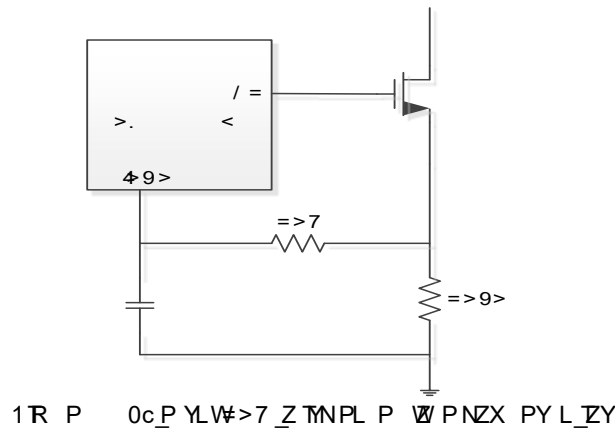
$$V \quad I_F \quad J$$

A>7 T SP LX W OP ZQ SP TYP YLW NZX PY L_ZY LX LYO 1> T SP NZY ZW b T NSTR
QP PYNH

1Z XZ P O P T M W P NZX PY L_ZY NLYMP TNPL POM L OOTR ZYP Pc P YLWP T Z =>7 TY SP 4 09 L S
1R P Szb SP P SP Pc P YLW RPY L PO W P NZX PY L_ZY T SP Y LOOPO Z SP TYP YLW W P
NZX PY L_ZY ZQ SP >. < B SPY TYP Pc P YLW W P NZX PY L_ZY SP Q X W Q 8 NMP NZXP %

$$V \quad I_F \quad E_F \quad J$$

, d TLW LWP Q QNZ 6 T ,



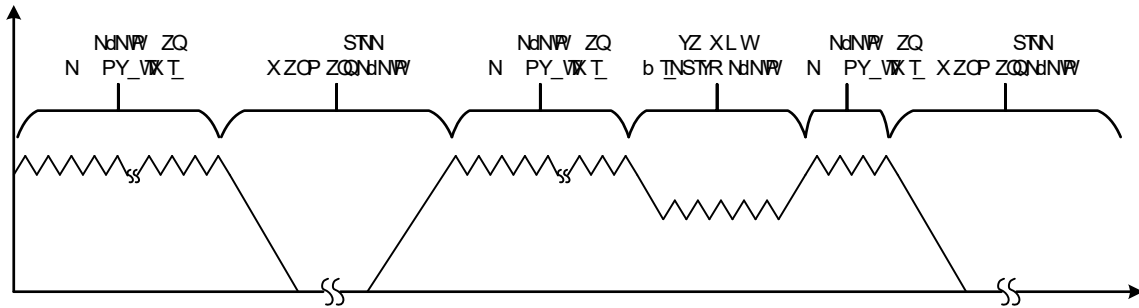
SP OPaTP ZaTP NdNW Md NdNW PLVN PY VXT ZPNZY SL__ Y ZQ SP 8: >10 b SPY SP X ZQ SP
TYO NZ N PY LYO SP ZRLX XLMP W P NZX PY L_ZY LX PLNSP SPN PY VXT SP SZW PLV TYO NZ
N PY VXT 40, 6.7 TY PLOd LPT NLW W POL Szb Y T%

$$C \quad \frac{I_{FAF} * uE_F u}{E_{FAF}}$$

B SP P

A>09>0 T 4 09 TY VXT TYP aZW RP d (XA
40, 6.7 T SP TYO NZ PLVN PY VXT
=>7 T > W P NZX PY L_ZY P T Z
/ T / d NdNW
=>9> T SP 40 NLYNP PLVN PY OP PNZY P TLYNP

B SPY ZaP VLOSL PY SP NZYaP P NLYYZ ZaTP Z _N PY_Z L T Q VLOTR P TPXPY SP TYO NZ
N PY T NWX POL ZaP N PY VXT L_ZY S SP Z _aZW RP OZ MPVb PR WPOaZW RP b TS1- aZW RP
W SLY TYP YLWP PYNP aZW RP NZY TY Z W SP TYP YLW: 8 aZW RP LX Z SRS B SPY.: 8
aZW RP T NWX POQ NdNW SP NZY ZW Z b Z VTR, QP PXLTYR: 11 Q NdNW SP OPaTP
P L QZX ZQ L TYR SL P QZaP VLOZ SL O SZ NZYOTZY TYPcT O TYR ZQ L LYO XLVP.: 8
aZW RP NWX POL SRS LQP ZQ L TXPLYO.: 8 TYP SRS Q NdNW SP OPaTP PYP TYZ
YTYR ZQXZOP LRLTY B SPY ZaP VLOZ SL O SZ NZYOTZY T PXZaPO SP OPaTP L ZXL TLW PNZaP Z
PYP YZ XLWPR WTYRZ PLZY



1R P 3TN 8ZOP ZPN_ZY

- PNL P / NLYMPaL TNP YCP OCP PY_ATY 4, 0, 6, 7 T YZ_LMP YCP OCP PY_ATYb SPY TRPc_P YLW/P NZX PYL_ZY P T_Z >Z Q LY LNN LP PLVN PY_VKT_Z PL_ZY ZaP _SP TY _ W aZW/RP >. PNZXPYO TRZYW/SP QPO W/PNZX PYL_ZY

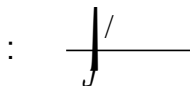
SPZ _aZW/RPT P_MILYPc_P YLWP T_Z OCP =1- LYO=1- - TY_d TLW WML_ZY NSPXL_TN, XTYX X N PY_ZQd TLW, Qb TRSZ RSOPOMLV P T_Z OCP R&P RZZOLNN LNdLYOYZTPNZaP TR SPaLWP ZQ=1- NLYMPNLW W/POMI 0 L_ZY

$$E_G \frac{I_{BHG} I_E}{I_E} E$$

b SP P%

A=01 T _SP QPOMLV PQ PYNPaZW/RP_d TLW A

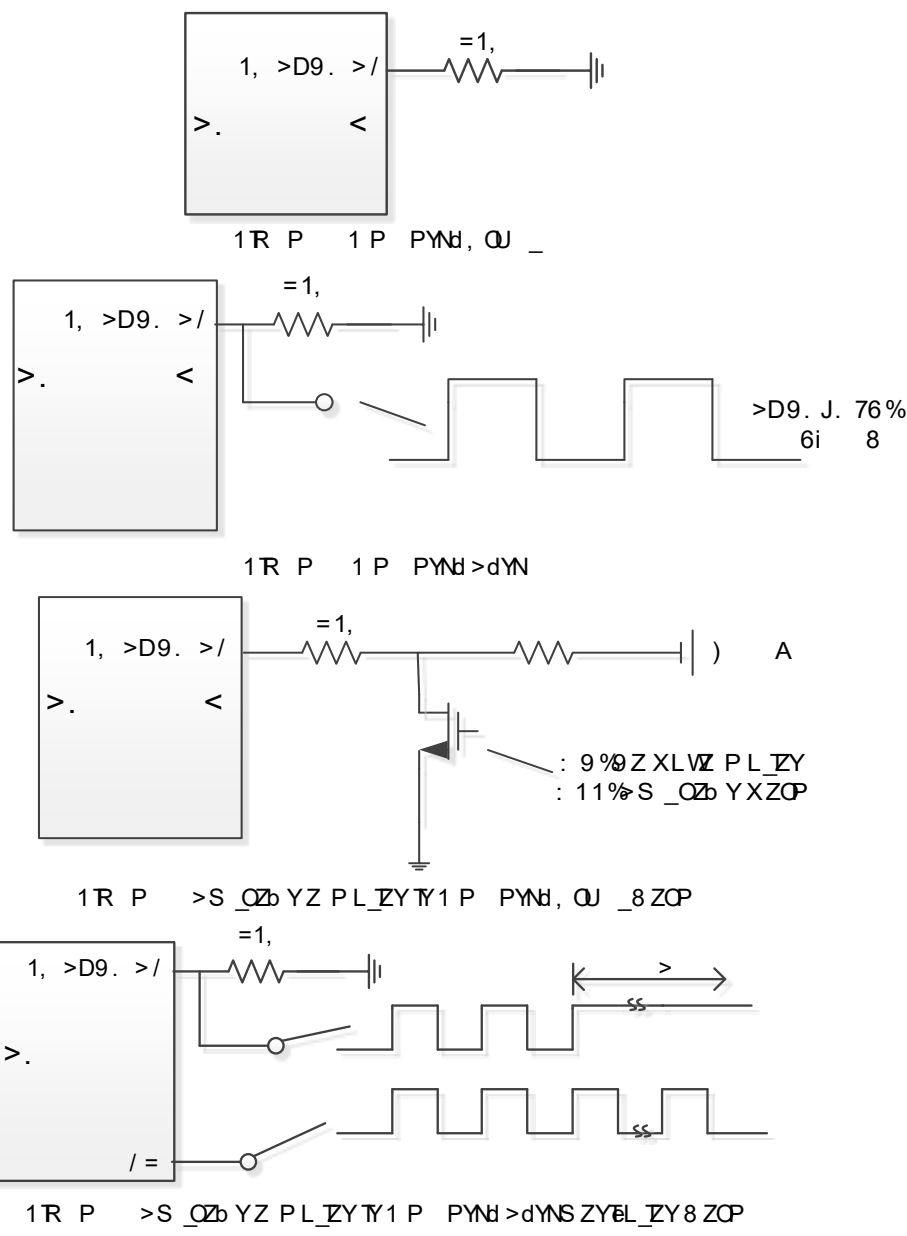
SP b TNSTROP PYNdZQSP>. < NLYMLOU_POMP_bPPY V3eLYO 83e TRL TRWPc_P YLW P T_Z ST P T_Z X_MP NZYPNPOMP_bPPY_SP1, >D9. >/ TYLYORZ YO 0 L_ZY NLYMP PO_Z P_XLP_SPQP PYNdLOU_P T_Z



SP>. < NLYLWZMP dNSZY6PO_ZLYPc_P YLWZNV SP Pc_P YLWZNVX _MP NZYPNPOMP_bPPY SP1, >D9. >/ TYLYORZ YO L SZbYT1R P SPQP PYNdLOU_P T_Z XLd PXLTYNZYPNP bSTW dNSZY6TRL RYLWSP PQ P QSPPTL W ZQ RYLWSP b TNSTROP PYNd b TWP P_Md SPQP PYNd LOU_P T_Z

SP1, >D9. >/ TYLWZQYN_ZY L L S_OZb Y TY Q SRS RYLW) A L PL_ZY_SP1, >D9. >/ TY ZaP >_SP>. < Z b TNSTRLYORZP TY_ZL Wb N PY_XZOP SP_ZLW W/N PY_ZQSP 4 PONP_Z, _d TLW YCP _SP PNZYOTZY

1R P LYO1R P SZb LYTK WXPYL_ZYZQ S_OZb YQYN_ZYb SPYZ PL_TRTYQP PYNdLOU_XZOP LYO dNSZY6L_ZYXZOP P PN&PW 4QP PYNdLOU_XZOP NZYPNTTR SP1, >D9. >/ TY_ZRZ YO QNP _SP NZNV_Z YL_L NP_LTYQP PYNd WWR ST TY SRS S_OZb Y_SP 4 4QP PYNdLOU_Z dNSZY6L_ZYXZOP L SRS RYLWZ XZP_SLY S_OZb Y_SP 4.



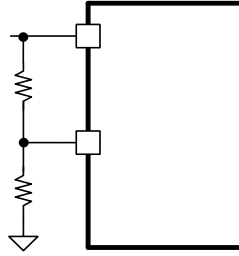
SP Pc_P YLWA7: P T_Z OaTP X _MP CP RYPO Z SL_SP aZW/RPL_SP A7: TYTRPL_P SLY A
d TLWb SPY SP TY aZW/RP T TY SP CP TPOZ PL_TYR LYRP SP aLWP ZQ= LYO= NLYMP NLW W/POL
SZb YTY0 L_ZY LYO0 L_ZY

$$\frac{I_{A\ BA} \quad I_{A\ B}}{HI\ B}$$

b SP P

A₉: 9 T SP CP TPO L _ aZW/RP ZQ SP NZYaP P
A₁₁: 11 T SP CP TPO _ YZQaZW/RP ZQ SP NZYaP P

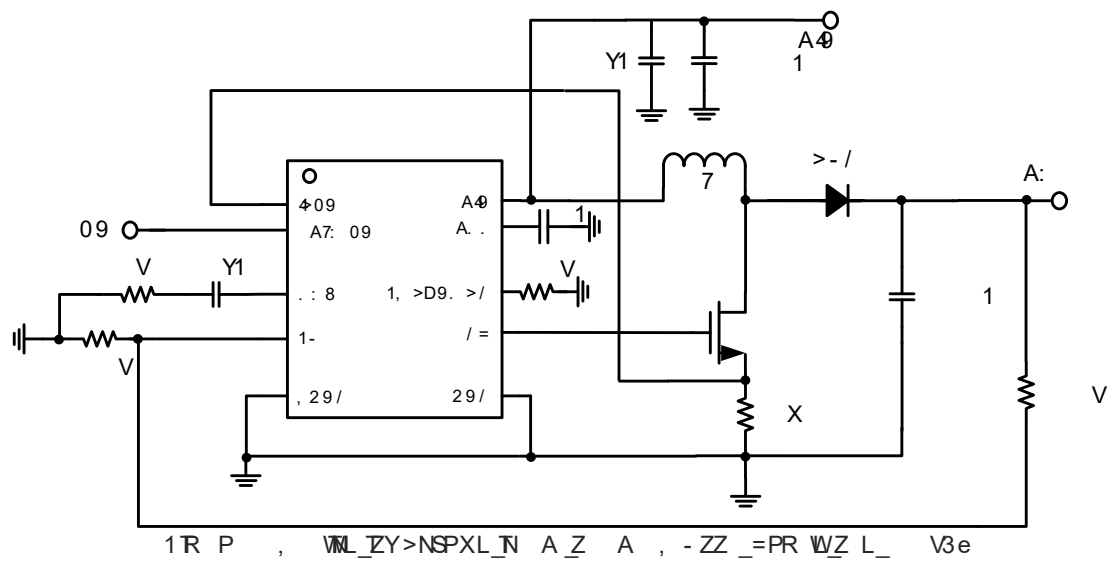
$$\left(\frac{I_{HI\ B\ A}}{I_{A\ BA} \quad I_{HI\ B\ A}} \right)$$



1 R P >d _PX A7: =P T_Z / 8CP

Z PO NP 08 4 _SP CPa TP TX WXPY_1 P PYNd > PLO> PN_ X 1>> SP 1>> NTN T_d STQ _SP b TINSTYR
 QP PYNd ZQ_SP PR W_Z P ZONL W/b TSTYL NP LTYQP PYNd LYRPL Z YO_SP LOU _PO b TINSTYRQP PYNd
 SPUTP TYR LYT ZQ_SP b TINSTYRQP PYNd b TS b TYRQP PYNd STQP PYNd OTSP TYRQYN_ZY
 TPON TPQ MZSQ PYNd LOU _POM P T_Z WNPOL_1, >D9. >/ TYLYOLYPc_P YLWZWV dYNSZYEL_ZY
 L WL_ZY

APPLICATION INFORMATION



4/ AZW/RP	A 9Z XLWA Z A
: AZW/RP	A
8 Lc X: PY	,
>b TNSYR 1 P PYnd	63e
: aZW/RP T PLV Z PLV	XA 7ZLQ ,

SP PQ XLNYP ZQTYO NZ LCPN SP ZbP W PLOd LPZ PLZY LY PY MP SLaZ WZ LMMH
 LYOMZZ NZYaP P CONPNYnd SP TYO NZ aLWP /. P TLNYP LYO L LZY N PY TYQVNP MZ SP CONPNYnd
 LYO SP XLRYT CP ZQ SP Z _ aZWWRP T W 7L RP TYO NLNYP aLWP PONP TYO NZ N PY T WLYO
 SP PQ P WLO Z WbP Z _ aZWWRP T W 1Z L QPO /. P TLNYP L WRP aLWP TYO NZ dPW SRSP
 CONPNYnd aT PONPO=8> LYONZ P W P 3Zb PaP L WRP TYO NZ b TSTYL RbPY TYO NZ QX T Wb WWPYPLW
 SLaPL RPLP P P P TLNYP SP PM NZ YPLN TR ST CONPNYnd LOaLYLRP

4YO NZ aLWP NLYSLaP Z PaPY ZWLYNP b TSYZN PY ML B SPY SP TYO NZ N PY L ZLNSP
 L LZY WbPWT TYO NLNYP NLYCPNPL P Z QZX SP aLWP L , N PY CP PYOTR ZY SZb SP
 TYO NZ aPYOZ CPQYP L LZY B SPY PWN TRLY TYO NZ NSZZ PT L PON PY P PNI W SP L LZY
 N PY WRP SLYT PLVN PYO TR SP Z PLZY

ZNLW WP SP N PY TY SP b Z NL P P SP XTYK X TY aZWWRP XLcTK X Z _ aZWWRP XLcTK WLO
 N PY LYOXTYK X b TINSTYRQP PYnd ZQ SP L WNLZY b STWNYZ CP TR SP TYO NLNYP b TS ZWLYNP
 LYO Wb ZbP NZYaP ZYCONPNYnd

1Z L MZZ NZYaP P NLW WP SP TYO NZ /. N PY L TYO LZY

B SP P

A: T SP Z _ aZWWRP ZQ SP MZZ NZYaP P
 4 T SP Z _ N PY ZQ SP MZZ NZYaP P
 A4 T SP TY aZWWRP ZQ SP MZZ NZYaP P
 T SP ZbP NZYaP ZYCONPNYnd

. LW WP SP TYO NZ N PY PLV Z PLV T W 4 L TYO LZY

B SP P

4 T SP TYO NZ PLV Z PLVN PY
 7 T SP TYO NLNYP ZQTYO NZ
 Qb T SP b TINSTYRQP PYnd
 A: T SP Z _ aZWWRP
 A4 T SP TY aZWWRP

SP PQ P SP PLV b TINSTYR N PY ZQTYO NZ 4 0,6 T NLW WPOL TYO LZY

>P SP N PY WXTZQSP> . < SRSP SLY SP PLVN PY 4 0,6 LYO PWN SP TYO NZ b TS SP L LZY
 N PY SRSP SLY SP N PY WXT

/ P Z SP P PYNP ZQLY TYO NZ L SP TY ZQ MZZ NZYaP P SP TY N PY b LaPQX T NZY TY Z SP
 TYO NZ PY P SL SP TY NL LNTZ PP QTW Wb T WVN PY 3Zb PaP L SP TY NL LNTZ RP XLW
 SP TY T WRPZ SP=8> N PY TY SP TY NL LNTZ TRbPY TR O LZY

$$A \ E \ F \quad \frac{I_{BHG} \ I_A \ I_A}{\sqrt{(u_{BHG} \ u \ u)}} \quad \Bigg|$$

SP TY NL LNTZ SZ WMPNL LMWZQSLYOTR SP=8> N PY , WbZ RS SP TY NL LNTZ TYZ L N TNLWY
 L MZZ L WNLZY Wb aLWP NLYNL P TK POLYN TYPLNZY SP PQ P L RZZO L WNL LNTZ SZ WMP

NSZ PY TY SP LYRP ZQ 1 Z 1 QL aLWP VbP SLY 1 T PO SPY ZMAX b TS TK POLYNP
TYPLNZY Z b TINSTRYZTPNLYLON SP >. < Z TK ZaP PQ XLYNP P PNIVW/b TS ATYMPVb
aZW TT PNZXXPYOPO Z PL : SX PTZ L SP TY Z ZaTPLY=. QVP SP PTZ T VNPOTY
P P b TS SPA0 TYb TSZYW/L Ml L NL LNTZ L LNSPO Z SPA0 TYOTPNW, 1 Z 1 NPLXTN
NL LNTZ TYNP L d TY STNZYQR L ZY SP M WTY NL LNTZ LYOTYONZ b WNZYYPN_ZY SP Z SP TP ZQ
SP PTZ L SP TY ZbP W

1Z XLWZ _ aZW RP T W NSZZ PL Vb 0>= Z _ NL LNTZ VNP LNPLXTN NL LNTZ d TLW c 1
NPLXTNZ _ NL LNTZ bZVQ XZ L WNLZY, 1 NPLXTNMl L NL LNTZ T PNZXXPYOPO Z MP
VNPOL NW PL Z TWP Z SP b TNSYZCP.3RSP NL LNTZ aLWP NLYMP PO Z TK ZaP SP VLO LY PY
P ZYP / P ZLNL LNTZ OPLTYR YOP /. ML SP ML NLY RYCNLYW PONP NL LNTLYNP . PLXTN
NL LNTZ NLYW P XZ ZQ SPTNL LNTLYNP L LPO aZW RP SP PQ P VLaP XL RTY ZY SP aZW RP L TYR Z
PY PLOP LPPONTP NL LNTLYNP 1ZX SP P TPOZ _ aZW RP T W P SP P LZY LYO Z
NLW WP SP XTYK X P TPOPONTPNL LNTLYNP .:

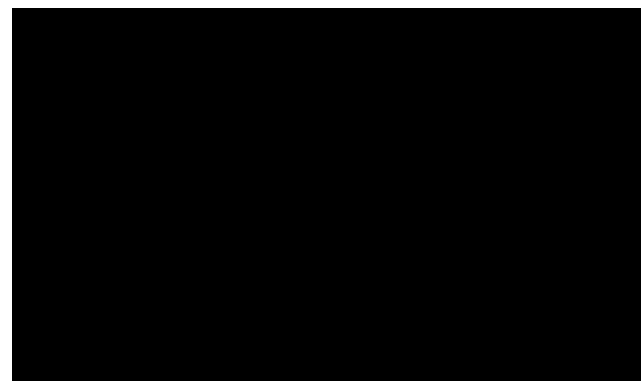
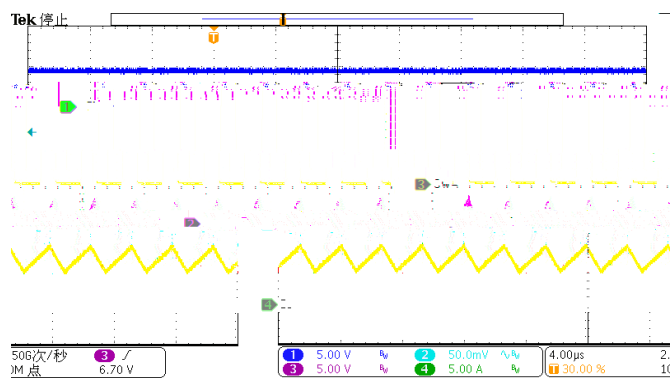
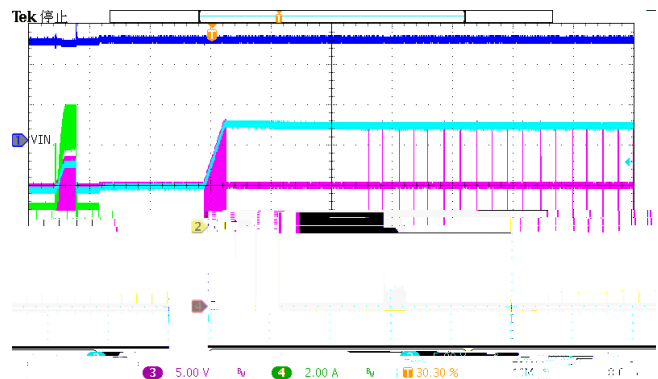
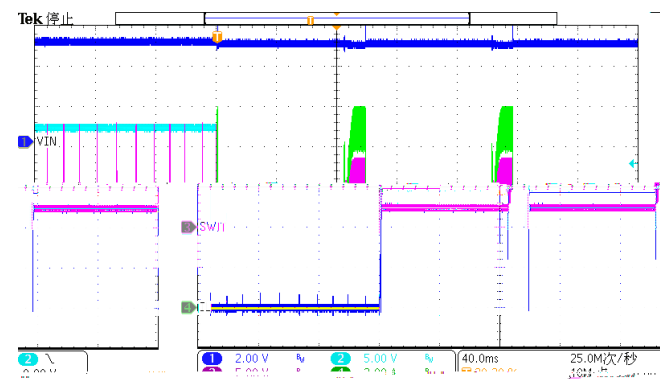
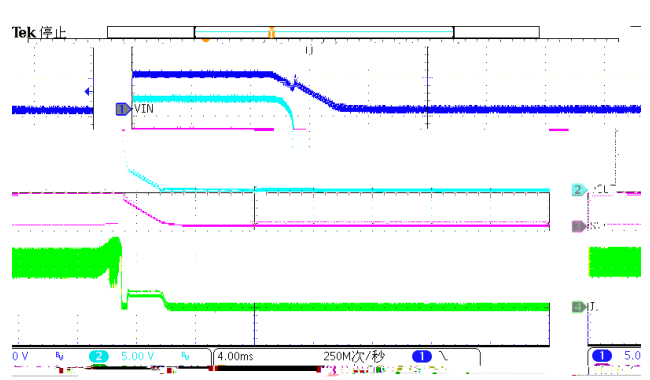
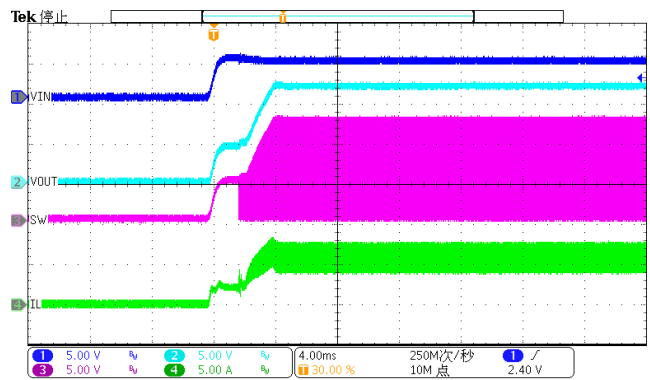
SP_ZLWZbP OT TL_ZYZQ8: >10 TMMCP NZYO NZYV L SzbYT SPQT_PXLYO bTNSTYR V L
SzbYT SP PNZYOP_X SP_ZLWZbP OT TL_ZY SZ WMPbTSTY LMLRP SPXLWL_TYR

: MPaL_ZYZQ SP MZZ_NZYaP_P NTN T Szb SL SP LaP LRP N PY_SZ RS SP OZOP T SP LaP LRP WLO
N PY_LYO SP PLVN PY_SZ RS SP OZOP T SP PLVN PY_SZ RS SP TYONZ SP OZOP SZ WMP L_PO
ZSLYOWXZP_SLYT PLVN PY_ SP PLVOZOP N PY_NLYMPNLW WPO TYR0 L_ZY

C BHG ,

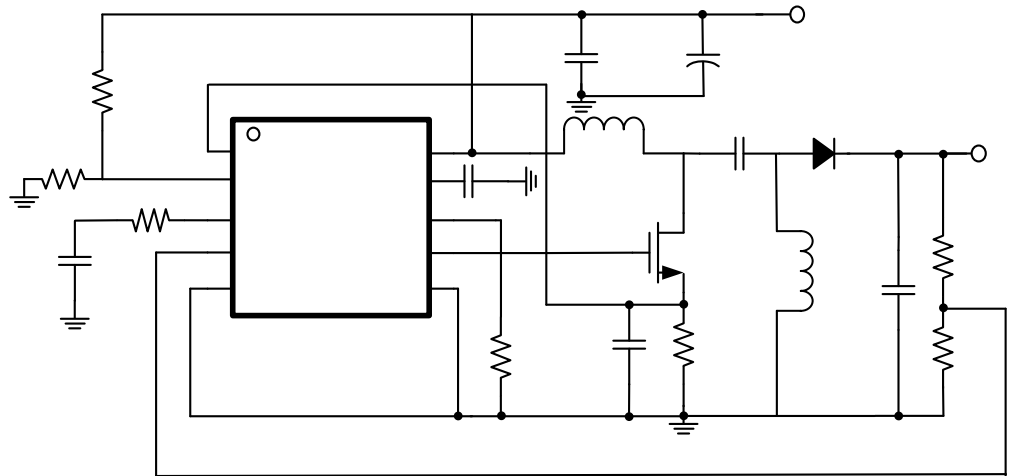
SP XLW SP OZOP X MPLM ZSLYOW SP XLcX X LaP LRP N PY_CPVW PO_Z SPZ SP PLV PaP P
aZW RP Q MZZ_NZYaP_P TP LWZ SP PR WPOZ_aZW RP SP OZOP X MPNL LMPWZQSLYOWR_ST
aZW RP ZK ZaPPONPYnd L Wb QbL O OZ NSZ_Vd OZOP T PNZXXPYCPO

ATY(A AZ _ A YW Z_SP b TP YZ_PO



1 R P >dYN1 P PYNd

APPLICATION INFORMATION



1R P , VML_ZY>NSPXL_N A_Z A , >P N=PR W_Z L_ V3e

4/ _AZW/RP	A 9Z XLWA_Z A
: _ _AZW/RP	A
8 LcK X: _ _ PY_	,
>b TINSTYR1 P PYnd	63e

, RZZO ~~WQ~~ CP_PXTYTR_SP TO_NLYNP_Z P T_Z L~~Wb~~_SP TO_NZ PLV_Z PLV T ~~WN~~ PY_Z MP
L_ZcXL_P~~W~~_Z ZQSP_XLcX X TY_N PY_L_SPXTYK X TY_aZW~~RP~~ SPN PY_T ~~WQb~~ TR
TY TO_NZ_7 LYO7 T R~~ä~~PYMI%

$$' \quad A \quad u^* \quad B \quad u \frac{I_B}{I_A \quad A} \quad \ddot{u}$$

$$' \quad (\quad B \quad u^* \quad B \quad \ddot{u}$$

9ZXL~~Wb~~PNLY_P~~W~~_P L~~W~~L~~W~~P_Q SP TO_NZ_7 LYO7 CP ~~ä~~POL %

$$(\quad \frac{I_A \quad A}{F \quad u} \quad u \quad K$$

B SP P

>B T_SP b ~~T~~NSTRQP PYNI

9Z_P_SL_SP L_L_ZYN PY_ZQTO_NZ SZ ~~W~~MPRPL_P_SLY PLVN PY_~~Qb~~ TR TY TO_NZ R~~ä~~PYMI%

$$C \quad A \quad \frac{I_B}{(\quad B \quad u \frac{I_B}{I_A \quad A} \quad u \quad \frac{*}{(}$$

$$(\quad C \quad B \quad \frac{*}{(\quad B \quad u \quad \frac{*}{(}$$

~~Q7~~ LYO7 LPbZ YOTY LXPNZ PL LNZ ~~W~~O TO_NZ SP TO_NLYNP P TPOb ~~T~~MP SL~~Q~~ P_Z SP X_LW
TO_NZY NL~~W~~ ~~W~~POMI%

$$(\quad \frac{I_A \quad A}{(\quad u \quad u_F} \quad u \quad K$$

SP ~~Qb~~ TR LLXPP SZ ~~W~~MP_LVPYTYZNY TPL_ZYQ 8: >10 %SPZY P T_LYNP = />J: 9 SPXTYK X
RL_P_SP SZ~~W~~aZW~~RP~~A 3J8 4 SP_ZL~~W~~RL_PNSL RP <_R SP PaP P_LY ~~Q~~ NL LN~~W~~LYNP. =>> LYO SP XLcX X
OLT_Z_Z NP aZW~~RP~~A<J8, C SP PLV b ~~T~~NSTRaZW~~RP~~ MP_bPPYOLTY_Z_Z NP TYL>0 4 T R~~ä~~PYMI%

$$I_F \quad C \quad I_A \quad I_B \quad I$$

SPY_SP A<J8, C ZQ ZbP 8: >10 SZ ~~W~~MPRPL_P_SLY_SP PLV b ~~T~~NSTRaZW~~RP~~

SP PLV b ~~T~~NSTRN PY_~~Qb~~ TR_SZ RS_SP 8: >10 T R~~ä~~PYMI%

$$D \quad C \quad C \quad (\quad C$$

SP=8>N PY_SZ RS_SP 8: >10 4 NL~~W~~ ~~W~~POMI%

$$D \quad E \quad F \quad B \quad \sqrt{\frac{I_B \quad I_A \quad A \quad I \quad u \quad I_B \quad I}{I_A \quad A}}$$

SPY ZbP OT TL_ZYTY8: >10 NLYMP_P_XL_POMI%

$$C \quad F \quad (\quad D \quad E \quad F \quad u \quad E \quad F \quad B \quad A \quad u \quad K \quad I_B \quad I_A \quad A \quad u \quad D \quad C \quad \frac{D \quad u \quad F}{u}$$

B SP P

2 T_SPRL_PO~~ä~~PN PY_

SP_ZLWZbP OT TL_ZYZQ8: >10 TMMCP NZYO NZYW L SzbYT SPQT_PXLYO bTNSTYR W L
SzbYT SP PNZYOP_X SP_ZLWZbP OT TL_ZY SZ WMPbTSTY LNLRP_SPXLWL_TR

SPOTZOP_L SPZ _ _ TPX _bTS_LYO_SP PaP PaZWWRPbSPY_SP8: >10 T _ YPOZY SP PLV PaP P
aZWWRP TRPYM%

$$I_C \quad I_A \quad K \quad I_B \quad K$$

SPOTZOP SZ WLVZMPNL LMP_ZQW bTNS PLVN PY_4J 0, 6

SP_ZbP OT TL_ZYZQSPOTZOPTP LWZ_SPQbLOaZWWRPOZ X WWP Z _ _N PY_>NSZ_WiOTZOP
LP PNZXXPYPOSP_P_ZXTYKWP_SP_ZbP W

1Z NPLXTNL LNTZ bTS W 0>= _SP PLV_Z PLVaZWWRP T WZYNZ WVRNL LNTZ TP_TKL_POM%

$$I_F' \quad \frac{B \quad U \quad K}{F \quad U \quad F}$$

SPXLcTK XaZWWRPLNZ _SPNZ WVRNL LNTZ T XLcTK XT _aZWWRP SPaZWWRP L_TRZQSPNZ WVR
NL LNTZ X _MPRPLP_SLYT

SP=8>N PY_ZQNZ WVRNL LNTZ TRPYM%

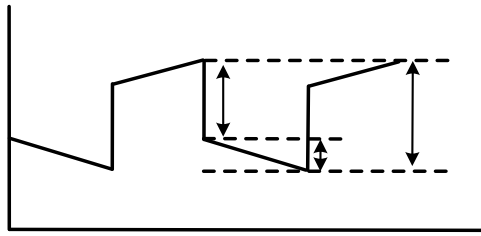
$$F \quad E \quad F \quad B \quad \sqrt{\frac{I_B \quad U \quad I}{I_A \quad A}}$$

SPPTL WRP=8>N PY_SZRSNZ WVRNL LNTZ PWWP_ZZ _ _ZbP 0Y P_SPNZ WVRNL LNTZ
NLYbTS_LYOTbTSRZZOSPL_RPYPL_ZY_ZSLaP ZP_SPXLWPQ_XLYNP

SP>0 4 SL LYTONZ_LTY _TPRPY >)) - 5

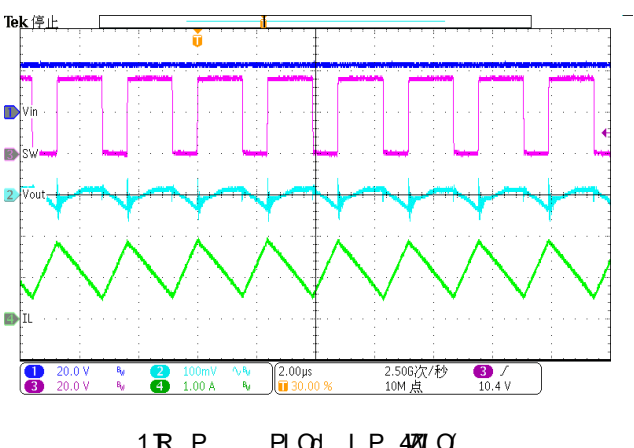
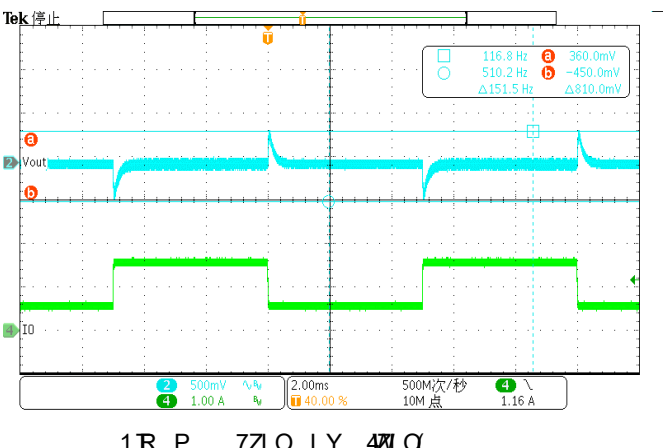
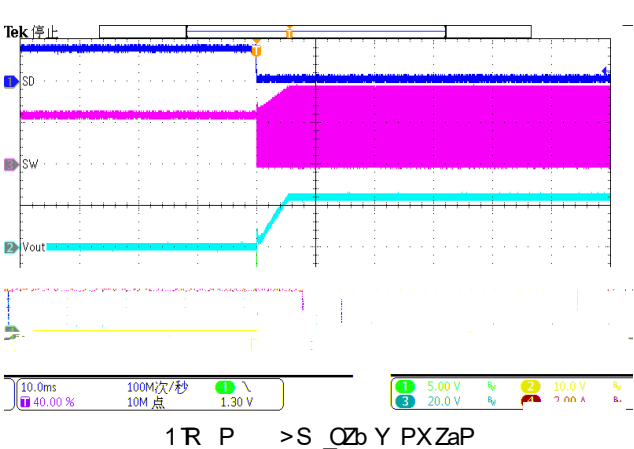
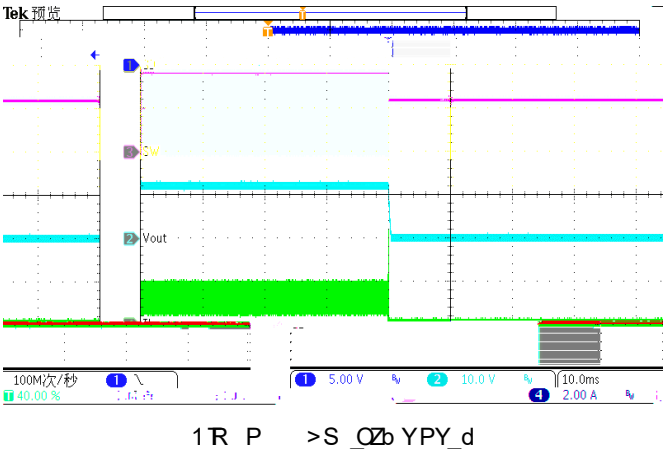
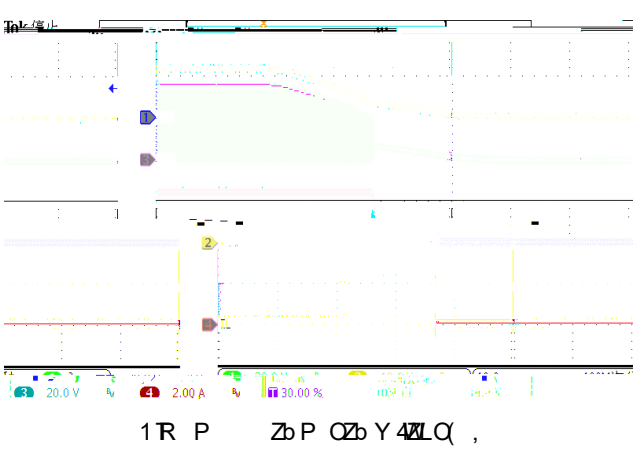
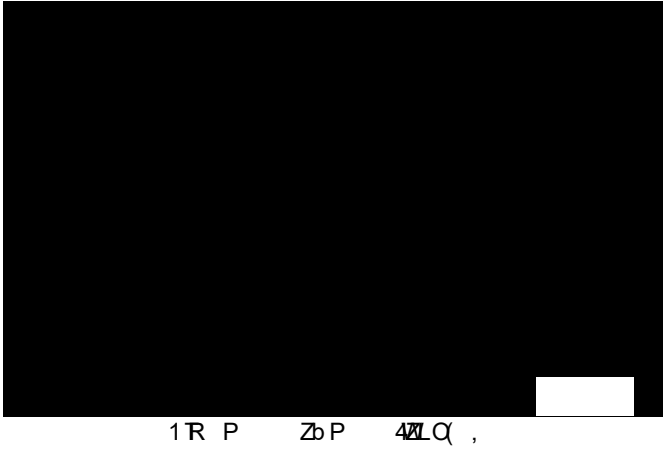
X R_ N >LY'' 8. 4

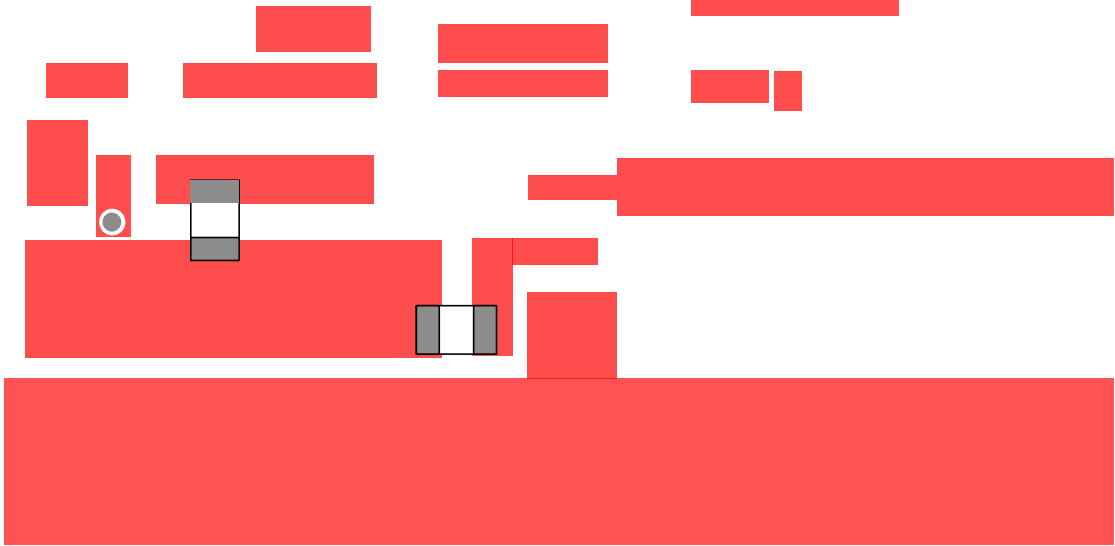
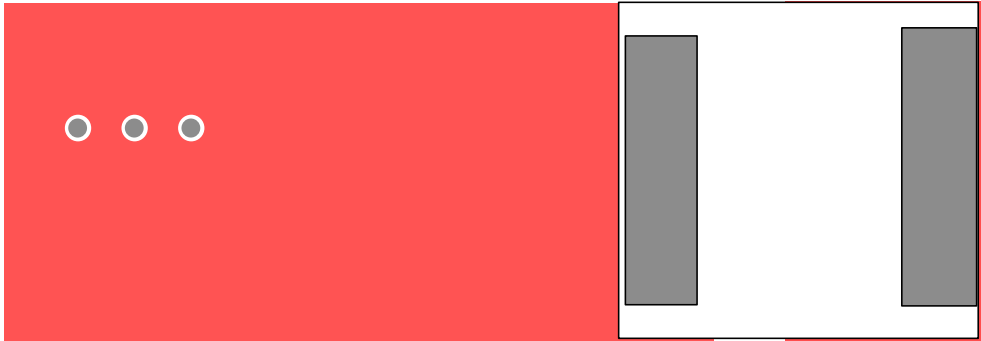
PB



1 R P : _ _AZW\RP =T W

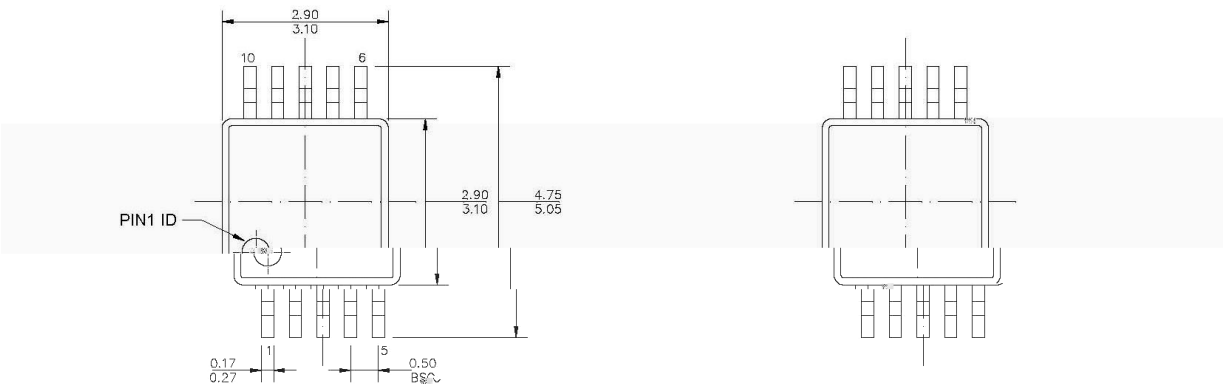
AT(A AZ (A YW Z_SP b TP YZ_PO





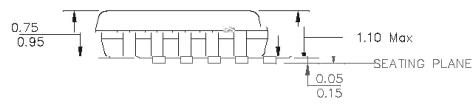
1R P -:: > . - 7LdZ _

PACKAGE INFORMATION

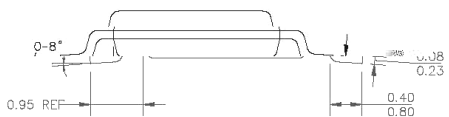


TOP VIEW

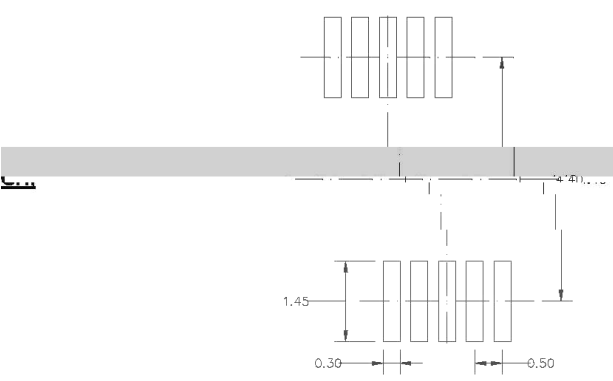
BOTTOM VIEW



FRONT VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN

NOTE:

- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
- 2) PACKAGE LENGTH DOES NOT INCLUDE MOLDED FLASH.
- 3) DRAWING MEETS JEDEC MO-187, VARIATION RA.
- 4) DRAWING IS NOT TO SCALE.

SCT
SILICON CONTENT TECHNOLOGY

