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

FEATURES

- Lp gdd _ajm<pgj h jod <kkgd odj i n
- < >(L ,++ Lp gdd _r dcc Ajggr db M npgg5
  (qd O h k mqpm Bm_ ,5(/+ > gj ,-0 > <h di oJk modb O h k mqpm M i b
  (qd C=H N >gnndd odj i G q gC-
  (qd > H N >gnndd odj i G q g>.=
- R d_ DkpoQjgg b M i b 5.), Q(0+Q
- Gjr Ncpo_jr i >prri o.)4p<
- Gjr L pdn i oJk modb >prri o5/ ,0p<
- &*(,)0 A _ f M a mi Qjgg b
- <_ppno g Nr db cdb Aml p i t 5, ++ f Cu gj -)- H Cu
- so m gAml p i t Nti cmji d
- so m g>jh k i n odj i
- Kpg Nf dkkdb Hj_
- Npkkjmo __odj i gNgk >jh k i n odj i
- , / h n Do m gNja(no moOd
- Do bmo _Kmjo odj i A opm
  (>jino i oK f(>prri oKmjo odj i Ocmncjg_ Jq mDkpoQjgg b
  (J pdkpoJq mqjgg b Kmjo odj i
  (<_ppno g Pi _ m(qjgg b Gj fjpo
  (Oc m gNcpo_jr i Kmjo odj i 5,10 >
- HNJ K(, +G. h h %h h

APPLICATIONS

- Hpg(jpdkpo Agg f
- G =dn Npkkg
- Kjmo g Nk f mNpkkg
- = oo m Kjr m_=jjno*Agg f*N KD> kkgd odj i

DESCRIPTION

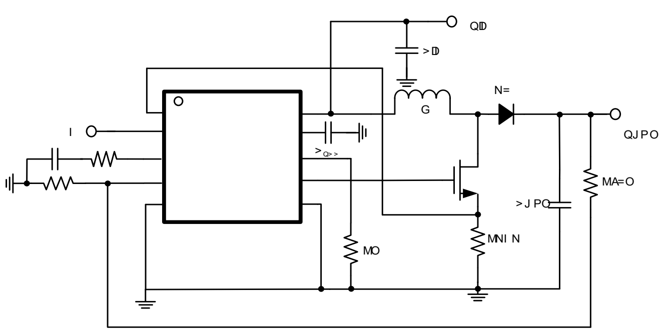
Oc N>O3,1-/L _ qd d r d_ dkpo iji(nti cmji jpn jjno ji omjgg m)Oc _ qd i pn _ d =jjno N KD> i _Agg f jiq mo m)

Oc nr dcdb aml p i t jaoc N>O3,1-/L _ qd i _ppno _gj it q gg o i ,++f Cu i _-)-H Cu t pndb ndbg so m gmnodqjmjm t nti cmji dddb odqj i so m g gj f)>prri oh j_ ji omjgkmjqd_n npk mjm i _r d_cc i _omindiomnkjin d __odji gj t g(t(t g prri o g db) >prri o g d d _ppno g cmjpbc i so m gmnodqjm)

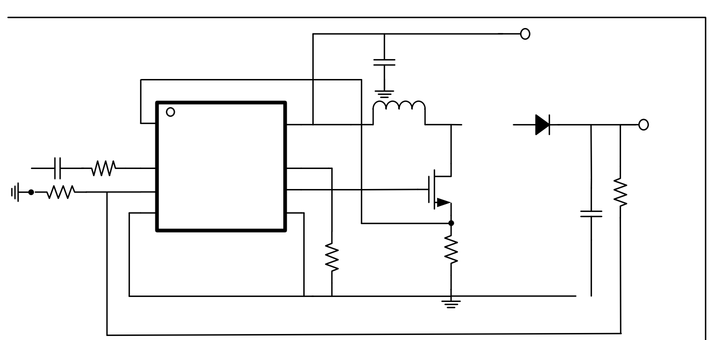
Oc N>O3,1-/L _ qd c n p(d kmjo odj i a opmn np c n cc m gncpo_jr i 'ncjm(dnpdkmjo odj i i _jq mqjgg b kmjo odj i) Kjr m(m qdb ncpo_jr i h j_ m_p n cc gjo gnpkkg prri oqj .)4 <) Do bmo _ prri ongik jh k i odj i ndh kgdd n cc _ ndbi i _' d i __ajmnk dd kkgd odj in' i d m n _ pndb ndbg mnodqjm)

Oc _ qd d q gg g d HNJ K(, +G. h h %h h K f b)

TYPICAL APPLICATION



=JJNO



N KD>

REVISION HISTORY

I J O 5K b i ph m ajmkmqqjpn mqqdqji n h t _ada manjh k b i ph m di oc pmmi oq mqdji

M qddqji ,)+5M g n _qj h mfi o

M qddqji ,), 5Pk_ o < njgpo H sdh ph M odbn

M qddqji ,)- 5>jmm o _dkjbmkcd g mjmmd oc Jk mqdji n qdji

DEVICE ORDER INFORMATION

N>O3, 1-/ LHM M	O k M g	/ +++	, 1- / L	, +	HNJ K(, +G	.

ABSOLUTE MAXIMUM RATINGS

Jq mjk modb am (dho h k mqpm pi gnn joc mdh i jo _'

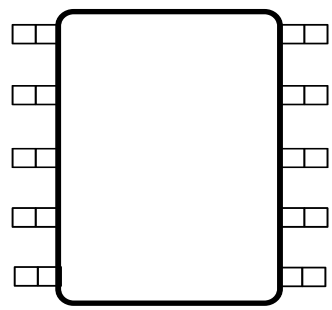
QD ' PQGJZ I	(+).	1-	Q
Q>>' M >qjgp b	(+).	1)1	Q
Q>>' M Omi ndi oajm7-+i n	(,)+	2)+	Q
DN I '>J HK' A=' A<*NTI >*N	(+).	0)0	Q
K f mdq mJ pdkpo>pmmi o		, -	<
Epi odji o h k mqpm -	(/ +	, 0+	>
Nqjmb o h k mqpm O_{NOB}	(10	, 0+	>

, Nomnn n tji _ocjn ggho _pi _ m< njgpo H sdh ph M odb h t pn _ qd k mh i io_ h b)Oc _ qd dh i jobp mi o _qj api odji jpond_ jadn M jhh i_ _Jk modji >ji_ddji n)

- Bp mi o _ t _ ndbi' i joo no _d kmj_p odji n)

. Oc D>d gp_ njq mo h k mqpm kmjo odji qj kmjo occ _ qd _pmdib jq mj _ ji _ddji n)Epi odji o h k mqpm r dgg s _ , 2+ > r c i jq mo h k mqpm kmjo odji dh odq)>ji odpjpn jk modji jq oc nk dd_h sdh ph jk modbepi odji o h k mqpm r dgg m_p gdh odh)

PIN CONFIGURATION



PIN FUNCTIONS

DN I	,	>pmmi on in dkpokd)>jii oqj oc kjndddq nd_ jaoc pmmi on in mndqjm ocmjpbc ncjmok oc)
PQGJZ I	-	Pi _ mqjgp b gj fjpo kmjbmh h dib kd) Oc jiq mo mno mq(pk i _ ncpo_jr i g q gg i kmjbmh h _ t jii odb ocdh kd qj oc npkkd qjgp b ocmjpbc mndqjm_dd_ m)Ocdh kd h pnoi jo gaoagj odb)>jii oqj QD kd dai jopn _)
>J HK	.	Jpdkpo ja oc do mi g omi n ji _p o i mjm h kgdd m) >jii o oc gjjk jhk in odji jhkji ion or i ocdh kd i _bmjpi _)
A=	/	Dq modb dkpoja oc mjm h kgdd m)>jii o qjgp b _dd_ manjh oc jpdkpoqj ocdh kd qj n o jpdkpoqjgp b) Oc _ qd mbpgo n A= qjgp b qj oc do mi g ma mi q gp ja,)- 20Q dkd g)
<BI	0	<i gjb bmjpi _ kd)

PIN FUNCTIONS (continued)

A<*NTI >*N	1	Nr ob cdb amI p i t n oodb kd) Oc nr ob cdb amI p i t oh kmjbmhh _ t ndbg mnohqjm or i ooh kd i _<BI) Oc dom g gj f i nti cmjidu _gj i som g gj f)< cdbc gq gji ooh kd ajm .+ n r oggopm oc _ qd jaa i _oc _ qd r oggoc i _mr .)4 < amjh oc npkkg dkd gj)
KBI	2	Kjr mbmjpi _ kd)
M	3	I (c i i gHJNA O b o _mq jpokpo) >jii o_oh og gj oc b o jaoc I (c i i gHJNA Oocmjpbc ncjmd gr d _p o i k oc)
Q>>	4	J pokpojaoc dom gQ>> mbpggjm i _npkkg qjgg b dkpojaoc HJNA O _mq m)>jii o mhd tk nn k djmamjh ooh kd gj KBI)
QD	,+	Kjr mpkkg dkpokd

RECOMMENDED OPERATING CONDITIONS

J q mjk modb am (oho h k mopm mi b pi gnn joc m oh i jo _

QD	Dkpoqjgg b mi b	.),	0+	Q
Q>>	Q>> qjgg b mi b	.),	1),	Q
OE	J k modb epi ogi o h k mopm	(/ +	,-0	>

ESD RATINGS

Q N	Cph i =j_t Hj_ gC=H 'k m< >(L ,++(++-	(-	&-	fQ
	>c rb _ qd Hj_ g> H 'k m< >(L ,++(+, ,	(,	&,	fQ

THERMAL INFORMATION

M E<	Epi ogi gj h d i ooc mh gmnoho i ,	,/-).	>*R
M E> gjk	Epi ogi gj n gjk oc mh gmnoho i ,	1/)1	
M E=	Epi ogi gj j m_oc mh gmnoho i ,	42).	

, N>O kmjqd_ n M E< i _M E> i ph mjig n ma mi gj noh o epi ogi o h k mopm n jaoc _ qd n)M E< i _M E> mijo c m o mhod jak f b oh gl pojah it joc mtno h gq g c m o mhod n np c noc _ nbi i _gtjpojaoc kmdo _ ohpob j m_ K>= ji r cdc oc N>O3,1-/L oh h jpio_'oc mh gk _nd ' i _ som g i qohjih io ga qjm)Oc K>= j m_oh c o nd f oc oh njg_m_gjoc g _n i _oc mh gk _jaoc N>O3,1-/L)>c ibdb oc _nbi jmjiabpmogi jaoc K>= j m_ c ib n oc add i t joc c ond f i _oc majm oc op gM E< i _M E>)

ELECTRICAL CHARACTERISTICS

Qm 8, - Q' Q=8(/ + > y, - 0 > ' dkd gq gp n m o no _ pi _ m+ 0 >)

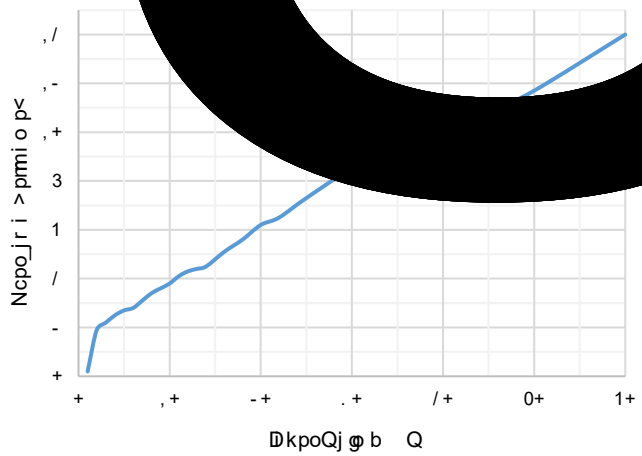
ELECTRICAL CHARACTERISTICS (continued)

QID 8,-Q' QE8(/+>y,-0>'dkd gq gp n monoo_pi_ m-0>)

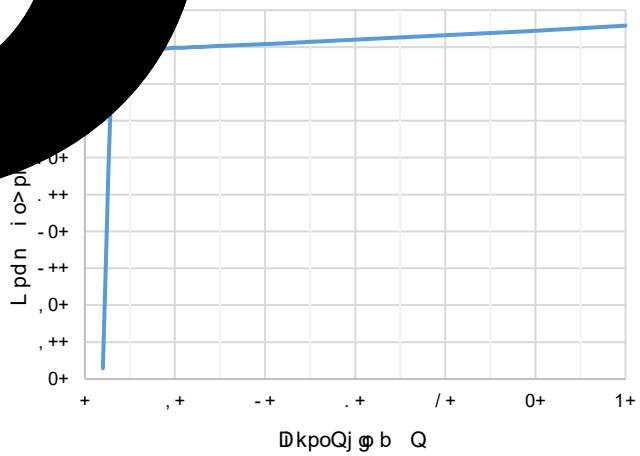
QNN	Nj ao(no moOdh		,/	hn
ANR	Nr ob cdb aml p i t	MA<*NTI>*N 8/2)0f	./0 /++ /00	fCu
NTI ZCD	Ocmncjg_ajmNti cmjidu odji ji A<*NTI>*N kd	Nti cmjidu odji qjgp b mdidb	,)-2 ,)/0	Q
NTI ZGJ		Nti cmjidu odji qjgp b a ggidb	+)03 +)13	Q
H<S	H sdh ph pd >t g	MA<*NTI>*N 8/2)0f	30 4,	
QI ZHID	Hdidh ph ji(odh	Anr 8/++fCu	-0+	in
QN ZCD	Ncpo_jr i nobi gocmncjg_ji A<*NTI>*N kd	Ncpo_jr i qjgp b mdidb	,)-2 ,)/0	Q
QN ZGJ		Ncpo_jr i qjgp b a ggidb	+)02 +)13	Q
DN ZGFB	A<*NTI>*N kd G f b	QN 80Q	,	p<
QJQOC	A= jq mqjgp b ocmncjg_	A= mdidb	-0 30 ,.0	hQ
		Ctno mndh	.+ 3+ ,.+	hQ
QN	Oc mh gncpo_jr i ocmncjg_	QE mdidb	,10	>
	Ctno mndh		-0	>

, Bp mio _ t _ nobi i_ i c'ijoo no_d kmj_p odji)
- Bp mio _ t _ nobi'ijoo no_d kmj_p odji)
. Oc jq mqjgp b kmjo odji dnk dd_r ocmnk oqj oc a _ fqjgp b)Ocdh pn oc jq mqjgp b kmjo odji om fn oc a _ fqjgp b)Oc jq mqjgp b ocmncjg_ i gpgo_ t __dib oc a _ fqjgp b QA= qj oc jq mqjgp b kmjo odji nk dd odji)

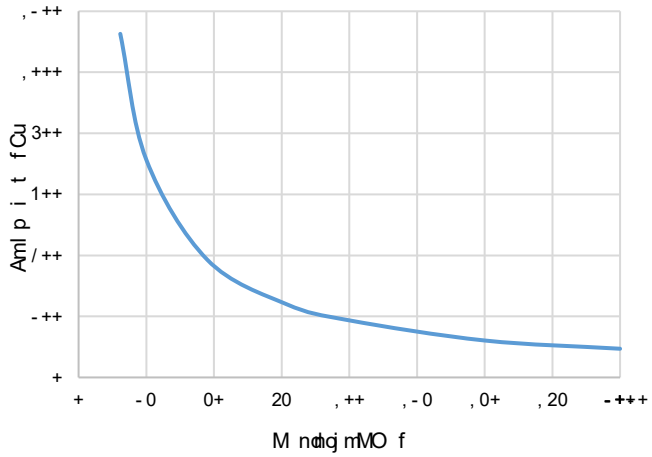
TYPICAL C ERISTICS



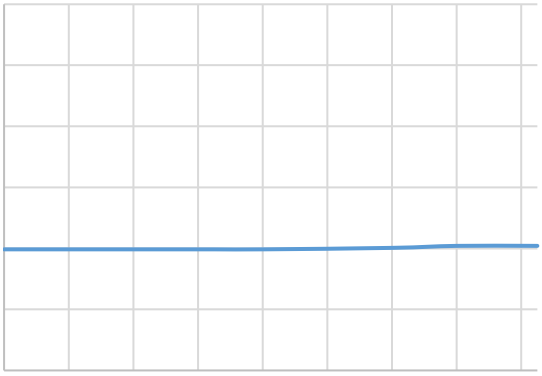
Adbpm ,) Dq qn) DkpoQjgp b



Adbpm -) D qn) DkpoQjgp b



Adbpm .) Nr ob cdlb Aml p i t qn) MO

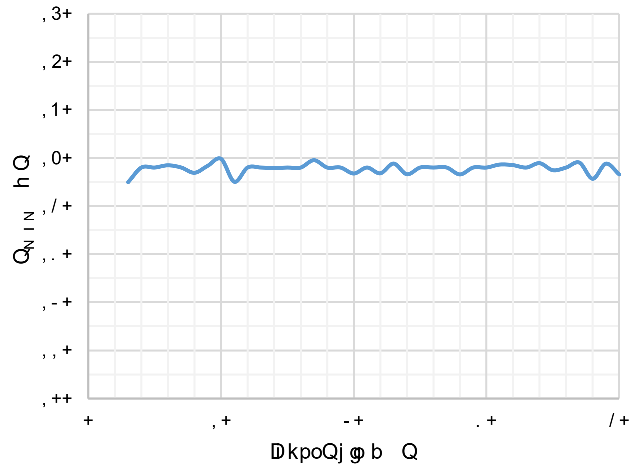


Adbpm /) Nr ob cdlb Aml p i t qn) O h k mqpm

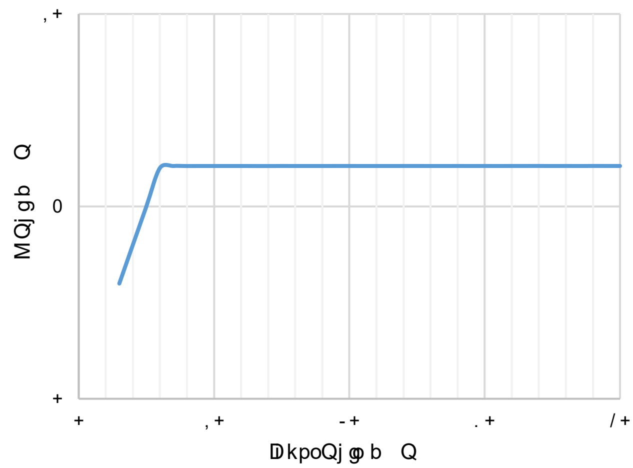
Adbpm 0) aaddi t qn) Gj _ > pmmid = j j ndQ JPO8, - Q

Adbpm 1) aaddi t qn) Gj _ > pmmid N KD' Q JPO8, - Q

TYPICAL CHARACTERISTICS



Adbpm 2) >prmi oN i n Ocmncj g_ qn) DkpoQj gp b



Adbpm 3) MQj g b qn) DkpoQj gp b

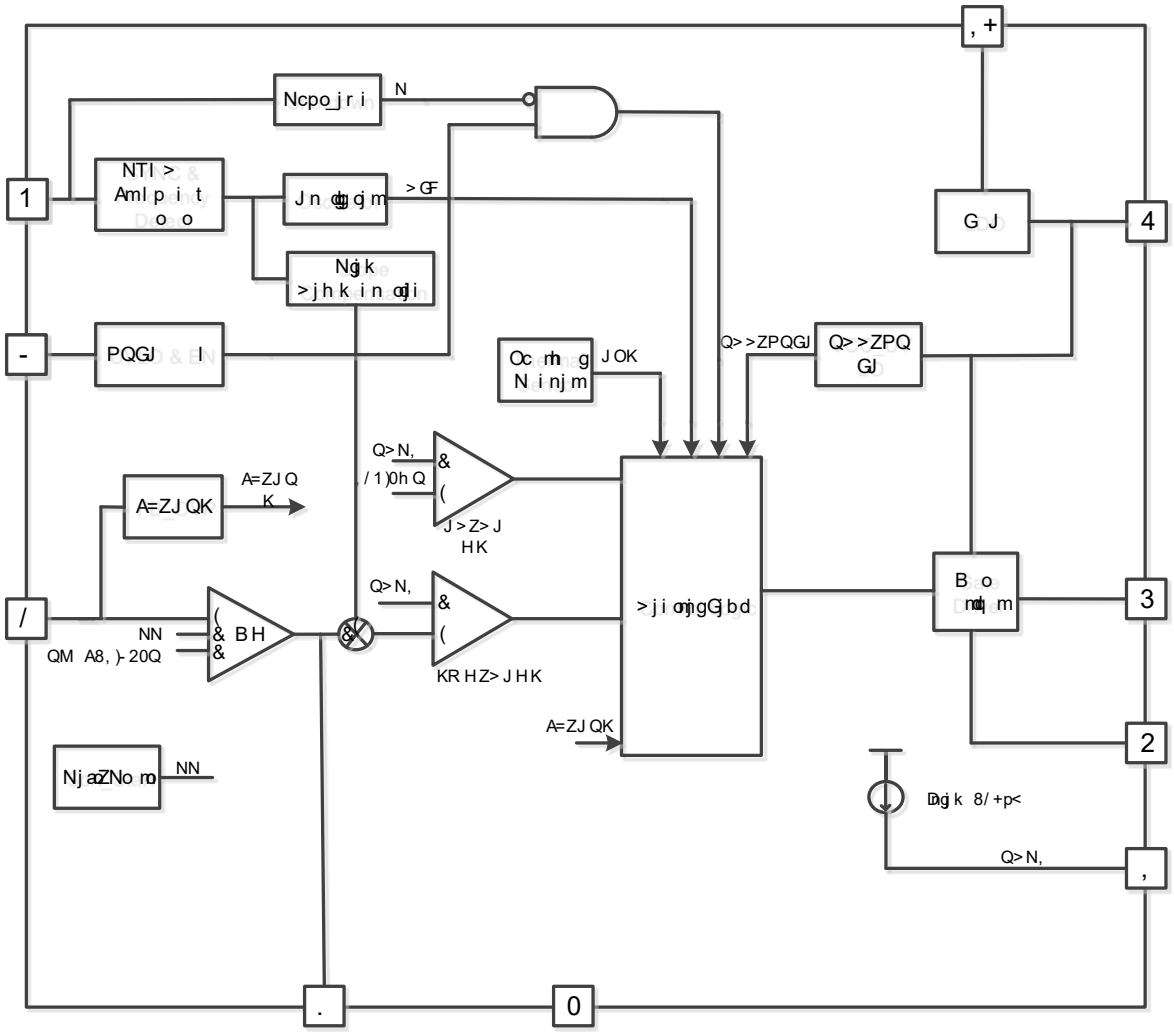
Adbpm 4) >J H K Nj pm >prmi oqn) O h k mqpm

Adbpm , +) >J H K Ndf >prmi oqn) O h k mqpm

Adbpm , ,) M M ndno i qn) O h k mqpm

Adbpm , -) Ncpo_jr i Ocmncj g_ Ct no mndi qn) O h k mqpm

FUNCTIONAL BLOCK DIAGRAM



Adbpm , .) Api ogji g=gj f dbmh

OPERATION

Oc N>O3,1-/L _qd oh r d_ dkpomib 'iji(nti cmjijpn jjno jiomjgmoc opn n k f(pmmio(h j_ jiomjg)Oc _qd i pn _dl jjnd'N KD>' i_ag fqjkjgjbdn)

DD dkd g kkgd odji ohpdoc k f pmmioocmjpbc oc somi gHJNA Oohn in _ocmjpbc i somi gn in mnohqjm)Oc qjgob mjnn ocohmnohqjmoha _dlqj oc DNI N kdl)Ocohqjgob oha _dlqj oc kjnoood dkpojaoc KR H jhk mqjm)Oc jpdkpoqjgob oh gjn in _ocmjpbc i somi ga _ fmnohqjm_odd_mi orjmfi i_a_ dlqj oc mjmm hkggdmi b ood dkpo)Oc jpdkpojaoc mjmm hkggdm >JHK kdl oh __ _qj oc ngjk jhk in odji mhk i_a_dlqj oc i b ood dkpojaoc KR H jhk mqjm)<ooc nomoja itnr ob cdb t g'oc jn oggqjmn onoc MN goc pndb oc nr ob c gjbd gj f)Ocohajm n cdbcnobi gji oc Mkdl b o jaoc somi g HJNA O i_oc somi gHJNA Oopmnn ji)Rc i oc qjgob ji oc kjnoood dkpojaoc KR H jhk mqjm s _noc i b ood dkpdoc MN goc ohmn o i_oc somi gHJNA Oopmnnjaa)Oc qjgob n in _ mjnn oc n in mnohqjmb i mgg jio dnnkpmdpnijoh nkdf n)Oc n nkdf n i ajm oc KR H jhk mqjmqj mn o oc MN goc kmh opmg)Oj kmq iooc n nkdf najmh mn oodb oc goc' gif(jpo ohpobdnd_ oc D>kmq ion oc KR H jhk mqjmajmh mn oodb oc goc ajm ncjmo_pmodji ao moc goc ohn o)Ocoh_pmodji oh gg_oc gifdbdomq g i_oh nk ad_ n h doh ph ji(oh dl oc g ond g>c m o mohodn n odji)Pi_m somh g gbc(gj _jmij(gj _ ji_odjin'oc i rbt _gdq m_qj oc jpdkpo k ojmr c i oc somi gHJNA O dl ji _pmdb oc gifdbdomq goh hjm oc i rc o oh _gdq m_qj oc gj _)<i jq m(qjgob jhk mqjmdnd_ oc N>O3,1-/L kmq ion oc jpdkpoqjgob ajmh mohdb pi_moc n ji_odjin)Oc jq m(qjgob jhk mqjmn in n oc a _ f A=kdl qjgob i_mn on oc MN goc)Oc goc mh dn dl mn ono o piodgoc jpdkpo_ tnqj oc ijh dl gq gb)

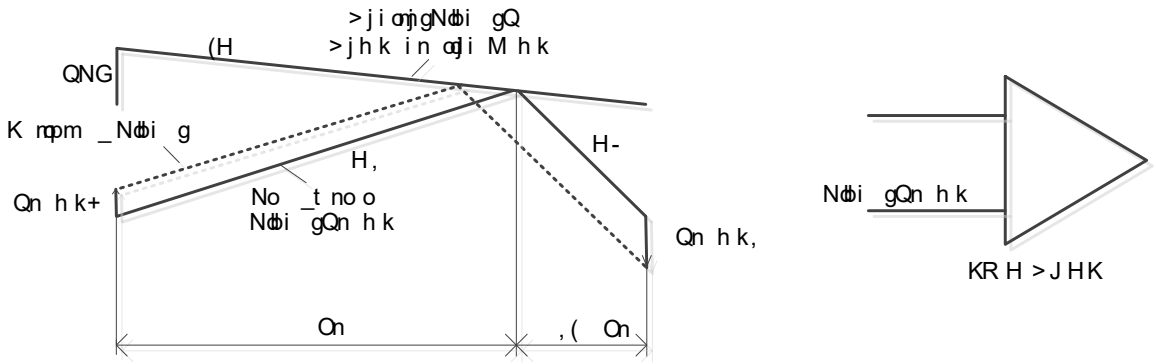
Oc N>O3,1-/L rjmfn oKpgn nfdk h j_ qj apmoc mdl m n oc addi t dl gbcogj _ ji_odji)

Oc I pdn io pmmiojaN>O3,1-/L oh /,0p< dkd gpi_mij(gj _ ji_odji i_ij nr ob cdb) oh gdb oc _qd 'oc dkd gnpkkg ncpo_jri pmmio ji QD kdl oh.)4n<)

Oc N>O3,1-/L c njq mqjgob kmjo odji JQK ajmoc jpdkpoqjgob)JQK ohn in _ ooc a _ f kdl A=)
Da o it oh oc qjgob ooc a _ f kdl moh nq ,).1Q dk)'JQK oh omob m_)JQK rogg pn oc Mkdl qj bjgr'ajmdb oc kjr mHJNA Oja)R ob oc HJNA Ojaloc jpdkpoqjgob r ogg_mjk)Oc N>O3,1-/L bdn nr ob cdb b d r c i oc a _ fqjgob m c n,)-3Q dk))

Oc domi g dn jaoc N>O3,1-/L jh n ajmh ob moc domi g dn qjgob b i mqjmjm_oh og ajmh oc qjgob ooc QD kdl)<odkpoqjgob n gjr moc i 1Q oc domi gD> dn oh oc dkpoqjgob i_ oqjgob n jq 1Q oc domi g dn qjgob b i mqjmjaoc N>O3,1-/L kmjqd_n oc dn)Oc b o(_mdq mmpkkg qjgob Q>> mI pohnn i somi g tk nn k odjm)M jhh i_Q>> k obi oh , A'_j ijokg k obi s _db -)- A) jijo dn oc Q>> kdl t i somi gqjgob njpm)

Oc N>O3,1-/L pn n pmmioh j_ jiomjgn c h)Oc h dl _q iob nja pmmioh j_ jiomjg m dc mio t g(t(t g pmmiogh obajmoc nr ob c i_ndhkgm jiomjggjk c m o mohodn)Cjr q m pmmioh j_ jiomjg c n Np (c mh jid Jn oggodji r c i _pd t g oh bm o moc i 0+)Oj kmq iooc Np (c mh jid jn oggodjin' jhk in odji mhk oh __ _qj oc jiomjgnobi g)



Adbpm,/) Np (C rhjid Jn ogbgogji ajm 9+)0 i_>jhk in ogji Mhk cj <qjd_Np (C rhjid Jn ogbgogji Oc pmmiohj_ jiomjgn c h n hkgn oc dl_p cjm pmmid DG i_ jhk mn oc n hkg_ndbi gQ$_{nhk}$'cj dlo rh ggb i mo_ jiomjgndbi gQ)Oc pmmion in mndhcjrhM$_{N\,l}$' nncjr i dl Adbpm,0 jiq mn oc n hkg_ dl_p cjm pmmid DG cj oc qjgpb ndbi gQ$_{nhk}$'oc odhkmjkjmogji gcj DGnp c oc o:

$$_{VDPS} = \quad 2 \qquad ,$$

Adbpm,/ ogpnomo oc oc jrhrct Np (C rhjid Jn ogbgogji c kk i)Oc mdhdlb i_a ggdlb ngjk n'H, i_(H- mnk odqdg' ja Q$_{nhk}$ m gmj kmjkjmogji gcj oc dl_p cjm pmmio mdhdlb i_a ggdlb ngjk n' Hji i_(Hjaa mnk odqdg)R c m Hji dh oc dl_p cjmmgjk _pmdlb oc nr dbcji(odh i_(Hjaadh oc dl_p cjmmgjk _pmdlb oc nr dbcjaa(odh i_ mmgo_cj H, i_(H- t :

$$_9 = \quad _{RQ}2 \qquad -$$

$$- \quad = - \quad _{RI}\,2 \qquad .$$

Ajmoc jjnocjkjgjbt 5

$$_9 = \quad _{RQ}2 \quad = IQ2 \quad 7 \qquad /$$

$$= \quad _{RI}\,2 \quad = 0\ RXW - IQ1\,2 \quad 7 \qquad 0$$

D Adbpm,/' nh ggdl m n dl oc gj _ pmmio pn n oc n hkg_ndbi gcj dl m n t Q$_{nhk+}$)Oc aa oja ocdhgj _ c ib ' Qn hk,' ooc i_jaoc adhonr dbcdlb t g dh

$$\Delta\ _{VDPS9} = -0\frac{-\quad _F}{_9 + \quad _F}12\Delta\ _{VDPS} \qquad 1$$

Nj'R c i l j jhk in ogji mhk ndbi gdh __ _'r cdc H dhu mj'oc i 5

$$\Delta\ _{VDPS9} = -0\frac{}{_9}12\Delta\ _{VDPS} = -0\frac{}{9-}12\Delta\ _{VDPS} \qquad 2$$

R c i 9 +)0' Q$_{nhk,}$ r dgg bm o m oc i Q$_{nhk+}$) D joc m r jm n' oc _dhqpm i dh _dqrb io)Nj q rhnh ggk mopm odji dl oc gj _r dgg pn oc _dhqpm i cj dl m n)

<ao m jhk in ogji mhk dh __ _cj oc jiomjgndbi g)Oj inpm oc ooc k mopm _ndbi g jiq rb n r hpno h dlo dl 5

$$\left|-0\frac{-\quad _F}{_9 + \quad _F}1\right| \qquad 3$$

7,

Oc jhk in ogji mhkc n i __ _ dlo m ggd dl oc N>O3,1-/L)Oc ngik jaccdh jhk in ogji mhkc n

Oc jpdkpoqjgb dn o t i so m gmnodqjm_dqd_ mMA=O i _MA== d dkd g kkgd odj i n c h od)< h dodh ph pmmi ojadkd g-+p< agjr db ocmjpbc a _ f mnodqjm_dqd_ mbdq nbjj_ pm t i _ijdh jq mdb)Oc q gp jaMA=O i gpgo _ t Ip odji ,-)

$$ = \frac{\_}{} \times \qquad ,- $$

r c m5

QMA dhoc a _ f ma mi qjgpb 'dkd g,)-20Q

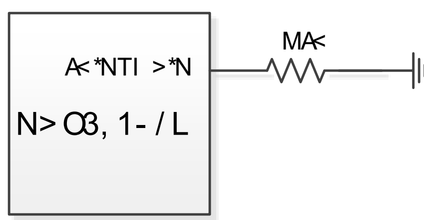
Oc nr db cdb amlp i t jaoc N>O3,1-/L i _epno _ or i ,++ fCu i _-)-HCu pndb ndbg so m g mnodqjm)Ocd mnodqjmh pno jii o _ or i oc A<*NTI >*N kd i _bmjpi _) Ip odji ,. i pn _qj nodh o oc amlp i t _epnomnodqjm)

$$ 0 \quad \Omega 1 = \frac{9A}{IV \quad 0N \quad 1} - 9\,9 \qquad ,. $$

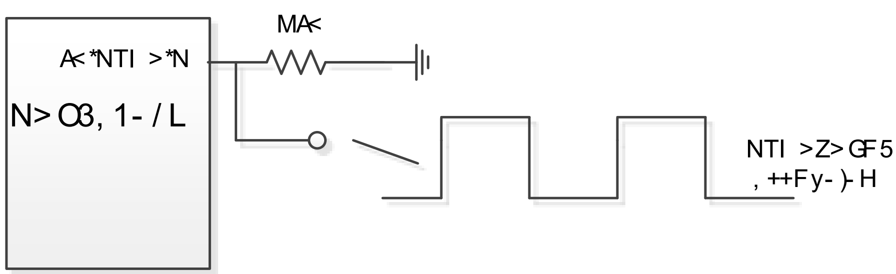
Oc N>O3,1-/L i gmj nti cmji du _qj i so m g gj f)Oc so m g gj f h pno jii o _ or i oc A<*NTI >*N kd i _bmjpi _' nncjr i d Adbpm ,1)Oc amlp i t _epnomnodqjmh t mh d jii o _ r cdg nti cmji dudb nbi gjoc majm dac m od gjnnjandbi gjoc nr db cdb amlp i t r dg n o t oc amlp i t _epnomnodqjm)

Oc A<*NTI >*N kd gmj api odjn n ncpo_jr i kd)Da cdbc nbi g9,)-2Q kk m ji oc A<*NTI >*N kd jq m+ηN'oc N>O3,1-/L nqjkn nr db cdb i _bj n ddqj gjr pmmi ohj _)Oc qjo gnpkkg pmmi ojaoc D> m_p nqj .)4 <'dkd gg'pi _ moc n ji _odji n)

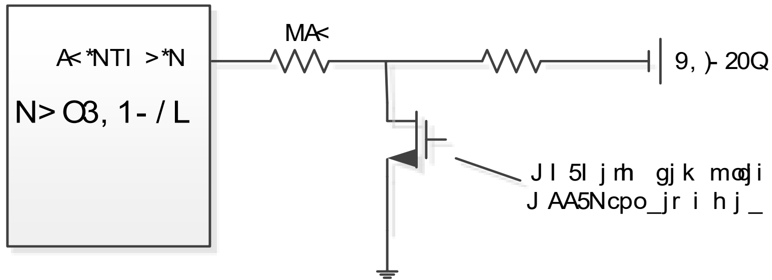
Adbpm ,3 i _Adbpm ,4 ncjr i dhkgh io odji ja ncpo_jr i api odji r c i jk modb d amlp i t _epnohj _ i _nti cmji du odji hj _ 'mnk odq g)D amlp i t _epnohj _ ' jii odb oc A<*NTI >*N kd qj bmjpi _ ajm n oc gj f qj mpi o mo d amlp i t)Kpgdb ocd kd cdbc ncpon _jr i oc D>)D amlp i t _epnojm nti cmji du odji hj _ ' cdbc nbi gajm hjm oc i .+ n ncpon _jr i oc D> (



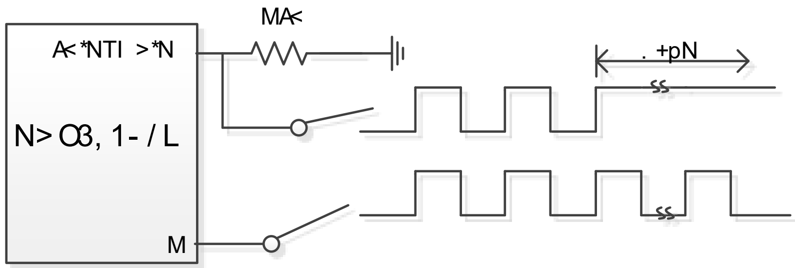
Adbpm,1) Aml p i t <_epno



Adbpm,2) Aml p i t Nti



Adbpm,3) Ncpo_jri jk mogji di Amlpi t<_epnoHj_



Adbpm,4) Ncpo_jri jk mogji di Amlpi t Nti cmjidu ogji Hj_

Oc so mi gPQGJ mnodqjm_dqd_ mh pno _ nobi _njoc ooc qjgp b ooc PQGJ kdi di bm o moc i ,)/-Q dkd grci oc dkpoqjgp b di di oc _ nodn_jk modb mib)Oc q gp n jaM, i_M- i gpgo_ n ncjri di lp ogji ,/ i_ lp ogji ,0)

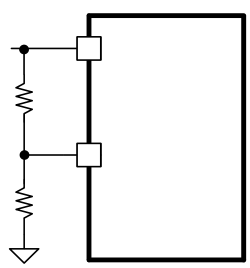
$$9 = \frac{0 \quad 1^{-} \quad 0 \quad 1}{} \qquad ,/$$

r c m

Q$_{D\,JI}$ di oc _ nodn_no m(pk qjgp b jaoc jiq mo m

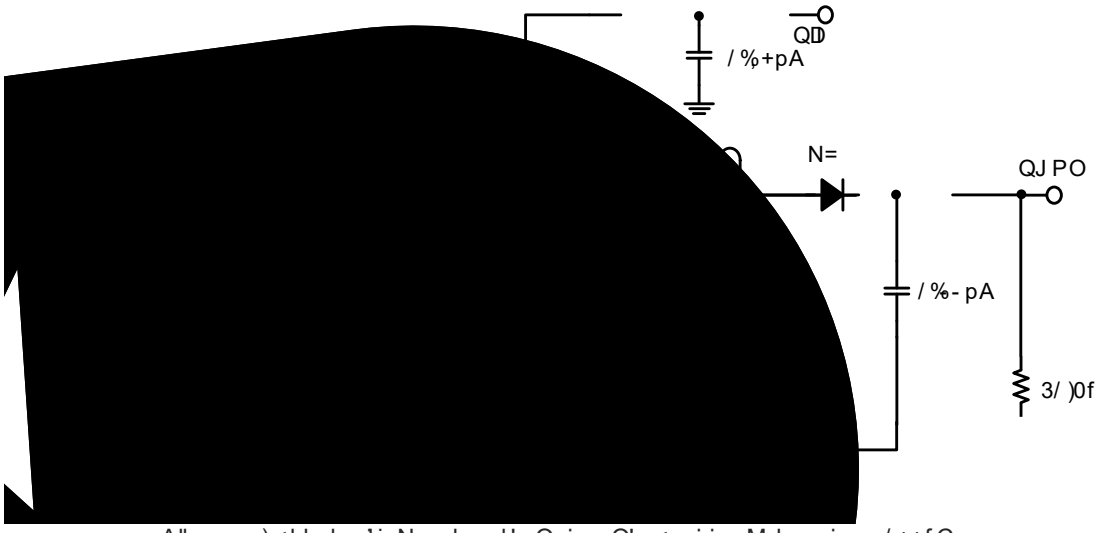
Q$_{D\,JAA}$ di oc _ nodn_qpmjaaqjgp b jaoc jiq mo m)

$$= \quad 92\frac{}{0 \quad 1^{-}} \qquad ,0$$



Adbpm -+) Ntno h PQGJ M nodqjm dqd_ m

APPLICATION INFORMATION



Adbpm -,)<kkgol odji N c h od'. Qcj , , Q'-< = j j noM bpgcj m o/ ++fCu

DkpoQjgp b	0QI jmh g. Qcj , , Q
J pdkpoQjgp b	, -Q
H sdh ph J pdkpo> pmmi o	. <
Nr ob cdlb Aml p i t	/ ++ FCu
J pdkpoqjgp b mdkkg k f cj k f	20h Q Gj _8-<

Oc k majmh i jaol_p ojm aa on oc kjr mnpkkgl n no _t no o jk modji'omindio c qdjmgijk no ojgjt' i_ jjno jiq momaaddi t)Oc ol_p ojmq gp ' >mndoi ' i_n opmodji pmmiodiap i n joc aaddi t i_oc h biop_ jaoc jpokpoqjgpb mkkg)Grb mol_p oi q gp m_p n ol_p ojm pmmiomkkg i_ oc majm g _n oj gir mjpokpoqjgpb mkkg)Ajm ast _ >mndoi ' grb mq gp ol_p ojmtdg_n cobcm aaddi tqdm_p _MHN i_ jm ginn n)Cjr q rh grb mol_p ojmrobcol boqi ol_p ojmahogr ogpb i mogt c q bm omm mdnmndoi 'ocm t jpiom oolbocoh aaddi t _q iob)

Dl_p ojmq gp n i cq -+ jmq i 0+ ojgmi robcij pmmio dn)Rci oc ol_p ojmpmmio kkmj cn n opmodji gq g'obnol_p oi i_ m n -+ oj .0 amjh oc q gp o+(< pmmio_k i_olbji cjr oc ol_p ojmq i_jm_aol nn opmodji)Rcing oolb i ol_p ojrh cjjn obnmo_ pmmio nk dgg oc n opmodji pmmiogrb moc i obnk f pmmio_pmdboc jk modji)

Oj gpgo oc pmmiodi oc rjmo n'pn oc hdidhph dkpoqjgpb 'h sdhph jpokpoqjgpb 'h sdh gj _ pmmio i_hdidhph nrobcolbamlp i tjaoc kkgl odji'rcog jind_mdboc ol_p oi robc(.+ ojgmi i_gjr(kjr mjiqmodi aaddi t)

Ajm jjo jiq momh gpgo oc ol_p ojm > pmmio ndi l p odji ,1

Oc dkpo k odjmncjpg_ k g jac i_gdbocc MHN pmmio)<gcjpbcocc dkpo k odjmodijo n modd gd jjno kkgd odi'gir q gp n i pn ohk _i dom odjin)Oc majm' bjj_Ip gpt k odjmncjpg_ cjn i dl oc mib ja,+ Aqj/+ A)Da q gp gir mocc i ,+ A oh pn _'oc i kmj ghnrodcohk _i dom odjinjmmr odocdbijoh i aa occ N>O3,1-/L)Oj ohkmjq k majmh i ' nk dgg r odcQd gir 3 qjgm'odohm jhh i__qj pn -)- Jch mnmodqjmocc dkpoqj kmjqd_ i M> agpm)Oc mnmodqjmohkg _d n mdn r odc oc QD kd r odcjig tk nn k odjmoo c _qj oc QD kd _oh og)<+),(Ajm,(A mhd k odjmodi nn mhd ocoh jiatbpmodji)Oc pgf dkpo k odjm i_d_p qjmr odg jii oji oc joc mnd_ ja oc mnmodqjmocc dkpokjr mnpkkg)

Ajmnh ggjpdkpoqjgp b mdkkg' cjjn gir(NMjpdkpo k odjmgf mhd k odjm)Otkd gg'.~/s--ηA mhd jpdkpo k odjm r jmfiajmh jno kkgd odjin)<+),ηA mhd tk nn k odjmodm jhh i__qj kg _ n gn nkjnndg qjoc nr odcij_ Cdbc m k odjmq gp n i pn _qj ohkmjq oc gi _omindio mnkjin) p qj k odjmn _modb pi_m > dn'oc dn i nobicd iodgm_p k obi)> mhd k odjm i gn hjnojaoc oh k obi omo_qjgp b)Oc majm'g q h mbd ji oc qjgp b modbqj inpm _Ip o aa odq k obi)Amjh oc mlpoh_jpdkpoqjgp b mdkkg'pn oc Ip odji -+ i_-, qj gpgo oc hdohph mlpoh_ aa odq k obi '>JPO)

-+

-,

rcm

- $Q_{mdkkg}Z_{>}$ oh jpdkpoqjgp b mdkkg pn _ t c mbdb i__oh c mbdb jaoc jpdkpo k odjm)
- $Q_{mdkkg}Z_{NM}$ oh jpdkpoqjgp b mdkkg pn _ t NMjaoc jpdkpo k odjm)
- $Q_{ID}Z_{HID}$ ohoc hdohph dkpoqjgp b ja jjno jiq mom)
- Q_{JPO} ohoc jpdkpoqjgp b)
- D_{PO} ohoc jpdkpo pmmio)
- $D_{k\,f}$ ohoc k f pmmiojaoc d_p qjm)
- $_{NR}$ ohoc jiq momr odcdb amIp i t)
- NM ohoc NMmnmodoi jaoc jpdkpo k odjm)

Oc ajggir dbk mh omncjpg_ of i dqj jind_modji ajmHJNA O5oc ji(mnmodoi M_{NZJI}'oc hdohph b o ocmncjg_qjgp b Q_{OCZHID}'oc qjogb o c mb L_{b}'oc mq m ominam k obi $>_{MNN}$' i_oc h sdohph _mdqj njpm qjgp b $Q_{LZH<S}$)Oc k fnr odcdbqjgp b or i _mdqj njpm d =jjnodhbdq i t

$$= \quad + \tag{--}$$

Oc i oc $Q_{LZH<S}$ jakjr mHJNA Oncjpg_ bm omocc i oc k fnr odcdbqjgp b)

Oc k fnr odcdb pmmioagir dbocmjpbcoc HJNA Oohbdq i t5

$$= \tag{-.}$$

Oc MHN pmmioocmjpbcoc HJNA Ooh gpgo _ t5

$$=\sqrt{0 \quad + \frac{12}{9}} \tag{-/}$$

Oc i kjr m_ohndk odji d HJNA O i noh o _ t5

$$= \quad \times \quad \times \quad + \left(\quad + \quad \right) \times \quad \times \frac{\times I}{} \tag{-0}$$

Qdl 80Q' Qjpo8, -Q' pi gnn joc mmdh i jo _

Adbpm - -) Kjr mpk Dgj _8-<

Adbpm -.) Kjr m_jr i Dgj _8-<

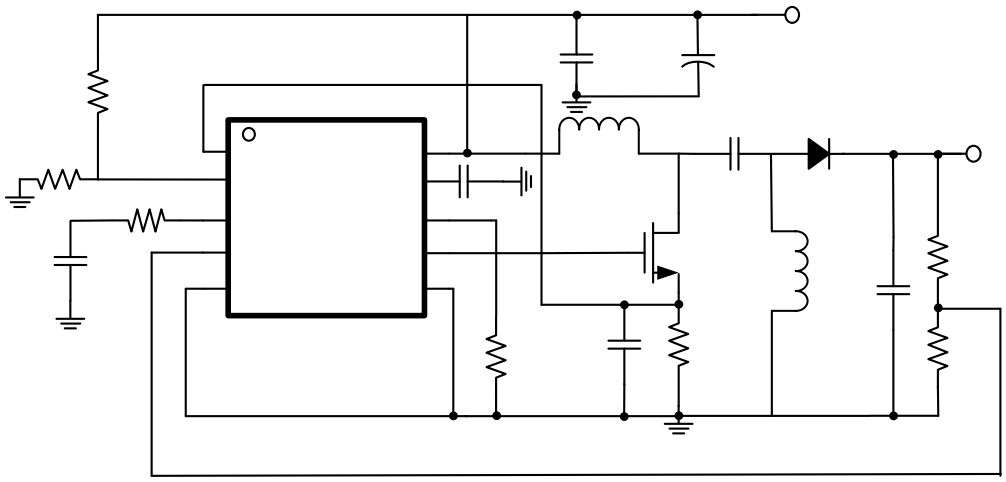
Adbpm -/) Jq m pmmi okmjo odji Dgj _80<

Adbpm -0) Jq m pmmi om jq mh Dgj _80<

Adbpm -1) No _t(no o Dgj _8-<

Adbpm -2) Nti A

APPLICATION INFORMATION



Adbpm-3)<kkgdl odji N c h od'0Qcj 0+Q'-< N kd M bpgcjm o/++fCu

DkpoQjgpb	-/Ql jmh g0Qcj 0+Q
Jpdkpoqjgpb	,-Q
H sdh ph Jpdkpo>pmmio	-<
Nr odcdlb Amlp i t	/++FCu
Jpdkpoqjgpb mdkkg k f cj k f	20h Q Gj _8-<

< bjj_mpg ajm_ omh dddb oc d_p o i qj pn dh qj ggjr oc d_p qjmk f(qj(k f mkkg pmmi o qj kkmjsdh o gj -+ qj /+ jaoc h sdh ph dkpo pmmi o ooc h ddh ph dkpoqjgb)Oc pmmi omkkg agjr ddb dd_p qjm G, i _G- dbdq i t5

$$\Delta_{9} = \times ((\times \frac{}{} \times ((\qquad -2$$

$$\Delta = \times ((\times ((\qquad -3$$

I jmh ggr i n g o l p gq gp ajmoc d_p qjm G, i _G- ' _ mdq _ n5

$$_{9} = = (\frac{}{\Delta \times I} \times (\qquad -4$$

R c m

f_{NR} dh oc nr ob cdb amlp i t)

I jo oc ooc n qpmodji pmmi ojadd_p qjm ncjpg_ bm o moc i k f pmmi oagjr ddb dd_p qjm' bdq i t5

$$_{9} = + \frac{\Delta}{} = (\times \frac{}{} \times 09 + \frac{(}{} 1(\qquad .+$$

$$= + \frac{\Delta}{} = (\times 09 + \frac{(}{} 1(\qquad .,$$

DaG, i _G- mr jpi _dnh jm n jpkg_d_p qjmhoc d_p o i mlpdh_r dgg c ga_p qj oc h pop g d_p odji ' gpgo _ t5

$$_{9} = = - (\frac{}{\times \Delta \times I} \times (\qquad .-$$

Oc ajggr ddb k mh o mncjpg_ o f i ddj jind_ modji ajmHJNA O5oc ji (mndhoi M $_{NZJI}$' oc h ddh ph b o ocmncjg_qjgb Q$_{OCZHD}$' oc qjo gb o c rb L$_{b}$' oc mq m omina m k ob i >$_{MNN}$' i _oc h sdh ph _md qj njpm qjgb Q$_{LZH<S}$)Oc k f nr ob cdb qjgb or i _md qj njpm d N KD- dbdq i t5

$$= + + (\qquad ..$$

Oc i oc Q$_{LZH<S}$ jakjr mHJNA Oncjpg_ bm o moc i oc k f nr ob cdb qjgb)

Oc k f nr ob cdb pmmi oagjr ddb ocmjpbc oc HJNA Odbdq i t5

$$= _{9} + (\qquad ./$$

Oc MHN pmmi oocmjpbc oc HJNA ODn gpgo _ t5

$$= \times \sqrt{\frac{(+ +) \times (+)}{}} (\qquad .0$$

Oc _gj_ occ jpdkpond_ hpnor dcnoi _oc mq m qjgob r c i oc HJNA Odhopm _(ji)Oc k f mq m qjgob dhbdqi t5

$$= \quad + \quad (\qquad .2$$

Oc _gj_ ncjpg_ gnj k g qj ajgr nr dbck f pmmioD$_{ZK<F}$)

Oc kjr m_dhndk odji jaoc _gj_ dh lp ggj oc ajm m_qjgob _mjk hpgdkgdn jpdkpo pmmio)N cjodt _gj_ n m m jhh i_ _c m qj hdldhdu oc kjr mgjnn)

Ajm mhd k djmr odcgjr (NM'oc k fqjk f qjgob mdkkg ji jpkgdb k djmod nodh o_ t5

$$\Delta \quad = \frac{\times}{\times I} (\qquad .3$$

Oc h sdhph qjgob mjnn oc jpkgdb k djmodh sdhph dkpoqjgob)Oc qjgob modb jaoc jpkgdb k djmhpno bm o moc i db)

Oc MHN pmmiojajpkgdb k djmod bdq i t5

$$= \quad \times \sqrt{\frac{+}{\quad}} (\qquad .4$$

Oc m dh grb MHN pmmio ocmjpbc jpkgdb k djmmgodq qj jpdkpokjr m) inpm oc jpkgdb k djm i r odcnoi _dbr dcbjj _c ob i modji qj c q kmjk moc mh gk majmh i)

Oc N KD>c n i d_p qjm odkpond_ ocpn oc dkpo pmmiodh jiodpjpn i _omdibpgm)Oc MHN pmmioagjr db ocmjpbc oc dkpo k djmod bdq i t5

$$= \frac{\Delta_{9}}{\sqrt{9}} (\qquad /+$$

Ndl dkpo pmmiomdkkg dh mgodq gjr 'oc k db i r jpg_ ijoqjj mdd g)R cdg ,++ Adl qjo gjmcdbc m q gp dh nomjibgl m jhh i_ _dl jm_ mqj kmjqd_ no g dkponpkkg)

Ndh dgmqj jjno jiq mo mhoc N KD>jpdkpo k djmmpaa m grb pmmiomdkkg)Oc k db i hpno ijpbcqj kmjqd_ oc gj _ pmmio)Oc h sdhph qjgob mdkkg dl oc jpdkpo k djmod5

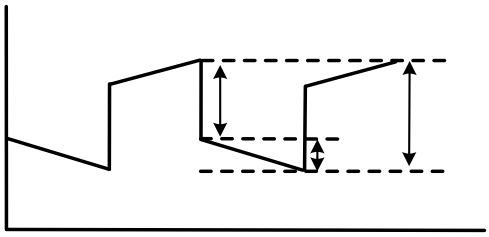
$$\Delta \quad = \frac{\times}{\times I} + \quad \times \left(\; _{9} \quad + \quad \right) (\qquad /,$$

<nnph db mhd k djm m pn _c m i_ NM i dbi jm_'oc jpdkpo k djmod bdq i t5

$$\geq \frac{\times}{\Delta \quad \times I} (\qquad /-$$

Oc jpdkpo k djmhpnoc q i ijpbc MHN pmmiomodb qj c i _g oc h sdhph MHN pmmiodl oc jpdkpo k djmh gpgo _ t5

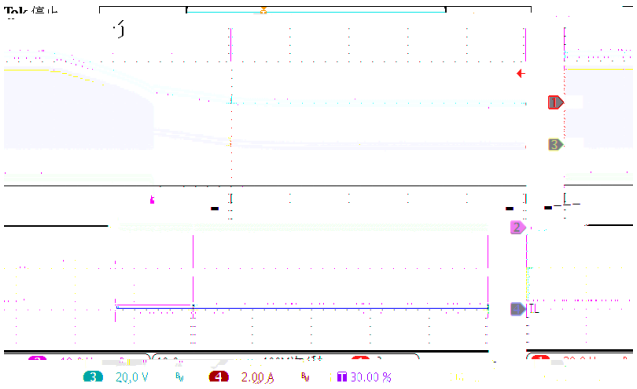
$$= \quad \times \sqrt{\frac{\quad}{9-}} (\qquad /.$$



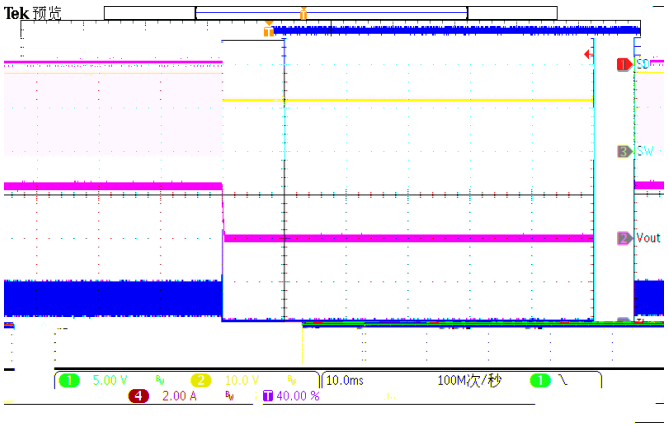
Adbpm - 4) J pdkpoQj gp b Mdkkg

Qdl80Q' Qjpo8,-Q' pignnjoc mnoh ijo_

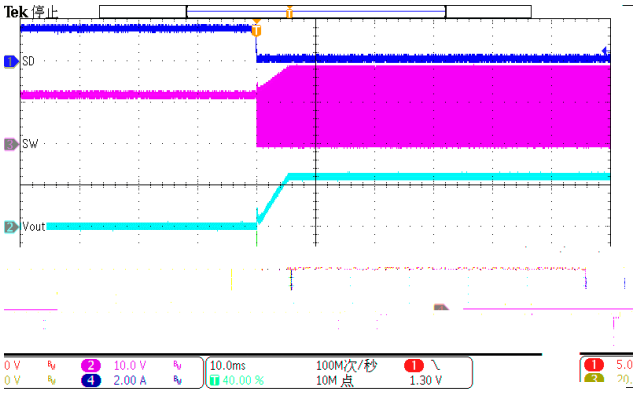
Adbpm.+)Kjr mpk Dgj _8-<



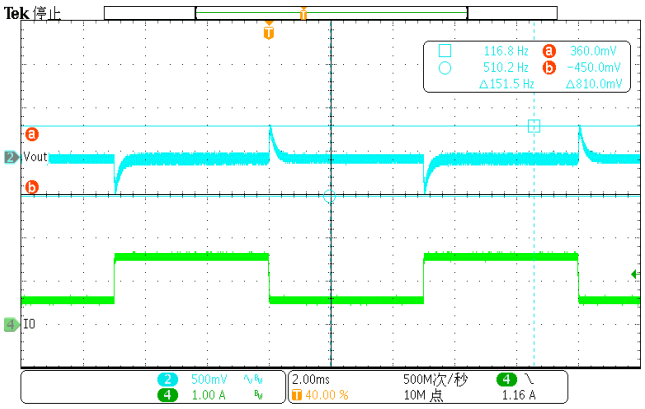
Adbpm.,)Kjr m_jri Dgj _8-<



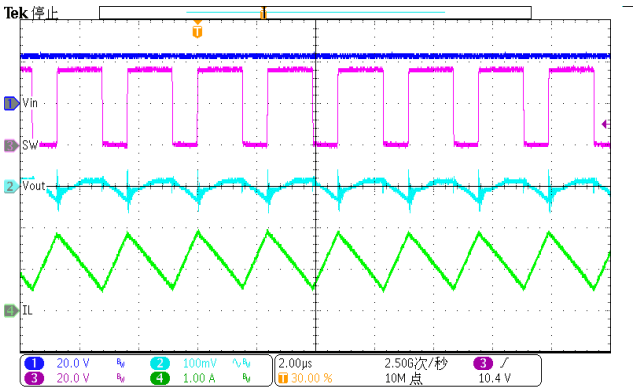
Adbpm.-)Ncpo_jri iomh



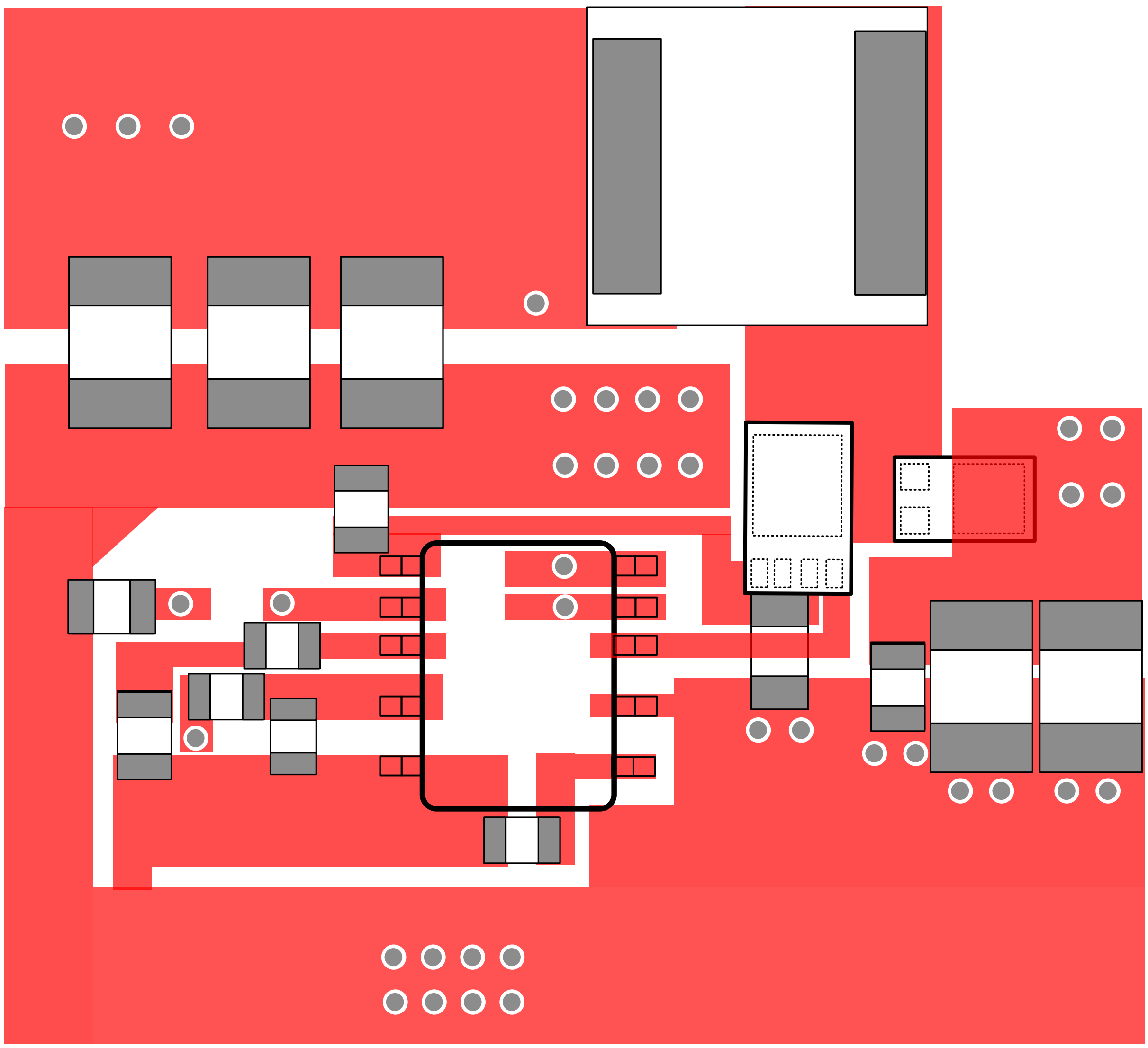
Adbpm..)Ncpo_jri mhjq



Adbpm./)Gj _Omin Dgj _8+)0<(,)0<

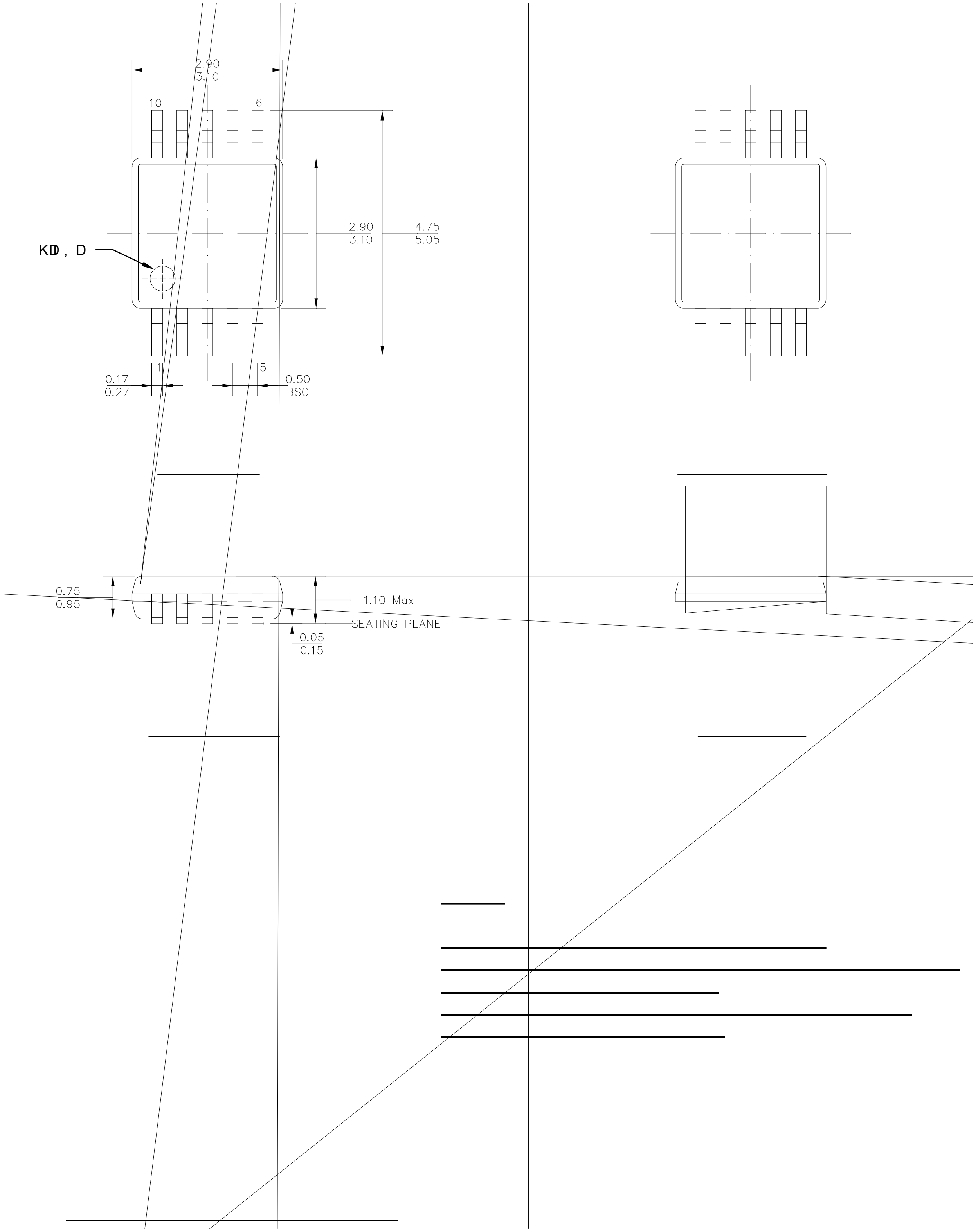


Adbpm.0)no _t(noo Dgj _8-<

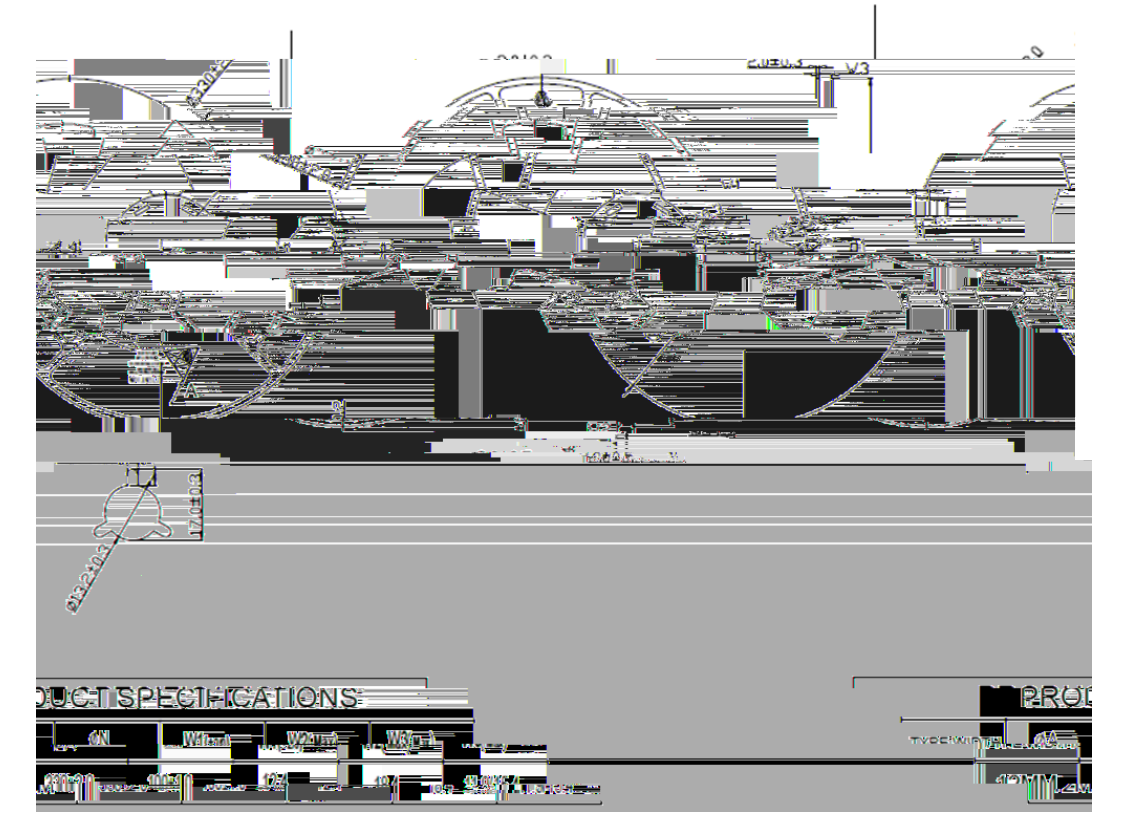


Adbpm . 1) =JJNOK>= G t j po

PACKAGE INFORMATION



TAPE AND REEL INFORMATION



Oc dlajrmh odji dl occdh_j ph iodhnp e odj c ib r odcjpoijod)Pn mnncjpg_r rmmio i_bp mio oc occdh_ k mdt DDo gg qp gKmjk mdt mdbcon m ijoidlandlb _pkji r c i dlobmodlb Ndgdji >jioioO cijgibt N>O kmj_p on dlcj it kkgdl odji)N>Or dggijo nnph it gb gmnkjindgdta jm i t n d_ kkgdl odjin)