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

FEATURES

- T fab Fkmrq Sl iq db O kdb 70+ S*2- S
- I l t Perqal t k r odbkq0+6r >
- I l t Nr fbp bkq Lmbo qfkd r odbkq71. 2r >
- (,* -2" Cbba_ h Obdbdbk b Sl iq db
- > agrpq _ib Pt fq efkd Cdbnr bk v7 - - hEw q / + J Ew
- Budpdk i Cdbnr bk v Pvk ed kf
- Budpdk i l j mbkp qf k
- Mr ipb Phfmmfkd J l ab
- Pr mml oqp aafqf k i Pil mb l j mbkp qf k
- . 1 j p Fkdpdk i Pl oq*pq oqCqfj b
- Fkdpdo dpa Mdpdp qf k Cb q db
  - * l kpq kq Mb h* r odbkq Mdpdp qf k Qedbpel ia L sbo Fkmrq Sl iq db
  - * L r qmrq Lsbosl iq db Mdpdp qf k
  - * > agrpq _ib Rkabo*sl iq db I l hl r q
  - * Qebojb i Perqal t k Mdpdp qf k 7. 32
- J PL M*. - l %0j j '0j j &

DESCRIPTION

Qeb P Q5. 3/1 absf b fp t fab fkmrq kl k* pvk ed kl r p_ l l pq l kqd iibo Qeb absf b k_b rpba fk l l pq PBMF ka Civ_ h l ksbodpqp+

Qeb pt fq efkd odbnr bk v l c qeb P Q5. 3/1 absf b k _b agrpdpa q kv s ir b_bq bbk - - hEw ka / + J Ew _v r pfkd pfkdib budpdk i dbpfpq ol o_v pvk ed kfwfkd fqq k budpdk i il h+ r odbkq j l ab l kqd i mdsfabp prmbdf o_ kat faqe ka qp kpfbkq dbpmlkpb fk aafqf k q v ib*_v* v ib r odbkq ifj fqfkd+ r odbkq ifj fq fp agrpq _ib qed r de k budpdk i dbpfpq o+

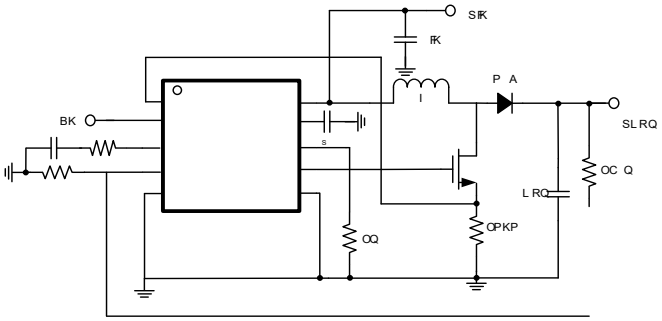
Qeb P Q5. 3/1 absf b e p_ r fq*fk mdpdp qf k db q dbp pr e p qebojb i perqal t k) pel oq* fo r fq mdpdp qf k ka l sbosl iq db mdpdp qf k+ M t bo*p sfkd perqal t k j l ab dbar bp qebq q i prmmiv r odbkq q 0+6 > + Fkdpdo dpa r odbkqqpil mb l j mbkp qf k pfj mfdbp qeb abpfdk ka) fc kbbabad o pmb fcf mmif qf kp) k_b fk db pba r pfkd pfkdib dbpfpq o+

Qeb absf b fp s fi _ib fk J PL M*. - l %0j j '0j j & M h db+

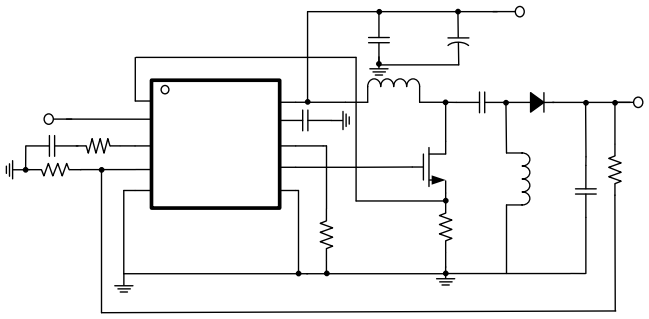
APPLICATIONS

- J r iqf*l r qmrq Civ_ h
- l BA f p Prmmiv
- M oq _ib Pmb hbo Prmmiv
- qbpov M t bdba l l pq Civ_ h, PBMF mmif qf k

TYPICAL APPLICATION



L L PQ



PBMF

REVISION HISTORY

KLQB7M db kr j _bop d omobsfl rp obsfpfl kp j v afccbo cd j m db kr j _bop fk qeb r oobkq sbopfl k

Obsfpfl k . + 7Obib pba q j dnbq

Obsfpfl k . +: 7Rma dp Absf b L oab Fkd oj q l k

Obsfpfl k . +/ 7Rma dp Absf b L oab Fkd oj q l k)> _pl ir qb J ufj r j O qfkdp ka L mbo qfl k pb qfl k

DEVICE ORDER INFORMATION

P Q5. 3/1 J OAO	Q mb Obbi	1---	. 3/1	. -	J PL M*. - l	0

ABSOLUTE MAXIMUM RATINGS

L sbo l mbo qfkd cobb* fo dp j mbo qr ob r kibpp l qebot fpb kl qba [%&]

SFK) RSI L BK	*- +0	3/	S
S) AO %A sl iq db&	*- +0	3+3	S
S) AO %o kpfbkq c o 9/ - kp&	*. +	4+	S
FPBK) L J M) C) C>,PVK ,PA	*- +0	2+2	S
Mb h Afsbo L rqmr q r oobkq		. [%&]	>
Gr k qfl k qbj mbo qr ob [%&]	*1-	. 2-	
Pql o db qbj mbo qr ob Q$_{PQD}$	*32	. 2-	

PIN CONFIGURATION

%& Pqobppbp _bvl ka qel pb ifpqba r kabo > _pl ir qb J ufj r j O qfkdp j v r pb abs f b mbo j kbkq a j db+ Qeb abs f b fp kl q dr o kqbba q cr k qfl k l r qpfab l c fqp Ob l j j bkaba L mbo qfl k L kafqfl kp+

%& Dr o kqbba _v abpfdk) kl q qbpqba fk mol ar qfl k+

%0& Qeb F fk ir abp l sbo qbj mbo qr ob mol qb qfl k qmol qb qp qeb absf b ar ofkd l sbol ak Fkafqfl kp+ Gr k qfl k qbj mbo qr ob t fii bu bba 4- t ebk l sbo qbj mbo qr ob mol qb qfl k fp qfsb+ L kqfkr lrp l mbo qfl k _ sb qeb pmb fcfba j ufj r j l mbo qfkd gr k qfl k qbj mbo qr ob t fii obar b ifcbqfj b+

PIN FUNCTIONS

FPBK	.	r oobkq pbkpb fkmr q mfk+ L kkb q q qeb ml pfqfsb pfab l c qeb r oobkq pbkpb obpfpql o qel r de pel oq m qe+
RSI L BK	/	Rkabosl iq db il hl r q mol do j j fkd mfk+ Qeb L ksbobopo pq q*r m ka per qal t k ibsbip k _b mol do j j ba _v L kkb qfkd qefp mfk q qeb pr mmiv sl iq db qel r de obpfpql o afsfabo+ Qefp mfk j r pq kl q _b ibcq l qfkd+ L kkb q q SFK mfk fc kl q r pba+
L J M	0	L r qmr q l c qeb fkqbok i q p kp L kar q k b bol o j mifcfbo+ L kkb q qeb ill m L j mbkp qfl k L j ml kbkqp _bq bbk qefp mfk ka dol r ka+
C	1	Fksbo qfkd fkmr q l c qeb bol o j mifcfbo+ L kkb q sl iq db afsfabo cobj qeb l r qmr q q qefp mfk q pbq l r qmr q sl iq db+ Qeb absf b obdri qbp C sl iq db q qeb fkqbok i obcbobk b s ir b l c . +/ 42S qvmf i+

PIN FUNCTIONS (continued)

C>,PVK ,PA	3	Pt fq efkd cdonrbk v pbdpqfkd mfk+ Qeb pt fq efkd cdonrbk v fp mol do j j ba _v pfkdib dopfpqlo _bq bbk qefp mfk ka >DKA+ Qeb fkqbok i il h k_b pvk ed kfwba q k buqbok i il h+> efde ibsbi l k qefp mfk d o 0- p t fii q ok qeb absf b l cc ka qeb absf b t fii qebk ao t 0+6 > cod j qeb pr mmiv qvmf iiv+
MDKA	4	M t bo dol r ka mfk+
AO	5	K* e kkbi JLPCBQ d dp adfsb l r qmr q+ I kkb q afdb qiv q qeb d dp l c qeb K* e kkbi JLPCBQ qed r de pel oq il t fkar q k b m qe+
S	6	L r qmr q l c qeb fkqbok i S dodr i q o ka pr mmiv sl iq db fkmr q l c qeb JLPCBQ adfsbo+ I kkb q bo j f _vm pp m fq od j qefp mfk q MDKA+
SFK	.-	M t bo pr mmiv fkmr q mfk

RECOMMENDED OPERATING CONDITIONS

L sbo l mbo qfkd cdobb* fobb j mbo q dob o kdb r kibpp l qebot fpb kl qba

SFK	Fkmr q sl iq db o kdb	0+	2-	S
S	S sl iq db o kdb	0+	3+	S
QG	L mbo qfkd gr k qfl k qbj mbo q dob	*1-	./2	

ESD RATINGS

SBPA	Er j k l av Jl abi%E J& mbo >B *N.--*--/	*/	(/	hS
	e odba Absf b Jl abi% AJ & mbo >B *N.--*-..	*.	(.	hS

THERMAL INFORMATION

O G>	Grk qfl k q j _fbkq qebo j i dobpfpq k b%*&	.1/+0	,T
O G %q m&	Grk qfl k q pb %q m& qebo j i dobpfpq k b%*&	31+3	
O G	Grk qfl k q _l oa qebo j i dobpfpq k b%*&	64+0	

%*&P Q mol sfabp O G> ka O G kr j _bop l kiv p dobobok b q bpqfj dopgrk qfl k qbj mbo q dobp l c qeb absf bp+ O G> ka O G do kl q e o dopdofpqf l cm h db fopbic) _rq l cj kv l qebo pvpqbj ibsbi e o dopdofpqf p pr e p qeb abpfdk ka i vl r q l c qeb mdkqba fo r fq _l oa %M &l k t ef e qeb P Q5.3/1 fp j l rkqba)qebo j i m a pfwb) ka buqbok i bksfol kj bkq i c q op+ Qeb M _l oa fp eb qpfkh qe q fp pl iabdoba q qeb ib ap ka qebo j i m a l c qeb P Q5.3/1+ e kdfkd qeb abpfdk l o l kcfdr o qfl k l c qeb M _l oa e kdbp qeb bcf fbk v l c qeb eb qpfkh ka qebobcl db qeb q i O G> ka O G+

ELECTRICAL CHARACTERISTICS

SFK: . / S)QG: *1- . / 2)qymf i s ir bp do dppdpa rkabo/ 2 +

SFK	L mbo qfkd fkmrqsl iq db		0+		2-	S
SFK RSI L	Fkmrq RSI L Evpqbobpfp	SFK dpfkd		/ +6 . 3-		S j S
FPA	Per qal t k r qdbkq	SC>,PV K,PA: 2S l o SRSI L BK: -		0+6	5	r >
FN	Nr fbp bkq r qdbkq qdj SFK	kl il a) kl pt fq efkd) SC : / S		1 . 2		r >
FPRMMV[%&]	Pr mmiv r qdbkq	OC>,PVK ,PA: 14+2h) pt fq efkd) kl il a ka t fqel r qbuqbpk i J L PCBQ		/		j >
S	Fkqbpk i ifkb oqdbdri q o	SFK 4S		3+		S
S rsil				/ +52		S
S rsil evp				42		j S
FS	S Pl r o fkd r qdbkq ifj fq		/ -	4-		j >
UVLO/EN						
SRSI LPBK	Rkabo sl iq db l l hl r q qdbdbdbk b sl iq db	SRSI L o j mfkd r m	. +01	. +/ /	. +2	S
FRSI L	RSI L pl r o b r qdbkq		0	1 +42	3 +2	r >
SRSI LPA	RSI L per qal t k sl iq db	SRSI L o j mfkd al t k	- +22	- +32	- +42	S
SOBC	Obdbdbk b sl iq db l c C		. +/ 23	. +/ 42	. +/ 61	S
FC	C mfk ib h db r qdbkq	SC : . S			. - -	k>
DB>	Bol o j mifdbqp kp* l kar q k b	S L J M: . +2S	. 6-	06-	26-	r P
FL J M PO	Bol o j mifdbo j ufj r j pl r o b r qdbkq	SC : SOBC*/ - - j S) S L J M: . +2S	01 -	23-	4. -	r >
FL J M PKH	Bol o j mifdbo j ufj r j pfkh r qdbkq	SC : SOBC(/ - - j S) S L J M: . +2S	*. 2-	*62	*1 -	r >
S L J M E	L J M efde i j m	SC : - +5S	. +6	/ +22	0+/	S
S L J M I	L J M il t i j m	SC : . +4S	- +1	- +55	. +/	S
OAPLK QL M	Adfsb qpt fq e l k bpfpq k b%q m&	FAO: - + >		0		
OAPLK ILT	Adfsb qpt fq e l k dbpfpq k b%l qj &	FAO: - + >		/		
Spbkpb	r qdbkq pbkpb qedbpel ia		. / -	. 13	. 4-	j S

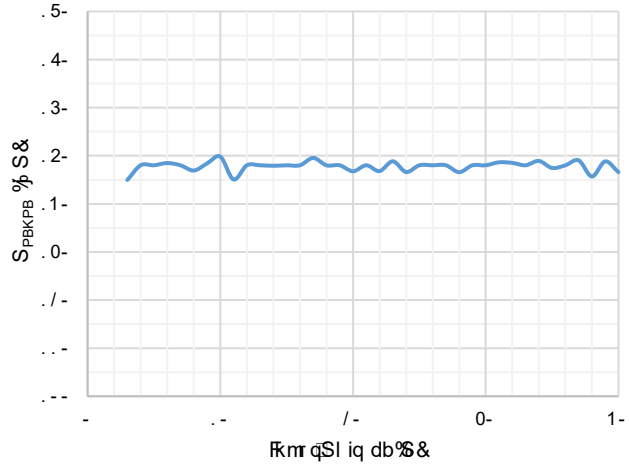
ELECTRICAL CHARACTERISTICS (continued)

SFK: . / S)Q G *1- . / 2)qymf i s ir bp dod pp da r kabo / 2 +

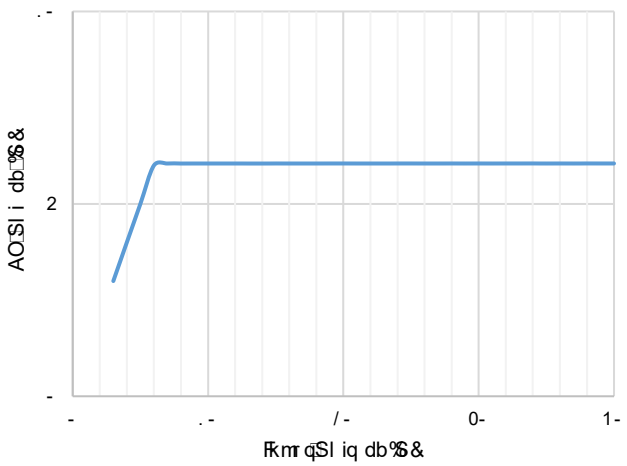
QPP	Pl oq*pq oqQfj b			.1		j p
CPT	Pt fq efkd oonr bk v	OC>,PVK ,PA: 14+2h	012	1--	122	hEw
PVK EF	Qedopel ia d oPvk ed kfw q kl k C>,PVK ,PA mfk	Pvk ed kfw q k sl iq db dpfkd		.+/4	.+12	S
PVK IL		Pvk ed kfw q k sl iq db c iifkd	-+25	-+35		S
AJ>U	J ufj r j Ar qy v ib	OC>,PVK ,PA: 14+2h	52	6.		"
qLK JFK	J fkfj r j l k*qfj b	Opt : 1--hEw		/2-		kp
SPA EF	Per qal t k pfdk i qedopel ia l k C>,PVK ,PA mfk	Per qal t k sl iq db dpfkd		.+/4	.+12	S
SPA IL		Per qal t k sl iq db c iifkd	-+24	-+35		S
FPA IHD	C>,PVK ,PA mfk l b h db	SPA: 2S			.	r>
SLSQE%&	C l sbosl iq db qedopel ia	C dpfkd	/2	52	.02	j S
		Evpqdobpfp	0-	5-	.0-	j S
QPA%&	Qeboj i per qal t k qedopel ia	QG dpfkd		.32		
	Evpqdobpfp			/2		

%&Dr o kqpba _v abpfdk ka _bk e)kl qqdpqpa fk mol ar q k+
%&Dr o kqpba _v abpfdk)kl qqdpqpa fk mol ar q k+
%0&Qeb l sbosl iq db mol qb q k fp pmb fdba t fqe dbpmb qql qeb dbba _ h sl iq db+Qefp fp _b r pb qeb l sbosl iq db mol qb q k qp hp qeb dbba _ h sl iq db+Qeb l sbosl iq db qedopel ia k _b i r i qpa _v aafkd qeb dbba _ h sl iq db %SC &ql qeb l sbosl iq db mol qb q k pmb fcf q k+

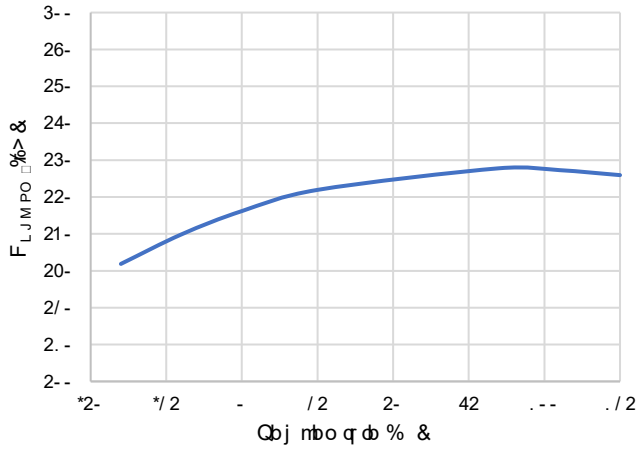
TYPICAL CHARACTERISTICS



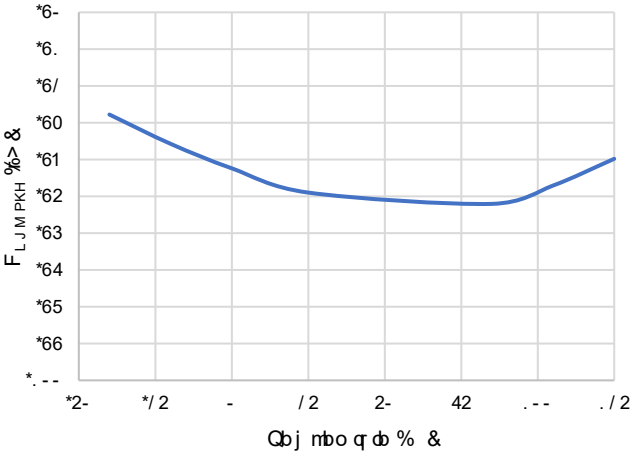
Cfdr do 4+ r odokqPbkpb Qedopel ia sp+Fkmr qSl iq db



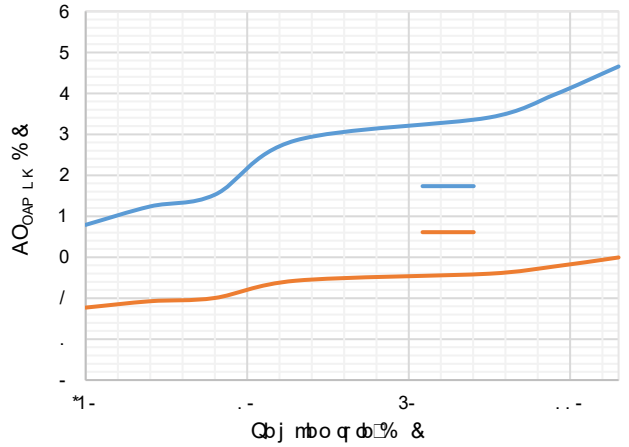
Cfdr do 5+AO Sl i db sp+Fkmr qSl iq db



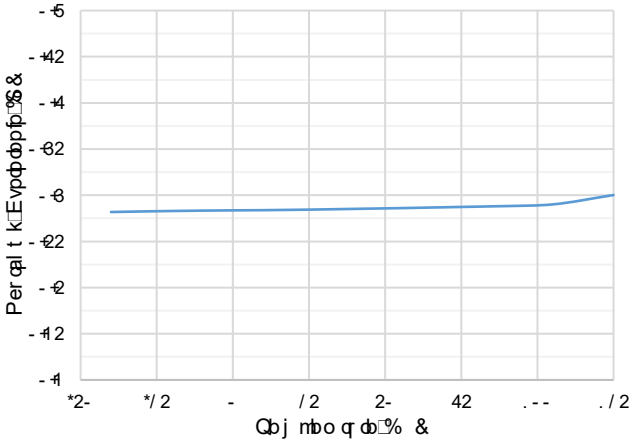
Cfdr do 6+ L J MPl r o b r odokqsp+Qbj mbo qr do



Cfdr do - + L J MPfkh r odokqsp+Qbj mbo qr do

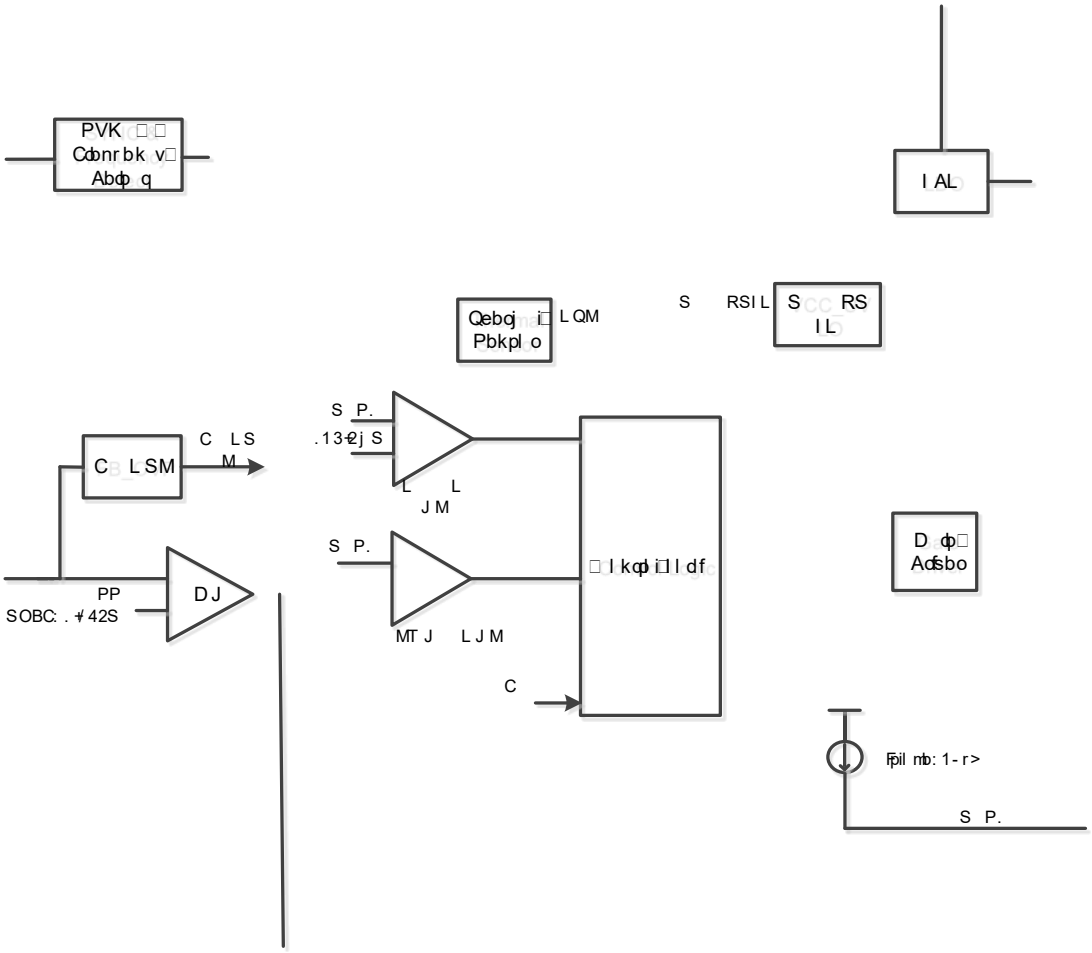


Cfdr do . +AO Obppfpq k b sp+Qbj mbo qr do



Cfdr do / +Per qal t k Qedopel ia Evpdpdopfp sp+Qbj mbo qr do

FUNCTIONAL BLOCK DIAGRAM



Cfdr db 0-ECr k qf k i il h Af do j

OPERATION

Qeb P Q5.3/1 absf b fp t fab fkmr qo kdb)kl k*pvk ed kl rp _l l pq l kqol iibo qe qrpbp mb h* r oobkq j l ab l kqol i+ Qeb absf b k_b rpba fk _l l pq)PBMF) ka iv_ h ql ml il dfbp+

Fk qvmf i mmif qfl k fo rfq)qeb mb h r oobkq qeo rde qeb buqbok i JLPCBQ fp pbkpba qeo rde k buqbok i pbkpb obpfpql o+Qeb sl iq db o pp qefp obpfpql o fp oba fkq qeb FPKP mfk+Qefp sl iq db fp oba fkq qeb ml pfqfsb fkmrq l c qeb MT J l j m o ql o+Qeb l rqmrq sl iq db fp ipl pbkpba qeo rde k buqbok i oba_ h obpfpql o afsfabo kbq l oh ka oba fkq qeb bool o j mifcfbo kbd qfsb fkmrq+Qeb l rqmrq l c qeb bool o j mifcfbo %LJM mfk& fp aaba ql qeb pil mb l j mbkp qfl k o j m ka oba fkq qeb kbd qfsb fkmrq l c qeb MT J l j m o ql o+>q qeb pq oq l c kv pt fq efkd v ib)qeb l p fii ql o pbqp qeb OP i q e rpfkd qeb pt fq e il df _il h+Qefp q o bp efde pfdk il k qeb AO mfk %q dp l c qeb buqbok i JLPCBQ& ka qeb buqbok i JLPCBQ qr okp l k+T ebk qeb sl iq db l k qeb ml pfqfsb fkmrq l c qeb MT J l j m o ql o bu bbap qeb kbd qfsb fkmrq)qeb OP i q e fp obpbq ka qeb buqbok i JLPCBQ qr okp l cc+Qeb sl iq db pbkpba o pp qeb pbkpb obpfpql o abkbo iiv l kq fkp pmr of rp kl fpb pmfhbp+Qebpb pmfhbp k o b qeb MT J l j m o ql o ql obpbq qeb OP i q e mobj qr obiv+Ql mobsbkq qebpb pmfhbp ql j obpbqqfkd qeb i q e) _i kh*l rq fo rfq fkpfab qeb F mobsbkqp qeb MT J l j m o ql o ql j obpbqqfkd qeb i q e a o pel oq ar o qfl k qbo qeb i q e fp pbq+Qefp ar o qfl k fp iiba qeb _i khfkd fkqbos i ka fp pmb fdba p j fkfj rj l k*qfj b fk qeb Bib qof i e o qbofpqf p pb qfl k+Rkabo buqobj biv ifdeq*il a l okl *il a l kafqfl kp)qeb bkbodv abifsbobap ql qeb l rqmrq m fql o ebk qeb buqbok i JLPCBQ fk l k ar dfkd qeb _i khfkd fkqbos i fp j l ob qe k t e q fp abifsbobap ql qeb il a+>k l sbo*sl iq db l j m o ql o fkpfab qeb P Q5.3/1 mobsbkqp qeb l rqmrq sl iq db ol j dbqqfkd rkabo qebpb l kafqfl kp+Qeb l sbo*sl iq db l j m o ql o pbkpbp qeb oba_ h %C mfk& sl iq db ka obpbqp qeb OP i q e+Qeb i q e obj fkp fk obpbq pq qb rkqfi qeb l rqmrq ab vp ql qeb kl j fk i s irb+

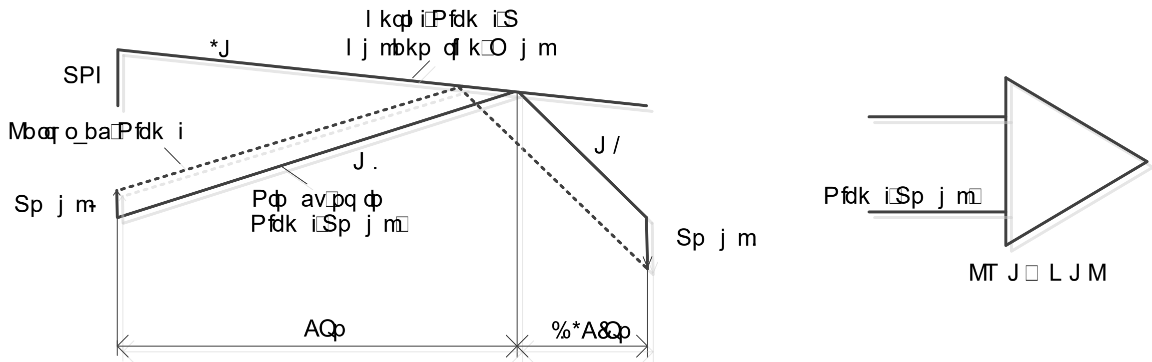
Qeb P Q5.3/1 t l ohp qMriqpb phfmj l ab ql obrq qeb bofk do pb qeb bcf fbk v fk ifdeq il a l kafqfl k+

Qeb nrfop bkq r oobkq l c P Q5.3/1 fp 1.2r> qvmf i rkabo kl *il a l kafqfl k ka kl pt fq efkd+Afp _ifkd qeb absf b) qeb qvmf i pr mmiv per oal t k r oobkq l k SFK mfk fp 0+6 >+

Qeb P Q5.3/1 e p l sbo sl iq db mol qb qfl k %LSM&q o qeb l rqmrq sl iq db+LSM fp pbkpba qq qeb oba_ h mfk %C &+ Fc q kv qfj b qeb sl iq db qq qeb oba_ h mfk bpbp ql .+03S %qvm+&)LSM fp qofddbob a+LSM t fii rpb qeb AO mfk ql dl il t)ql o fkd qeb ml t bo JLPCBQ l cc+T fqe qeb JLPCBQ l cc)qeb l rqmrq sl iq db t fii al m+Qeb P Q5.3/1 _bdfkp pt fq efkd d fk t ebk qeb oba_ h sl iq db ob ebp .+/5S %qvm+&+

Qeb fkqbok i _f p l c qeb P Q5.3/1 l j bp ol j bfqebo qeb fkqbok i _f p sl iq db dbkbo ql o ol ol j qeb sl iq db qq qeb SFK mfk+>q fkmrq sl iq dbp il t bo qe k 3S qeb fkqbok i F _f p fp qeb fkmrq sl iq db ka qsl iq dbp _l sb 3S qeb fkqbok i _f p sl iq db dbkbo ql o l c qeb P Q5.3/1 mol sfabp qeb _f p+Qeb d qb*aofsbo pr mmiv sl iq db S obnrfobp k buqbok i _vm pp m fql o+Ob l j j bka S m fq k b fp . C)al kl q mi b m fq k b bu bbafkd /+/ C+ Al kl q _f p qeb S mfk _v k buqbok i sl iq db pl r ob+

Qeb P Q5.3/1 rpbp r oobkq j l ab l kqol i p ebj b+Qeb j fk as kq dbp l c r oobkq j l ab l kqol i o bfkebobkq v ib*_v* v ib r oobkq ifjfq ol o qeb pt fq e ka pfj mibo l kqol i il l m e o qbofpqf p+El t bsbo) r oobkq j l ab l kqol i e p Pr _*e oj l kf Lp fii qfl k t ebk ar qv v ib fp dob qbo qe k 2-" +Ql mobsbkq qeb Pr _*e oj l kf l p fii qfl kp) l j mbkp qfl k o j m fp aaba ql qeb l kqol i pfdk i+



Cfdrob .1+ Pr _*E oj l kf Lp fii ofl k d oA -+2 ka l j mbkp ofl k O j mol >sl fa Pr _*E oj l kf Lp fii ofl k

Qeb r odbkq j l ab l kqol i p ebj b p j mibp qeb fkar qlo r odbkq)F) ka l j m dop qeb p j miba pfdk i)S$_{p j m}$) q fkqpdk iiv dbkbo qba l kqol i pfdk i)S +Qeb r odbkq pbkpb dop fpqlo)O$_{PBK}$) p pel t k fk Cfdrob .2 l ksboqp qeb p j miba fkar qlo r odbkq)F) q qeb sl iq db pfdk i)S$_{p j m}$) qe q fp mol ml oqfl k i q F pr e qe q:

$$E_P = A_B \qquad (\%\&\%)$$

Qeb l j mbkp ql k o j me p _bbk aaba fk ok iiv fk qeb P Q5.3/1+Qeb pil mb l cqefp l j mbkp ql k o j me p _bbk pbib qpa q p qfpov j l pq mmif qfl kp) ka fp s irb abmbkabkq l k qeb pt fq efkd cobnrbk v+Qefp pil mb k_b i ri qpa rpfkd qeb c oj ri 7

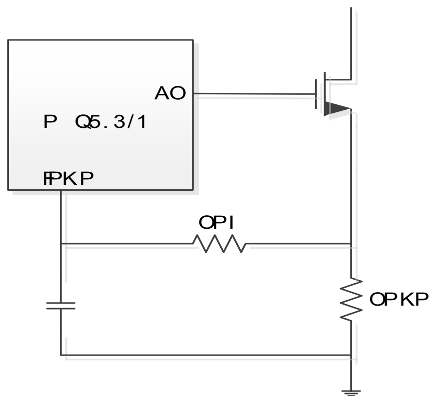
$$_R = E_B$$ %6&

S$_{PI}$ fp qeb j mifqrab l c qeb fkqbok i l j mbkp qfl k o j m ka C$_P$ fp qeb l kqol iibo pt fq efkd cobnrbk v+

Cl oj l ob cibuf_fifqv) pil mb l j mbkp qfl k k_b fk ob pba _v aafkd l kb buqbok i obpfpql o) O$_{PI}$) fk qeb FPBK p m qe+ Cfdr ob .2 pel t p qeb pbqr m+Qeb buqbok iiv dbkbo qpa pil mb l j mbkp qfl k fp qebk aaba ql qeb fkqbok i pil mb l j mbkp qfl k l cqeb P Q5.3/1+T ebk rpfkd buqbok i pil mb l j mbkp qfl k) qeb c oj ri c oJ _b l j bp7

$$_R = 1E_B + A_B\,2\quad)$$ %-&

> qvmf i s irb c oc q oH fp 1- > +



Cfdr ob .2+ Buqbok i OPI q fk ob pb pil mb l j mbkp qfl k

Qeb absf b mol sfabp v ib*_v* v ib mb h r obkq ifj fq mol qb qfl k qe qqr dkp l cc qeb J L PCBQ t ebk qeb pr j l cqeb fkar ql o r obkq ka qeb mol do j j _ib pil mb l j mbkp qfl k o j mob ebp qeb r obkq ifj fq qeobpel ia+Mb h fkar ql o r obkq ifj fq %F$_{MB>H*\,I}$ &fk pqp av pq qb fp i ri qpa p pel t k fk 7

$$= \frac{E_B\ _B\ -=9d\ \times A_B\ \times}{A_B\ _B}$$ %.&

T ebob

- S$_{PBKPB}$ fp FPBK mfk ifj fqfkd sl iq db %Qvm+: .13+2j S&
- F$_{MB>H*\,I}$ fp qeb fkar ql o mb h r obkq ifj fq
- O$_{PI}$ fp Pil mb l j mbkp qfl k obpfpql o
- A fp Ar qv v ib
- O$_{PKP}$ fp qeb Fkar q k b mb h r obkq abqb qfl k obpfpq k b

T ebk l sbol ae mmbkp) qeb l ksbqbo kkl qmol sfab l rqmrq r obkq q p qfpov il afkd cbnrfobj bkq+Qeb fkar ql o r obkq fp i j mba ql sbo r obkq ifj fq ql k+Qerp) qeb l rqmrq sl iq db ao mp _bil t cbdri qpa sl iq db t fqe C sl iq db ibpp qe k fkqbok i cbcbobk b sl iq db l kqfkrl rpiv+Qeb fkqbok i L J M sl iq db o j mp r mq efde+

b rpb A k_b s of _ib r kabo afccbobkq Sfk) F$_{MB>H*\,I}$ fp kl qpq _ib r kabo afccbobkq Sfk t ebk rpfkd buqbok i pil mb l j mbkp qfl k obpfpql o+ PI c o k ro qp mb h r obkq ifj fq l mbo qfl k l sbo qeb fkmrq prmmiv sl iq db) P Q qo l j j bkap rpfkd l kiv qeb cfuba pil mb l j mbkp qfl k+

Qeb lrqmrq slq db fp pbq_v k buqbok i dopfpqlo afsfabo OC Q ka OC fk qvmf i mmif q lk p ebj q f +> j fkfj r j rodbkq l cqvmf i/-r> dl t fkd qeb lrqde dbba_ h dopfpqlo afsfabo fsbp dl l a r o v ka kl fpb l sbo fkd+ Qeb s irb l c OC Q k_b i r i qba_v Bnr q l k . / +

$$A_C = \frac{E_{DC} - E_A}{E_A} \times A \qquad \%/\&$$

t ebob7

S$_{OBC}$ fp qeb dbba_ h dbdbdbk b sl iq db) qvmf i . +/ 42S

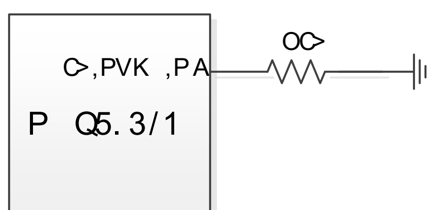
Qeb pt fq efkd dbnrbk v l c qeb P Q5. 3/1 k_b agrpqba_bq bbk . - - hEw ka / +/ J Ewr pfkd pfkdib buqbok i dopfpqlo+ Qefp dopfpqlo j rpq_b l kkb qba_bq bbk qeb C>,PVK ,PA mfk ka dol rka+ Bnr q l k . 0 k_b r pba q bpqfj qb qeb dbnrbk v agrpqdopfpqlo+

$$1\ \Omega 2 = \frac{99}{U\ f1\ \ i\ 2} - 7 \qquad \%0\&$$

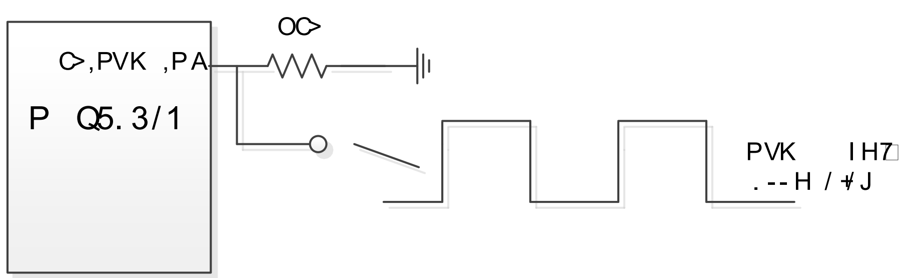
Qeb P Q5. 3/1 k ipl _b pvk ed l kfwba q k buqbok i il h+ Qeb buqbok i il h j rpq_b l kkb qba_bq bbk qeb C>,PVK ,PA mfk ka dol rka) p pel t k fk Cfdr ob . 3+ Qeb dbnrbk v agrpq dopfpqlo j v dbj fk l kkb qba t efib pvk ed l kfwkd pfdk i) qeb dbd db fc qeb db fp il pp l c pfdk i) qeb pt fq efkd dbnrbk v t fii _b pbq_v qeb dbnrbk v agrpq dopfpqlo+

Qeb C>,PVK ,PA mfk ipl r k q fkp p per qal t k mfk+ Fc efde pfdk i %. +/ 4S& mmb qp l k qeb C>,PVK ,PA mfk l sbo 0- P) qeb P Q5. 3/1 pq mp pt fq efkd ka dl bp fkq il t r dbbk q j l ab+ Qeb q q i pr mmiv r dbbk q l c qeb F dbar bp q 0-6 >) qvmf iiv) r kab qebpb l kafqfl kp+

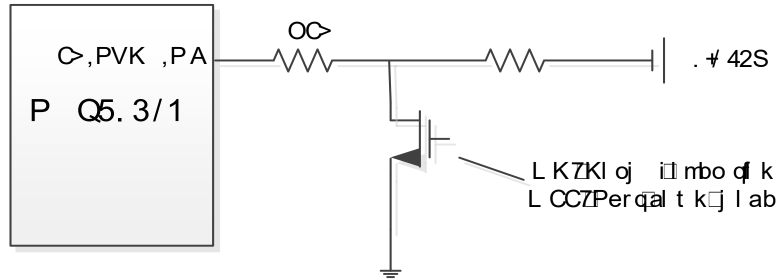
Cfdr ob . 5 ka Cfdr ob . 6 pel t k fj mibj bkq qfl k l c per qal t k r k qfl k t ebk l mbo qfkd fk dbnrbk v agrpq j l ab ka pvk ed l kfwb qfl k j l ab) dbpmb qfsbiv+ Fk dbnrbk v agrpq j l ab) l kkb qfkd qeb C>,PVK ,PA mfk q dol rka d o bp qeb il h q r k q bq fk dbnrbk v+ Mr iifkd qefp mfk efde per qp al t k qeb F + Fk dbnrbk v agrpq l o pvk ed l kfw qfl k j l ab) efde pfdk i d o j l b q e k 0- p per qp al t k qeb F)



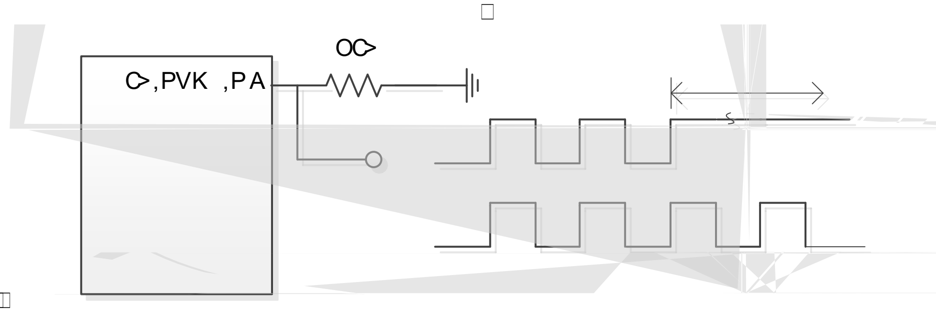
Cfdr ob . 3+ Cdbnr bk v > agrpq



Cfdr ob . 4+ Cdbnr bk v Pvk



Cfdr ob. 5+Per qal t k l mbo ql k fk Cobnr bk v>agr pq J l ab



Cfdr ob. 6+Per qal t k l mbo ql k fk Cobnr bk v Pvk ed k fw ql k J l ab

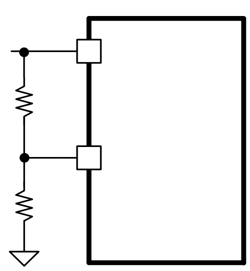
Qeb bucpck i RSIL dbpfpd oafsfabo j rpq_b abpfdkba pl qe qqeb sl iq db qqeb RSIL mfk fp ddb dpoqe k .+/ S qvmf i&t ebk qeb fkmr qsl iq db fp fk qeb abpfdba l mbo qfkd o kdb+Qeb s ir bp l c O. ka O/ k _b i ri qpa p pel t k fk Bnr ql k .1 ka Bnr ql k .2+

$$= \frac{E_{1\ 2} - E_{1\ 2}}{DE} \qquad (1)$$

t ebob

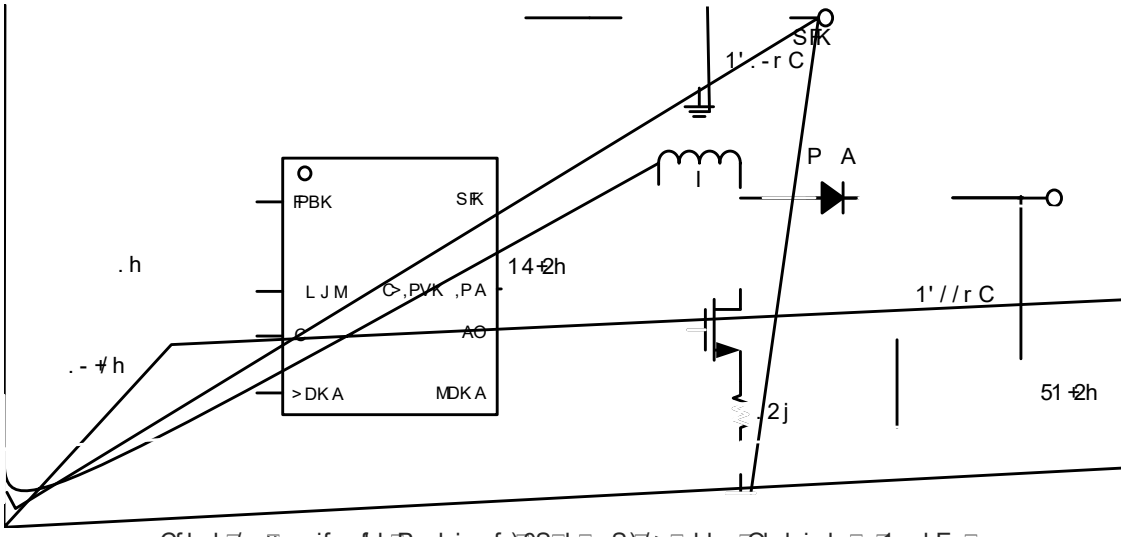
- $S_{FK\%K\&}$ fp qeb abpfdba pq oq r ml sl iq db l cqeb l ksbopo
- $S_{FK\%CC\&}$ fp qeb abpfdba qr okl c sl iq db l cqeb l ksbopo+

$$= \frac{E_{DE}}{E_{1\ 2} - E_{DE}} \qquad (2)$$



Cfdr ob /-+Pvpqbj RSIL Obpfpd oAfsfabo

APPLICATION INFORMATION



Cfdr do 7 . +> mmif ql k P ebj qf)0S q . S)7 > l l pq Obdri q o q1 - - hEw

Fkmr qSl iq db	2S KI oj i0S q . S
L r qmr qSl iq db	. / S
J ufj r j L r qmr q r odbkq	0>
Pt fq efkd Cdbnr bk v	1 - - HEw
L r qmr qsl iq db ofmmib %mb h q mb h&	42j S %l a: / > &

Qeb mbodoj k b l cfkar dq o ob qp qeb ml t bo prmmiv p pdp av pq dp l mbo q l k) qp kpfbkq _be sfl o) il l mpq _fifqv) ka _l l pq l ksbodpobcf fbk v+ Qeb fkar dq os irb) A dbpfpq k b) ka p qro q l k rodbkq fkdrbk bp _l qe bcf fbk v ka qeb j dkfqrab l c qeb l rqmrq sl iq db dfmmib+ l odbo fkar q k b s irb dbar bp fkar dq o rodbkq dfmmib ka qebodb ib ap q l ilt bo l rqmrq sl iq db dfmmib+ Cl o dfuba A dbpfpq k b) i odbo s irb fkar dq o vfbiap efdebo bcf fbk v sf dbar ba OJ P ka l do il ppbp+ El t bsbo) i odbo fkar dq ot fqefk dfsbk fkar dq oc j fiv t fii dbkbo iiv e sb ddo dpopbdbp dbpfpq k b) qebob _v l rkdpo qfkd qefp bcf fbk v as kq db+

Fkar dq os irbp k e sb /-" l obsbk 2-" dq ibo k bt fqe kl rodbkq _f p+ T ebk qeb fkar dq o rodbkq mmd ebp p qro q l k ibsbi) fqp fkar q k b k ab do pb /-" dq 02" dj qeb s irb q-*> rodbkq abmbkafkd l k el t qeb fkar dq os bkal oabckbp p qro q l k+ T ebk pbib qfkd k fkar dq o) el l pb fqp o dpa rodbkq bpmb f iiv qeb p qro q l k rodbkq i odbo qe k fqp mb h rodbkq ar fkd qeb l mbo q l k+

Ql i ri dp qeb rodbkq fk qeb t l opq pb) rpb qeb j fkfj r j fkmr q sl iq db) j ufj r j l rqmrq sl iq db) j ufj il a rodbkq ka j fkfj r j pt fq efkd dbnrbk v l c qeb mmif q l k) t efib l kpfabofkd qeb fkar q k b t fqe *0-" dq ibo k b ka il t *ml t bo l ksbopfl k bcf fbk v+

Cl o _l l q l ksbodpo) i ri dp qeb fkar dq oA rodbkq p fk Bnr q l k .3

%3&

T ebob

S L RQ fp qeb l rqmrq sl iq db l c qeb _l l pq l ksbodpo
E L RQ fp qeb l rqmrq rodbkq l c qeb _l l pq l ksbodpo
S FK fp qeb fkmr q sl iq db l c qeb _l l pq l ksbodpo
fp qeb ml t bo l ksbopfl k bcf fbk v

i ri dp qeb fkar dq o rodbkq mb h*q *mb h dfmmib) F MM) p fk Bnr q l k .4+

%4&

T ebob

F MM fp qeb fkar dq o mb h*q *mb h rodbkq
I fp qeb fkar q k b l c fkar dq o
c PT fp qeb pt fq efkd dbnrbk v
S L RQ fp qeb l rqmrq sl iq db
S FK fp qeb fkmr q sl iq db

Qebodc db) qeb mb h pt fq efkd rodbkq l c fkar dq o) F MB>H) fp i ri dpa p fk Bnr q l k .5

%5&

Pbq qeb rodbkq ifj fq l c qeb P Q5.3/1 efdebo qe k qeb mb h rodbkq F MB>H ka pbib q qeb fkar dq ot fqe qeb p qro q l k rodbkq efdebo qe k qeb rodbkq ifj fq+

Ar bq q qeb mdbpbk b l c k fkar dq o q qeb fkmr q l c _l l pq l ksbodpo) qeb fkmr q rodbkq t sbc oj fp l kqfkrl rp+ Qeb fkar dq obkpr dbp qe q qeb fkmr q m fq opbbp c fdv il t dfmmib rodbkqp+ El t bsbo) p qeb fkmr q m fq odbqp pj iibo) qeb fkmr q dfmmib dl bp rm+ Qeb OJ P rodbkq fk qeb fkmr q m fq ofp dfsbk rpfkd Bnr q l k .6+

$$1A\ B2 = \frac{1E\ DC - E\ 2\times E}{\sqrt{\ } \times E\ DC \times\ \times U\ f}$$

%6&

Qeb fkmrq m fdl opelria _b m _ibl ce kaifkd qeb OJP rodbkq+> iqelr de qeb fkmrq m fdl ofp kl q p dqf ifk _ll pq mmif qfl k)ilt s irbp k rpb fj mba k b fkdpo qfl kp+Qeb obdc ob) dll a nr ifqv m fdl opelria _b el pbk fk qeb o kdb l c .- C dl 1- C+Fc s irb ilt bo qe k .- C fp rpba) qebk mol _ibj p t fqe fj mba k b fkdpo qfl kp l opt fq efkd kl fpb k ob qqeb P Q5.3/1+Ql fj mol sb mbodc oj k b)bpmb f iiv t fqe Sfk _bil t 5 sl iqp) fqfp ob l j j bkaba ql rpb /+/ Lej dbpfpdl o qqeb fkmrq ql mol sfab k O cfdpo+Qeb dbpfpdl ofp mi ba fk pbofbp t fqe qeb SFK mfk t fqe l kiv _vm pp m fdl o qq eba ql qeb SFK mfk afdb qv+> -+* C l o.* C bo j f m fdl ofp kb bpp ov fk qefp l kcfdr o qfl k+Qeb _rih fkmrq m fdl o ka fkar ql ot fii l kkb ql k qeb l qebo pfab l c qeb dbpfpdl o qqeb fkmr qml t b opr mmiv+

T ebob

- I_D fp qeb d dp adfsb r obkq+

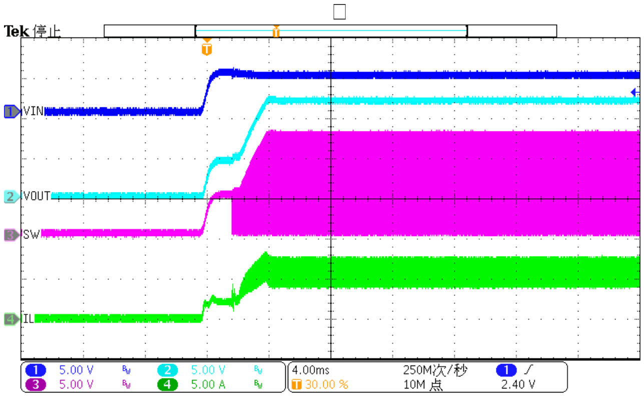
Qeb dq q i ml t bo afppfm qf k l c JLPCBQ fk ir abp l kar qf k il pp p pel t k fk qeb dfpqdpoj ka pt fq efkd il pp p pel t k fk qeb pb l ka dpoj +Qeb dq q i ml t bo afppfm qf k pel r ia _b t fqefk m h db qebo j i o qfkdp+

L _pbos qf k l c qeb _l l pq l ksbodpo fo r fq pel t p qe qqeb sbo db r obkq qeo r de qeb af l ab fp qeb sbo db il a r obkq) ka qeb mb h r obkq qeo r de qeb af l ab fp qeb mb h r obkq qeo r de qeb fkar qlo+Qeb af l ab pel r ia _b o dpa q e kaib j l ob qe k fqp mb h r obkq+Qeb mb h af l ab r obkq k _b i r i dpa rpfkd Bnr qf k /3+

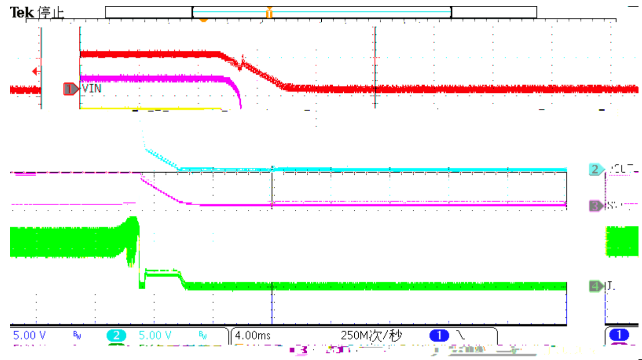
$$1 \quad 2 = \frac{DC}{1 - 2} + \Delta \quad) \qquad \%3\&$$

Qebo j iiv qeb af l ab j rpq _b _ib q e kaib qeb j ufj r j sbo db r obkq abifsbob a q qeb l rqmrq+Qeb mb h osbopb sl iq db c o _l l pq l ksbodpo fp bnr i q qeb dri dpa l rqmrq sl iq db+Qeb af l ab j rpq _b m _ib l c e kaifkd qefp sl iq db+Ql fj mol sb bcf fbk v) il t c d oa ad mp el qqhv af l ab fp do l j j bkaba+

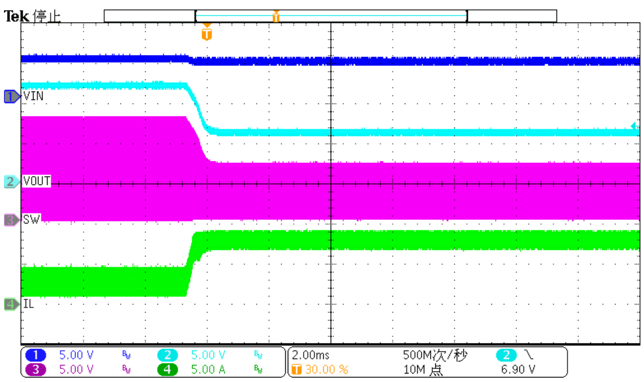
Sfk: 2S) Sl rq . / S) r kibpp l qebd fpb kl qpa



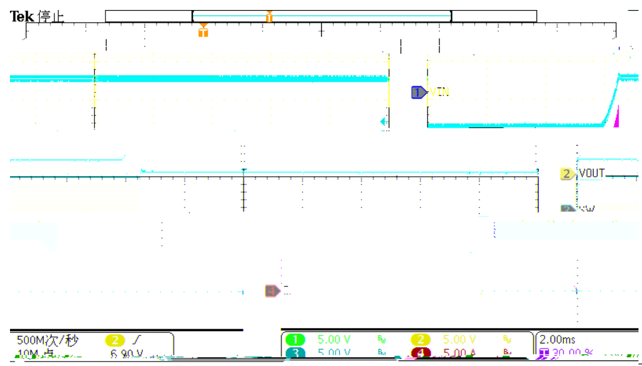
Cfdr do/ / +M t bo m%   a: / > &



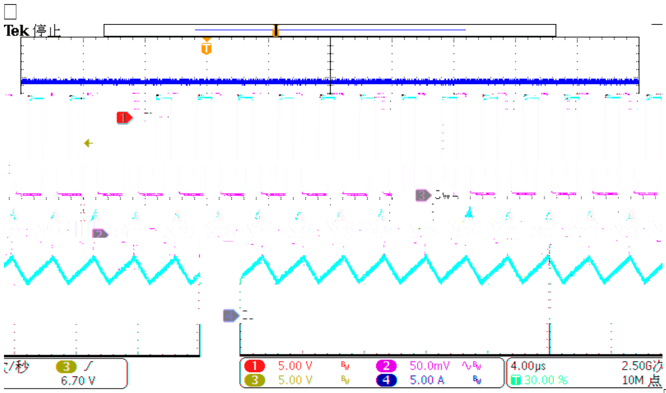
Cfdr do/ 0+M t bo al t k%   a: / > &



Cfdr do/ 1 +L sbo r obkq mdop ql k%   a: 2> &



Cfdr do/ 2+L sbo r obkq b l sbov%   a: 2> &



Cfdr do/ 3+P p av*pq dp %   a: / > &

Cfdr do/ 4+Pvk Cobnr bk v

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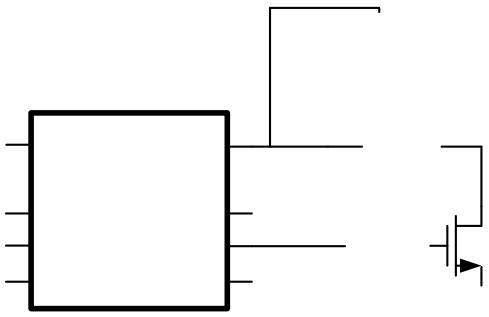


Cfdr do□/5+>mmif qf k□P ebj qf)□2S□q□2-S)□/>□Pbmf □Obdri q o□ q1--hEw□

Fkmr q□Sl iq db□	/1S□Kl oj i□2S□q□2-S□
L r qmr q□Sl iq db□	./S□
J ufj r j □L r qmr q□ r odbkq□	/>□
Pt fq efkd□Cdbnr bk v□	1--□HEw□
L r qmr q□sl iq db□dmmib□%mb h□q□mb h&	42j S□%l a:/>&

>dll a ori bd d oabdpoj fkfkd qeb fkar q k b dq rpb fp dq iilt qeb fkar dq olmb h*dq*mb h ofmmib rodbkq dq _b mmdufj dpiv /-" dq 1-" l ccqeb j ufj rj fkmrq rodbkq qceb j fkfj rj fkmrq sl iq db+Qeb rodbkq ofmmib dl t fkd fk fkar dq op l. ka l/ fp dfsbk _v7

$$\Delta = \times =9.\ )F) \times \frac{E}{E} \times =9.\ )) \qquad \%4\&$$

$$\Delta = \times =9.\ )F) \times =9.\ )) \qquad \%5\&$$

Kl oj iiv t b k pbib qbnr i s irb dc oc qeb fkar dq op l. ka l/) abdfsba p7

$$= = F)\frac{E}{\Delta \times U_{BF}} \times \quad _G) \qquad \%6\&$$

T ebob
 f_{PT} fp qeb pt fq efkd cbnrbk v+

Kl dp qe qc qeb p qr o dq k rodbkq l c fkar dq op pel ria _b dd o dp oc e k mb h rodbkq dl t fkd fk fkar dq op) dfsbk _v7

$$= + \frac{\Delta}{} =) \times \frac{E}{E} \times 1 + \frac{=9.\ )}{} 2) \qquad \%0-\&$$

$$= + \frac{\Delta}{} =) \times 1 + \frac{=9.\ )}{} 2) \qquad \%0.\&$$

Fcl. ka l/ dc t l rka fk p j b l dc p l r miba fkar dq o) qeb fkar q k b cbnr fdba t fii _b e ic arb dq qeb j rq i fkar dq k) i r i dpa _v7

$$= = - F)\frac{E}{\times \Delta \times U_{BF}} \times \quad _G) \qquad \%0/\&$$

Qeb d iil t fkd m o j bdpop pel ria _b q hbk fkq l kpfabo qf k d oJ L PCBQ7 qeb l k*dpfpq k b O$_{AP\ LK}$) qeb j fkfj r j d dp qe dpel ia sl iq db S$_{QE\ JFK}$) qeb d q i d dp e odb N$_d$) qeb dbsbopb op kpdbo m fq k b $_{OPP}$) ka qeb j ufj r j ao fk q pl r o b sl iq db S$_{N\ J>U}$+Qeb mb h pt fq efkd sl iq db _bq bbk ao fk q %f&Q /./ .2

Qeb afl ab qqeb l rqmr qpfab j rpqt fqepq ka qeb dosbopb sl iq db t ebk qeb J L P CBQ fp q okba*l k+Qeb mb h dosbopb sl iq db fp dfsbk _v7

$$E \quad = E \quad _G + E \quad _G)$$ %04&

Qeb afl ab pel ria ipl _b m _ib q dl t pt fq e mb h r odbkq F$_{N\ MB>H}$+

Qeb ml t bo afppfm qfl k l c qeb afl ab fp bnr i q qeb dl ot oa sl iq db ad m j r iqfmifbp l rqmr q r odbkq+P el qqhv afl abp do dob l j j bkaba ebdo q j fkfj fwb qeb ml t boil pp+

Cl o bo j f m fq op t fqe il t *BPO) qeb mb h q mb h sl iq db dfmmib l k l r mifkd m fq ofp bpq fj qpa _v7

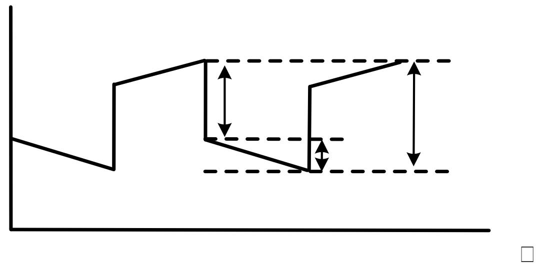
$$\Delta E_B = \frac{\times \quad _G}{_B \times U_{BF}})$$ %05&

Qeb j ufj r j sl iq db dl pp qeb l r mifkd m fq ofp j ufj r j fkmr q sl iq db+Qeb sl iq db o qfkd l c qeb l r mifkd m fq oj rpq _b do bo qe k fq+

Qeb OJ P r odbkq l c l r mifkd m fq ofp dfsbk _v7

$$_{B\ A\ B} = \quad \times \sqrt{\frac{E \ + E}{E}})$$ %06&

Qebdo fp i odb OJ P r odbkq qedl r de l r mifkd m fq o dbi qfsb q l rqmr q ml t bo+Bkpr do qeb l r mifkd m fq o



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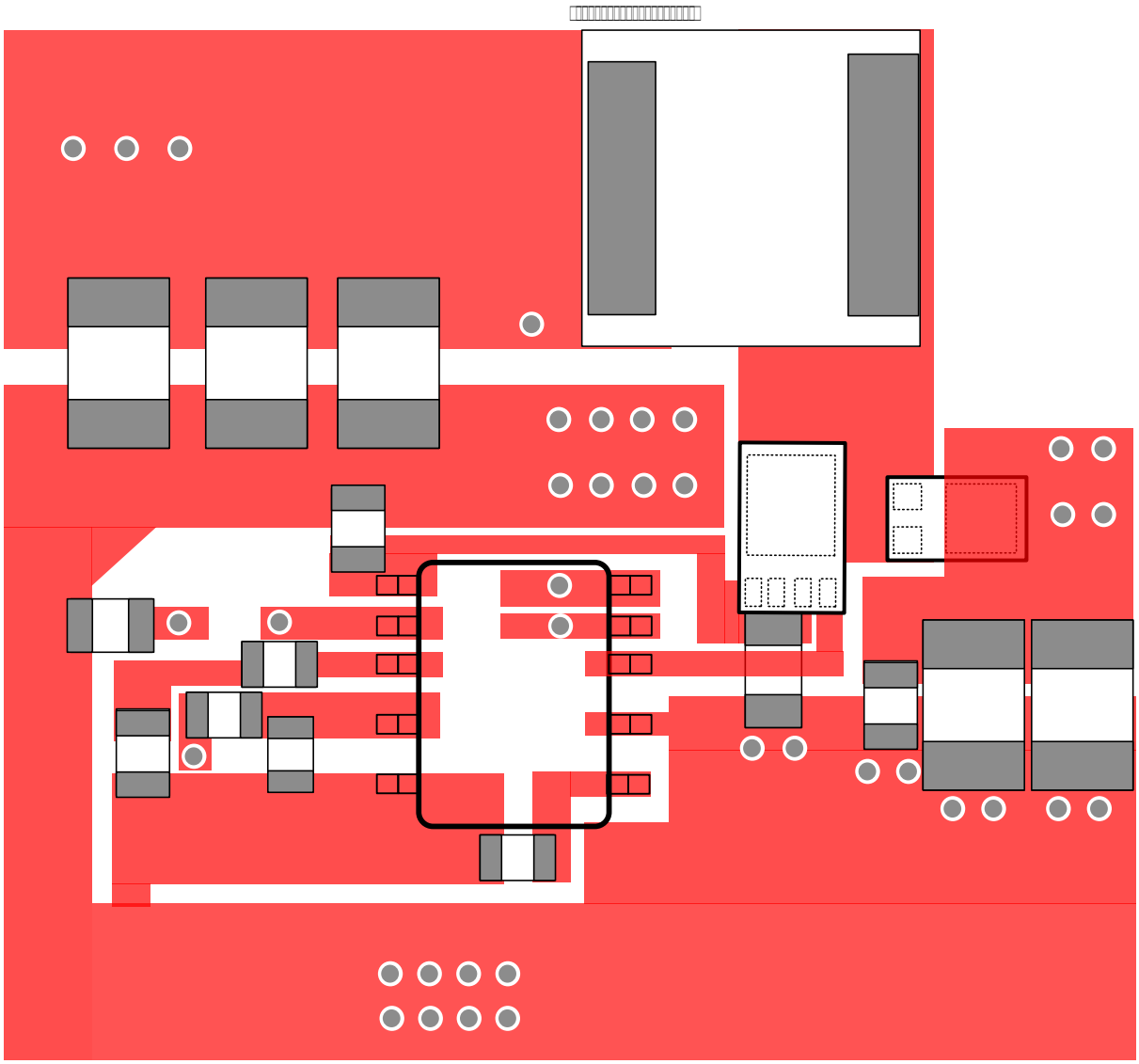

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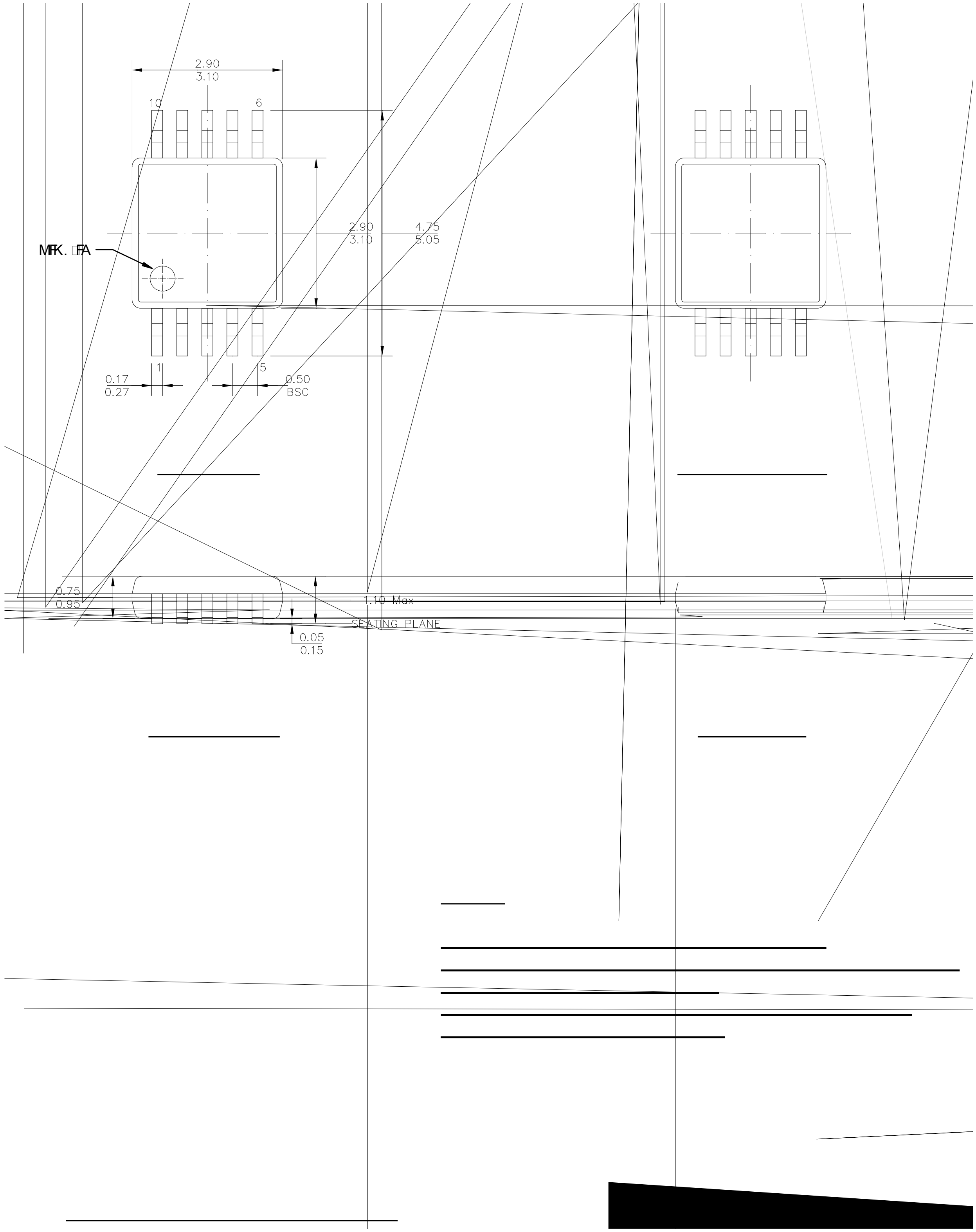
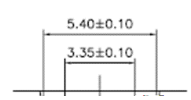
PACKAGE INFORMATION



TAPE AND REEL INFORMATION



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