

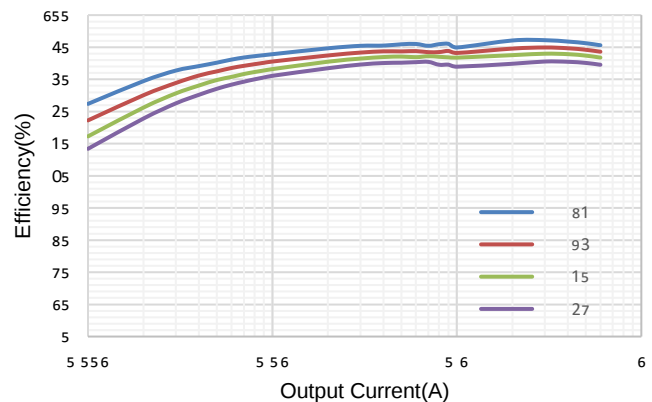
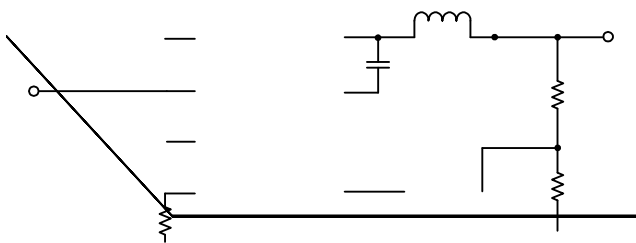
4.5V-100V Vin, 0.6A, High Efficiency Synchronous Step-down DCDC Converter with Programmable Frequency

- T fab fkmrqO kdb71-2S*.--S
 - -6 l kqkrlrp Lrqm r abkq
 - -6S . Cbba_ h Obdwbk b SI iq db
 - fkd do fa 42-j E fde*Pfab ka 2--j llt * Pfab M t bo J L P C B Q
 - Mripb Cdnrbk v J l ari q l k %MCJ &t fpe .--r Nr fbp bkq r abkqfk PibbmJ l ab
 - 1j p fkd k i P l a p q a Q j b
 - a g p q _ib Cdnrbk v 0-- HEwd 5-- HEw
 - Mdb fpl k Bk _ib Qedpel ia d o Md do j j _ib fkmrq SI iq db Rkab d SI iq db l l h L r q M d f q l k %RSI L &Qedpel ia ka Evp d d p f
 - v ib*_v* v ib r abkq l f j fkd
 - L sb d SI iq db M d f q l k
 - L sb d Q j n b o q d M d f q l k
 - s fi _ib f k k B P L M * 5 M h db
- B*Q l ip
 - B*_f h b) P l l f o
 - D M P Q o h b o

Qeb P Q/ .- f p -6 pvk ed kl r p _r h l ksb d p t f p t fab fkmrq SI iq db) o k d f k d a j 1-2S d .--S) t e f e f k d d o f p k 42-j e f d e * p f a b J L P C B Q ka 2--j i l t * p f a b J L P C B Q + Q e b P Q/ .-) a l n f k d q e b l k p q k d l k f j b % L Q & j l a b l k d i) p r m m a p q e b M C J t f p q m f i .--r i l t n r f b p b k q r a b k q t e f e p p f p q e b l k s b d p o l k e f b s f k d e f d e b a f f b k v q i f d e q i l a l o p q k a _v l k a f d l k +

Qeb P Q/ .- d q d o p m d d o j j _ib p t f q e f k d c d n r b k v a j 0-- h E w d 5-- h E w) t e f e m d s f a b p q e b d b u f _f i f q d l m f j f w b b f e b o b a f f b k v l o b u d k i l j m k b k q p f w b +

Qeb P Q/ .- l a d o p v i b *_v* v i b r a b k q i f j f q k a e f r m l s b o r a b k q m d f q l k) q e b j i p e r q a l t k m d f q l k) l r q m q l s b d SI iq db m d f q l k k a f k m r q s l i q d b r k a b d SI iq db m d f q l k + Q e b a b s f b f p s f i _ib f k k 5 * m f k q e b j i i v b k e k b a P L M * 5 m h d b +



KL QB7M db kr j _bq d ombsi rp dssfi kp j v afabod j m db kr j _bq fk qeb r adkqsbofi k+

Obsfi k . +7Obib pb d J dnbq+

Obsfi k . +7 aa nmif qf kt sbd qj p+

Obsfi k . +7Rma q O. ka O/ i ri qf ks irb fk m db . . +

Obsfi k . +7Rma q ddr d 5+

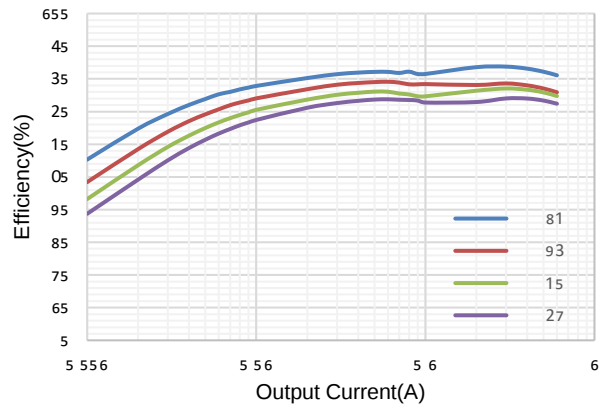
Obsfi k . +7Rma q ABSF B L OABO FKQL OJ QFL K+

P Q/ .- PQBO	Q mb Obbi	1 - - -	. -	5	BPL M*5

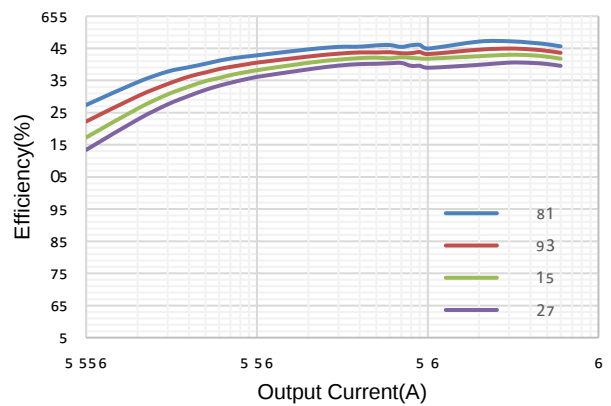
L sbol nbo qkd abb* foqj nbo q d r kibpp l qbd fpb kl fa%&

SFK) BK	*- 0	. - 2	S
L L Q	*- 0	. . .	S
PT	*	. - 2	S
L L Q*PT	*- 0	3	S
C) OQ	*- 0	3	S
j _fbkqfj nbo q d Q	*1-	52	

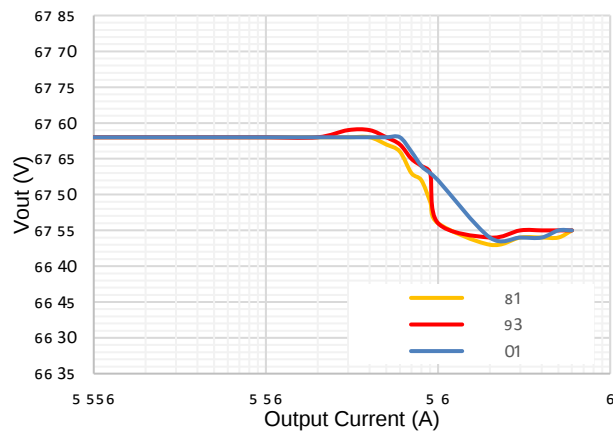
OAPL K I	I l t *pfab J L PCBQI k*dpfpq k b		2 - -	j
S _{OBC}	Obdðk b sl iq db l cC		- 46/ - 6 - 6-5	S
S _{BK E}	Bk _ib efde dðpel ia		. 4 .	S
S _{BK I}	Bk _ib il t dðpel ia		. + 2	S
F _{BK I}	Bk _ib mfk mii*r m r dðkq	BK: . S	.	
F _{BK E}	Bk _ib mfk mii*r m r dðkq	BK: . 2S	1	r
Q _{pp}	fkðk i pl dpp dðfj b		1	j p
C _{O KDB OQ}	Cðnr bk v o kdb rpfkd OQ j l ab		0 - - 5 - -	hEw
C _{PT}	Pt fq efkd dðnr bk v	Ooq 2 - - h % &	1 / - 2 - - 3 - -	hEw
Q _{CC J FK}	J fkfj r j l dðfj b	Sfk: . / S	/ - - / 3 -	kp
F _{FM}	I P J L PCBQm pðfb r dðkqifj fq	Cd j pl r o b d ao fk	- 6	
Q _{EF RM}	Ef r mt fðkd dðfj b	Kr j _bð l cpl dðp d v ibp	4	v ibp
A _{EF RM}	Ef r mar d v ib		. / 2	
S _{LSM}	Cbba_ h l sbæl iq db t fð dðnr b dð dðdðk b sl iq db	S _C , S _{OBC} dðfk d S _C , S _{OBC} c iifkd	. . - . - 2	
Q _{PA}	Qeb d i per d l t k dðpel ia	Q _G dðfk d Evp dðpð	. 34 02	



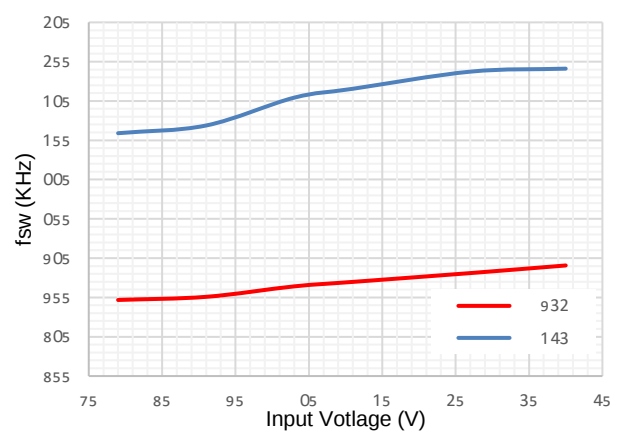
Cdr 0+ / Baf bk v sp l l a r ækq %l r q 2S&



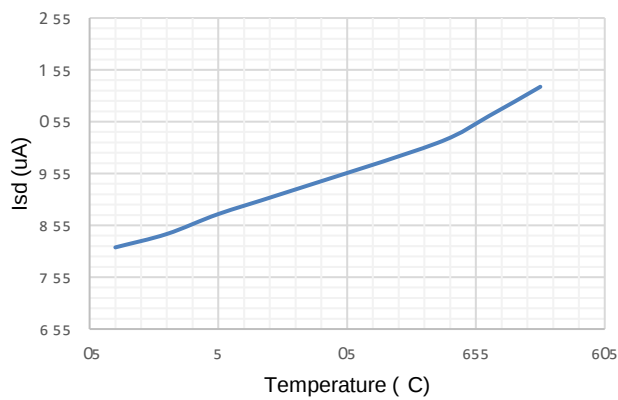
Cdr 0+ / Baf bk v sp l l a r ækq %l r q . / S&



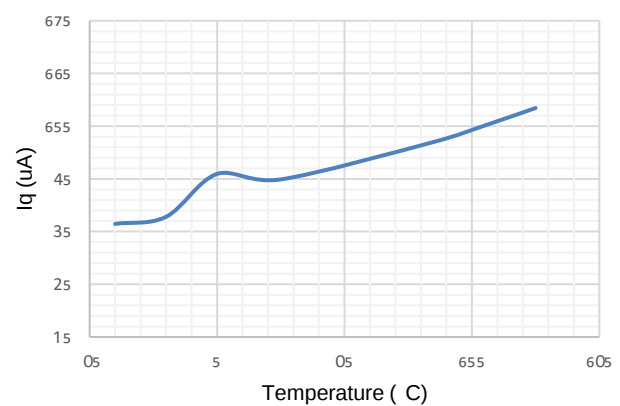
Cdr 1+ / l l a Obdr i q k %l r q . / S&



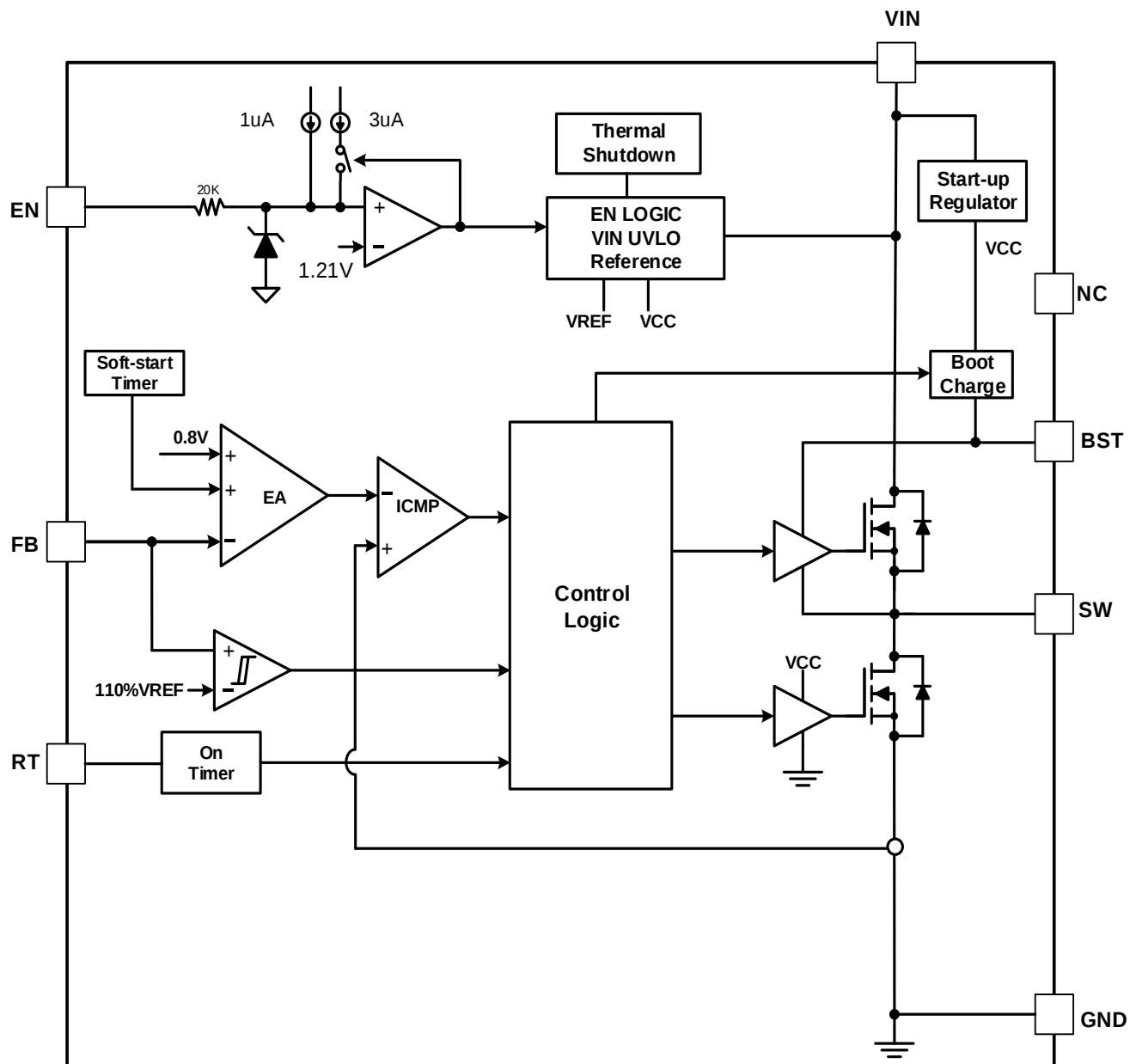
Cdr 2 Cðnr bk v sp Qj nbo q d



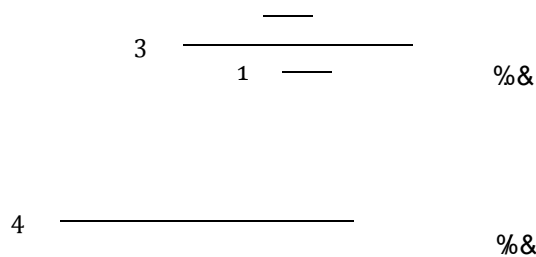
Cdr 3+ / Per qal t k r ækqsp Qj nbo q d



Cdr 4+ / n sp Qj nbo q d

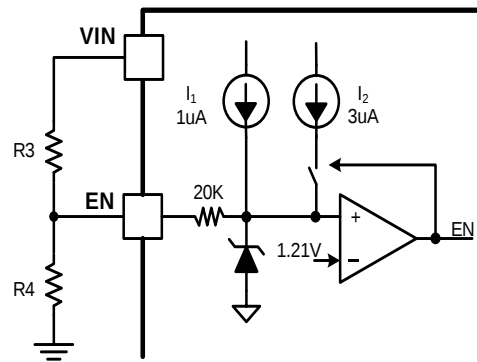


Cfdr 5+Qr k q k i il h Af do j



T ebð

Spq 7Sfk dðb æðpel ia d bk _ib æb absf b
 Spq 7Sfk c ii æðpel ia d aþ _ib æb absf b
 F: . r
 F: Or
 SBKO: . + . S
 SBJC: . + 2S



Cfdr ð 6+Pvpðj RSL _v bk _ib aþfab

Qeb P Q/ .- ððri ðp æb fkðk i ðððk b sl iq db q- 5S t fæ ±. d ibo k b l sboæb l nbo qkd ðj nbo q ð
 ka sl iq db o kdb+Qeb l rqrqsl iq db f p bñq_v ðpðð o aþfabo ð j æb l rqrqkl ab d æb C mfk+ fæ f
 ð l j j bkaba d rpb. d ibo k b l o_bðððððð ð+Rpb Bnr q k 0 d i r i ð ðpðð k b l cðpðð o aþfabo+
 Q f j mð sb bæ f bk v qifdeqil ap)i æbos ir b ðpðð ð ð ð l j j bkaba+El t bsbð fæb s ir bp ð d l efde)
 æb ððri d ot fii _b j l ð prp bñf _ib d kl f b æ qkd l rqrqsl iq db r o v+

1

%&

t ebð

- Oc αM fæb ðpðð o l kkb qkd æb l rqrqkl æb C mfk+
- Oc LQ fæb ðpðð o l kkb qkd æb C mfk d æb dð r ka+

Qeb P Q/ .- fkðððð k fkðk i pl æp q æ f o r fæ q o j n p æb ðððk b sl iq db ð j wð sl iq d - 5S
 ðððk b sl iq db f k j p+æb BK mfk f mriiba _bil t . + 2S)pt fæ fkd pð n p ka æb fkðk i pl æp q æðpð+
 Qeb pl æp q æ ipl ðpðð ar qkd per qal t k ar b d æbðj il sbðl a fkd+

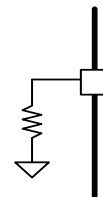
Qeb pt fæ fkd ænrbk v l cæb P Q/ .- f p bñq_v m fkd ðpðð o_bð bñk OQ mfk ka æb dð r ka+

Fk ðpðð opbðfkd ænrbk v j l ab) ðpðð omi ba _bð bñk OQ mfk d æb dð r ka p bñq æb pt fæ fkd ænrbk v
 l sbo t fab o kdb ð j 0-- HEwð 5-- HEw+OQ mfk f kl q iil t ba d _b ibqðl qkd l opel æpa d æb dð r ka+Rpb
 Bnr q k l l oæb m l q k Cfdr ð .- +d abðð f b æb ðpðð k b d o pt fæ fkd ænrbk v kbbaba+

4

T ebð)

q t f p t fæ fkd il h ænrbk v



Cfdr ð .- +Pbqfkd Cðnrbk v

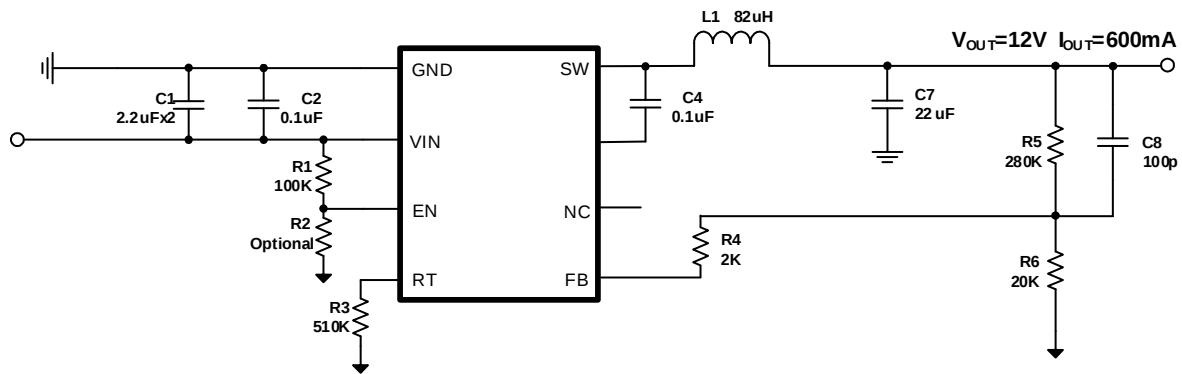
+

კბუფკი _ll_ოპმ მ ფი o_bq bbk LLQmK kaPT mK mlt bop eb di qkd d q adsbod efde*pfab mlt bo JLPBQ+Qeb _ll_ოპმ მ ფი osliq db fo e adba ad j k fkd do qasliq db ddr i q ot ebk efde*pfab mlt bo JLPBQ f l a ka i l t *pfab mlt bo JLPBQ f l k +

Qeb fkar q o r adbkq fo j l k f d a a r d k d i l t *pfab JLPBQ N/ l k + Qeb P Q/ .- f j m i b j b k o p l s b o r a d b k q m d o q l k t f e v i b * _ v * v i b i f j f i k d i l t *pfab JLPBQs i i b v r a d b k q k a i l t *pfab JLPBQs i i b v r a d b k q d s l f a f k a r q o r a d b k q o k k f k d t v a r d k d r k b u n b q a l s b a l a l o l r q n q e a p e l a q l k a f i l k +

Qeb P Q/ .- f j m i b j b k o p e b L s b o s l i q d b M d o q l k L S M f o r f o p d j f k f j f w l r q n q s l i q d b l s b o p e l l q a r d k d i l a q k p i b k q d o l s b a k d a d j l r q n q c r i q l k a f i l k l o i f d e q i l a q k p i b k q + Qeb l s b a l i q d b l j m o d o f k L S M f o r f o l j m o p e b C m K s l i q d b q e b f k o d k i d o d o k b s l i q d b + T e b k C s l i q d b b u b b a p . . - l c f k o d k i - 6 S d o d o k b s l i q d b) e b e f d e * p f a b J L P B Q q d k p l a d s l f a l r q n q s l i q d b l k q k r b d f k d o p b + T e b k e b C m K s l i q d b c i i p _ b i l t . - 2 l c e b - 6 S d o d o k b s l i q d b) e b e f d e * p f a b J L P B Q k q d k l k d f k +

Qeb P Q/ .- m d o q p e b a b s f b a d j e b a j d b a r d k d b u b p p f s b e b q k a m l t b o a f p p m q l k l k a f i l k p + L k b e b g k q l k f j n b o q d o b u b b a p . 34) e b f k o d k i e b o j i p b k p l o p d n o m l t b o J L P B Q p t f q e f k d + T e b k e b g k q l k f j n b o q d o c i i p _ b i l t . 0 /) e b a b s f b d o p q a p t f e f k o d k i p l a p q a m e p b +



Բեռի լարման հզորություն	15S կլիմայի / 1S զրոյացման
Լարման լարման հզորություն	./S
Ելքային լարման լարման հզորություն	3--j
Բեռի լարման հզորություն	2-- HEw
Լարման լարման հզորություն	2-j S
Գործարկման լարման հզորություն	Տարբերակ: 1--j S

Qeb l r q r q s l i q d b f p b q _ v k b u f d k i d o p f d o a f s f a b o
 O2 ka O3 f k q m f i m m i f q l k p e b j q +
 O b l j j b k a b a O3 d o p f d k b f p . - # H + R p b b n r q l k
 2 d i r i f O2+



t e b d 7

- S_{OBC} f p e b d b a _ h d d d k b s l i q d b) q m f i
 - 5 S

Table 1. R_s , R_c Value for Common Output Voltage (Room Temperature)

0-0 S	30-2 H	/ - H
2 S	. - 2 H	/ - H
. / S	/ 5- H	/ - H
/ 1 S	25- H	/ - H

k b u f d k i s l i q d b a f s f a b o k b d l d h l c O. d j e b f k m r q d B K m f k

Qeb sl i q db o q k d l c æ b f k n r q m f i o j r p q _ b d d o f o æ k æ b j u f j r j f k n r q s l i q d b + k a æ b m f i o j r p q i p l e s b d m m i b r æ k q o q k d d o f o æ k æ b j u f j r j f k n r q r æ k q d m m i b + Q e b O J P r æ k q f k æ b f k n r q m f i o k _ b i r i f a r p i k d B n r q i k . / +

_____ 1 _____

%/ &

Q e b t l f o q p b l k a f i k l r o q S R Q : / S L R Q) t e b d 7

0 5

%0&

Q o p f j m i f q i k) e l l p b k f k n r q m f i o t f æ k O J P r æ k q o q k d d o f o æ k e i c l c æ b j u f j r j i l a r æ k q +

T e b k p b i b q k d b o j f m f i o f i q k b b a p q i k p f a b o æ b b æ f s s i r b l c m f i o a b d o p i k d p æ b A _ f p s l i q d b d p p m f i o f i k d o p b p +

Q e b f k n r q m f i k b s i r b a b f o j f k b p æ b f k n r q d m m i b s l i q d b l c æ b d o d r i q + Q e b f k n r q s l i q d b d m m i b k _ b i r i f a r p i k d B n r q i k . 1 k a æ b j u f j r j f k n r q s l i q d b d m m i b l r o q 2 - a r q v i b +

_____ 1 _____

%1&

Q o æ f p b u j m i b) æ d b / + Q U 4 O b o j f m f i o f o f a d o . - - S f k m o i i b i d o r p b a + k a - + C d o e f d e * æ n r b k v æ f o q k d m f i o f m i b a p i l p b p m i p p f _ i b q æ b a b s f b m k p +

- + C b o j f m f i o j r p q _ b l k k b f a _ b q b b k L L Q m k k a P T m k d o m d n b o l n b o q i k + b o j f m f i o t f æ U 2 O l o _ b f o d o a b a f i b q f i p d l j j b k a b a + Q e b m f i o p e l r i a e s b / 2 S l o e f d e b o s l i q d b o q k d +

Q e b p b i b q i k l c l r q n r q m f i o t f i i æ q l r q n r q s l i q d b d m m i b f k p d a v p q d k a i l a q k p i b k q n b æ q k b +

Q e b l r q n r q d m m i b i p b p p b k f i i v l j m i p b a l c q l m æ p + L k b f r p b a _ v æ b f k a r q o r æ k q d m m i b d l f k d æ d r d e æ b B n r f s i b k q P b æ p O b p f o q k b B P O l c æ b l r q n r q m f i o f k a æ b l æ b o f r p b a _ v æ b f k a r q o r æ k q d m m i b e æ f k d k a a f p e æ f k d æ b l r q n r q m f i o f + Q e f s b p j i i l r q n r q s l i q d b d m m i b) e l l p b i l t * B P O l r q n r q m f i o i f n b b o j f m f i o + Q o b o j f m f i o f) æ b m f i k b a l j f k d p æ b l r q n r q d m m i b + Q o p f j m i f q i k) æ b l r q n r q s l i q d b d m m i b k _ b b p f j f a _ v B n r q i k . 2 a b p f d a +

8

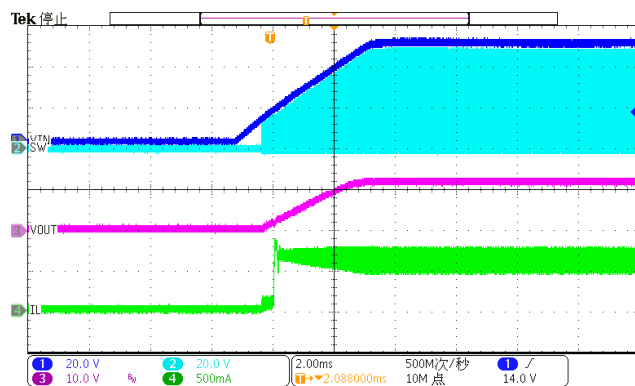
%2&

T e b d

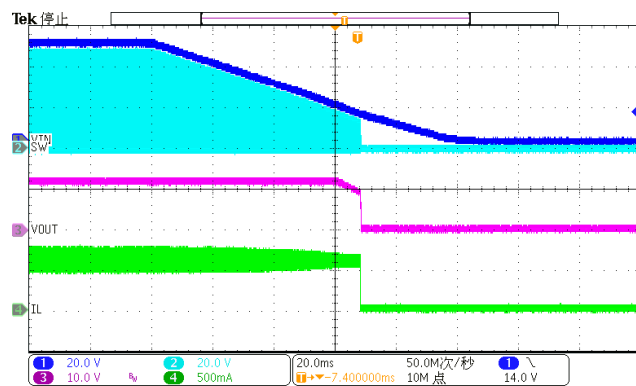
- f æ b l r q n r q s l i q d b d m m i b
- f æ b p t f i e f k d æ n r b k v
- l f æ b f k a r q k b l c f k a r q o
- L R Q f æ b l r q n r q m f i k b
- S L R Q f æ b l r q n r q s l i q d b
- S R Q f æ b f k n r q s l i q d b

A r b q m f i o p a b d o a f k d r k a b o A _ f p) æ b _ f p s l i q d b k p f d k f k q v d a r b m f i k b + b o j f m f i o k i l p b j l p q l c æ b f o m f i k b q o f a s l i q d b + Q e b d d o) i b s b j æ f k l k æ b s l i q d b o q k d q b k p r d a b n r f b æ f s b m f i k b + Q m f i i v l k b // C b o j f l r q n r q m f i o t l d d o j l p q m m i f q i k p +

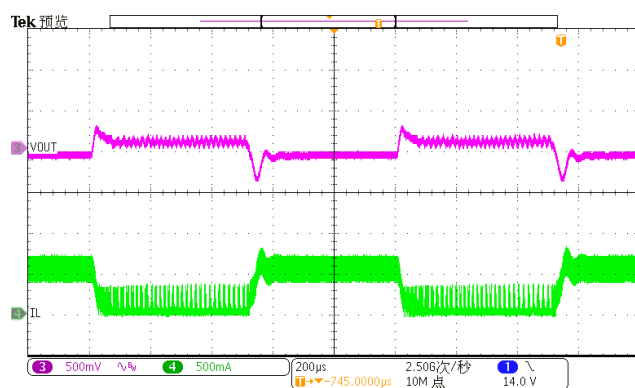
Sfk: 15S) SI r q . / S) r kibpp l q b d f b k l f a



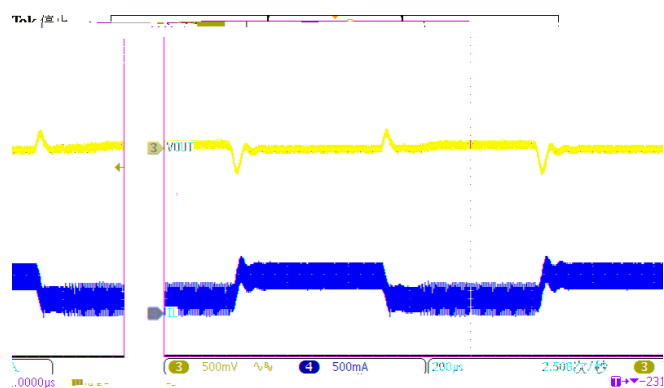
Cidr d . / +M t borm



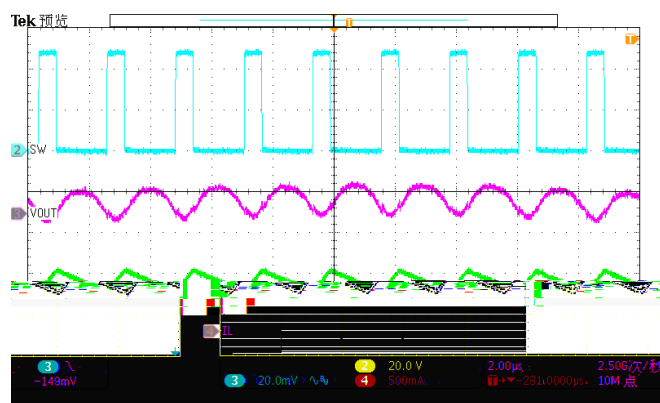
Cidr d . 0+M t boal t k



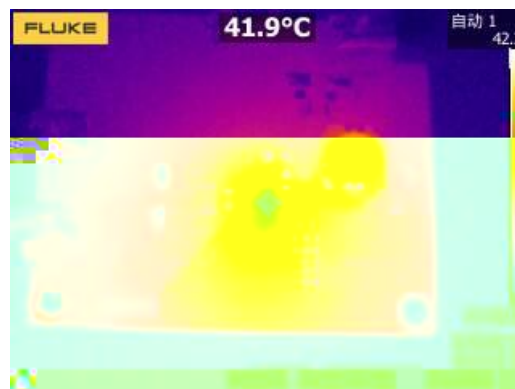
Cidr d . 1+I a Qo kpfbkq%+3 *- e1)- +2 ,rp&



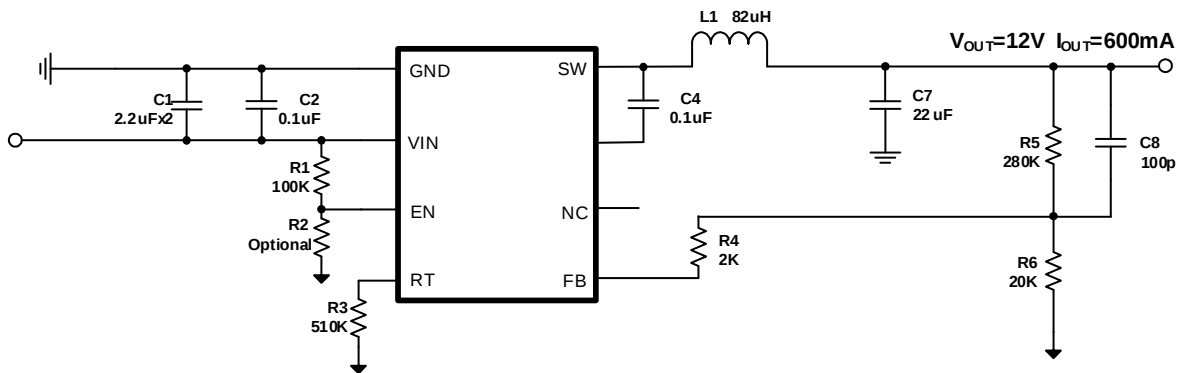
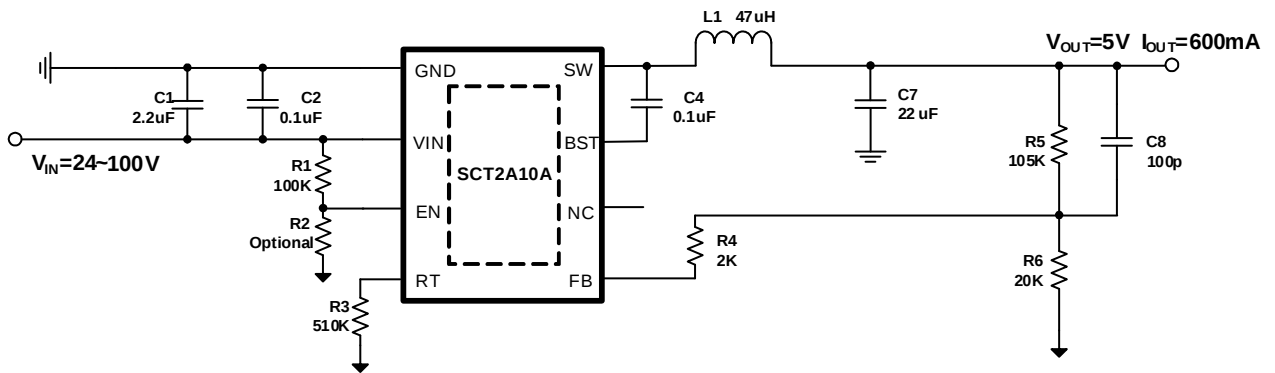
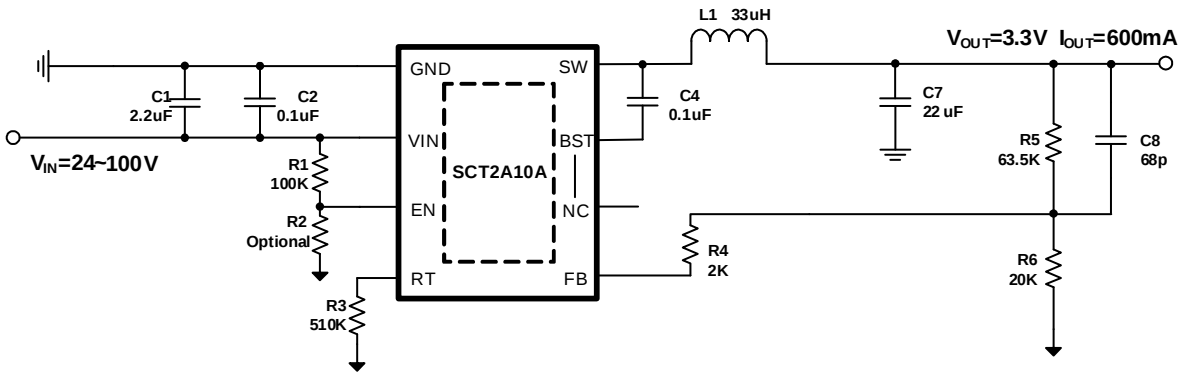
Cidr d . 2+I a Qo kpfbkq%+2 *- 42)- +2 ,rp&



Cidr d . 3+PT ka SI r qOfmib



Cidr d . 4+Qebj i)15SK) . / SI r q) - 8



Md nboM i vlrqfp ddf id oP Q/ .- ppq_ib ka baf fbkql nbo d k+Qeb op bp l kar dkd c pqpt fq efkd r adkpl osl iq dbp d b pv d fkdpo qt fepqv fkar q k b ka m o p f f m f k b d dbkbo d kl fpb ka abdo ab nba d j k b+Q o_b d d p r i d i l t e b p b d r f a b i f k b p p _ b i l t 7

1. M t b o d d r k a f k d p e b j b f p s b o v d d f i _ b r p b l c a v f k d m t b o d e b o j i) ka d i f q e _ l r k f k d k l f p b p p l f p a t f e i l h a d n r b k v + Q e b e r j _ l c a i b f p d j h b d d r k a o b i l t b p q f j n b k a b k b ka m t b o d a f p a f _ r p a b s b k i v l k M + P r a f f b k q v m i f k d d d r k a d o t f i i l n a f j f w b e b o j i ka k l q r p f k d l s b o e b q d o +

2. M b i l t B P O b o j f m f q o p i l p b d S F K m k ka e b d d r k a p m p p f _ i b d d a r b m o p f f b a d q +

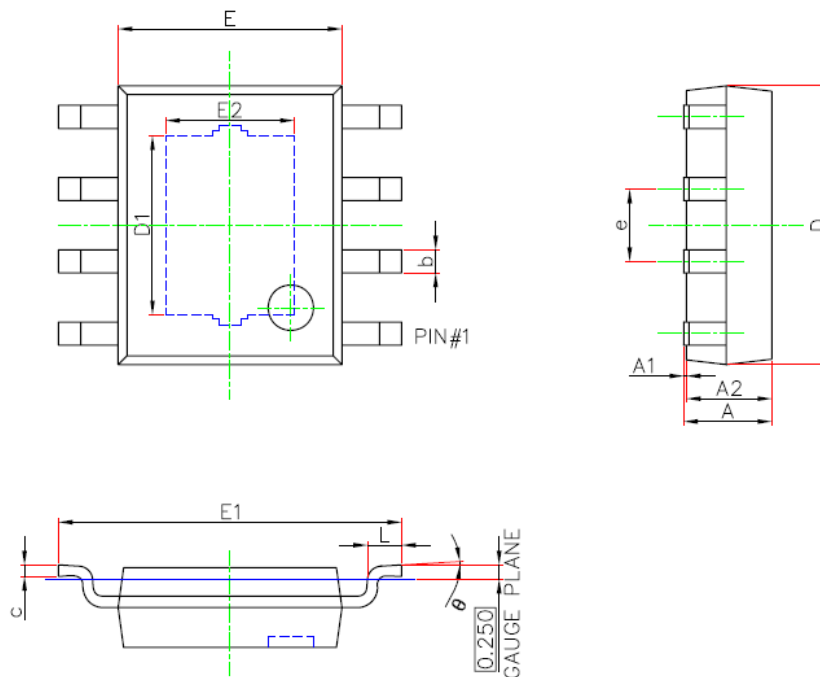
3. Q o l n b o d k q a i i o p a i l a) e b d m p f a b d d r k a d j r p q m s f a b a b n r d e b q a f p p m d k d d o + J h b p r d d m p t f q e f k d i l l m t f e m t b o e s b i l t b o f j n b k a b k b l c d d r k a f k d +

4. Q e b m t b o m a p e l r i a _ b l k k b p a d _ l a j M d d r k a m i k b p r p k d j r i d m b s f p a f d l Q o k a b o e b F + Q e b b k d o e b o j i m a p e l r i a i t v p _ b

5. L r q m q f k a r d o p e l r i a _ b m i b a i l p b d e b P T m k + Q e b d l c e b M l k a r d o j f k f j f w b a d m d s b k q b u b p p f s b m f e s b l r m f k d +

6. Q e b O Q d o j f k i f p b k p f s b d k l f p b p l e b O Q d o p d o p e l r i a _ b i l p a p i l p b p m p p f _ i b d e b F ka d r p a t f e j f k f j i i b k d o p l c o p b +

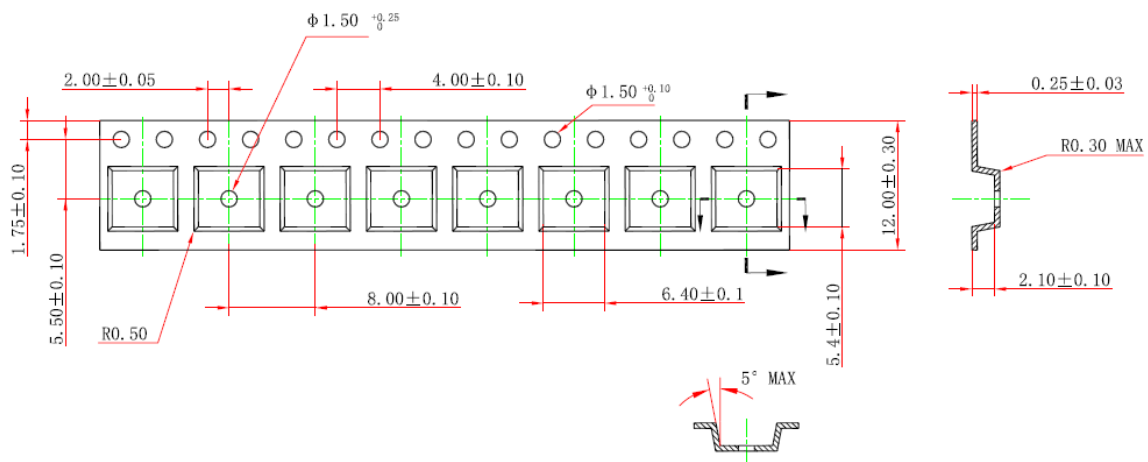
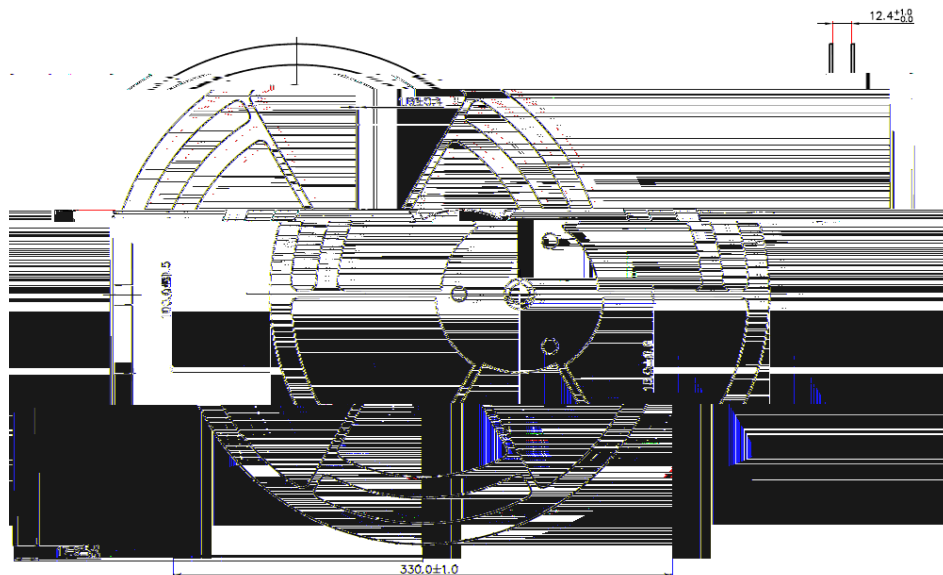
7. R S I L U X a p p l O Q d o p d S 7 2 U S O b a o • P n S j H Q K k o p e f H a l k k b q d p j i i p f d k i d d r k a t e f e j r p q d o q d k d e b D K A m k t f e l r q k v f k d o b s k d t f e m t b o j J



BPL M5, MM62u. 0- &M h db L r q f k b Afj b k p f l k p

Pv j _ l i	Afj b k p f l k p f k J f i f j b f p p		Afj b k p f l k p f k f k e b p	
	J f k +	J u +	J f k +	J u +
.	0 - -	4 - -	+ 2 -	+ 34
.	+ - -	- + - -	- + - -	- + - 1
/	02 -	02 -	+ 20	+ 3.
-	00 -	0 -	+ . 0	+ / -
	+ 4 -	+ 2 -	+ - 4	+ . -
A	14 - -	2 + - -	+ 52	+ - .
A.	0 + 2 -	0 + 2 -	+ / -	+ / 5
B	05 - -	1 + - -	+ 2 -	+ 24
B.	25 - -	3 + - -	+ / 5	+ 11
B/	/ + 3 -	/ 03 -	+ 52	+ 60
b	. + 4 - % P &		- + 2 - % P &	
l	- 4 - -	. + 4 -	- + . 3	- + 2 -
θ	-	5	-	5

1. A o t f k d m d m p b a d _ b j a b G B A B m h d b l r q f k b J L * / - s d f d k +
2. A o t f k d k l q d p i b +
3. i i f k b o a f j b k p f l k p d f k j f i f j b f p p +
4. Q e b o j i m a p e i i _ b p l i a b d a l k q b _ l a +
5. A f j b k p f l k p l c b u m p b a m a l k _ l q j l c m h d b a l k l q f k i r a b j l i a d p e +
6. l k q q M _ l a c _ d f d k d o j f k f j r j p l i a b o j p h t b _ d i b o k b p _ b d b b k q b m k p +



Qeb fkd qj qf k f k f p al r j b k q p p r _ d q d e k d b t f e l r q k l q f b + R p b p p e l r i a t a o k q k a d r o k p b q e b q f o a m a y f k f i i b q i M d n b a y d f e q d k l q f k a d k d b a r n i k t e b k f k p d o q k d P f i f l k l k p k q Q b e k l i l d v % Q & m d a r q f k d k v m m i f q f k + P Q t f i i k l q p p r j b k v i b d i d o p n i k p f _ f i f y d o k v p f a m m i f q f k p +