

3.8V-40V Vin, 3.5A, High Efficiency Synchronous Step-down DCDC Converter with Internal Compensation

- L YZ ceji Gvc Z/(-K)%K
- Jeid (*6 8 dci cjdjh Djieji 8 jggZci
- %-K & ZZYWX GZ ZgcXZ KdæV Z
- ciZ gMY - %b = HYZ VcY * %b Adl HYZ Edl ZgBDH : l h
- Ej æZH ee c BdYZ EHB l i * j6 F j ZhXZci 8 jggZci c HæZe BdYZ
- Fixed Frequency 570kHz
- &%ch B c b j b D c i b Z
- b h ciZgVaHdi hiVg l b Z
- gZf j ZcXh HegZVYHeZXg j b HH BdYj æ dc dg : B GZYj X dc
- EgZXh dc : cWæZ l gZh dæ dgEgl gmb b WæZ JKAD l gZh dæ VcY = nhiZgZh h
- Adl 9 gledji BdYZ DeZgM dc
- 9 ZgkWæZ ckZg c KdæV Z GZ j æM dg
- DkZgkdæV Z VcYDkZgl Zb eZgM j gZ EgdiZX dc
- 6kVæWæZ c Vc : HDE - EVX V Z

l Z H8l)((h (*6 hncX gldcjh VjX XdckZgZg
l i l YZ ceji kdæV Z gvc c gdb (-K id)%K
l X ciZ gMZh Vc - %b hYZ BDH : l VcY V
:*%b æ hYZ BDH : l l Z H8l)(& VYdei c i Z
eZV Xj ggZci b dYZ Xdcigdahjeedghi ZEj æZH ee c
BdYj æ dc EHB l i ineXVa * j6 æ f j ZhXZci
Xj ggZci l X Vhh h i i Z XdckZgZgdc VX Zk c
Z XZcXh M a i æVYdghiVcYWM XdcYi dc

l Z H8l)((ZMj gZh ciZgVaHdi hiVg l i *, % = o
hl iX c gZf j ZcXh l Z XdckZgZg Væll h edl Zg
XdckZg dc gdb ceji kdæV Z id æ djieji
kdæV Z l i V b c b j b &%ch dc

- 7 MiZg EVX Edl ZgZYHnhiZb 8 dgYæZh Edl Zg l ddæ 8 dgYæZh = db Z6 eeaVcXZ 9 gldcZ 6 Zgd BdYZac EHI gVX ZgZiX
- 8 VgZiZ A iZg6 YVeizg 8 Vg Zg
- A8 9 9 heæh
- JH7 l neZ 8 Edl Zg9 ZakZg JH7 8 Vg c
- cYj higVaVcYBZYXVa9 higVjiZY Edl ZgHj eeaZh
- Dei XVa8 db b j c XM dc VcYCZl dg c HnhiZb
- 6 j idb di kZ HnhiZb

kdæV YZcYZe

CDI : /EV Z cjb VZgh dgegZk djh gZk hdch b Vn Y Zg gdlb eV Z cjb VZgh ci Z Xj gZci kZgh dc
GZk h dc & %

K C	,	ceji hjeea kdaV Z 8dccZX V aXVaMeVhh XVeVXidg gdb K C e c id C9 e c EV gdb K C e c id gZ j ZcXh MeVhh XVeVXidgVcY C9 b jhi VZ Vh h dg Vh edhh VZ
HL I Zp Va EVY	-	GZ j aMdghl iX c djieji 8dccZX HL id Vc ZniZgVaedl Zg cYj Xidg

K c2) K l 2) % 8 s & * 8 ine X V a k V j Z h i Z h i Z Y j c Y Z g * 8

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K c	DeZgM c ceji kdāV Z		(-) %	K
K CTJKAD	ceji JKAD l gzh dā =nhiZgzh	K c gh c	(*) %%	K b K
	H jiYdl c XjggZci gfb K C e c	: C2% cd aVY	&	6
F	F j ZhXZci XjggZci gfb K C e c	: C aV c cd aVY cdc hl iX c 7DDI HL 2*K	*	

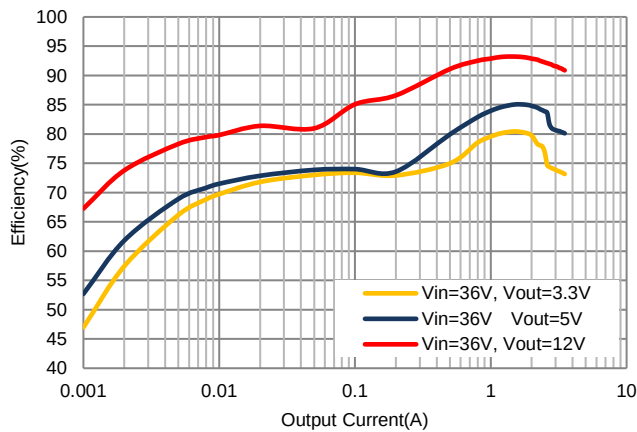


Figure 1: Efficiency vs Output Current for Vin=36V

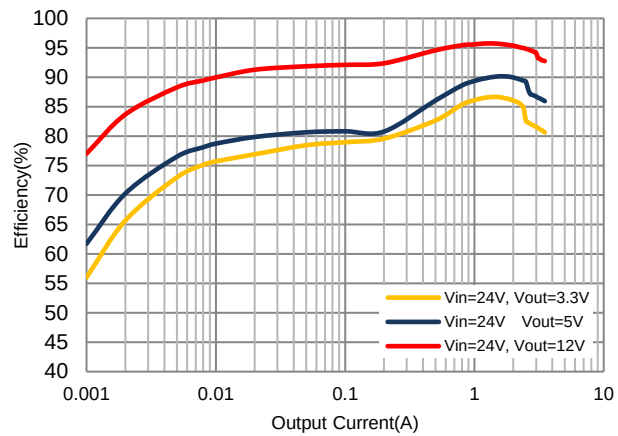


Figure 2: Efficiency vs Output Current for Vin=24V

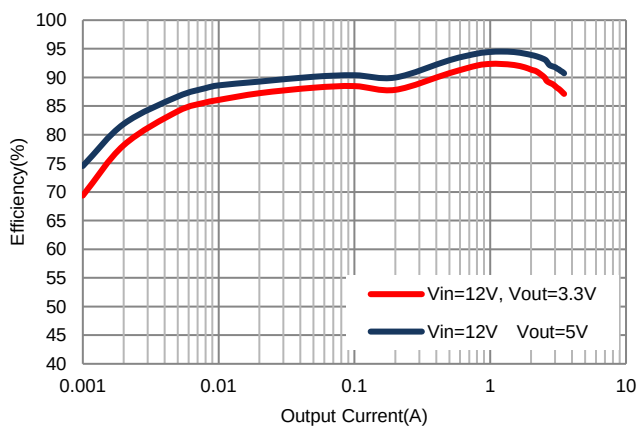


Figure 3: Efficiency vs Output Current for Vin=12V

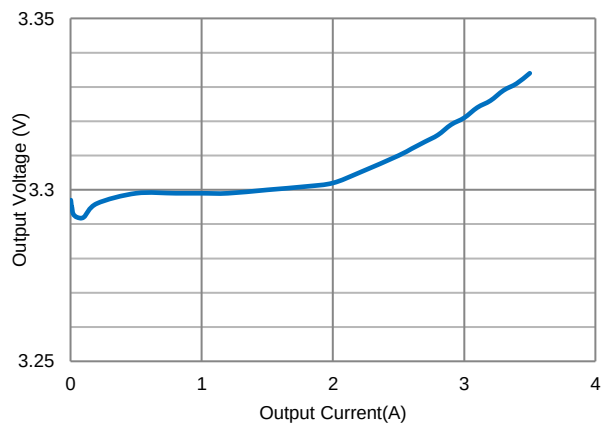


Figure 4: Output Voltage vs Output Current

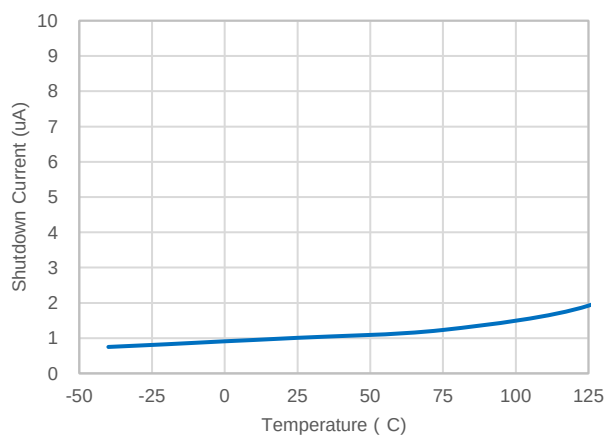


Figure 5: Shutdown Current vs Temperature

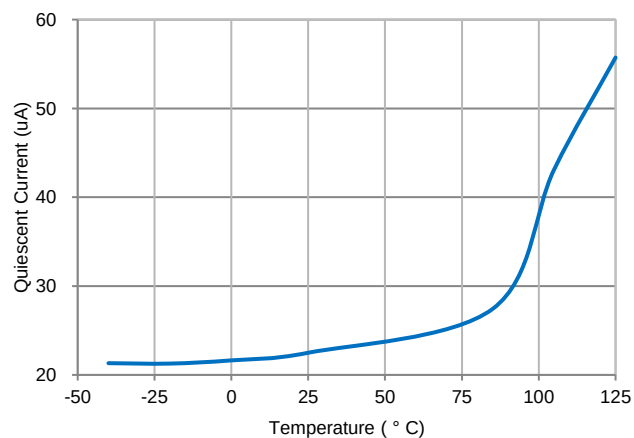


Figure 6: Quiescent Current vs Temperature

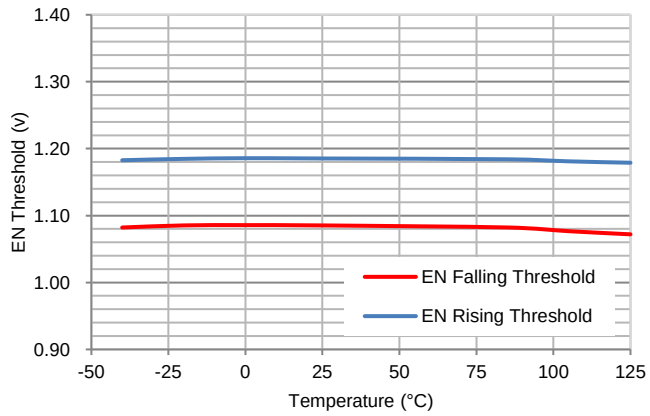


Figure 1: EN Threshold vs Temperature

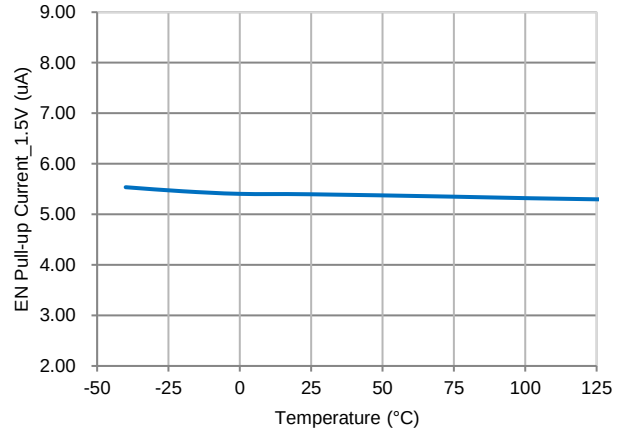


Figure 2: EN Pull-up Current vs Temperature

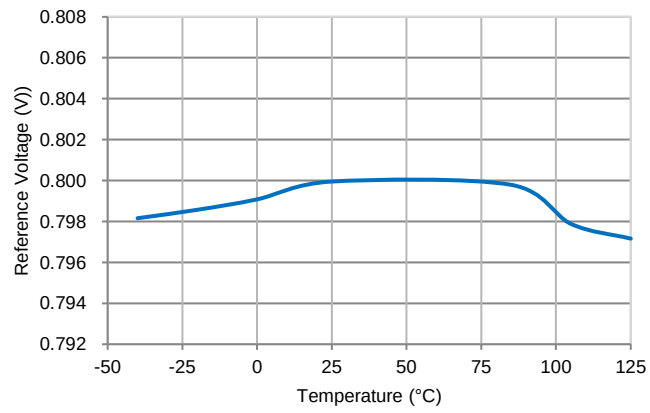


Figure 3: Reference Voltage vs Temperature

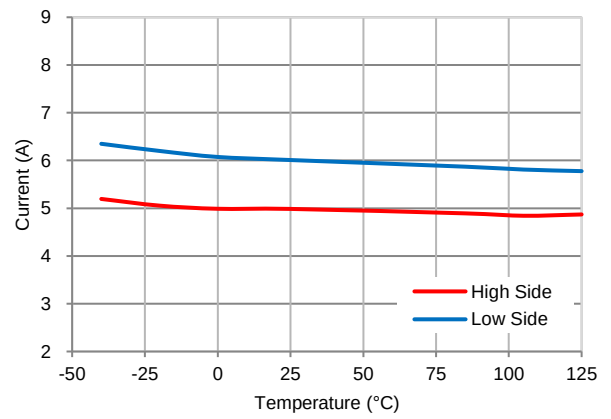
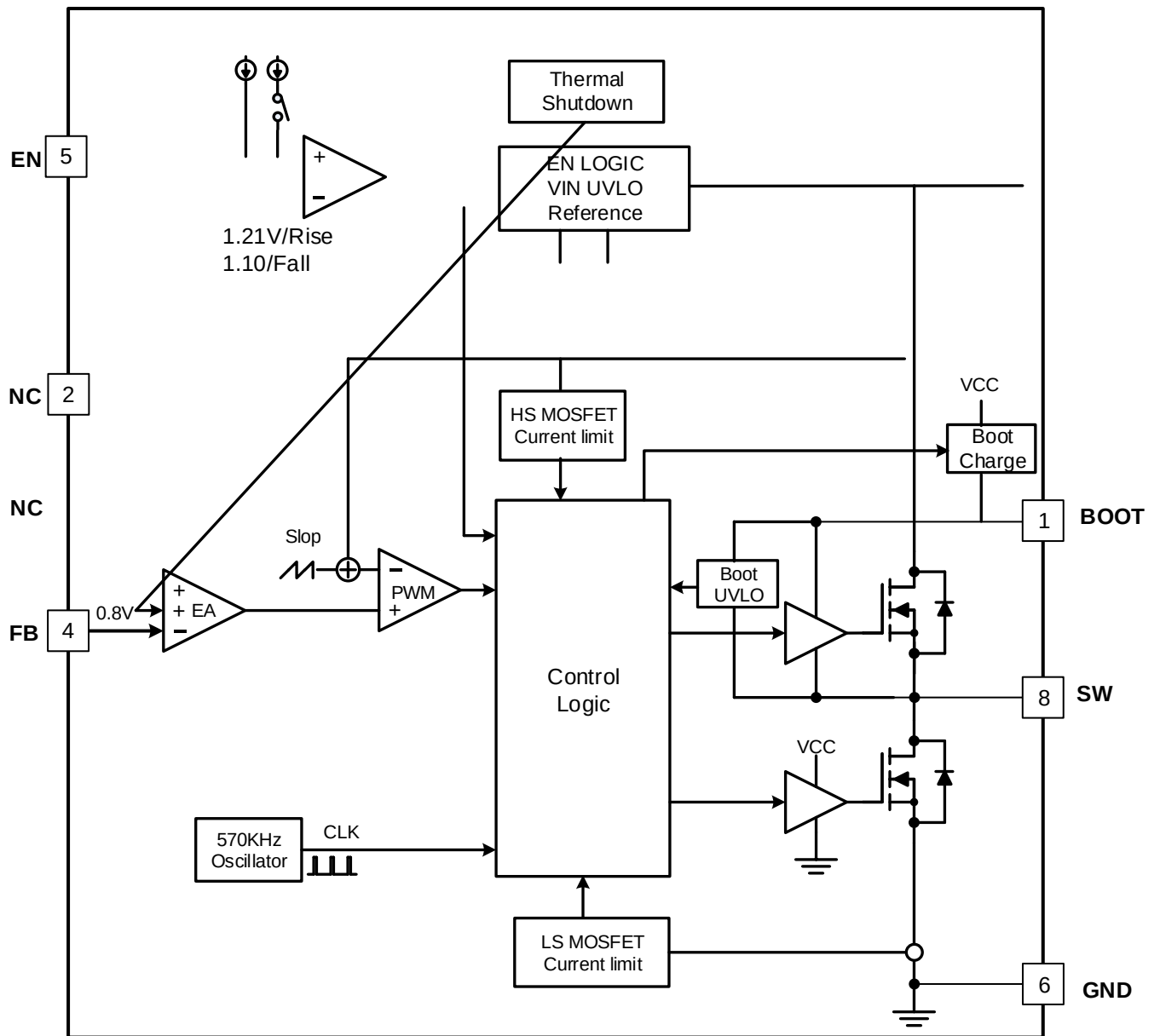


Figure 4: Current vs Temperature



j gZ & j cX dcVa7 aIX 9 V gYb

I ZH8I)((h V(-K)%K ceji (*6 djieji : B gZcYanhncX gldcdjh WjX XdckZgZgl i Wj a c -% Gyhdc hYZ VcY*% Gyhdc all hYZ edl ZgBDH :I h i b eazb Zcih XdchiVci gzf j ZcXh eZV Xj gZci b dYZ Xdcigla I i ciZgcVaXdb eZchM dcid gZ j aMZ djieji kdaV Z egdk Yc ZmXZaci acZ VcY aVYigVch Zci gZhedchZ VcYb V Z gZzi Z gzf j ZcXh Xdb eZchM dc YZh c

I ZH8I)((ZMjgZh b h ciZgcVahdi hiVgi b Zid Vkd Yag Z cg h Xj gZci VcYdjieji kdaV ZdkZgh ddi Yjgc hiVgje VcYi Zhl iX c gzf j ZcXh h *,%=o mZY I Z YZk XZ Vahd hjeedgh b dcdā XhiVgjel i egZ WWhZY djieji XdcYi dc I Z hZVb aZh b dYZigVchi dc VZl Zzc EL B b dYZ VcY EHB b dYZ deZgM dch ZchjgZ Z XZcXh dkZgl YZ aVY Xj gZci gVc Z I Z fj ZhXZci Xj gZci h ine XVam *j6 j cYZg cd aVY dg haZze b dYZ XdcYi dcid VX ZkZ Z XZcXh Ma i aVY

I ZH8I)((Vh VYZ Vja ceji hiVg je kdaV Zd (*K I i)%b K nhiZgZh h I Z: Cec h V kdaV Zec I i VegZXh dci gZh dāri M Xvc VZ jhZYid VYjhi i Z ceji kdaV Z aX dji i gZh dāh I i il d ZmZgcVagZh hidh id b Zzi VXXj gMZ ZgJKAD hnhizb gzf j gZh Zcih aVc : Cec ZcWZh i Z YZk XZl i i Z ciZgcVaejae Xj gZci idi Zec 8dccZX c : Cecid K C YgZX h iVgh jei Z YZk XZ Vjdb M XVam

I ZH8I)((b eazb Zcih i Z gzf j ZcXh HegZVY HeZXgb HH b dYj aM dc hegZVYc d + XZciZgZY i Z hZaZXZYhl iX c gzf j ZcXh HH begkZh : B eZgdg VcXZ Vm cdi Vail c Zb iiZY ZcZgn id hiVh c Vcn dcZ gZXZkZgVWcY dgVh c Xvci aZci d i b Z

I ZH8I)((jaegdiZX dc ZMjgZh cXj YZi Z ceji j cYZgkdaV Z aX dji i Z djieji dkZgkdaV Z egdiZX dc dkZg Xj gZci egdiZX dc I i XhXZ Vm XhXZ Xj gZci ab i c VcY XXje b dYZ djieji VgY h dg egdiZX dc VcY i Zgb Vah jiYdl c egdiZX dc

I ZH8I)((Zb ealnh mZY gzf j ZcXh eZV Xj gZci b dYZ Xdcigla 6c ciZgcVaXaX ci MZh ijgc c dc i Z ciZ gMY hYZ edl ZgBDH :I F & c ZVX XhXZ i Zc cYj XdgXj gZci ghZh acZVgm L Zci Z Xj gZci i gJ hYZ BDH :I gZVX Zhi Zi gZh dā aZahZi Vm i Z 8DBE kdaV Zd i Z ciZgcVaZggVb ea Zgi Z hYZ BDH :I ijgch d I Z hncX gldcdjh all hYZ BDH :I F ijgch dc i ai Z cZm XaX XhXZ VZ ch dgi Z cYj XdgXj gZci Vah id oZgl

I Z ZggVb ea ZghZgZh i Z 8DBE cdYZ Vm Xdb eVgc i Z kdaV Zd i Z 7 ecl i Vc ciZgcVa%-K gZ ZgZcXZ kdaV Z L Zci Z aVY Xj gZci cXgZhZh VgZjX dc ci Z ZZYVWX kdaV Z gZa kZidi Z gZ ZgZcXZ gVhZh 8DBE kdaV Zi ai Z VkgV Z cYj XdgXj gZci b M X Zhi Z cXgZhZY aVY Xj gZci I h ZZYVWX aIdel ZaagZ j aM Zhi Z djieji kdaV Zidi Z gZ ZgZcXZ I Z YZk XZ Vahd ciZ gMZh Vc ciZgcVahaleZ Xdb eZchM dc XgXj ignid egZkZci hj W Vg dc XdhXaM dcl Zc Yjin XhXZ h gZMZgi Vc *% dgV mZY gzf j ZcXh eZV Xj gZci b dYZ Xdcigla

I ZH8I)((deZgMZh cEj aZH eec BdYZ EHB I i a i aVY Xj gZci id begkZ Z XZcXh L Zci Z aVY Xj gZci YZgZhZh Vc cXgZh Zci ci Z ZZYVWX kdaV Z aVh 8DBE kdaV Z Ygle L Zc 8DBE Vah id Vail Xab e i gZh dā)%b K ine XVam YZk XZ ZciZh EHB I Z djieji kdaV Z YZXh YjZ id djieji XVeVXidg YhX Vg c Yjgc h eec eZgdY DcXZ 7 kdaV Z Ygleh all Zgi Vci Z gZ ZgZcXZ kdaV Z VcYi Z 8DBE kdaV Z ghZh WkZ all Xab e i gZh dā I Zc hYZ edl ZgBDH :I ijgch dc c cZm XaX ej aZ 6 iZghZkZgVa hl iX c XhXZhl i ine XVa86 eZV cYj XdgXj gZci 8DBE kdaV Z Ygleh VcY h Xab eZYV Vc VcYej aZh eec b dYZ gZezMh i Zdjieji Xdc i c jZh a i aVYZY

I h XdciglahX Zb Z Zaeh VX Zk c ZgZ XZcXh Vm h eec XhXZhl id gZjXZhl iX c edl ZgaLh VcY MZ YgkZ X Vg c alh I Z XdciglaZgXdhjb ei dc fj ZhXZci Xj gZci h *j6 Yjgc h eec eZgdYI i cdhl iX c id begkZ Z XZcXh jg Zg

I ZH8I)((h ZcWZYI Zci ZK CeckdaV ZghZh Wdji (*K VcYi Z: Cec kdaV Z ZmXZYhi Z ZcWZ i gZh dā d &&K I Z YZk XZ h YhWZYI Zci ZK CeckdaV Z Vah VZall (&K dgl Zci Z: Cec kdaV Z h VZall &&K 6c ciZgcVa&*j6 ej aje Xj gZci hdj gZid: Cec Vail hi Z YZk XZ ZcWZl Zc: Cec aVh

: C e c h V k d a V Z e c i M X v c V Z X d c c Z X Z Y i d K C Y g Z X a i d h i V j j e i Z Y Z k X Z
d g V Z g h n h i Z b J K A D i g Z h d a Y X d c c Z X V c Z n i Z g c V a g Z h i d g Y k Y Z g G & V c Y G h d l c c j g Z & (g d b K C
i d : C l Z J K A D g h c V c Y V a c i g Z h d a Y X v c V Z X v a X j a M Z Y V i : f j M d c & V c Y : f j M d c

BDH : l l dg c cdg Vm l Z Z ZX kZ Yjin XhXZ d i Z XdckZgZgYjgc A9D deZgM dc Xvc VZ VeegVX c id %%%

9jgc hml c edl ZgjeVcYedl ZgYdl c VeeaXM dc i ZdjiejikdV Z Xvc XahZmigVX i ZcejikdV ZgVb e c Ydl ci Vc hid A9D deZgM dc b dYZ 6hi ZcejikdV Z h gZjY XZYid cZVgi ZdjiejikdV Z Z Yjgc hml c edl ZgjeVcYedl ZgYdl c VeeaXM dc i Zd ibZdi Z hYZ BDH : l hiVghid VeegVX i Zb cbjb kVjZ L i dji A9D deZgM dc b dYZ VZndcYi hedcii Zhl iX c bVh VZXdZ ZgM XvcYdgi ZdjiejikdV Zl aVaa dji d gZ jM dc l d VkdYi h egVZb i ZH8l)((A9D b dYZ Vjdb M Xvaa gZjY XZhi Zhl iX c gZf jZcXhid cXgZhZi Z Z ZX kZ Yjin XhXZ VcYb VciVc gZ jM dc

j gZ &) A9D DeZgM dc 8 VgVXZghi X Kdji 2*K

l Z cYjXdgXj gZci h bdcidgZY Yjgc hYZ BDH : l F & VcY ml hYZ BDH : l F dc l ZH8l)((beZb Zcih dkZgXj gZci egliZX dc l i XhXZ Vm XhXZ ab i c hYZ BDH : l eZV Xj gZci VcY ml hYZ BDH : l kVaa Xj gZci id VkdY cYjXdgXj gZci g c c c M Vh Yjgc jcZneZXZY dkZgmlVY dgdjieji VgYh dg XdcYi dc

L Zc dkZgmlVY dg VgYh dg VeeZch i Z XdckZgZgXvccdi egk YZ djieji Xj gZci id hM hn mlVYc gZf j gZb Zci l Z cYjXdgXj gZci h XAb eZY M dkZgXj gZci ab iM dc l jh i ZdjiejikdV Z Ygleh VZml gZ jMZYkdV Z l i 7 kdV Z aZhi Vc ciZgVagZ ZgZcXZ kdV Z Xdc i cjdjha l Z 8DBE e c kdV Z gVb eh jeid XAb e kdV Z (, Kine XvaL Zc 8DBE kdV Z h XAb eZY dg* & XhXZhi Z XdckZgZghideh l iX c 6 iZggZb Vc c D dg- & XhXZhi Z YZk XZ gZhiVgh gVb hdi hiVg c e VhZ dkZgmlVY dg VgYh dg XdcYi dc hi aZmhiih Yjgc hdi hiVg VcYb V Z 8DBE kdV Z XAb eZY M dg* & XhXZhi Z YZk XZ ZciZgh cidijgc d b dYZ V Vc L Zc dkZgmlVY dg VgYh dg XdcYi dc h gZb dkZY i Z YZk XZ Vjdb M Xvaa gZdkZgh id ZciZg cdg Va gZ jM c deZgM dc

l Z XXje egliZX dc b dYZ WdkZ b V Zhi Z VkgV Z h dg XgXj i Xj gZci id VaaZ MZi Zg Vahhj Zh VcY egliZX i Z gZ jMdg

l ZH8l)((beZb Zcih i Z DkZgkdV Z EgliZX dc DKE XgXj i

I ZH8I)((egliZXhi ZYZk XZ gdlb i ZYVb V ZYjgc ZmXzhkZ ZM VcYedl ZgYhh eM dc XdcYi dch DcXZ
i Z_jcXdc iZb eZgMjgZ ZmXZZYh & %8 i Z ciZgcVai Zgb VahZchdghideh edl ZgBDH :lhhl iX c L Zci Z
_jcXdc iZb eZgMjgZ Vah VZall & *8 i ZYZk XZ gZhiVghl i ciZgcVahdi hiVgj e VhZ

ceji KdâV Z	)K Cdϕ Va(-K id) %K
Djieji KdâV Z	((K
B Vmb j b Djieji 8 j ϕZci	

I Z djieji kdāV Z h hZi M Vc ZniZgVagZh hidgYk YZg
 G* VcY G+ c ine XVa VeeaXM dc hX Zb M X
 GZXdb b ZcYZY G+ gzh hiVcXZ h 8% JhZ Zf j M dc
) id Xvāj āMZ G*

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

&- K	& ,	8%
* K	&*	8%
((K	(&+	8%
* K	*(+	8%
& K	&)(	8%
)K	.)	8%

I ZgZ/

- K_G hi Z ZZVWX gZ ZgZcXZ kdāV Z ine XVa
 %-K

6c ZniZgVakdāV Z Yk YZgcZl dg d G& gdl i Z ceji id : C ec VcY G gdl : C ec idi Z gdl cY XvchZi Z
 ceji kdāV Zh JcYZgKdāV Z AdX Dji JKAD i gzh dāI Z JKAD Vhil di gzh dāh dcZ dgedl Zgjel Zc
 i Z ceji kdāV Z h ghc VcYi Z di Zg dgedl ZgYdl c dgVdl c djihl Zci Z ceji kdāV Z h Vāc dgi Z
 ZmbeāZ YZh c i Zhjeeā h dāI ijg dc VcYhiVg hl iX c dcXZi Z ceji kdāV Z cXgZhZh VdkZ *, K hiVg
 dgZcVāZ 6 iZgi Z gZ jādghiVgh hl iX c i h dāI Xdci cJid Ydhd jci ai Z ceji kdāV Z Vāh VZāll) +) K
 hide dgYhVāZ JhZ: f j M dc * VcY: f j M dc + id Xvāj āMZi ZkvāZh & (VcY) d G&VcY G gzh hidg

I ZgZ VgZ hZkZgVā Vādh h dāI VZ XdchYZgZY c hZāX c cYj XdghjX Vh cYj XvXZ hVjgM dc Xj gZci i Z
 GBH Xj gZci VcY98 gzh hiVcXZ 98G AVg Zg cYj XvXZ gzh āh c āzh cYj XdgXj gZci geeā VcYi Zg dg āVh
 id āll Zgdjieji kdāV Z geeā =dl ZkZgi Z ā/g ZgkVāZ cYj XdgVā Vnh XdgZhedcYh id V W Zge nh XVah oZ
 ZghZgZh gzh hiVcXZ VcYāll ZghMjgM dc Xj gZci 6 ddYg ā dgYZ Zg c c i Z cYj XvXZid jhZ hid Vāll
 i Z cYj XdgeZV id eZV geeā Xj gZci id VZ Veegmb VZā % s)% d i Z b Vmb j b djieji Xj gZci

I ZeZV id eZV geeā Xj gZci ci Z cYj Xdg AEE Xv VZ Xvāj āMZVh c: f j M dc .

L ZgZ

- AEE hi Z cYj XdgeZV id eZV Xj gZci
- Ahi Z cYj XvXZ d cYj Xdg
- HL hi Zhl iX c gZf j ZcXh
- K_{DJI} hi Zdjieji kdāV Z
- Kc hi Z ceji kdāV Z

HcXZi Z cYj XdgXj gZci geeā cXgZhZhI i i Z ceji kdāV Z hdi Z b Vmb j b ceji kdāV Z c VeeaXM dc h
 Vā Vnh jhZYid Xvāj āMZi Z b c b j b cYj XvXZ gZf j gZ JhZ: f j M dc , id Xvāj āMZi Z cYj XvXZkvāZ

L ZgZ

- A_B c h i Z b c b j b cYjXVcXZ gZf j gZY
- h_I h i Z h i X c gZf j ZcXn
- K_{DJI} h i Z djieji kdàV Z
- K_{C b Vm} h i Z b Vmb j b ceji kdàV Z
- D_{Jl b Vm} h i Z b Vmb j b 98 aVYXj gZci
- A G h XdZ XZci d AEE id DJI

I ZidiVaXj gZci a_I c i g_I j i Z cYjXdg h i Z cYjXdggeeZ Xj gZci e_h i Z djieji Xj gZci L Zc hZaX c Vc cYjXdg X ddhZ ih gMYXj gZci ZheZXVam i Z hVjgM dc Xj gZci aVg Zgi Vc ih eZV deZgM dc Xj gZci VcY GBH Xj gZci V_{and} cdi VZ ZmZZYZY I ZgZ dgZ i Z eZV h i X c Xj gZci d cYjXdg AE: 6 VcY AGBH XVC VZ XvXj aMYVh c Zf j M dc . VcY Zf j M dc &%

&%

L ZgZ

- AE: 6 h i Z cYjXdgeZV Xj gZci
- DJI h i Z 98 aVYXj gZci
- AEE h i Z cYjXdgeZV id eZV Xj gZci
- AGBH h i Z cYjXdgGBH Xj gZci

c dkZgaVYc dgaVYigVch Zci XdcYi dch i Z cYjXdgeZV Xj gZci Xvc cXgZVhZ jeidi Z h i X Xj gZci ab i d i Z YZk XZl X h i ne X_{am} *6 I Z b dhi XdchZgM kZ VeegVX hid X ddhZ Vc cYjXdgI i VhMjgM dc Xj gZci gM c gZVZgi Vc *6 7ZXVjhZ d i Z b Vmb j b AE: 6 ab iZY Vm YZk XZ i Z b Vmb j b djieji Xj gZci i M i Z H8I)((Xvc YZakZgV_{and} YZeZcYh dc i Z cYjXdgXj gZci geeZ I j h i Z b Vmb j b YZh gZY djieji Xj gZci V_{and} V ZXhi Z hZaX dc d cYjXVcXZ I Z hb Vazg cYjXdg gZj h c aVg Zg cYjXdgXj gZci geeZ aVYc id V Zg b Vmb j b djieji Xj gZci

dgi h YZh c jhZ AG2% dg%(VcYi Z cYjXdgkV_g Z h XvXj aMYid VZ *, j = i Z GBH cYjXdgXj gZci h (*86 VcYi ZeZV cYjXdgXj gZci h)6 I ZX dhZc cYjXdg h VL : ,))(*+ %I X Vh VhMjgM dc Xj gZci gM c d &% VcYVGBH Xj gZci gM c d -)6 I h V_{and} Vh Vine XvacYjXVcXZ d + * = M cd aVYVcY+ = M)6 aVY I Z cYjXdg98 G h & * b

I Z ceji Xj gZci idi ZhiZe Ydl c 9898 XdckZgZgh YhXdc ijdjh i ZgZ dgZ i gZf j gZh VXeVXidgid hjeam i Z 68 Xj gZci idi ZhiZe Ydl c 9898 XdckZgZgl aZb VciVcc i Z 98 ceji kdàV Z JhZ XVeVXidgI i a_I : HG dgVZiZgeZgdg VcXZ 8ZgVb XXVeVXidgI i M* G dgM, GYZaXgXh VgZ jhj V_{am} hj ZhiZYVZXVjhZ d i Z g_{all} : HG VcYhb V_{am} Zb eZgMj gZ XdZ XZcih VcY i h h i g_I c a gZdb b ZcYZYid jhZ Vcdi Zg_{all} ZgkV_g Z XVeVXidg Z %&j I i hb V_{am} eVX V ZhoZ %&% id aZg gZf j ZcXn h i X c cdhZ EaXZi Z hb V_{am} h oZ XVeVXidg Vh X_{all} h i d K C VcY C9 e ch Vh edhh VZ

I ZkdàV Z gM c d i Z ceji XVeVXidgb jhi VZ gZVZgi Vc i Z b Vmb j b ceji kdàV Z 6cYi Z XVeVXidgb jhi V_{and} V_k Z VgeeZ Xj gZci gM c gZVZgi Vc i Z b Vmb j b ceji Xj gZci geeZ I Z GBH Xj gZci c i Z ceji XVeVXidgXvc VZ XvXj aMYj h c : f j M dc &

&&

I Zl dghi XhZ XdcYi dc dXXj gh M K c2 K_{DJI} I ZgZ/

&

dgh b ea XM dc X ddhZ Vc ceji XVeVXidgl i Vc GBH Xj gZci gM c gZMZgi Vc Va d i Z b Vmb j b aVY Xj gZci

L Zc hZaZ c XZgMb X XVeVXidgh i cZZYh id Xdch YZgi Z Z ZX kZ kVaj Z d V XVeVXidg YZ XgZVh c Vh i Z 98 WWh kdäV Z V XgZhh V XVeVXidg c XgZVhZh

I Z ceji XVeVXiVcXZ kVaj Z YZ Zgh i Z ceji geeäZ kdäV Z d i Z gZ j aMdg I Z ceji kdäV Z geeäZ XvC VZ XvAj aMZY jh c : f j M dc & VcYi Z b Vmb j b ceji kdäV Z geeäZ dXXj gh M *% Yjin XhXäZ

&(

dgi h ZmB eaZ i gZZ) , M, G XZgMb X XVeVXidgh gMZY dg *%K c eVgVäZaVgZ jhZY 6 cY V %& dg gZf j ZcXh äZgc XVeVXidgh eaXZY Vh XäZhZ Vh edhh VZ id i Z YZk XZ ech

6 %& XZgMb X XVeVXidgb jhi VZ XdcccXZY VZl ZZc 7DDI ec VcY HL ec dgegZgdeZgM dc 6 XZgMb X XVeVXidgl i M* G dg VZiZg gVYZ YZaZ XgX h gZXd b ZcYZY I Z XVeVXidgh djä V kZ V &%K dg ZgkdäV Z gM c

I ZhZaZ dc d djieji XVeVXidgl äV ZX djieji kdäV Z geeäZ c hiZVh hiMZ VcY aVYigVch Zci eZgdgh VcXZ

I Zdjieji geeäZ h ZhZci Vm Xdb edhZY d il d eVgh DcZ h XVjhZY Vm i Z cYj XdgXj gZci geeäZ d c i gZj i Z: f j kVäZci HZgZh GZh hiVcXZ: HG d i Zdjieji XVeVXidgh VcYi Zdi Zgh XVjhZY Vm i Z cYj XdgXj gZci geeäZ X Vg c VcY YhX Vg c i Zdjieji XVeVXidgh I d VX ZkZ hb Vädjieji kdäV Z geeäZ X ddhZ V äll : HG djieji XVeVXidg a Z XZgMb X XVeVXidg dg XZgMb X XVeVXidgh i Z XVeVXiVcXZ Ydb cVZh i Z djieji geeäZ dg h b ea XM dc i Zdjieji kdäV Z geeäZ XvC VZ Zhi b VZY Vm : f j M dc &) YZh gZY

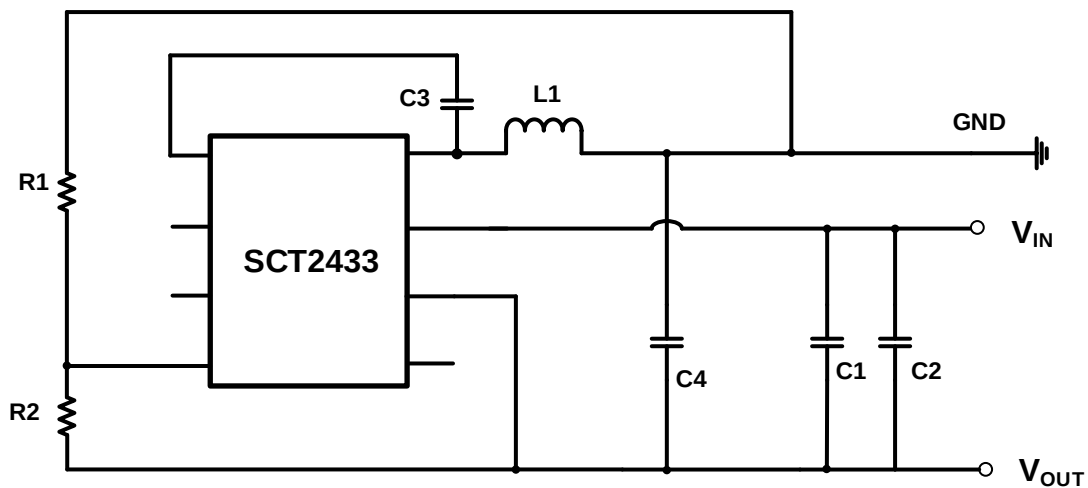
&)

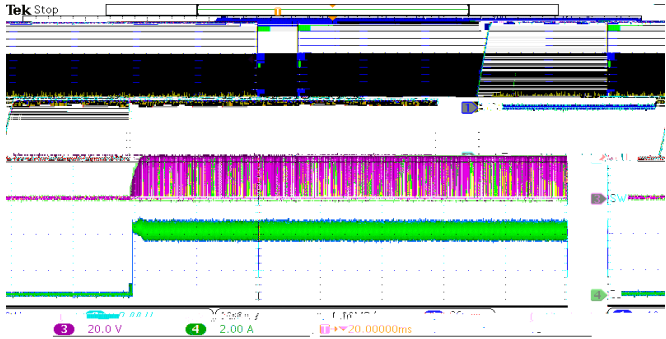
L ZgZ

- hi Zdjieji kdäV Z geeäZ
- H_L hi Zh iX c gZf j ZcXh
- Ahi Z cYj XvC XZ d cYj Xdg
- 8_{DJI} hi Zdjieji XVeVXiVcXZ
- K_{DJI} hi Zdjieji kdäV Z
- K_chi Z ceji kdäV Z

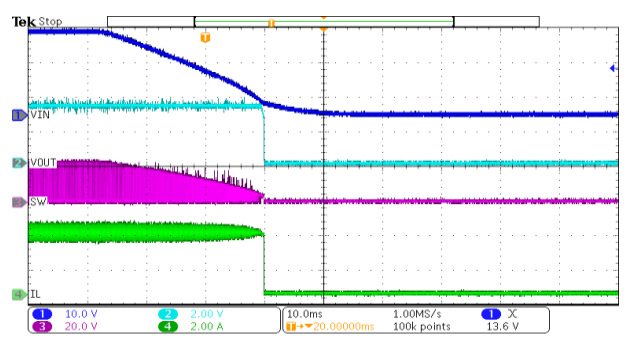
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I ZH8I)((XvC VZ jhZYid XdckZg Vedhi kZ ceji kdāV Zid VcZ MkZ djieji kdāV Z l ne XVaVeeaXM dch VgZ Vb ea Zgh gZf j gc VcZ MkZ edl Zghjeeā

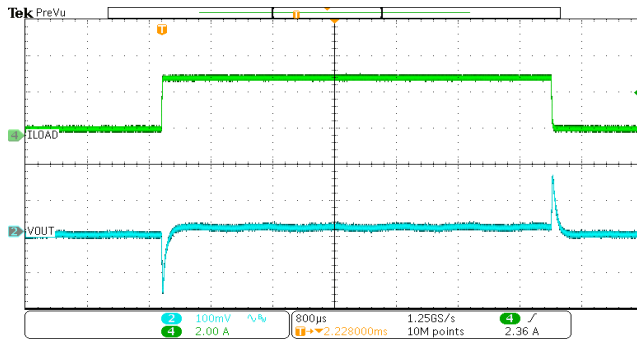




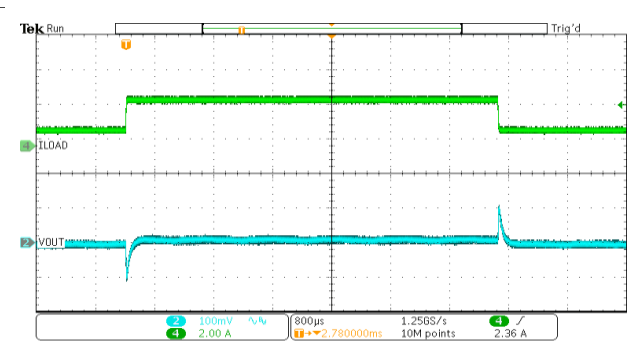
jgZ & Edl Zgje



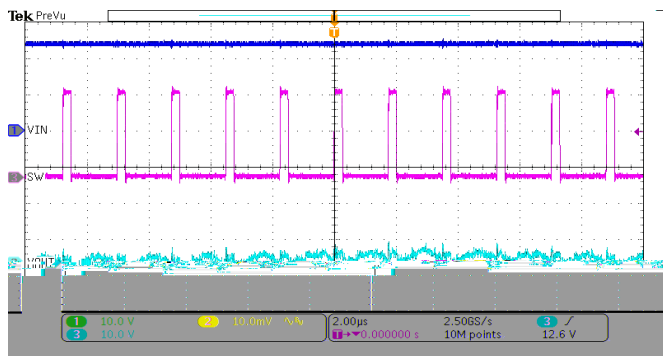
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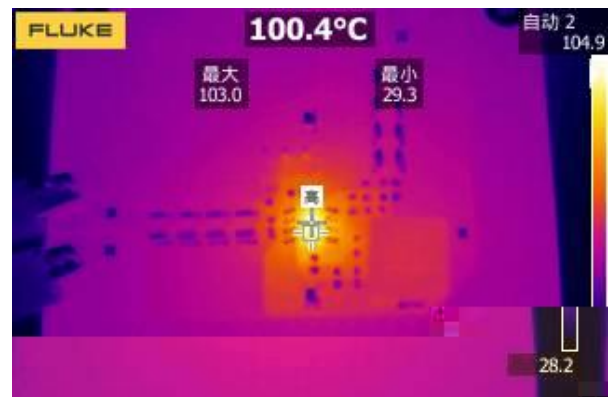
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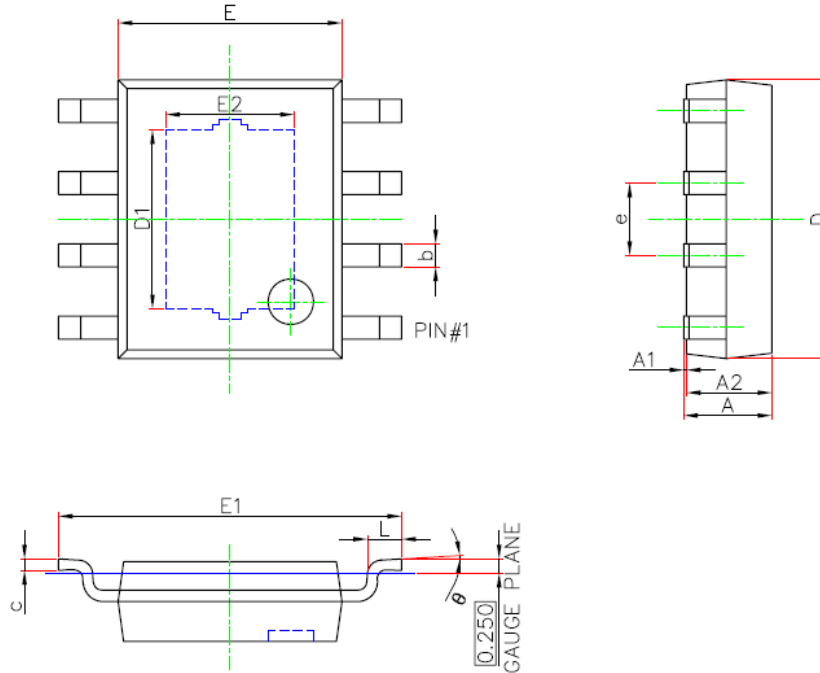
jgZ % AdVYl gVch Zci %-, *6 + *6 *%6 jh



jgZ & HL VcYKdji GeeZ dji2(*6



jgZ l Zp Va((Kdji (*6



HDE- EE . *m% % EVX V ZDjiacZ 9 b Zch dch

Hnb Vda	9 b Zch dch c B ab Z Zgh		9 b Zch dch c cX Zh	
	B c	B Vm	B c	B Vm
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1. 9gM c egledhZYid VZ b VYZ V : 9: 8 eVX V ZdjiaCZBD %kVgM dc
2. 9gM c cdi id hXVāZ
3. 6aacZVgYb Zch dch VgZ c b ab Z Zgh
4. I Zp VaeVYh VaaVZ hdaZgZY dci Z VdVgY
5. 9 b Zch dch d ZredhZY eVY dc Vdiidb d eVX V Z Yd cdi cXj YZ b daY ah
6. 8dciVX E87 VdVgY VgXM dc dgb c b jb hdaZgb Vh I ZWdaZg/cXZh VZi ZZc i Z e ch

