REVISION HISTORY

127(3DJH QXPEHUV IRU SUHYLRXV UHYLVLRQV PD\ GLIIHU IURP SDJH QXPEHUV LQ WKH FXUUHQW

5HYLVLRQ 3URGXFWLRQ

5HYLVLRQ (7H[WXDO FKDQJHV WKURXJKRXW GDWDVKHHW

5HYLVLRQ 2UGHULQJ ,QIRUPDWLRQ

5HYLVLRQ 3LQ &21),*85$7,21

5HYLVLRQ 3DFNDJH QDPH DQG 06/ OHYHO

DEVICE ORDER INFORMATION

25'(5%/('(9,&(	3$&.$*,1* 7<3(	67$1'$5' 3$&. 47<	3$&.$*(0$5.,1*	3,16	3$&.$*('(6&5,37,2	06/
6&7)35%	7DSH 5H				)&874)1 /	

ABSOLUTE MAXIMUM RATINGS

Over operating free-air temperature unless otherwise noted(1)

DESCRIPTION	MIN	MAX2F

PIN CONFIGURATION

ESD RATINGS

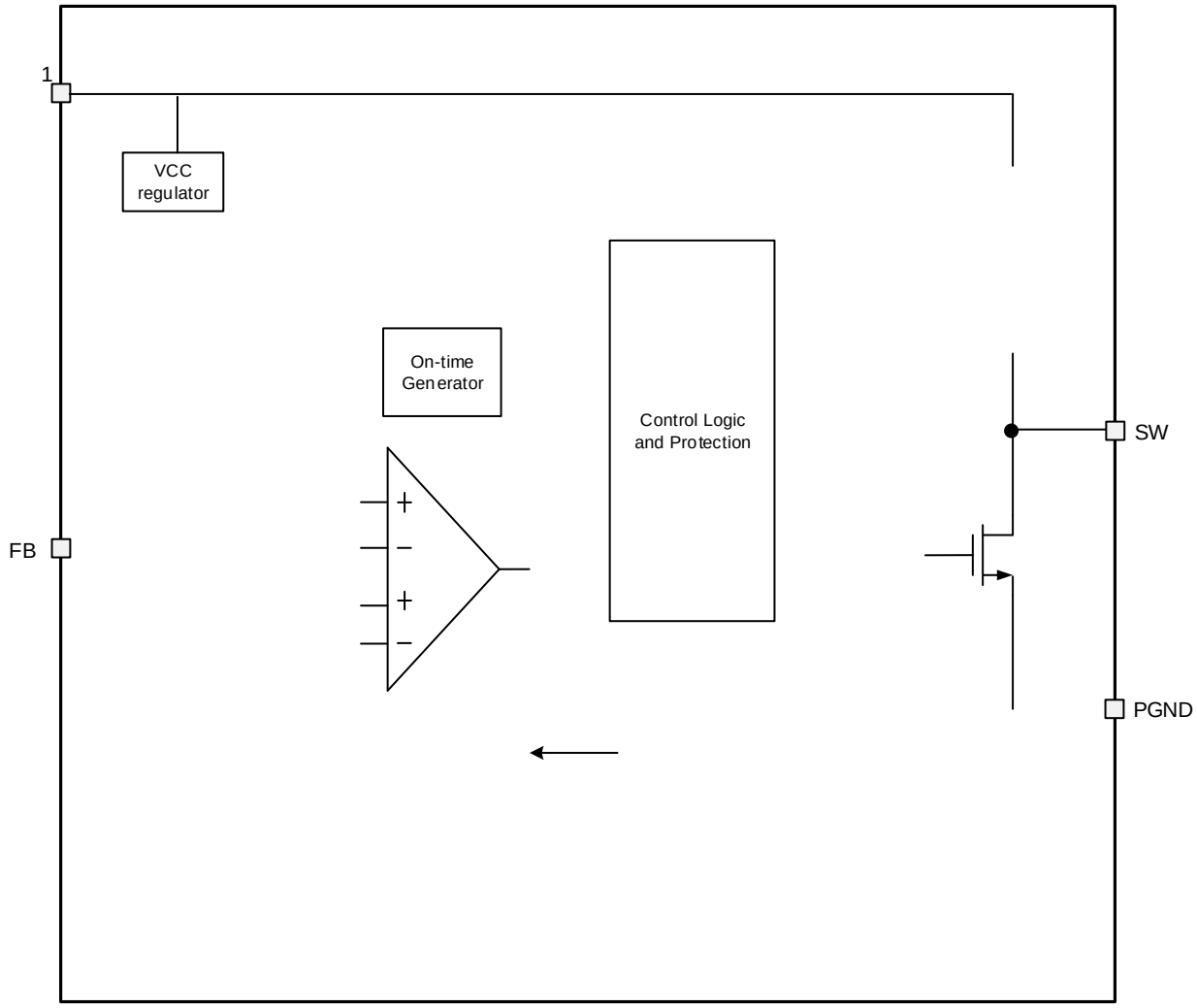
3$5$0(7(5	'(),1,7,21	0,1	0$;	81,7
9(6'	+XPDQ %RG\0RGHO +%0 (6' 6WDQGDUG -('(& -6 VSHFLILFDWLRQ DOO SLQV			N9
	&KDUJHG 'HYLFH 0RGHO &'0 (6' 6WDQGDUG -('(& -6 VSHFLILFDWLRQ DOO SLQV			N9

(1) -@'€'(HD!`GQXA` QPX FXP ` €0

)RU PRUH LQIRUPDWLRQ RQ WHQW6 EHQH FRQ &RQWHQW 7HFKQRORJLHV 5HVHDUFK\W&/R5HVHDUFK\W&/R5HVHDUFK\W&/R

6<0%2/ 3$5$0(7(5

FUNCTIONAL BLOCK DIAGRAM



)LJXUH)XQFWLRQDO %ORFN 'LDJ

OPERATION

2YHUYLHZ

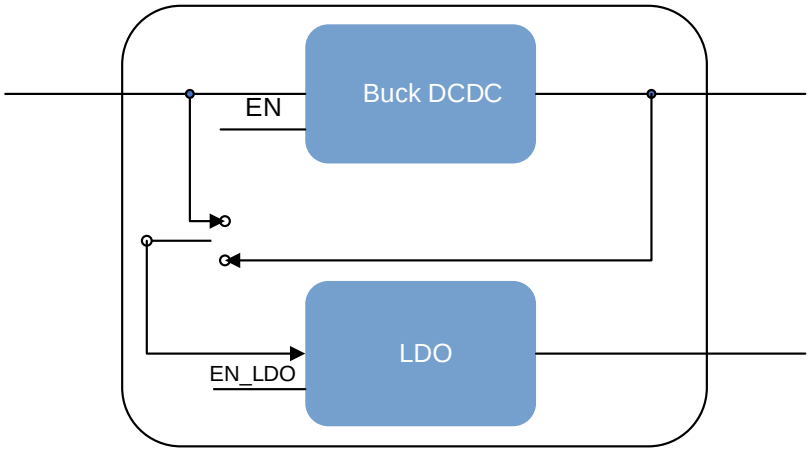
7KH 6&7 LV D 9 LQSXWRQWLQXRXVSXW V\QFKURQRXKZLWKULQJVRKQJK
VLGH DQG5GVROOR\ZLGHRZHU 02V)(,7W LPSOWHQ&VQVWDQW &2G7H FRQWURO
UHJXODWHRPXWSXWYLGLQJ H[FHOOHQWQOLQHMQQG VLRDQGH[WHUQDO IUHTXH
FRPSHQVDWLRQ GHVLJQ

7KH VZLWFKLQJHQF\[HGN+]WRSWLPL]HWKHUPDOSHUIRUPDQFHQW
7KH 6&7 IHDWXUHVQHHGQVWDUWDWRRWDUWLRQLQXVK FXUUHQW DQG RXWS
GXULQJWXSKSGHYLFH IHDWXUHV WKUHH GLIIHUHQW RSHUDWLRQ PRGHV D
3)0 PRGHG 8 6WQDF 0RGXODWLRQ 860 PRGHKTXHQF\VKQWLV XS\SLFDO
XQGHU QRQGEHS PRGHWRRWLDFKLHYHLFKQF\ DW OLJKW ORDG

7KH 6&7 LQWHUIDFHV'2 ZKLFK VXSSOLHV XS WR P$ RXWSXW FXUUH
UHJXODWLRQ LV OHVV WKDQ

7KH 6&7 KDV D GHIDXOWSLQSXWJWZDUP9K\VWHUHVLV1FWLRQ ZLWKXUHV
SUHFLVLRQ WKUHVKROG WKDW FDQ EH XVHGKUHVKHWLQSXWYROWHPHW

K\ K O U Lð F€PPD pH



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3XOVH)UHTXHQF\ 0RGXODWLRQ)3:0 00RGXODWRU860

*URXQGLQJ WKH 02'(SLQ PDNHVWXDWH)UHTXHQF\ 0RGXODWLRQ)3:0 PR
SRZHU HIILFLHQFLHV WKDW GRXWSXW FXUUHQW GHFUHDVHV DV WKH
UHGXFHG ,I WKH RXWSXW FXUUHQWLQGXFWRUFXUUHQWZKHQWKH
ERXQGDU\ EHWZHHQ FRQWLQXRXV FRQGXFWLRQDQGGLVFRQWLQXRXV
RII ZKHQ DLQGXFWRU FXUUHQW LV GHWHFWHGDVZHOORZ
GLVFRQWLQXRXV FRQGXFWLRQLVPRGHSDVVLYHORQGLVFRQWLQXRXV FRQGXFWL
LQFUHDVHV DV LW WDNHV PRUH WLPHVWRGLVFKDUJH FXUUHQWSXW ZLWK

)ORDWLQJ WKH 02'(SLQ PDNHV WKH GHYLFH FRQWLQXRXVFRQGXFWLRQ ZLWK
VZLWFKLQJ IUHTXHQF\ RXW RI WKH DFRXVWLF DXGLEOH IUHTXHQF\ 7KH
VLGH DQGLGHRZ026)(7V :KHQ VE\WKDQGZLGRZ026)(7V DUH RII IRUGLGXV02WKH
IRUFHV WR WXUQ RQ XQWLO WKH QHJDWLYH FXUUHQW OLPLW LV WULJJHU
UHIHUHQFH YROWDJH 95()

)RUFHG 3XOVH :LGWK 0RGXODWLRQ)3:0 PRGH

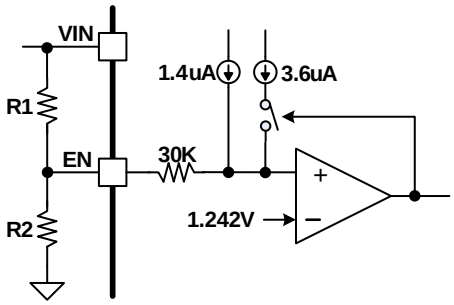
&RQQHFW02'(SLQ WR 9&& WR HQ&&07 WKH GHYLFH RSHUDWLQJ DW IRUFHG 3X
PRGH ZLWK IS[HGXVZLWFKLQJ IUHTXHQF\ UHJDUGOHVV ORDGLQJ FXUUHQW
VPDOOHU RXWSXW YROWDJH ULSSOH FRPSDUHG ZLWK 3)0 RU 860 DW OLJK
ORZLGH 026)(7 FXUUHQW FURVVHV]HUR DQG VLQNV FXUUHQW IURP RXWSX
HIILFLHQF\ LQ OLJKW ORDG LV PXFK ORZHU WKDQ KHDY\ ORDG

(QDEOH8DQGGHOD\DJHNR7XKWU HVKROG

7KH 6&7 LV HQDEOHG ZKHQ9RVWKH9ROWDJH9HEVRYH9 DQG9WKH (1 SLQ YROWDJH H[FHHGV
WKUHVKROG9G 7KH GHYLFH LV GLVDEOHG ZKHQ WKH9RU1ZSKLHQQ YROWDJH1JSLQQ YRV
EHORZ $Q9LQWHUQDOO XS FXUUHQW VRXUFH1QWDQGRXWKH YDOXHQ DFHKDUDFWHQ SLQ RDWV

(1 SLQ LV D KLJK YROWDJH SLQ WKDW FDQ EH FRQQHFWHG WR 9,1 GLUHFW

)RU D KLJKHU 8/9\/2WHKRUHVFRQGHG[WHUQDOYLHVDQGRWKRZQ)LJXUH 9,1
WR (7KH 89/2 ULVLQJ DQG IDOOLQJ WKUHVKROG FDQ EH UHVSHFWXDOWHGE\



)LJXUH6\VWHP 89/2 E\ HQDEOH

ZKHUH

9ULVLQJ ULVLQJ WKUHVKROG

Û 9IDOOLQJ IDOOLQJ WKUHVKROG

2XWSXW 9ROWDJH

7KH 6&7 UHJXODWHV WKH LQWHUQDO ZLWKRXW RFFXS\LQJ WKH RSHUDWLQJ YROWDJH UDQJH 7KH RXWSXW GULYHU LV GHVLJQHG WR VXSSOLH XS WR P$ RI RXWSXW FXUUHQW 7KH RXWSXW YROWDJH LV VHW WR P9 7KLV YROWDJH LV UHFRPPHQGHG WR XVH WKURXJK D FDSDFLWRU &RXWSXW WR FDOFXODWH U 7RLPSURYH HIILFLHQF\ DW OLJKW ORDGV ODUJHU YDOXH UHVLVWRUV DUH

VLGH)(7 VZLWFK WKH VZLWHDKOFLXQUHDHUQWDLWQHFGHHDWHUPDQHG E\ LQSXW YRC
WLPH DQG WKH RXWSXW LQGRXFWRERRYHDOXWKH ')RWRZZQZLWKH WKLV FXUUHQW
7KH DYHUDJH YDOXH RI WKHRGZLXUFKHQXU2HQW LV WKH

,I WKH PHDVXUHG GUDLQ WR VRXGHF(7YRVWDEJHYHRIWKHHYGRXWDUJHQSUERUW
ORZ VIGH)(7 VWD\V RQ XQWLO WKH FXUUHQW OHYHO EHFRPHRXWSXW
DYDLODEOH :KHQ WKH WFKXUROXWJHLWLQGGY WR GUDPEHQGDVKLWKHU
ZKDW WKH FRQYHUWHU FDQ VXSSRUW :KHQRIWKHHXRDOSXWJHRWWHJ3FRP
GHWHFWV LW DQG VKXWPVPHGRZQWKHQG HGYHYDEHWHU D KLFFXS WLPH RI PV ,
YDOOH\ GHWHFW FRQWURO WKH ORDG FXEU\RHQHWKLDVOKLRJKWHSKEDQNWKRH 2&
FXUUHQW :KHQ WKH RYHUFXUUHQW FRQGLWLRQ UHWXUHQPVRYHRG WKHKHU
FRQGLWLRQ KDSSHQVGKXHULQJKWHGHUFFXRSGHQWVHPHUGLDWHO\ ZLWKRXW D ZDL

7KHLKFXS SURWHFWLRQ PRGH DERYH PDNHV WKH DYHUDJH VKRUW FLUFXL
WKH UHJXODWRU

8QGHYROWDJH 3URWHFWLRQ

7KH& 7 IHDWXUHVGHWHWRHWQJH 3URWHFWLRQ 893 E\ PRQLWRULQJ WKH RX
YROWDJH YROWDJH :KHQ WKH IHHGED5FN WRHOWQHDHOVKEHHRZ PRGH 9Q
XQGYROWDJH VFHQDULR UHOHDVHG

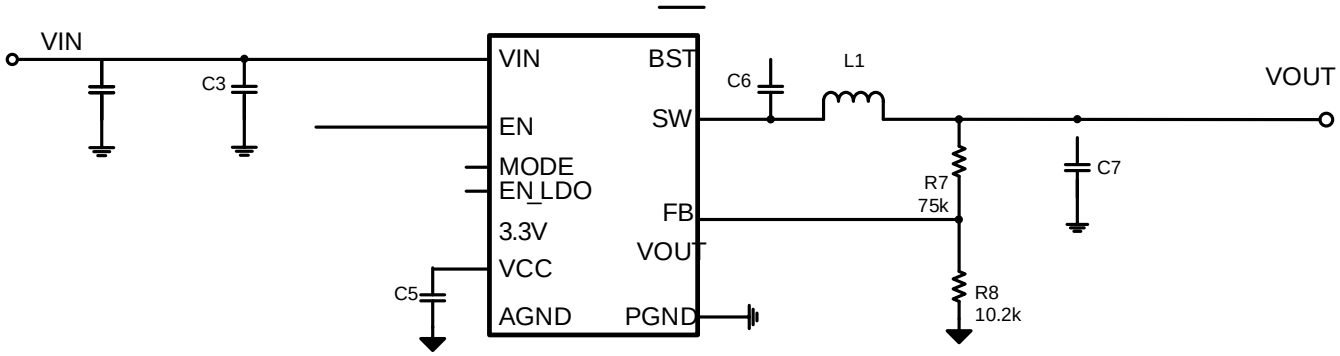
2YHU YROWDJH 3URWHFWLRQ

7KH 6& 7 LPSOHPWHQVROW3URHWHF2WBRQUHXLPLQLPL]H RXWXGYRULQDJH
ORDG WUDQVLHQWLQJ IURP RXWSXWJKDWVDDFRKQHGLWHRQFRRUVDUE2U3U
FLUFXLW VFRHPSD)%HSLQWRRQNHJHQDYURHIWDKHHQFKH IHHGED WDJH ULVHV KLJK
RI WKH IHHGEDFN YROWDJH WKH 293 FRPSDUDWRU RXW)(XWGURHWUKLJ
7KH /)(7 GULYHU XQWXQQLQJ WQLJJHU QHJDWLYH FXUUHQW ZKHPLW)(RUW)%GHVO
RQ ZLWK QRVULPDO D2QG WXUQ RII I)RTORRZXQWZLQKDDV6LYH FXUUHQW OLPL
WKDQ UHIHUHQFH YROWDJH WKLHW7KLHG HYJXEHDWLHQGSEEUYGRZKDQHWRHOWKEHO
UHIHUHQFH YROWDJH

7KHUPDO 6KXWGRZQ
7KH 6& 7 SURWHFWV WKH GHYLFHGHXULQJP[FHHVGLPDJHKDW DQG SRZHUHGLVV
WKH MXQFWLRQ WHPSH&UDWXKHUHQW[FHEQGV WKHUPDO VHQVLQJFKLWRJV:KHQHWU
MXQFWLRQ WHPSHUDW&XWKHDGHOYLEHQURZVWDUWV ZLWK LQWHUQDO VRIW VV

APPLICATIONINFORMATION

7\SLFDO $SSOLFDWLRQ



)LJXUH 9 ,QSXW$ 29XWSXW

'HVLJQ3URGUDPHWHUV

Design Parameters	Example Value
Input Voltage	12V
Output Voltage	5V
Output Current	6A
Output voltage ripple (peak to peak)	50mV
Switching Frequency	400kHz

,QSXW &DSDFLWRU 6HOHFWLRQ

)RU JRRG LQSXW YRKOPWRQZRKH65L0WUHDPLQJ FDSSFDFLWRUVFDSDFLWRUEHVSDMFRPSRVHQGHG
WKGHFRXSOLQJFDQDSDFLWRUPLF E\SDVV FDSDFLWRUEHVSDMFRPSRVHQGHG
WR WKH 9,1 6&7Q RI WKH

8VH (TXDWLRQ DOFXODWH WKH LQSXW YROWDJH ULSSOH

: KHUH
&,1LV WKH LQSXW FDSDFLWRU YDOXH
IVZLV WKH FRQYHUWHU VZLWFKLQJ IUHTXHQF\
,287LV WKH PD[LPXP ORDG FXUUHQW

'XH WRWKH LQGXFWRU FXUUHQWH UFKSDQJHVWKHWKHLSXWFXUUHQWDQG UHVLVWD
WKH SRZHU VXSS9,1 DQQWWKHUHFRPPHQGHG WR KDYH HQRXJK LQSXW FDSDF
ULSSOHVV WKDQ P9 W*ZHQXHUDOLQSXWUDPLF FDSDFLWRPRUHQGHGRVSOLFDWLRQ
&KRVHWKH ULJKW FDSDFLWRZRUWKQVLGHUHDQDOXDQFH FHUDPLF FDSDFLWRR
ZKLFK KDV D VWURQJ LQIOXHQFH RQ WKH ILIHFWLYH FDSDFLWDQFH

,QGXFWRU 6HOHFWLRQ

7KH SHUIRUPDQFHRU DIIHFWV WKH SRZHU VXSSO\¶V DVYLHDG\OWRWSWHR
EXFNFRQYHUWHU7KHHLQGLFXFWRU YDOXH '&& UDQGVWDDXFHDLQHQFXHUHQFHE
DQG WKH PDJQLWXGH RI WKH RXWSXW YROWDJHXEHOSXHURQWXULSSOHB
WKHUHIRUWRFOHDZHU RXWSXW YROW&RJHUQSOHU)RDOXHKGQKHUFWRIFLHQF\
UHGXFHG 506 DQG FRUH ORVVHVXFWRZHZLWKDQOD UHQF DGYDQWDJH
VHULHV UHVLVWDQFHWLQKJHWKEL\FHRXQFWLHQF DGYDQWDJH

,QGXFWRU YDOXHV FDQ KDYH “ RU HYHQ “ WROHUDQFH ZLWK QR FXUU
VDWXPxÇLRQ OHYHO LWV LQGXFWDQFH FDQ GHSHQXDVHQW GWRSHQGLQRP
LQGXFWRU YHQGRU G:KHLQHVVHOVHFWXLQJWKHRQLVHGXWRUEWSHEEDXUWKHQWDWXP
FXUUHQWU WKDQ LWV SHDN FXUUHQW GXULQJ WKH RSHUDpÀRQ

7R FDOFXODWH WKH FXUUHQW LQWLWXRQSZRWVYRLQEDWRWKHWSXWFXUUHQW DQG PLQLPXP VZLWFKLQJ IUHTXHQF\ RI WKH DSSOLWDWRUQQZKHQ DQG SRZHU FRQYHUVLRQ HIILFLHQF\

)RU ÀXFEN RQ YHFUWHU

2XWSXW &DSDFLWRU 6HOHFWLRQ

7KH VHOHFWLRQ RI RXWSXW FDSDFLWRUV DQG WKH RWKHU GHWDLOV RI WKH RXWSXW VWDJH

7KH RXWSXW ULSSOH LV HVVHQWLDOO\ FRPSRVHG RI WZR SDUWV 2QH LV WKH (TXLYDOHQW 6HULHV (65 RI WKH RXWSXW FDSDFLWRUV DQG WKH RWKHU LV F FKDUJLQJ DQG GLVFKDUJLQJ 7KH FKDUJLQJ RXWSXW FDSDFLWRUV DUH FKDUJHG WR 9 DQG GLVFKDUJHG WR 9 DQG WKH FDSDFLWDQFH GRP VLPSOLILFDWLRQ WKH RXWSXW YROWDJH GHSHQGHQFH FDQ EH HVWLPDWHG E\

:KHUH

- û LV WKH RXWSXW YROWDJH ULSSOH
- I6: LV WKH VZLWFKLQJ IUHTXHQF\
- / LV WKH LQGXFWDQFH RI LQGXFWRU
- &287 LV WKH RXWSXW FDSDFLWDQFH
- 9287 LV WKH RXWSXW YROWDJH
- 9,1 LV WKH LQSXW YROWDJH

'XH WR SDFLGWRUDWGVLQG '& ELDV YROWDJH DQG LQGXFWDQFH FDSDFL FDSDFLWRUV P DQG WKH UHDVRQDEOH W7KHUHIRUH OHDYH PDUJL HQVXUH DGHTXDWH HIIHFWLYH ESDSDFLWDQFH

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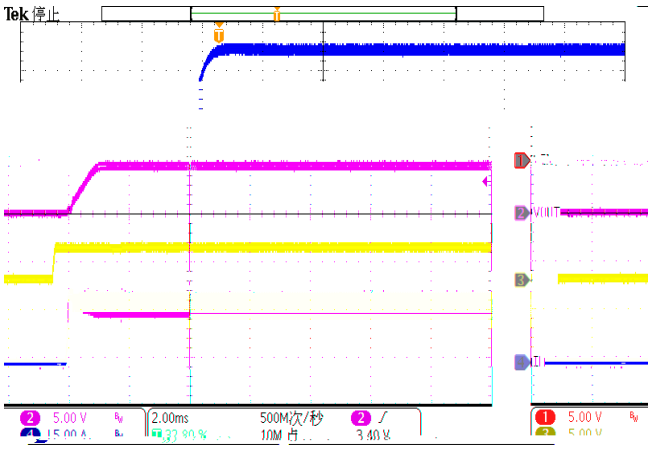

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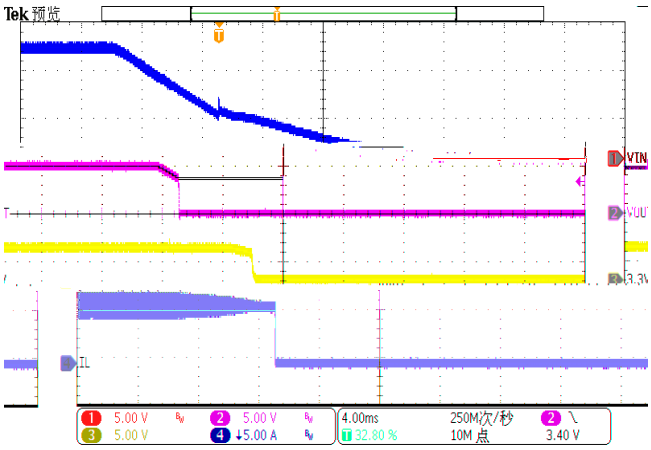

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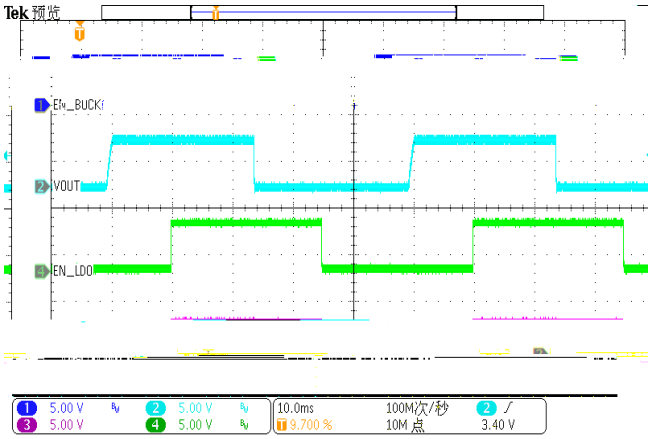

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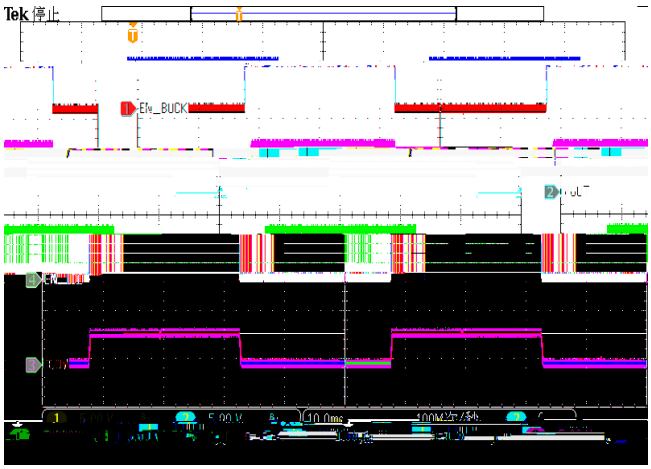

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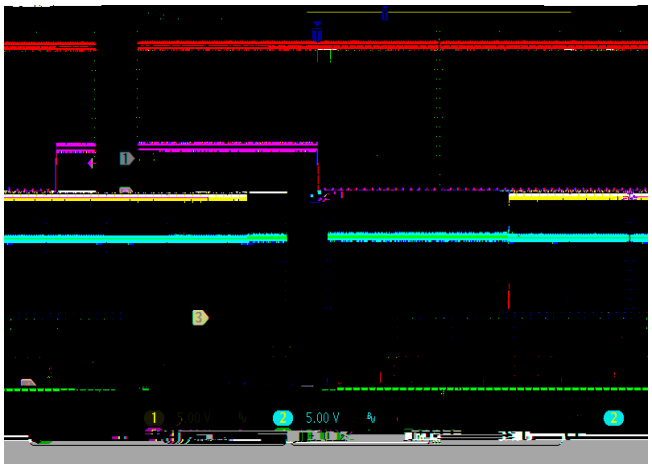

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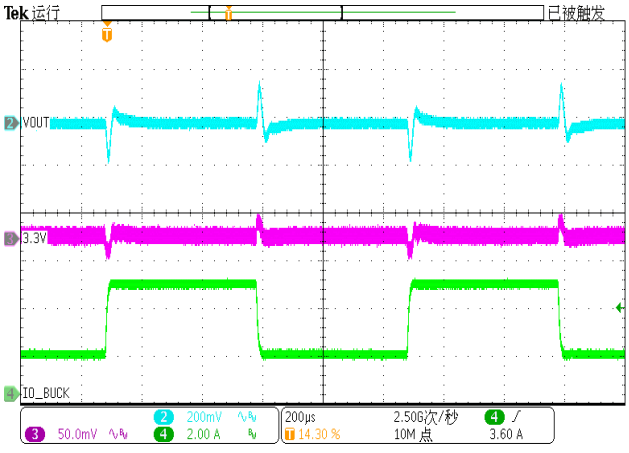

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$SSOLFDWLRQ :DYHIRUPV

9LQ 9 9RXWX QOHVV RWKHUZLVH QRWHG

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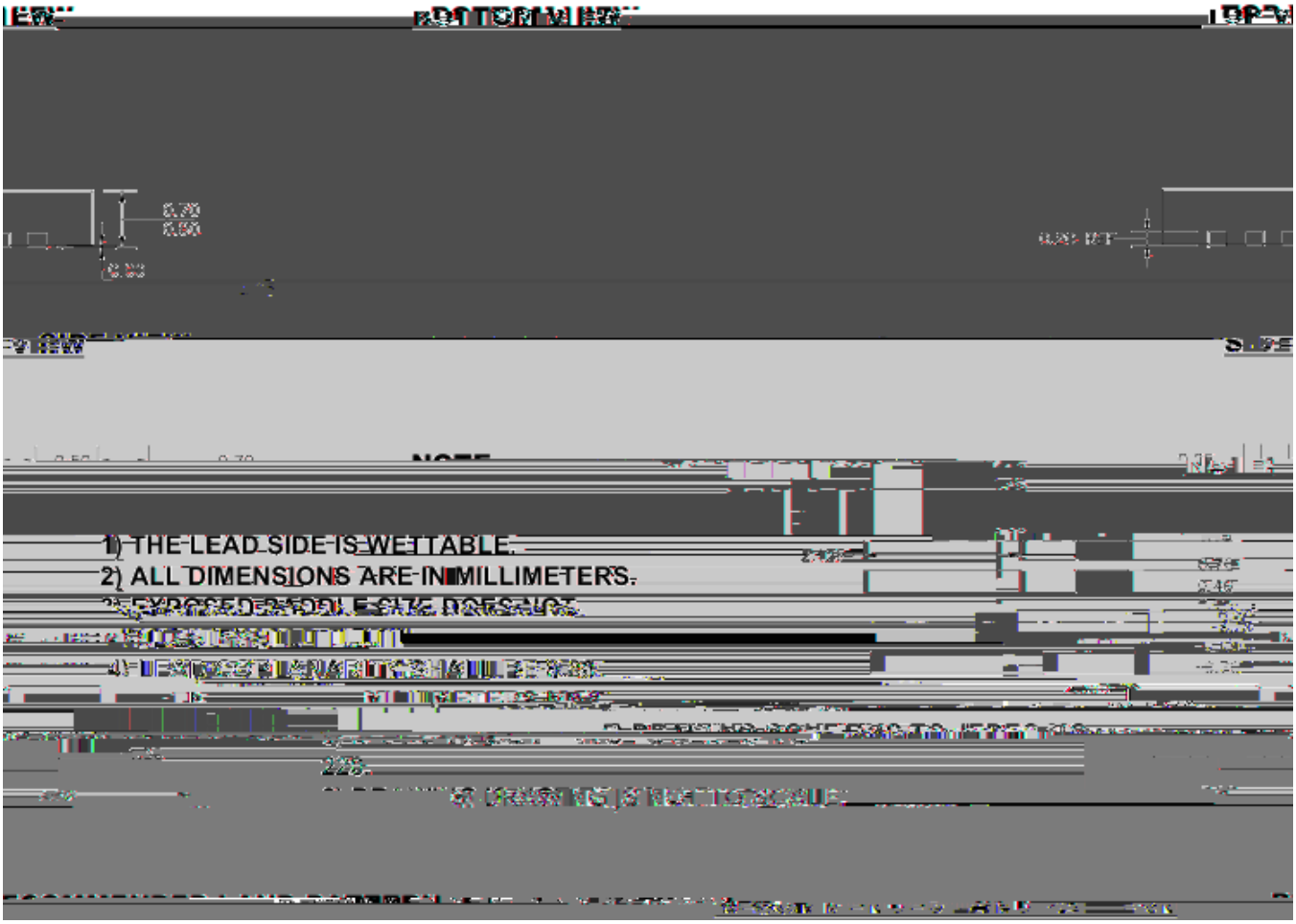
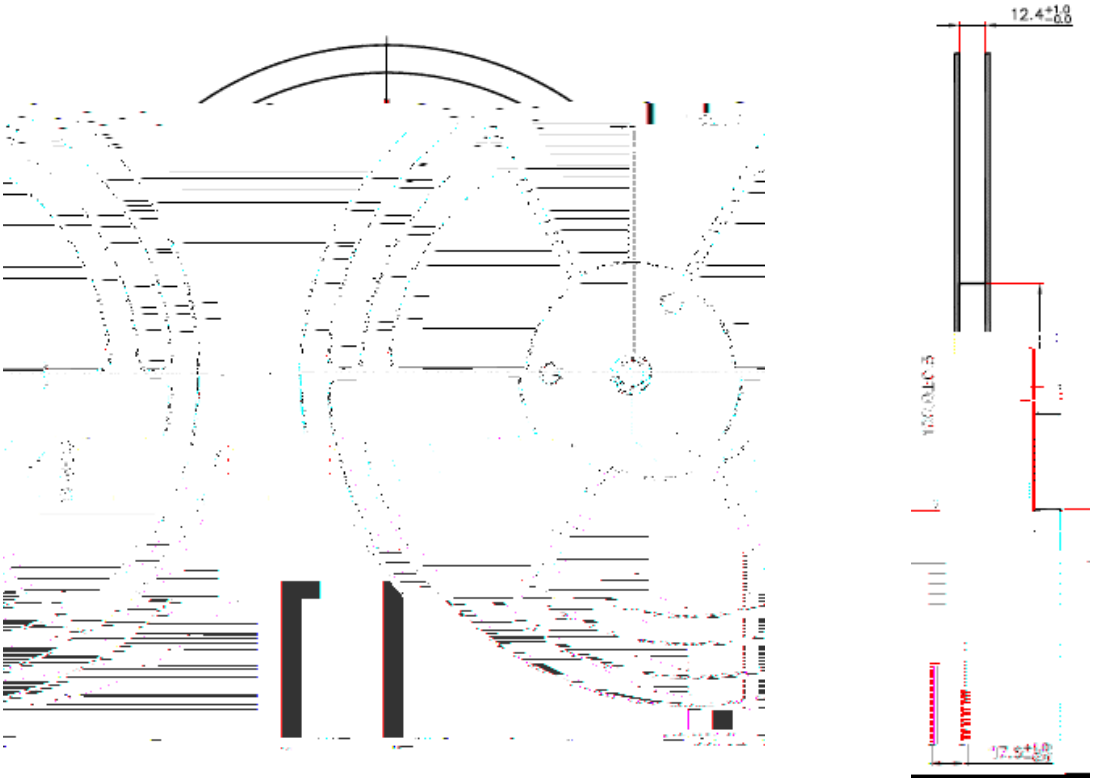
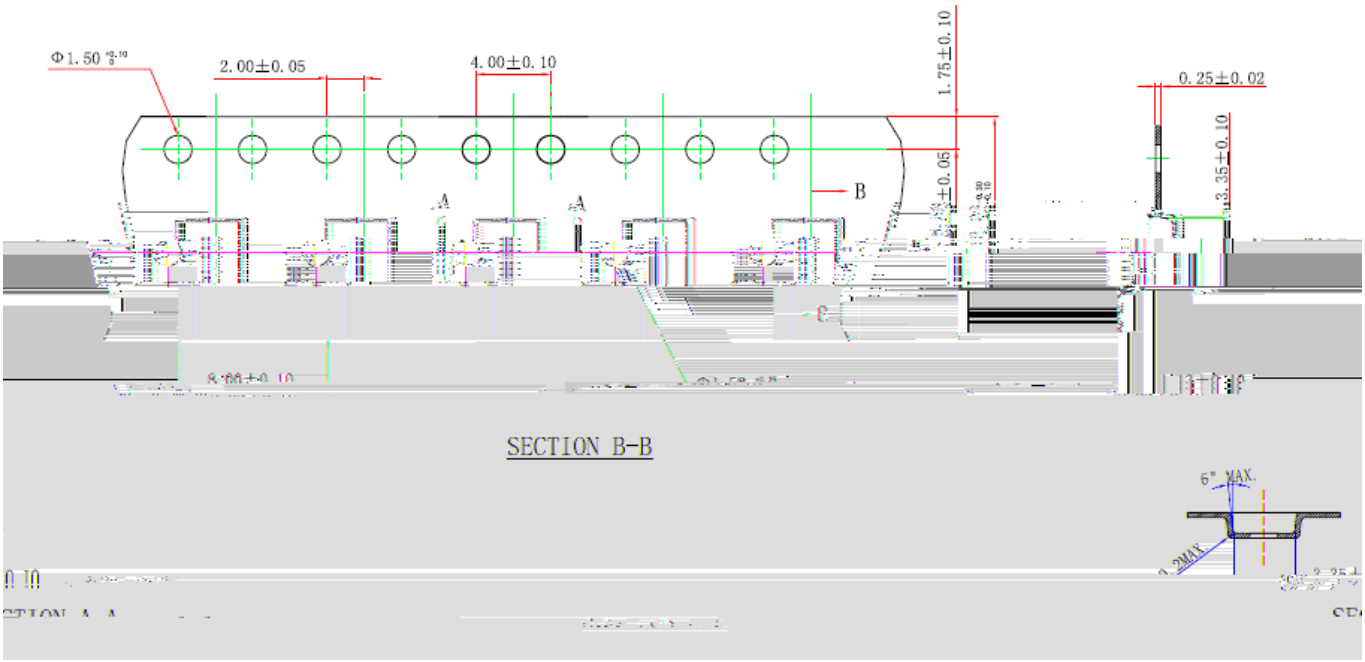
PACKAGE INFORMATION



TAPE AND REEL INFORMATION