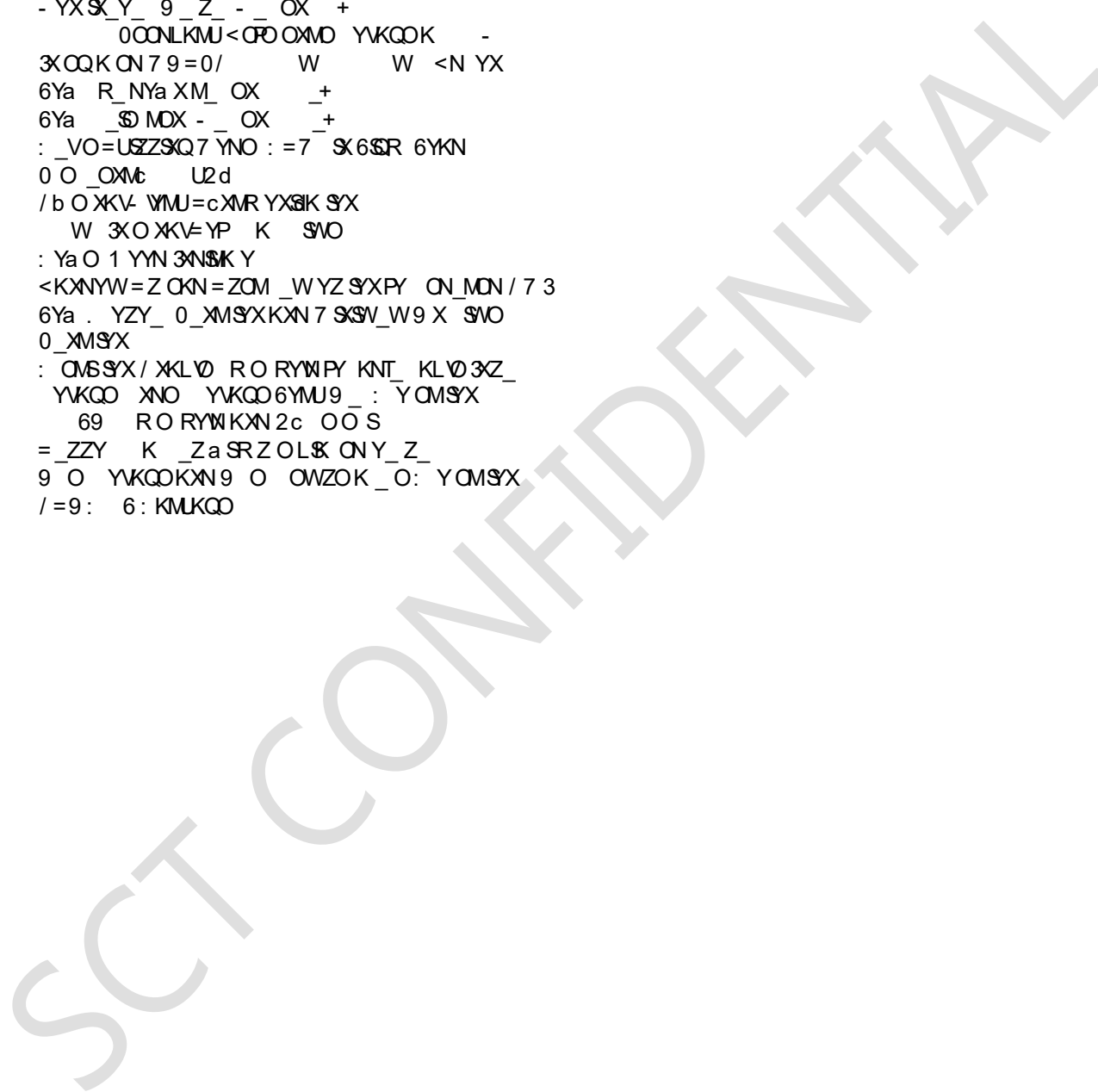


4.4V-65V Vin, 2A, High Efficiency Synchronous Step-down DCDC Converter

A \$IO 3Z_ YKQO < KXCO
 - YX \$Y_ 9_ Z_ - _ OX +
 00CNLKMJ < OPO OXMD YKQOK -
 3COQK CN 7 9 = 0 / W W < N YX
 6Ya R_ NYa XM_ OX +
 6Ya \$ MDX - _ OX +
 : _ VO = USZSQ 7 YNO : = 7 \$K6SR 6YKN
 0 O _ OXt U2d
 / b O XKV_ VMU = c XMR YX \$K SX
 W 3 O XKV = YP K \$VO
 : Ya O 1 YN 3NSKY
 < KXNYW = Z CKN = ZOM _ WYZ \$XPY ON MDN / 7 3
 6Ya . ZZY_ 0_ XMSXKN 7 \$SV_ W9 X \$VO
 0_ XMSX
 : OMSX / XKLØ RO RYWPY KNT_ KLØ 3Z_
 YKQO XNO YKQO 6YMU9_ : YQMSX
 69 RO RYWKXN 2c OOS
 = ZZY K _ Za SRZOLØ ONY_ Z_
 9 O YKQOKXN 9 O OWZOK_ O: YQMSX
 / = 9: 6: KMLQO



?

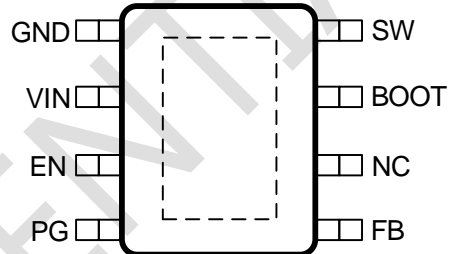
89 / : KQOX_WLO PY ZO S_ O SSX Wk NSD PYWZKQOX_WLO SK ROM_ OX O SX
<O SSX - _ YWO KWZD

?

=-	= / <	KZO <OOV				/=9: 6	, .
----	-------	----------	--	--	--	--------	-----

9 O YZOK SQPOOKS OWZOK_ O_X0 YROaSOXYON

	3 / 8		
	, 99		
	=A		
	=A & X		
	, 99 =A		
	0,		
	: 1		
9 ZOK SQT_XMSX OWZOK_ O 4			-
= YKQO OWZOK_ O = 1			-



- (1) = O O LQ:YXN RY O S ON_XNO +L YV O7 KbSV W <K SQ WkC MK_ ONO SDZO WKXOX NKWKQO RONO SDS XY Q_K KXCOON Y P_XMSXY_ \$IO YPS <OMVWMOXN9 ZOK SX- YXNSYX
- (2) RO Wk 3 KX SX YKQOS Q_K KXCOON Lc NO SXKXN O SSN YXLOMR
- (3) RS KZZS Y RO SQSQ YKQOQXOK ON Lc S OP XY Qb O XKW KZZSN YKQO
- (4) RO3 SMMNO YO OWZOK_ OZYOMSY YZYOM RONO SDON SQY O WKNMYNSYX 4_XMSX OWZOK_ Oa SVO MCOON - a ROXY O OWZOK_ OZYOMSYXS KMSO - YXK_Y_ P_XMSXKLY O RO ZOMSN WkSV_WYZOK SQT_XMSX OWZOK_ Oa SV ON MD VDSVO

18.		1 Y_XN
3		3Z_ ZZV YKQO - YXXOM K VMKVLcZK MKZKMSY PYW 3 ZSK Y18. ZSK : KR PYW 3 ZSK YRSRPO_OXV LcZK MKZKMSY KXN18. W_ LOK RY K ZY \$D
/ 8		/ XKLVSZ_ Y CQ WY 2SR 98 Va 900 - KXLOMXXCOMNNSOMV Y 3 RO KZYP O SY NS\$IO PYW 3 Y18. MYXOMSQ/ 8 ZSKMKXKNT_ ROSZ_ YKQO VMUJ_ RORYN. YXY PVK
: 1		9 ZOYNKSK ZYa O QYNN PKQ Y_Z_ - YXXOM YK SKLV YKQO ZZV RY QR K M_ OX VSSQ O SY 2SR ZYa O 95 Va ZYa O LKN ROPKQZ_W Va a ROX/ 8 Va - KXLOVP YZOXa ROX XY ON
0,		3 O SQSZ_ YP RO KX MYXN MKXMO O Y KWZSD RO KZ YP Qb O XKVRONLKMU O SY NS\$IO PYW ROY_Z_ Y18. O ROY_Z_ YKQO RONO SD CQ_K O 0, YKQO Y ROSKO XKVPO OXMD KVOYP cZSKV
8-		8Y MYXCOMN
, 99		: Ya O ZZV LS PY RSR \$IO ZYa O 79=0/ QK ON SO - YXXOM K_ O MKZKMSY PYW, 99 ZSK Y=A ZSK , YY KZMKZKMSY S MKK QONa ROX=A YKQOS Va

SCT CONF

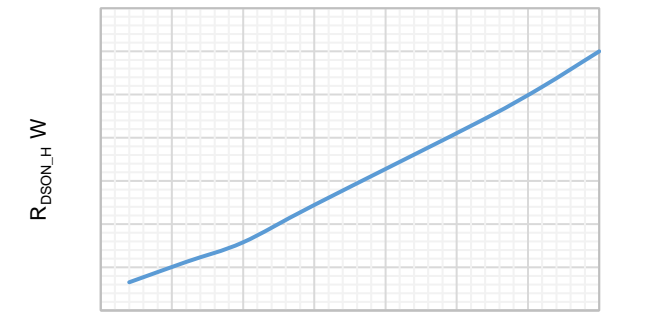
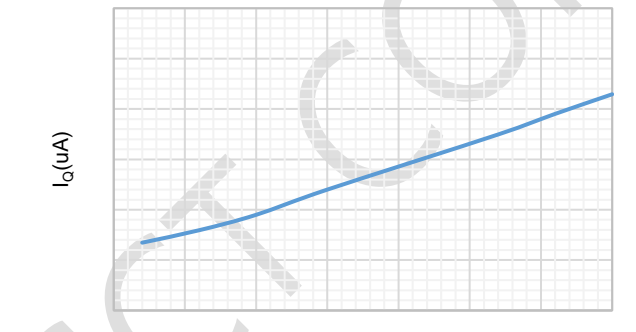
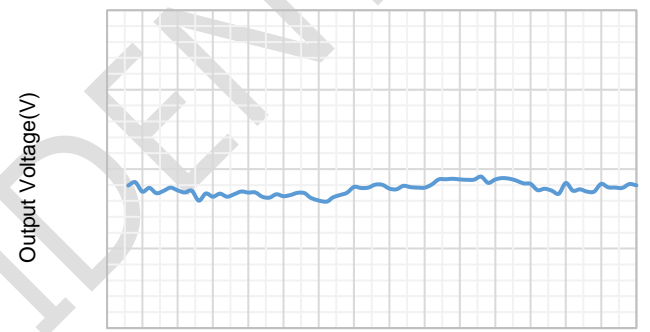
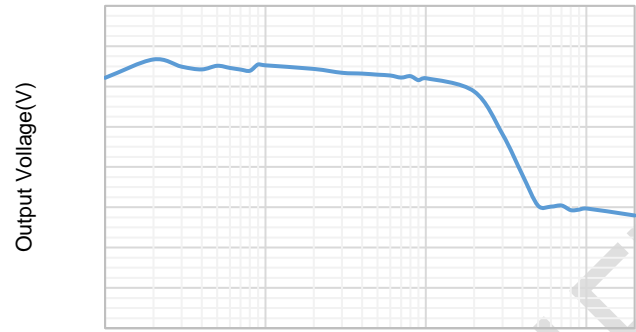
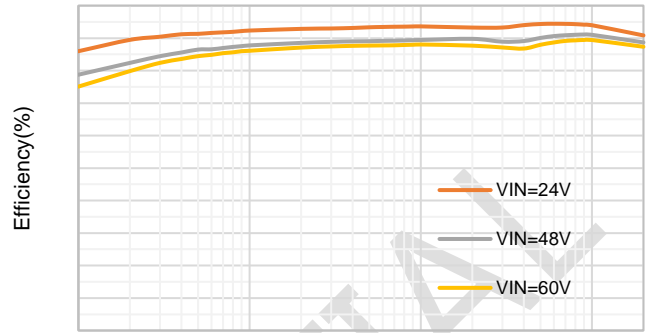
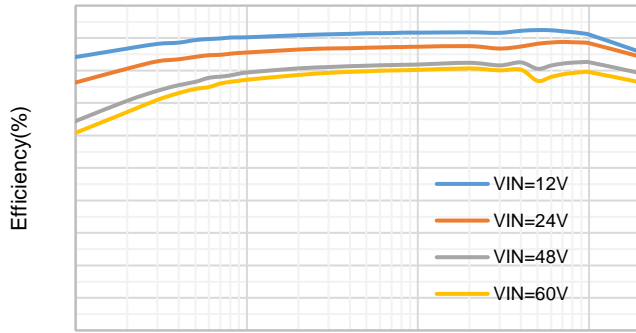
3	4	-	-	cZ\$KVKVOS O CN_XNO	-		
3				9 ZOK \$Q \$Z_ YKQD			
3l 69				3Z_ 69 ROR YW 2c OOS	3 S\$Q		W
3. 8				=R_NYa XM_ OX PYW 3 Z\$K	/ 8		+
3				_ \$ MOX M_ OX PYW 3 Z\$K	/ 8 PYK \$Q XYX a \$VRSQ , 99 =A		+
3MSO / 7				+MSOM_ OX PYW 3 Z\$K	3 9 XY VKN		_+
< . =98l 2				2\$R \$IO79=0/ YX O S KMD	, 99 =A		W
< . =98l 6				6Ya \$IO79=0/ YX O S KMD			W
</ 0				<OPOXMD YKQD YP0,	4 -		
37l 2=				2\$R \$IOZYa O 79=0/ ZOKU M OX \$VS ROR YW	4 -		+
37l 6==<<				6Ya \$IOZYa O 79=0/ Y \$QM OX \$VS ROR YW			+
3.				DOYMY NOCMY ROR YW			W+
2\$M_Z				2\$M_Z \$QO ROR YW YKQD YX0, Z\$K			
2\$M_Z NOKc				. OKc \$VO YP2\$M_Z \$QO			M:MD
2\$M_Z aKS				2\$M_Z Z YCM\$X_ X YP \$VO			W
3/+5l 7 3				7 \$SV_W\$N_MY ZOKUM_ OX K :=7 WYNO			+
/ 8l 2				/ \$KL \$R\$R ROR YW			
/ 8l 6				/ \$KL \$W\$a ROR YW			
/ 8l A+5/l 2				3OXK\$WQ\$Ma KUD_Z YKQD			
/ 8l A+5/l 6				3OXK\$WQ\$M R_NYa X YKQD			
==				3OXKV YP K \$VO \$VOPYWFS =A Z_VO Y			W
==				OK OYPR\$M_Z YMY_ \$ Y_Z_ XY \$K CQ_K \$X			J

: 11	: Ya O QYNPKQ_XNO YKQO SZSQ R O RYW	POWER GOOD (% of FB voltage)		
		POWER BAD (% of FB voltage)		

: W0E

SCT CONFIDENTIAL





SCT CONFIDENTIAL

RO=- SK SZ + Y_Z / 7 3PDXN cXVRYXY_L_MUMX O O a SRL_S/SK W <N YX
RSR \$IO KXN W <N YX Va \$IO ZYa O 79=0/ 3 SVZOWOX MYX KX PO_OXM ZCKU M_ OX WYNO
MYX YVY OQ_K OY_Z_ YKQO ZY \$ISQObMOVX \$OKXN VKN KX \$X O ZYX OKXN SVZESQ ROOb OXKV
PO_OXM MWZOX K \$XNO \$X

RO a SVRSQPO_OXM S U2d RO=- FCK_O KXSKOXKV W YP K SVO YK YS V K QO SK_R
M_ OX KXNY_Z_ YKQO Y O RY N_SQ K_Z RONO \$DQVY_ZZY WYXVSM K_Z a SRZOL\$ ON
Y_Z_ MYNSSYX RO OKW0 WYNO KX \$SYX LOa COX: A7 WYNO KXN: =7 WYNO YZOK \$X OX_ O RSR
OPSDXM Y O a \$IO VKN M_ OX KXQO RO \$D MX M_ OX S cZ\$K\$ +_XNO XY VKN Y VOZ WYNO
MYNSSYX YKMSD ORSR PSDXM K VSR VKN

RO/8 ZSKSKRSR YKQO ZSK a SRK Z OMSYX ROR YW FR MX LO_ ON YKNT RO SZ_ YKQO VMUY_
ROR YW a SR a YOb OXKVO SY YWOO KMM_KORSRO 69 c OW O_SOWOX - YXXOMSQ/8 ZSK Y
B NSOMV K _Z RONO \$DQ_ YK \$K\$

-- KMSD O KXNYW Z OXN ZOM_W WYN_K \$XObZKX \$XMOX O ON YX RO O a SVRSQPO_OXM
RO Z_ZY O YP Z OXN ZOM_W S Y OVS\$K O ZCKU OMS \$X K ZOM\$PO_OXM Lc Z OXNSQ RO O
OMS \$X KMY Ka \$IO KXQO YPO_OXM K RO RKXKZK a SR FSNPO_OXM YZOK \$X

RO=- P_WZ Y OMSYX FCK_O SM/NO RO SZ_ XNO YKQO VMUY_ RO Y_Z_ Y O YKQO Z Y OMSYX
Y O M_ OX Z Y OMSYX a SR M\$M Lc M\$M M_ OX \$VSSQ KXN RSM_Z WYNO Y_Z_ RK N RY Z Y OMSYX KXN
RO WKV R_NYa XZ Y OMSYX

RO=- OWZYc FSN PO_OXM ZCKU M_ OX WYNO MYX YV+X SKOXKVMYMU S\$K O _XSQ YX RO
SKOQK ON RSR \$IO ZYa O 79=0/ SKCKRM\$M ROXSN MY M_ OX SO \$CK V A ROX ROM_ OX RY QR
RSR \$IO 79=0/ OKMRO RO ROR YW O OV O Lc RO-97: YKQO YP RO SKOXKVO Y KWZ\$D RORSR
\$IO 79=0/ _X YP RO cXVRYXY_ Va \$IO 79=0/ _X YX SV RO XOb MMYU M\$M LOOSK Y RO
SN_MY M_ OX RW YdO Y

ROO Y KWZ\$D O O RO-97: XNOLc MWZK SQ RO YKQO YP RO 0, ZSK a SRKXSKOXKV OFD OXM
YKQO A ROX RO VKNM_ OX SMCK O K ON MSYXSK RO FSNLKMJ YKQO OK SO Y RO OFD OXM KSO -97:
YKQO SVROK OKQO SN_MY M_ OX WKMR0 RO SMCK ON VKNM_ OX RS FSNLKMJ VYZ a OW OQ_K O RO
Y_Z_ YKQO Y RO OFD OXM RONO \$DQVY SKOQK O KXSKOXKV VZOMYWZOX K \$XMSM Sc YZ O OX _L
RK WYX\$Y \$K \$X a ROXN_c M\$M S QCK O RKX PY K FSNPO_OXM ZCKUM_ OX WYNOMX YV

RO=- YZOK O SK: _VO=USZSQ7 YNO :=7 a SR VSR VKNM_ OX Y SVZ Y O O PSDXM A ROX RO VKN
M_ OX NOMCK O KX SMOWOX SK RO FSNLKMJ YKQO VKN -97: YKQO NYZ A ROX -97: RW YK Va
MKWZ ROR YW NO \$DOXO :=7 ROY_Z_ YKQONOMKc N_O Y Y_Z_ MKZKMSY NSMR OSQN_SQ USZSQ
ZO SN 9 XMO, YKQON YZ Va O RKX RO OFD OXM YKQO KXN RO-97: YKQO SO KLY O Va MKWZ
ROR YW ROX RSR \$IO ZYa O 79=0/ _X YX SK XOb MMYU Z_VO +PO O OKV a SVRSQM\$M a SR cZ\$KV
3Zku SN_MY M_ OX -97: YKQO NYZ KXN S MKWZON KCKSKXN Z_VO USZSQ WYNO OZCK \$ RO Y_Z_
MYX SK_O VSR VKNON Y LO O ON MD ZYa O MYX_WZ \$YX a SRSK RO P_WSZ_ YKQO KXQO =- a SV
MY O ZYXN YN\$PO OX 3ZOKUK N\$PO OX SZ_ YKQO +MM NSQ Y RON_c M\$M RO W\$SV_W KVO YP 3Zku S
+ KXN RO WKb SV_W KVOS +

RS MYX YV MROWOZ KMSD SQ RSR PSDXM Lc USZSQ M\$M Y ON MD a SVRSQ ZYa O W KXN CK O
N SOMRK OSQ V ROMYX YW MYX_WZ \$YX _S MDX M_ OX S + N_SQ USZSQ ZO SN a SR XY a SVRSQ
Y SVZ Y O O PSDXM P_ RO

A ROXY OM_ OX YMM_ MK_ SQKNOMCK OXY_Z_ YKQO

A ROX ROKLY OMYNSSYX K O OMY ON ROY_Z_ YKQOa S/ SSMCK O_XNO YP K , _ S RY_WLOXY ON
RK \$ ROY_Z_ YKQON YZ LOYa N_O YY OM_ OX RSM_Za SLO SQO ON

Y ON_MD/73 RO=- SVZOWOX 0 O_OXm=ZCKN=ZOM_W 0== ROZ_ZY OYP ZCKN ZOM_WS
Y OYVK O ZOKU OWS SYX K ZOMMPO_OXm Lc ZCKNSQ RO O OWS SYX KMY Ka \$IO KXCO YP
PO_OXm KRO RKX KZK aSR RON PO_OXm P_XMSYX 3X WY c OW MYXKSSQ RO=- Va
PO_OXm MYXN_MON OWS SYX PYW ROFS Ra RK WYX M YP RO a SVRSQPO_OXm MKXLOCK S/ RON

RO0== MMS_O Z O_NY KXNYWPO_OXm RYZZSQ Y Kc RO a SVRSQPO_OXm a SRK K ZOMM KXCO
ROTSO SQ ZKXS YP RO a SVRSQPO_OXm RO ZCKN ZOM_WS YX K KSKL Va RSD ROMMYU YP RO
=- NO \$D S POC _XXSQ K ROS XK_KVPO_OXm +Xc YP RO PYWa SQ MYNSSYX Y O \$IO ZCKN
ZOM_W _XSQS YP

ROMMYUS ON_MNN_SQ6.9 P_XMSYX

ROMMYUS ON_MNK SR VKN SK: =7

ROMMYUS ON_MNN_SQ WSSV_WYX \$VOP_XMSYX

+XCb OXKVLYY KZMKZMSY LOa COX,99 ZSKKN=A ZSKZYa O ROPVK SQQK ON SO YRSR \$IOZYa O
79=0/ ROLYY KZMKZMSY YKQOS MK QONPYWKX SKQK ON YKQO OQ_KY aROXRSR \$IOZYa O
79=0/ S YPKXN Va \$IOZYa O 79=0/ S YX + LYY NSNO S SKQK ON YX RO=- NS Y WSSVSO
Cb OXKVMWZYXOX MY_X

RO 69 YPRSR \$IO79=0/ QKONSO RK RO RYMY P A ROX RO YKQOKMY LYY KZMKZMSY
NYZ LOYa , = 69 YMM_ RO YKQOK LYY KZMKZMSY S SK PMSX YNSORSR \$IO79=0/
P_WYX ROMYX O O PYMD _XSQYX Va \$IO79=0/ ZO SN\$KW Y OPO R RO YKQOPLY Y KZMKZMSY
YQ_KKXCO ROMYX O O P_XMSYX

+ KGSOXMYMUPO_OXm N_c MMS \$VSON Lc WSSV_WYYP \$VO . _SQ ROMYNSSYX YP Va YKQONPO OXm
PYW ROSZ_ Y ROY_Z_ YWKSXKX ROY_Z_ YKQOPYWPKVSK RO=- Cb OXN YX \$VOZK ROOXN
YP ROMMYUMMSD_XS/RO O_SCN ZOKUSN_MY M_ OX SKMRS ON ROMMYUS KWa ON Y K KXCa MMSOYMO
ZOKUSN_MY M_ OX SKMRS ON Y YXMK Z ONOO WSKN WkbSV_WYX \$VO 6.9 YPKZZ YbSVK Oa _ZK O
+ K O_V YOX _O RK ROY_Z_ YKQOMXLO O PYWa ROMRXQO SKSZ_ YKQO aROX=- YZOK O
SQ6.9 P_XMSYX RO a SVRSQPO_OXm LOQK YNOMCK O a SRK WSSV_WNOMCK O Y U2d RO WSSV_W
PO_OXm VSK YSI ZY \$VK_N\$KOF OXm

. _SQ Va ZYa O YXKN ZYa O YPKZZVSK SYX N_O Y RO6.9 P_XMSYX ROY_Z_ YKQOMKXMY Oa KMJ RO
YZOMRXQO YP ROSZ_ YKQO + ROSZ_ YKQOS ON_MN YXCK ROY_Z_ YKQO SO N_SQ Va SQ
ZYa O_ZKN ZYa O NYa XKZZVSK SYX ROYYP \$VOYPRORSR \$IO79=0/ K YKZZ YKMR ROWSSV_W KVO
A SRY_6.9 P_XMSYX WNO LcYXN RS ZYSK RO a SVRSQWKc LOMWOO K \$IKXN Y ROY_Z_ YKQOa SVKW
Y_YP OQ_K SYX YK YSI RS Z YLWV RO=- 6.9 WYNOK_YVK \$KW ON_MD RO a SVRSQPO_OXm Y
SMCK O ROCPOMSON_c MMSOKXN WSKKSK OQ_K SYX

/ OX \$ RON_c MMSK RO O PO_OXm S \$VSON Lc RO WSSV_WYX \$VO =- MKX SWSKXKSK KLVO
KNT_WOX YP ROY_Z_ YKQON_SQ RO KX SXPYWRSR SZ_ YKQO Y Va Y_Z_ YKQO

P ROSZ_ Y_Z_ YKQO KSY S YRSR O OX \$ ROM_ OX CbMCON ROMWZOX KSYX ZOMM ZOKU RORSR
\$IO79=0/ MKXY R_NYa X \$UV OXYQR YKNT_ ROY_Z_ YKQO RS a SVMK_O ROY_Z_ YKQO Y
MYX_Y_V SMCK O_XSY O YKQOZY OMSYXS SQO ON YK YSI RS S_KSYX aROX ROMYXN_MSYX \$VO YP
RORSR \$IO79=0/ Y_MRO ROWSSV_WYX \$NON_O Y RO SMCK O SKSZ_ KXN Y_Z_ YKQONPO OXm



=- a S/a SVR Y KVc M_ OX MYX YWYNO +PO RORSR \$IO79=0/ S _XON YPP ROVa \$IO79=0/
a S/OVKSKYZOX_XS/ROSN_MY M_ OX NYZ LOVa RO O _SN KVc M_ OX . _SQ RS ZO SN ROXcb MMU
M:MOa S/LOLVUNPYW K SQ Y RO a SVRSQPO_OX: a S/NOMCK O =SMDYX SVOYPRSR \$IO79=0/ S
FSONK S WSSV_W KV O RS cZOYPP_XMSX O OML O RK YPKNO \$D_ SQK - YX KX 9X SVO - 9 MYX YV
MROWO

RO SN_MY M_ OX S WYXY ON N_ SQ RSR \$IO79=0/ KXN Va \$IO79=0/ YX RO=-
SVZOWOX Y O M_ OX Z YCMSX a SR M:MO Lc M:MO SVSSQ RSR \$IO79=0/ ZCKU M_ OX KXN Va \$IO
79=0/ KVc M_ OX YK YS SN_MY M_ OX _XSQ Ka Kc N_ SQ_XcbZOMON Y O VKN Y Y_Z_ RK N RY
MYXNSSX

A ROX Y O VKN Y RK N RY RKZZOX RO SN_MY M_ OX S MKWZON K Y O M_ OX SVSK SX RO MYX O O
MKXXY ZY \$IO Y_Z_ M_ OX Y K SR: YKNSQ O _SOMOX R_ RO Y_Z_ MKZKMSY S NSMRK QCN KXN RO
Y_Z_ YKQON YZ LOVa CQ K ON YKQOa SR O, YKQO O RKX SK O XKV OPO OXMD YKQOMYX SK_Y_ v RO
- 97: YKQO KWZ _Z YRSYMKVOZ YKQO A ROX O, YKQO S LOVa YP RO OPO OXMD YKQOKXN KPO
M:MO YPVa \$IOM_ OX SWS ROMOZ O O YZ a SVRSQ +PO OMKSSQ900PY W KONCOB O K
PXW YPWZ ZFK O PY O VKN Y RK N RY MYXNSSX SVRSVZNSQ =VKN WKO- 97: EVKQOMKWZONK
RSR KBO # O VMO, YKQOUDZ LOVa YP RO OPO OXMD YKQOPW O M:MO RONO \$DOXO _XSQ
YPPWYNO KGSX A ROX Y O VKN Y RK N RY MONSVZS OMY ON RONO \$OKZOVK \$KW OMY O YOXO
XY/WKV OQ K SQP_XMSXWZ

SC

ROY_Z_ YKQOS O Lc KXCb OXKVO S Y NSSIO
 < KN < SK cZSKV KZZSK SX MROWK \$I
 <OMVWMOXNON < O SKXMS 5 O/ _K SX
 YMKW_K O<

Table 1. R₂ R₃ Value for Common Output Voltage
 (Room Temperature)

	5	U
	5	U
	5	U
	5	U

a ROO

</0 S ROPONLKMU OPOOXMD YKQO cZSKV

ROOK O OOKVPMY RY_W LOMYX \$IOCN SK OZMSQ SN_MY _MRK SN_MKXMD K_K SXM_ OX RO
 <7= M_ OX KN. - O SKXMD . - < 6K QO SN_MKXMD O _V SXV SN_MY M_ OX SZVOKN ROCPY OVKN
 YVaO Y_Z_ YKQO SZV 2YaO O ROVK QO KVO SN_MY KVKc MY O ZYN YKLSCQ ZFc SKV \$IO
 RSRO O \$ O SKXMD KNVaO K_K SXM_ OX +QYN _DPY NOOWSSQ ROSN_MKXMD Y_OS YKWa
 ROSN_MY ZKU YZKU SZVM_ OX YLOKZZ YbSVK Oe YP ROWkbSV_WY_Z_ M_ OX

ROZKU YZKU SZVM_ OX SK ROSN_MY 3: MKXLOMKW_K CNK SK/ _K SX

A ROO

3: S ROSN_MY ZKU YZKUM_ OX
 6 S ROSN_MKXMD YPSN_MY
 Pa S RO a SVRSQPO_OXMt
 9 S ROY_Z_ YKQO
 3 S ROSZ_ YKQO

=SMD RO SN_MY M_ OX SZV SMCK O a SR ROSZ_ YKQO Y ROWkbSV_W SZ_ YKQO SK KZZSK SX S
 KVKc _ ON YMKW_K O ROWSbSV_W SN_MKXMD O _SN O/ _K SX YMKW_K O ROSN_MKXMD KVO

A ROO

67 3 S ROWSbSV_W SN_MKXMD O _SN
 Pa S RO a SVRSQPO_OXMt
 9 S ROY_Z_ YKQO
 3 Wkb S ROWkbSV_W SZ_ YKQO
 3 Wkb S ROWkbSV_W. - YKNM_ OX
 63 S MOPV OX YP3: Y3

RO YKW_ OX PVa SQ RY QR ROSN_MY S ROSN_MY SZVM_ OX ZV ROY_Z_ M_ OX A ROX OZMSQ
 KX SN_MY MRY O S K CNM_ OX O ZOMBW RO K_K SXM_ OX VK QO RKX S ZKU YZOK SXM_ OX KN
 <7= M_ OX K VY XY LO CbMOONON ROCPY O ROZKU a SVRSQ_M_ OX YPSN_MY 3: /+5 KN 3<7= MKX LO
 MKW_K CNK SK/ _K SX KN/ _K SX

A ROO

3: /+5 S RO SN_MY ZOKUM_ OX
3 S RO. - WKNM_ OX
3: S RO SN_MY ZOKU Y ZOKUM_ OX
3<7= S RO SN_MY <7 = M_ OX

3X Y O WKN SQ Y WKN KX SX MYNSSYX RO SN_MY ZOKUM_ OX MKX SMCK O_Z Y RO a SVRM_ OX VVS YP
RONO \$DaRSRS cZ\$KW + ROWY MYX O K SOKZZ YKMS YMY OKX SN_MY a SRK K_K SXM_ OX
K SQ QCK O RKX + , OMK_ O YP RO Wkb SV_W 3: /+5 WSON Lc NO \$D RO Wkb SV_WY_Z_ M_ OX RK RO
=- MKXNO\$O K VYNOZOXN YX RO SN_MY M_ OX SZO R_ RO Wkb SV_WNO SONY_Z_ M_ OX K VY
KPCM RO OMSX YPSN_MKXND RO WkV SN_MY O_V SK KGO SN_MY M_ OX SZO WKN SQ YK Wa O
Wkb SV_WY_Z_ M_ OX

RO SZ_ M_ OX Y RO OZ NYa X. - . - MYX O O S NSM XSK_Y_ RO O PY O S O _SO KMZKMSY Y_ZZ RO
+- M_ OX Y RO OZ NYa X. - . - MYX O O a RS WKS KKSQ RO. - SZ_ YKGO OMZKMSY a SR Va / =<
PY LO O ZOPY WKXND - OKW WIMZKMSY a SRB < Y B < NSOM \$I KO _KW_ QD ON LOM_ O YP ROS Va
/ =< KN WkWOMZOK_ OMY PMSX KNSS YXQ OMWMOXNON Y_ OKXYRO Va O KVOMZKMSY OQ
_0 a SR WkWZMKQO \$O YPSO RSRPO _OM a SVRSQ XYSO : WMD RO WkW \$OMZKMSY K
MY O Y 3 KN 18. ZK K ZY \$D

RO YKGO K SQ YP RO SZ_ MKZKMSY W_ LOQCK O RKX RO Wkb SV_W SZ_ YKGO + XN

RO OQMSXYPY_Z_ MKZKMSY a SVKPCM Y_Z_ YKQO SZD SX OKnc KOKXN YKN KX SX ZOPY WKXMD

ROY_Z_ SZD S O OX SW MWZY ON YP a YZK 9 XOS MK_ ON Lc ROSN_MY M_ OX SZD QYSQ RY_QR
RO/_SKOX = O S < O S KXMD / =< YP ROY_Z_ MKZKMSY KXN ROYRO S MK_ ON Lc ROSN_MY M_ OX SZD
MRK QSQ KXN NSMRK QSQ ROY_Z_ MKZKMSY YKMS O WKWY_Z_ YKQO SZD MRY OK Ya / =< Y_Z_
MKZKMSY SD MDKWSI MKZKMSY OY MDKWSI MKZKMSY RO MKZKMSY NYWSK O RO Y_Z_ SZD OY
SVZSK SX ROY_Z_ YKQO SZD MKX Loo SVK ON Lc / _K SX NO SCN

A ROO

S ROY_Z_ YKQO SZD
P_A S RO a SVRSQPO_OXMc
6 S ROSN_MKXMD YPSN_MY
- 9 S ROY_Z_ MKZKMSY
9 S ROY_Z_ YKQO
3 S ROSZ_ YKQO

._O Y MKZKMSY NOQKNSQ_XNO . - L& RO L& YKQO MKX SXSKX v ON MD MKZKMSY - OKWSI
MKZKMSY MKX W O WY YP ROS MKZKMSY K ON YKQO RO OY O OK O WK QSK YX RO YKQO K SQ Y
OX _OKNO _K O PMSOMKZKMSY cSKW aY 0 MDKWSI Y_Z_ MKZKMSY a YUPY WY KZZSK SX

3 9 0=A U_X0 YROaSOXYCN

0\$ _O : YaO _Z 39+ . +

SCT CONFIDENTIAL

SCT CONFIDENTIAL

SCT CONFIDEN