

4.3V-60V Vin, 3.5A, High Efficiency Step-down DCDC Converter with Programmable Frequency

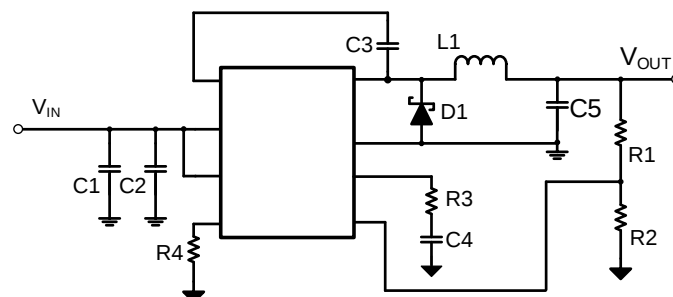
- K XY bdi hFUb Y. (J * J
- I d tc) 5 7 cbhbi ci g Ci hdi h7i ffYbh
- , J : YXUW_FYZfYbW Jc IU Y
- bY fUHY % a < GXY ACG: 9H
- I fU ck Ei YgWb7i ffYbh i 5
- G i hXck b 7i ffYbh % 5
- DYU_ WffYbha cXY Vbhf c
- Di gYG_ddb AcXY DGA b h cUX
- % bg A ba i a Cb ha Y
- (a g bYfbU GcZgtUfhHa Y
- : fYei YbVhGdfYUXGdYVfi a : GG AcXi Uhc b Zf 9A=FYXi Vmcb
- 5Xi gUUVY: fYei YbVhUbX9I hYfbU 7 cW_ GnbWfcbnUhc b. % _<nr &A<n
- bYuf bWYUgY b ZYei YbVhXi f b gUfhi d
- DfYVgcb 9bUVYH fYg c XZf Dfc fUa a UVY bdi hJcIU YI bXYf JcIU Y cW_Ci hDfchVmc b I J C H fYg c XUbX<ngYfYg
- Acbcbcb WGUfhi d k h DfY VUgYXCi hdi h
- < Wd AcXY Zf Cj Yf WffYbhDfchVmc b
- Cj Yf j c IU YUbXCj Yf HYa dYfUi fY DfchVmc b
- 5jU UVY b Ub 9GCD , DUWU Y
- %& J & (J , J bXi ghfmUbXHYWta Dck Yf GrghYa
- bXi ghf U 5i hca Uhc b UbX Actcf 7 cbhf c
- JY WY5 WYggcf Yg

H Y G7H&* 6 g) 5 V W VbYfYf k h k XY bdi h j c IU Y fUb b Zca (J tc * J k W bhY fUHYg Ub % a gXY ACG: 9H H Y G7H&* 6 UXcdhb h Y dYU_ WffYbh a cXY Vbhf c gi ddcf g h Y Di gY G_ddb AcXi Uhc b DGA k W Uggghg h Y VbYfYf cb UW Yj b YZWVbVh Uh h cUX cf gUbXVm VbXhcb

H Y gk HW b ZYei YbVh gdfc fUa a UVYZca % _<n tc &A<n k h k c gYthb a cXYg fYg gfc gYthb ZYei YbVh a cXY UbX h Y VcW_ gnbWfcbnUhc b a cXY tc cdha nYg Yh Yf h Y dck Yf YZWVbVhcf h Y YI hYfbU Vta dcbYb g gnYg H Y G7H&* 6 U ck g dck Yf VbYfYf c b Zca bdi h j c IU Y tc ck ci hdi h j c IU Y k h U a ba i a % bg cb ha Y cZ gXY ACG: 9H H Y G7H&* 6 g Ub 9 YVfcaU bYhW bYfYZfYbW 9A= ZYbXm V W VbYfYf k h a d Ya Ybhb cdha nYX XYg b Zf 9A=fYXi Vmcb H Y G7H&* 6 ZYUi fYg: fYei YbVhGdfYUXGdYVfi a : GG k h * hYf b gdUb UbX a cXi Uhc b fUHY %) %& cZ gk HW b ZYei YbVh h c fYXi W h Y VbXi VmX 9A=

H Y XYj W cZf g Z YX (a g gcZgtUfh h c dfYj Yb bfi g WffYbh Xi f b h Y gUfhi d cZci hdi h j c IU Y fUa d b H Y G7H&* 6 gi ddcf g a cbcbcb WgtUfh k h dfY VUgYX ci hdi h H Y G7H&* 6 ZYUi fYg YI hYfbU ccd Vta dYb gUhc b h c dfcj XYh YZi V l mtc cdha nYh Yf ccd gUUV l mcf ccd fYgdc b gY

H Y G7H&* 6 dfcj XYg W W Vm W W WffYbh a h Wd a cXY Zf c j Yf WffYbh dfchVmc b h Yfa U g i hXck b dfchVmc b ci hdi h c j Yf j c IU Y dfchVmc b UbX bdi h j c IU YI bXYf j c IU Y dfchVmc b H Y XYj W g Uj U UVY b Ub , d b 9GCD , dUWU Y



4.3V-60V, Asynchronous Buck Converter

SCT2630B

BCH9. DU Ybi a Vyfg Zf dfYj ci g fYj gcbg a UmXZZf Zca dU Ybi a Vyfg b h YWffYbhj Yfg cb
 FYj gcb % . FYUgYhc dfcXi Vmcb
 FYj gcb %%I dXUHY 89J 79 CF89F -B: CFA5H-CB
 FYj gcb %&.I dXUHY: i fY&)
 FYj gcb % .I dXUHY =AS<G b 97 UXX AG

ORDERABLE DEVICE	PACKAGING TYPE	STANDARD PACK QTY	PACKAGE MARKING	PINS	PACKAGE DESCRIPTION	MSL
G7H&* 6GH9F	HJdY FYY	(	* 6	,	9GCD ,	

Cj Yf cdYfUhb ZYY Uf hYa dYfUi fYi b Ygg ch Yfk gY bchYX %

DESCRIPTION	MIN	MAX	UNIT
J-B 9B		*)	J
6CCH		+%	J
GK	%	*)	J
6CCH GK		*	J
: 6 FH 7			

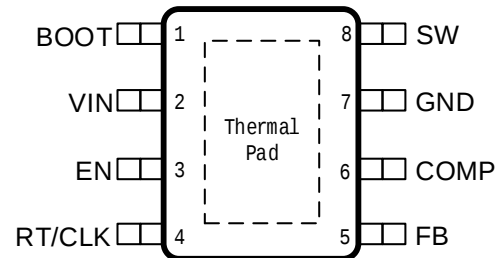


Figure 1. 8-Lead Plastic ESOP

: 6	)	
7 CAD	*	9ffcf Ua d ZYf ci hdi h 7 cbbYWMhc ZYei YbVth ccd Vta dYbgUhc bYfk cf_
B8	+	fci bX
GK	,	F Y i Uhc f gk hW b ci hdi h 7 cbbYWMGK hc Ub Yl hYfbU dck Yf bXi Vmcf
H Yfa U DUX	-	<YUhXgg dUhc b dUh cZXY 9 YMF WU mVtbbYVMcb hc B8 db Ai gh VY VtbbYVMXhc fci bX dUbYcb D7 6 Zf dfcdYf cdYfUhc b UbXcdha nYXh Yfa U dYfZfa UbVW

Cj Yf cdYfUhb ZYY Uf hYa dYfUli fYfUb Yi b Ygg ch Yfk gYbchYX

PARAMETER	DEFINITION	MIN	MAX	UNIT
J _B	hdi hjc tU YfUb Y	(	*	J
J _{CIH}	Ci hdi hjc tU YfUb Y	,	) +	J
H	CdYfUhb i bVMcb hYa dYfUli fY	(	%	7

PARAMETER	DEFINITION	MIN	MAX	UNIT
J _{9G8}	<i a Ub 6cXmAcXY <6A dYf5BG= 9897 G %& % gdYVZWUhc b U d bg %	%	%	_J
	7 Uf YX8Yj VV AcXY 78A dYf5BG= 9897 G & & % gdYVZWUhc b U d bg &	%	%	_J

(1) 9897 XcW a Ybh 9D%) gUhyg h Uh) J <6A U ck g gUZy a Ubi ZMM f b k h U gU bXUfX 9G8 Vtbfhc dfcVWgg

(2) 9897 XcW a Ybh 9D%+ gUhyg h Uh) J 78A U ck g gUZy a Ubi ZMM f b k h U gU bXUfX 9G8 Vtbfhc dfcVWgg

PARAMETER	THERMAL METRIC	ESOP-8L	UNIT
F ₅ %&	i bVMcb hc Ua VYbhh Yfa U fYg gU bVW	) &	7 K
H &	i bVMcb hc hcd WUfUMYf nUhc b dUfUa YhYf	* (	
6 &	i bVMcb hc VcUfX WUfUMYf nUhc b dUfUa YhYf	% -	
F _{7td} % &	i bVMcb hc WUgYh Yfa U fYg gU bVW	+ %%	
F ₆ &	i bVMcb hc VcUfXh Yfa U fYg gU bVW	% , &	

% G7H dfcj XYg F₅ UbXF₇ bi a VYfg cbmUg fYZfYbVW hc Ygha UhY i bVMcb hYa dYfUli fYg cZh Y XYj VVg F₅ UbXF₇ fYf bchU
WUfUMYf ghWcZdUWU Y IgYZ V hcZa Umbch Yf gng hYa Yj Y WUfUMYf ghVj gi W Ug h Y XYg b UbX Uhci hcZh Y df bhX WVV h
VcUfX D76 cbk W h YG7H&* 6 gaci bhYX h Yfa U dUXgnY UbX Yl hYfbU Ybj fcba YbU ZMMfcg H YD76 VcUfX g U Yuhg b_
h Uh ggc XYfYXhc h Y YUXg UbXh Yfa U dUXcZh YG7H&* 6 7 Ub b h Y XYg b cf Vt bZ i fUhc b cZh YD76 VcUfX WUb Yg h Y
YZWVbVhcZh Y Yuhg b_ UbXh YfYfYh YUVM U F₅ UbXF₇

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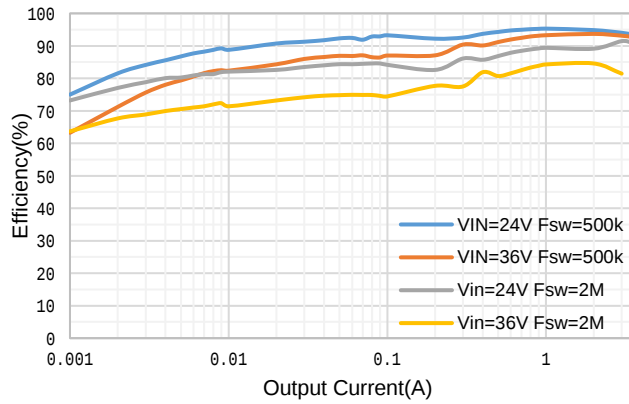
J-B18(J H1 (7r %&) 7 lmdW jUi Y ghghYXi bXYf &) 7

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
Power Supply						
J-B	CdYfUhb bdi hjc IU Y		(		*	

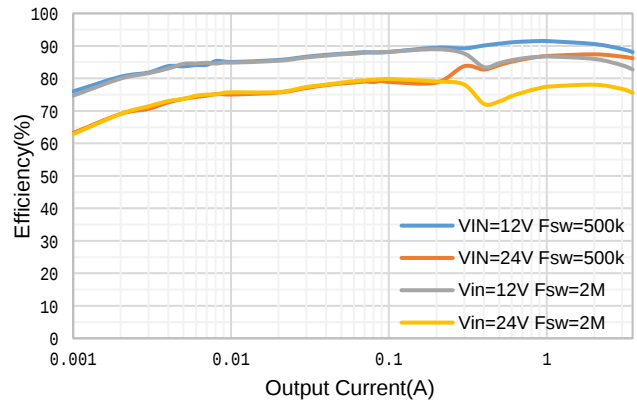
SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
H _{G8}	H Yfa U g i hXck b h fYg c X	H f g b		%)		7
		<ng hYfYg g		%		7

8 Yf j YXZca VYbW WUfUWf nUcb

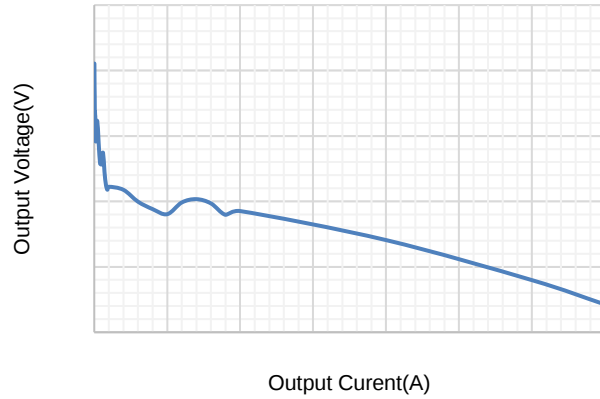
SCT2630B



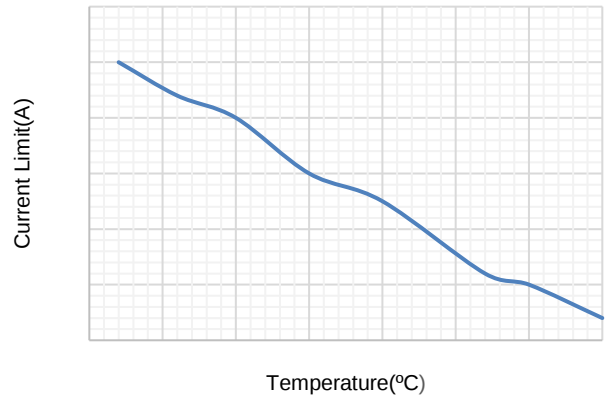
: i fY & 9ZWbVhjg cUX7i ffYbh Jci h1 %&J



: i fY 9ZWbVhjg cUX7i ffYbh Jci h1)J



: i fY(cUXFY i Uhcb J b1&(J Jci h1)J : gk 1) _

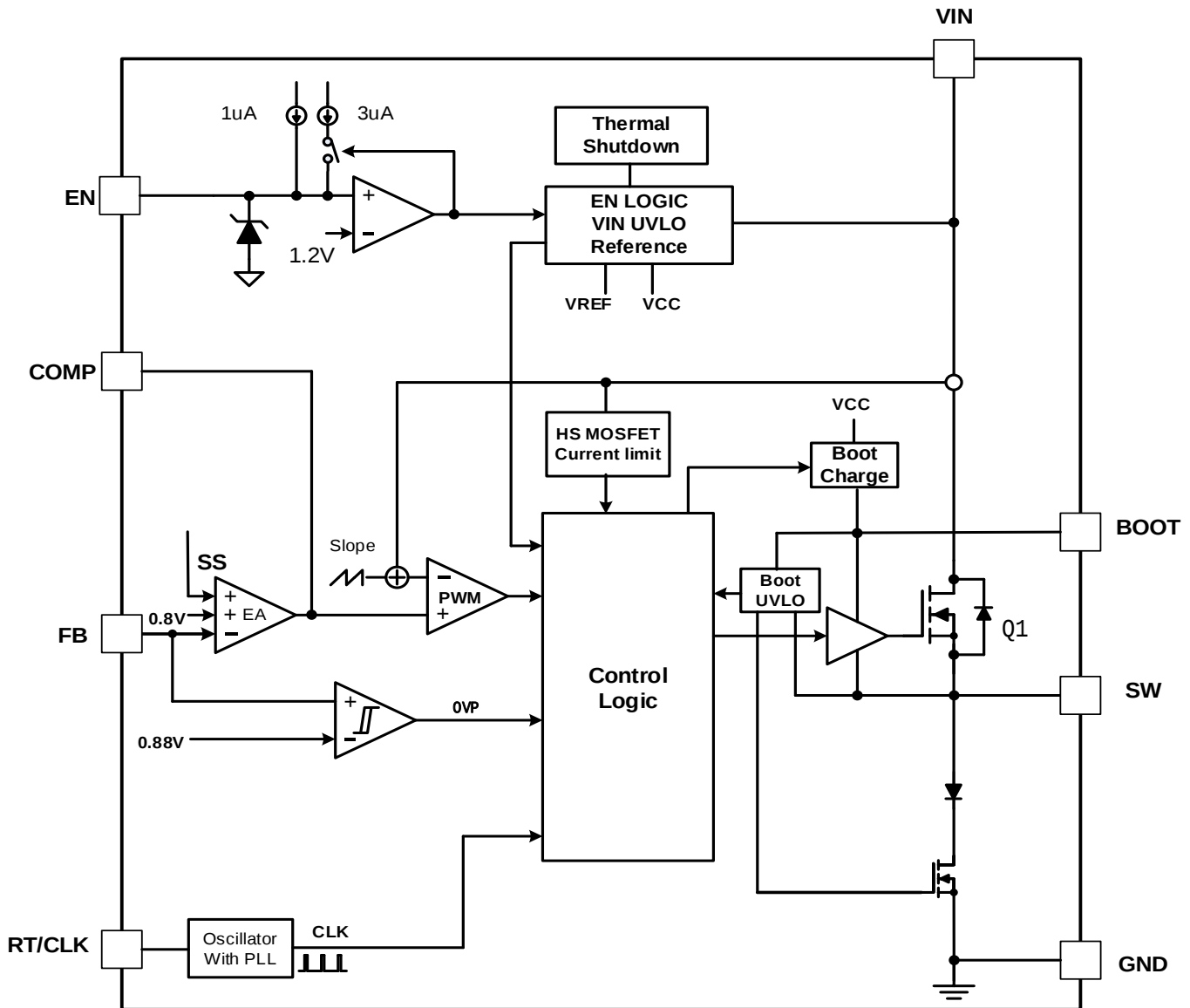


: i fY) 7i ffYbh a hJGHYa dYfUhi fY



: i fY* Gk hW b : fYei YbVhjJ GHYa dYfUhi fY

: i fY+ Gk hW b : fYei YbVhjg FH FYg gho



: i fY, : i bWcbU 6 cW_8 U fUa

Overview

H Y G7H8* 6 g U (J * J bdi h) 5 ci hdi h V W Vbj YfhYf k h bhY fUhyX % a F Xgcb g XY dck Yf ACG: 9H h a d Ya Ybtrg VbgtUbh ZYei YbVth dYU_ WffYbh a cXY Vbhfrc h fY i UhY ci hdi h j c hU Y dfcj Xb Yl VV Ybh bYUbX cUXhfUbg YbhfYgdcBgY UbXg a d Znb h Y Yl hYfbU ccd Vta dYbgUhcX XYg b

H Ygk hV b ZYei YbVthg dfc fUa a UVYZca % _<nfc &&A<nk h lk c gYthb a cXYg fYggrcf gYthb ZYei YbVth a cXY UbXh Y WcW_gmbWfcbnUhcX a cXY h c dha nYg Yh Yf h Y dck Yf YZWWbVthcf h Y Yl hYfbU Vta dcbYbtrg gnYg H Y G7H8* 6 ZYhi fYg Ub bhYfbU (a g gcZghUfh ha Y h Ujc X Uf Y bfi g WffYbh UbX ci hdi h j c hU Y cj Yfg cch Xi fb ghUfh d H Y XYj VV Ugc gi ddcftrg a cbc h WghUfh d k h dfY VUgYX ci hdi h VbXhcb H Y gYUa Ygg a cXY hfUbg hcb VYk YYb DK A a cXY UbX DGA a cXY cdYfUhcBg Ybgi fY YZWWbVthcj Yf k XY cUX WffYbh fUb Y H Y ei YgVbWb WffYbh g hmd W m i 5 i bXYf bc cUX cf g Y Yd a cXY VbXhcb h UW Yj Y YZWWbVthU h cUX H Y G7H8* 6 k Yl dYf YbVWU bYUf bVYUgY b ZYei YbVthXi fb ghUfh d

H Y G7H8* 6 Ug UXYZi h bdi hghUfh d j c hU Y cZ (J k h & a J mghYfYg g H Y 9B db g U j c hU Y db k h UdfYWgcb h fYg c Xh UhVb VYi gYXh UXi gh h Y bdi h j c hU Y cWci h h fYg c Xgk h lk c Yl hYfbU fYggrcf h a Y Yh UWWfUhy Yf I J C gngYh fYei fYa Ybtrg : cUhb 9B db YbUVYg h Y XYj VV k h h Y bhYfbU di i d WffYbh h Y db 7 cbbVmb 9B db h J B XfYVmg hUfh d h Y XYj VV U hca UhW m

H Y G7H8* 6 a d Ya Ybtrg h Y: fYei YbVthGdfYUX GdYVfi a : GG a cXi Uhcb gdfYUXb cZ * VbhYfYXgY VVYX gk hV b ZYei YbVth : GG a dfcj Yg 9A=dYfZfa UbV VmbchU ck b Ya hYX YbYf mtr ghUm b UbmcbY fYVYj Yf VUbXZf Ug b ZVbYb h cZha Y

H Y G7H8* 6 Z dfchVmbZ YZhi fYg bW XYh Y bdi hi bXYf j c hU Y cWci h h Y ci hdi hcj Yf j c hU Y dfchVmbZ cj Yf WffYbhd fchVmbZ k h VVW VmVWVW WffYbh a hb UbX VV d a cXY ci hdi h UfXg c h d fchVmbZ UbX h Yfa U g i hXck b dfchVmbZ

Peak Current Mode Control

H Y G7H8* 6 Ya dcmg Zl YX ZYei YbVth dYU_ WffYbh a cXY Vbhfrc 5b bhYfbU WcW_ b hUhYg h fb b cb h Y bhY fUhyX g XY dck Yf ACG: 9HE % b YUW VVWY h Yb bXi VbWf WffYbhf gYg bYUf mK Yb h YWffYbhh fci g XY ACG: 9H fYUWYg h Yh fYg c X Yj Y gYhVth Y7CAD j c hU Y cZh Y bhYfbU Yfcf Ua d ZYf h Y bhY fUhyX g XY ACG: 9H g h fbYX cZ

H Y Yfcf Ua d ZYf gYf Yg h Y7CAD bcXY VmVta dUf b h Y j c hU Y cZh Y: 6 db k h Ub bhYfbU , J fYZfYbVW j c hU Y K Yb h Y cUX WffYbh bVYUgYg U fYXi VmbZ b h YZYXUW j c hU Y fYUhj Y h Y fYZfYbVW fUgYg 7CAD j c hU Y h h Y Uj YfU Y bXi VbWf WffYbha UhYg h Y bVYUgYX cUX WffYbh H g ZYXUW ccd k Y fY i UhYg h Y ci hdi h j c hU Y h Y fYZfYbVW H Y XYj VV Ugc bhY fUhyg Ub bhYfbU gcdY Vta dYbgUhcX VV hfmtr dfYj Ybghi V Ufa cb WcgW Uhcb k Yb Xi h mVWY g fYUfh h Ub) Zf U Zl YX ZYei YbVth dYU_ WffYbha cXY Vbhfrc

H Y G7H8* 6 cdYfUhyg b Di gYg_ddb AcXY DGA k h h cUX WffYbh h a dfcj YZYWbVthK Yb h Y cUX WffYbh XYVYUgYg Ub bVYh Yb b h YZYXUW j c hU Y YUXg 7CAD j c hU Y Xfcd K Yb 7CAD Zl g h U ck WJa d h fYg c X (a J hmd W m XYj VV YbhfYg DGA H Y ci hdi h j c hU Y XYWng Xi Y h ci hdi h WdUWcf XgWUf b Xi fb g_ddb dYfcX CbW: 6 j c hU YXfcdg ck Yf h Ub h YfYZfYbVW j c hU Y UbXh Y7CAD j c hU Y fYgY Uvcj Y ck WJa d h fYg c X H Yb g XY dck Yf ACG: 9H h fbg cb b bY h WcW di gY 5ZYf gY YfU gk hV b VVWYg k h hmd W * a5 dYU_ bXi VbWf WffYbh 7CAD j c hU Y Xfcdg UbX g WJa dYXU Ub UbX di gY g_ddb a cXY fYdYUg Zh Y ci hdi h VbhbY Yg h cUXYX

H g Vbhfrc gWYa Y Ydg UW Yj b Yf YZYWbVthVmg_ddb VVWYg h fYXi VV gk hV b dck Yf cgg UbX UhY Xfj YWUf b cgg H Y Vbhfrc Yf Vbgi a dhcb ei YgVbWb WffYbh g i 5 Xi fb g_ddb dYfcX k h bc gk hV b h a dfcj YZYWbVthZ fh Yf

Enable and Under Voltage Lockout Threshold

H Y G7H8* 6 g YbUVYXk Yb h YJ B db j c hU YfgYg Uvcj Y (J UbXh Y9B db j c hU Y Yl VVYXg h Y YbUVY h fYg c XcZ%&J H Y XYj VV g XgUVYXk Yb h YJ B db j c hU Y Zl g VYck , J cfk Yb h Y9B db j c hU Y g VYck %) J 5b bhYfbU %5 di i d WffYbhgc fV h 9B db U ck gh Y XYj VV YbUVYk Yb 9B db ZcUg

ZJ b YX YcZh Y Yl hYfbU WcW_UhFH7 d b k h lmd WJ **bg ha YXYUm5 gei UfYk Uj YWcW_g bU lc FH7
 db aigh UjY YjY bc ck Yfh Ub)J ck YjY bc Yfh Ub (J UbXdi gYk Xh Uf Yfh Ub , bg
 bUdd Wchcbgk YfY Vch fYg gfcf gYthb ZYei YbVha cXYUbXWcW_gnbWfcbnUhcb a cXYUfYbYYXYX h YXYj WY
 Wb VYVbZ i fYX Ug g ck b b : i fY % 6YZfYUb Yl hYfbU WcW_g dfYgYbh h YXYj WYk cf_g b fYg gfcf gYthb
 ZYei YbVha cXY K Yb Ub Yl hYfbU WcW_g dfYgYbh h YXYj WYU lca UhWJ mhfUbghcbg Zca fYg gfcf gYthb a cXY
 lc Yl hYfbU WcW_gnbWfcbnUhcb a cXY 5b bhYfbU d UgY cWYX ccd D cWg bhYfbU WcW_ZYei YbVhcbh h Y
 Yl hYfbU WcW_k h b lmd WJ ,) i g H Y VbYj YfhYf HfUbghcbg Zca h Y WcW_gnbWfcbnUhcb a cXY lc h Y fYg gfcf
 gYthb ZYei YbVha cXYk Yb h Y Yl hYfbU WcW_XgUddYUfg

Frequency Spread Spectrum

Hc fYXi WY 9A= h Y G7H&* 6 a d Ya YbYg : fYei YbVh GdfYUX GdYWfi a : GG H Y : GG WFW hfm g Zg h Y
 gk HW b ZYei YbVh cZh Y fY i Urf dYf cXWJ mk h b U WYfU b ZYei YbVh fUb Y Ufci bXh Y UXi ghYX gk HW b
 ZYei YbVh H Y HfYf b gdUb g * cZh Ygk HW b ZYei YbVh k h %) %&gk b ZYei YbVh

Linear Frequency Reduction

b cfXYf lc cdha nYh Y dYfZfa UbWY cZh Yci hdi hjc HU YXi fb gUfU d UbXcdha nYh Y bXi WUbWY WffYbhf dd Y
 h YG7H&* 6 UXcdg U bYUf ZYei YbVh fYXi Wcb Z bWcb XYg b Xi fb gUfU d dck Yf i d 8i fb h YdfcWYgg cZ
 bWYUg b h Y : 6 db j c HU Y Zca J lc , J Xi fb gUfU d h Y ZYei YbVh cZG7H&* 6 k bYUf m bWYUg Ylc
 h Y gYh ZYei YbVh b U WYfU b dfcdcfcb

Bootstrap Voltage Regulator and Low Drop-out Operation

5b Yl hYfbU VcchfUd WdUWfcf VYk YYb 6CCH d b UbXGK d b dck Yfg h YZcUhb UYXfj Yf lc gXY dck Yf
 ACG: 9H H Y VcchfUd WdUWfcf j c HU Y g WUf YX Zca Ub bhY fUHYX j c HU Y fY i Urf k Yb gXY dck Yf
 ACG: 9H g cZUbXh Y Yl hYfbU ck gXYXcXYVbXi Wg H Y fYVca a YbXYXjUi YcZh Y6CCH WdUWfcf g % :
 H YI J C cZ gXYACG: 9H UYXfj Yf Ugfg b h fYg cXcZ&)J UbX mghYfYggcZ a J K Yb h YXYj WY
 cdYfUgYk h Xi lmWYVYcf Yl HfYa Ym h cUX VcchfUd WdUWfcf a UmVYbchfYWUf YX b VbYg XYfUY cb
 ha Y H Yj c HU YUhVcchfUd WdUWfcf g bgi ZWYbhc Xfj Y gXYACG: 9HZ mcb K Yb h Yj c HU YUWcg
 VcchfUd WdUWfcf Xfcdg VYck &&J 6CCH I J C cWVfg H Y VbYj YfhYf ZfVWg li fb b cb Ub bhY fUHYX ck gXY
 ACG: 9H dYf cXWJ mhc fYZYg h Yj c HU Y cZ VcchfUd WdUWfcf lc i UfUbhY h Y VbYj YfhYf g cdYfUhcb c j Yf U
 k XY Xi lmfUb Y

Typical Application

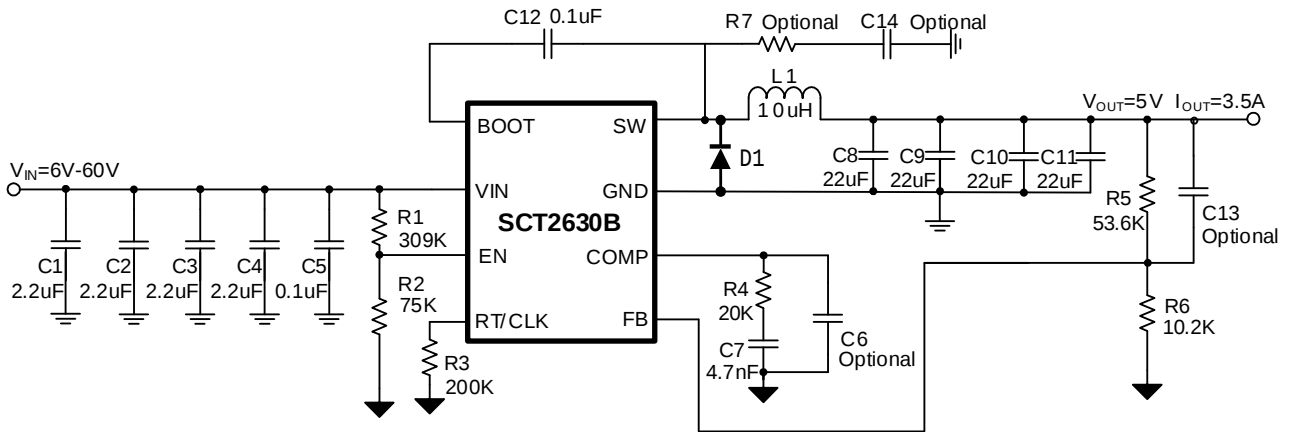


Figure 11. SCT2630B Design Example, 5V Output with Programmable UVLO

Design Parameters

Design Parameters	Example Value
Input Voltage	6V
Output Voltage	5V
Output Current	3.5A
Inductor	10uH
Capacitor C1	2.2uF
Capacitor C2	2.2uF
Capacitor C3	2.2uF
Capacitor C4	2.2uF
Capacitor C5	0.1uF
Capacitor C6	Optional
Capacitor C7	4.7nF
Capacitor C8	22uF
Capacitor C9	22uF
Capacitor C10	22uF
Capacitor C11	22uF
Capacitor C12	0.1uF
Capacitor C13	Optional
Capacitor C14	Optional
Resistor R1	309K
Resistor R2	75K
Resistor R3	200K
Resistor R4	20K
Resistor R5	53.6K
Resistor R6	10.2K
Resistor R7	Optional

Inductor Selection

H YfY UfY gYj YfU ZMfcg g ci X VY VebgXYfYX b gYVMb bXi Vfcf gi W Ug bXi VUbwV gUhi fUhcW WffYbh h Y FAG WffYbhUbX87 fYg ghUbWV 87F Uf Yf bXi VUbwVfYgi hg b Ygg bXi Vfcf WffYbhfdd YUbXh YfYZfY YUXg hc ck Yf ci hdi hjc tU Y fdd Y <ck Yj Yf h Y Uf Yf jUi Y bXi Vfcf Uk Ung VeffYgdcXg hc U V Yf d mg WJ gnY Yf gYf Yg fYg ghUbWV UbX ck Yf gUhi fUhcW WffYbh 5 ccXfi YZf XYhYfa b b h Y bXi VUbwVhc i gY g hc U ck h Y bXi Vfcf dYU_hc dYU_fdd Y WffYbhVc VYUddfcl a UHYm& r(cZh YaU aia ci hdi hWffYbh

H Y dYU_hc dYU_fdd Y WffYbh b h Y bXi Vfcf =DD WUb VY WJ W UhYXUg b 9ei UhcW %

%

K YfY

- =DD gh Y bXi Vfcf dYU_hc dYU_WffYbh
- gh Y bXi VUbwVcZ bXi Vfcf
- Zk gh Ygk hW b ZYei YbVh
- JCIH gh Yci hdi hjc tU Y
- Jb gh Y bdi hjc tU Y

GbWVh Y bXi Vfcf WffYbhfdd Y bWYUgYgk h h Y bdi hjc tU Y gc h YaU aia bdi hjc tU Y b Udd WUhcW g Uk Ung i gYXhc WJ W UhYh Ya baia bXi VUbwVfYei fYX l gY9ei UhcW %hc WJ W UhYh Y bXi VUbwVjUi Y

%%

K YfY

- A-B gh Ya baia bXi VUbwVfYei fYX
- Zk gh Ygk hW b ZYei YbVh
- JCIH gh Yci hdi hjc tU Y
- JbaU gh YaU aia bdi hjc tU Y
- CIHaU gh YaU aia 87 cUX WffYbh
- F g VYZZWbhcZ=DD hc CIH

H Yhc tU WffYbhZck b h fci h Y bXi Vfcf gh Y bXi Vfcf fdd Y WffYbhd i gh Yci hdi hWffYbh K Yb gYVMb Ub bXi Vfcf WccgY hg fUhYX WffYbh YgdYU mh Y gUhi fUhcW WffYbh Uf Yf h Ub hg dYU_cdYfUhcW WffYbhUbX FAG WffYbhUgc bch VY Yl WYXYX H YfYZfY h Y dYU_gk hW b WffYbh cZ bXi Vfcf =D95 UbX =FAG WUb VY WJ W UhYXUg b 9ei UhcW %UbX9ei UhcW %

%&

%

K YfY

- =D95 gh Y bXi Vfcf dYU_WffYbh
- CIH gh Y87 cUX WffYbh
- =DD gh Y bXi Vfcf dYU_hc dYU_WffYbh
- =FAG gh Y bXi Vfcf FAG WffYbh

b cj Yf cUXb cf cUXfUbg YbhVebXhcbg h Y bXi Vfcf dYU_WffYbhWUb bWYUgYi d hc h Ygk hW WffYbh a hcZ h YXYj Wk W g lmd W m))5 H Ya cghVebgYfj Uhj YUddfclUW g hc WccgYUb bXi Vfcf k h UgUhi fUhcW WffYbh fUhb fUhyf h Ub))5 6YUW gY cZh YaU aia =D95 a hYX VmXYj W h YaU aia ci hdi hWffYbhh Uhh Y G7H&* 6 WUb XY j Yf Ugc XYdYbXg cb h Y bXi Vfcf WffYbhfdd Y H i g h YaU aia XYg fYXci hdi hWffYbhUgc

UZZVlg h YgYVMcb cZ bXi VUUbVW H Yga U Yf bXi VUcf fYgi hg b Uf Yf bXi VUcf WffYbhf dd Y YUXb hc U ck Yf a U a i a ci hdi hWffYbh

Diode Selection

H Y G7H&* 6 fYei fYg Ub Yi hyfbU WUW XcXY Vfk Yyb h YGK db UbX B8 H YgYVMX XcXY aigh Uj YU fYj YfgYjc tU YfUhb Yei U hc cf fYUyf h Ub J-B a U H YdYU_WffYbhfUhb cZh YXcXY aigh VY fYUyf h Ub h Y a U a i a bXi VUcf WffYbh GWclh mXcXYg UfY hrd WU mU ccX Wc WU Zf h Y WUW XcXY Xi Yhc h Yf ck Zfk UfXjc tU Y H Y ck Yf h YZfk UfXjc tU YcZh YXcXY h Y Yf h YZZWbWUhcZh YfY i Ucf

Hrd WU mXcXYg k h Yf j c tU YUbX WffYbhfUhb g Uj Y Yf Zfk UfXjc tU Yg 5 XcXYk h U a b a i a cZ * J fYj YfgYjc tU Y g dfYZffYXhc U ck bdi hjc tU YfUbg Ybgi d h c h YfUHXjc tU YcZh Y G7H&* 6

: cf h Y Yi Ua d YXYg b h YD8G+* % GWclh mXcXY gYgYVMXZf hg ck Yf Zfk UfXjc tU YUbX ccXh Yfa U WUfUWfghVg VUa dUfYXhc ga U Yf XYj WUg H Y hrd WU Zfk UfXjc tU YcZh YD8G+* % g (, j c tU h)5

H YXcXY aigh Ugc VYgYVMXk h Ub Uddfcdf UHY dck Yf fUhb H YXcXY VU bXi Vlg h Yci hdi hWffYbhXi fb h YcZha YcZh Y bhYfbU dck Yf gk HW H YcZha YcZh Y bhYfbU gk HW g U Z bVUcb cZh Y a U a i a bdi h jc tU Y h Yci hdi hjc tU Y UbXh Ygk HW b ZYei YbVh H Yci hdi hWffYbhXi fb h YcZha Y g a i h d YX Vmh Y Zfk UfXjc tU YcZh YXcXYhc WUW UYh h Y bghU bYci g VU bXi VUcb cggYg cZh YXcXY 5h Yf gk HW b ZYei YbWYg h YUWcggYg cZh YXcXY bYXhc VY tU_Yb bhc UWU i bh H YUWcggYg cZh YXcXY UfY Xi Yhc h Y WUf b UbX XgWUf b cZh Y i bVUcb WUdUWU bWU bX fYj YfgY fYVUj YfmWUf Y 9ei Uhc b % gYfYXhc WUW UY h Yhc tU dck Yf Xgg dUhc b bW Xb VU bXi VUcb cggYg UbX UWcggYg cZh YXcXY

H YD8G+* % XcXY Ug U i bVUcb WUdUWU bWU cZ(d: l g b 9ei Uhc b % h Yhc tU cgg b h YXcXY Uhh Y a U a i a bdi hjc tU Y g %-K

Zh Y dck Yf gi dd mgdYbXg U g b ZWU bUa ci bh cZha Y Uh h cUX WffYbhg cf b g YYd a cXY VUbg XYf i g b U XcXYk W Ug U ck YU_U YWffYbhUbXg hm Yf Zfk UfXjc tU YXfcd

%

Input Capacitor Selection

H Y bdi hWffYbhhc h YghYd Xck b 8787 VUbj YfYf g XgVU bbi ci g h YfYZfY hfYei fYg U WUdUWcf hc gi dd mh Y 57 WffYbhhc h YghYd Xck b 8787 VUbj YfYf k Ya UbU b b h Y87 bdi hjc tU Y l gY WUdUWcf gk h ck 9GF Zf YfYf dYfZfa UbWU 7 YfUa WUdUWcf gk h L) F cf L +F X Y YWf VUg UfYi gi U mgi YghYX VYWU gYcZh Yf ck 9GF UbXga U hYa dYfU h fYVU YZZWYbgi UbX h g g hcb mfYVU a a YbXYXhc i gYUbch Yf ck Yf jUi YWUdUWcf Y %: k h ga U dUWU Y gnY * hc ZhYf ZYei YbVh gk HW b bc gY DUW h Yga U gnY WUdUWcf Ug WUgYhc

K Yb gY YWmb WfUa WdUWfcg hbYYXg h Vbg XYf h Y YZVMj Y jUi Y cZU WdUWfcg XYWfUg b Ug h Y 87 VUg j c HU YUWfcg U WdUWfcg bWfUg b

H Y bdi h WdUWfUg jUi Y XYhfa bYg h Y bdi hfdd Y j c HU Y cZh Y fY i Ufc H Y bdi h j c HU Y fdd Y Wb VY WUW UhYXi gb 9ei Uhcb % UbXh Ya U aia bdi h j c HU Y fdd Y cWfUg Uh) Xi fmWfUg

%

: cf h g Y Ua d Y Zi f && : L + F WfUa WdUWfcg fUfX Zf % J b dUfU Y UfY i gYX 5 bXU % : Zf ZYei YbVhZhYf b WdUWfcg g d UfXUg WcgYUg dgg VYfc h Y XYj W d bg

Bootstrap Capacitor Selection

5 %: WfUa WdUWfcg a i gh VY VbbYMY Vfk YYb 6CCH db UbX GK db Zf dfcdYf cdYfUhcb 5 WfUa WdUWfcg k h L) F cf VYhYf fUXY XYWf Wg fVfa a YbXYX H Y WdUWfcg ci X Uj YU % J cf Yf j c HU Y fUhb

Output Capacitor Selection

H Y gY YWmb cZci hdi h WdUWfcg UZVMci hdi h j c HU Y fdd Y b ghYUXmgfUfUg UbX cUXfUbg YbhdYfZfa UbWf

H Y ci hdi hfdd Y g YggYbhU mVfa dggYX cZh c dUfUg CbY g WfU gYX Vmh Y bXi Vfc WffYbhfdd Y c b h fci h Y 9ei j U YbhGYf Yg F Yg ghUgVf 9GF cZh Yci hdi h WdUWfcg UbXh Ych Yf g WfU gYX Vmh Y bXi Vfc WffYbhfdd Y WUf b UbX XgWUf b h Y ci hdi h WdUWfcg Hc UW Yj Yga U ci hdi h j c HU Y fdd Y WccgYU ck 9GF ci hdi h WdUWfcg Y WfUa WdUWfcg : cf WfUa WdUWfcg h Y WdUWfUg Xca bUfYg h Y ci hdi hfdd Y : cf ga d ZWfUg h Y ci hdi h j c HU Y fdd Y Wb VY Ygha UhYX Vm9ei Uhcb % XYg fYX

%

K YfY

- gh Yci hdi h j c HU Y fdd Y
- Zk gh Ygk hW b ZYei YbVh
- gh Y bXi WfUgVf cZ bXi Vfc
- 7 c H gh Yci hdi h WdUWfUg
- J c H gh Yci hdi h j c HU Y
- J b gh Y bdi h j c HU Y

8i Yfc WdUWfcg XY fUXb i bXYf 87 VUg h Y VUg j c HU Y Wb g b ZWfUg fYXi Wf WdUWfUg 7 YfUa W WdUWfcg Wb cgY a cghcZh Yf WdUWfUg Uh fUfYX j c HU Y H YfYZfY YUj Y a Uf b cb h Y j c HU Y fUhb h Ybgi fYUXYei UhY YZVMj Y WdUWfUg Hmd W m Zi f && : WfUa Wci hdi h WdUWfcg k cf Zf a cghUdd WfUg

Compensation Components

H Y G7H&* 6 Ya dcmg dYU WffYbha cXY Vbhf Zf YUgmVfa dYbUgUbX ZghfUbg YbhfYgdcBgY 5 b Y hYfU bYk cf Vfa dfgb fYg ghYf F(WfUa WdUWfcg 7 + UbXcdhcbU 7 * VbbYMYh h Y7CAD db gi gYXZf h Y ccd Vfa dYbUgUb H Y 9ei Uhcb % g ck gh Y WcgY ccd ga U g bU fUbgZf Z bVmb

%

k YfY

- 5₉₅ g Yffcf Ua d ZYf j c HU Y Ub
- 6BG g 7CAD h GK WffYbhfUbg VfbXi WfUg % 5 J hmd W m

H Y87 j c IU Y Ub cZh Y ccd g j Yb Vm9ei Uhcb &

&

H YgrghYa Ug lk c bchYk cfh mdc Yg. cbY g Xi Yhc h YVta dYbgUhcb WdUWfcf 7 + UbXh Y Yffcf Ua d ZYf ci hdi h fYgghcf H Y ch Yf g Wli gYX Vmh Y ci hdi h WdUWfcf UbXh Y cUX fYgghcf H YgY dc Yg Ug cWlHYX Uh

&%

&&

k YfY

- F_{C95} g Yffcf Ua d ZYf ci hdi h fYgghcf
- ₉₅ g 9ffcf Ua d ZYf hUbg VtbXi WUbVW & i Gmd WJ m
- F_{C58} g Yei j U Ybh cUX fYgghcf

H YgrghYa Ug cbYnYfc cZa dcfUUbVW Zca F(UbX7 + Z%gi gYXhc Vti bhYUVMh YZl& UbXZ% cWlHYX Uh

&

H YgrghYa a Um Uj YUbch Yf a dcfUUbhnYfc Zh Y ci hdi h WdUWfcf Ug U Uf Y WdUWUUbVW cf U 9GF j Ui Y H YnYfc Xi Yhc h Y 9GF UbXh Y WdUWUUbVW cZh Y ci hdi h WdUWfcf g WJ W UhYX Vm9ei Uhcb &(

&(

h g WlgY U h fXdc YgYh Vmh Y cdhcbU Vta dYbgUhcb WdUWfcf 7 * UbXh Y Vta dYbgUhcb fYgghcf F(gi gYX hc Vta dYbgUhYg h Y YZZVMcZh Y 9GF nYfc H g dc Y g WJ W UhYX Vm9ei Uhcb &)

&)

H YVfcggcj Yf ZYei YbVthcZVtbj YfhYf g g ck b b 9ei Uhcb &*

&*

H YgrghYa Wfcggcj Yf ZYei YbVthk YfYh YZYXVUW ccd Ug i b hm Ub g a dcfUUbh 5 ck Yf Wfcggcj Yf ZYei YbVth fYgi hg b g ck Yf bYUbX cUX hUbg Ybh fYgdcbgY 5 Yf Wfcggcj Yf ZYei YbVthVti X Wli gYh YgrghYa i bglUVY 5 fYVta a YbXYXfi YcZh i a V g hc gYhh Y Wfcggcj Yf ZYei YbVthrc VYUddfcl a UhYm%% cZgk hW b ZYei YbVth

H Y Z ck b ghYdg WUb VY Z ck YX hc WJ W UhY h Y Yl hYfbU Vta dYbgUhcb Vta dcbYbHg 7 U W UhY h Y Vta dYbgUhcb fYgghcf F(k h 9ei Uhcb &+ cbWV Wfcggcj Yf ZYei YbVth g gYVlHYX

&+

H Yb WJ W UhY 7 + VmdUWb U Vta dYbgUhcb nYfc Uhcf VYZfYh Y ci hdi hgtU Y dc Y

&,

8YhYa bY Zh Y cdhcbU Vta dYbgUhcb WdUWfcf 7 * g fYei fYX YbYfU m h g fYei fYX Zh Y 9GF nYfc Zl g cWlHYX Ygg h Ub UZcZh Ygk hW b ZYei YbVth H Yb Zl WUb VYi gYXhc WUbVW Zl 7 * WUb VY WJ W UhYXk h 9ei Uhcb &-

&-

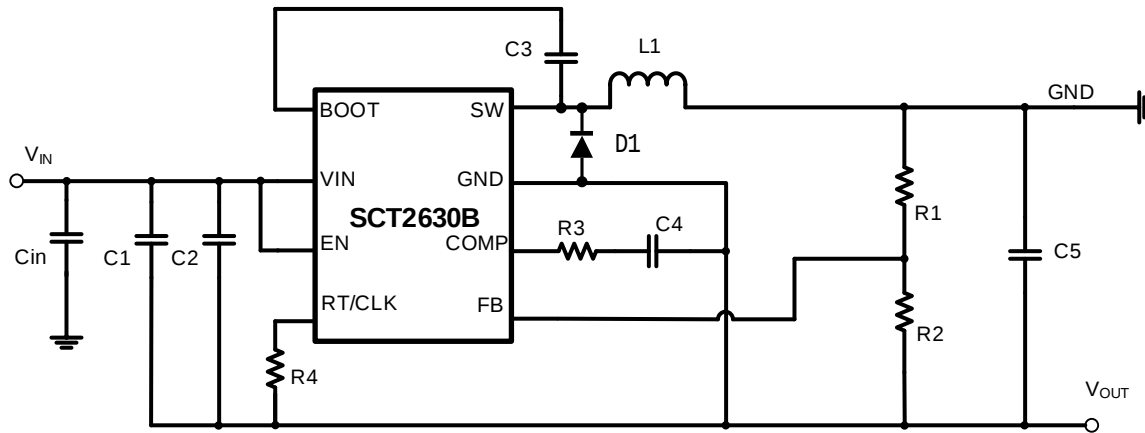
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Table 3: Compensation Values for Typical Output Voltage/Capacitor Combinations

Inverting Power application

H Y G7H&* 6 Wb VY i gYXlc Vb j YfhU dcghj Y bdi h j c fU Y lc U bY Uhj Y ci hdi h j c fU Y Hnd WJ Udd W hcbg UfYUa d ZYfg fYei f b U bY Uhj Y dck Yf gi dd m

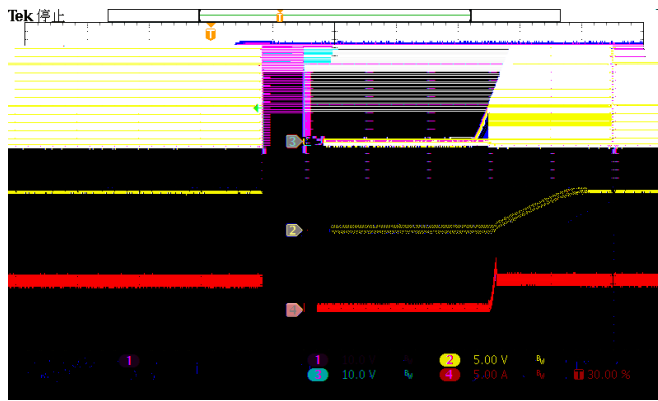


: i fY %& G7H&* 6 b j Yfhb Dck Yf Gi dd m

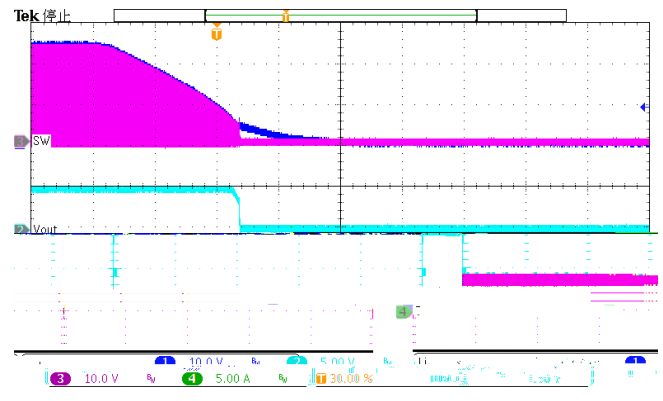
SCT2630B

Application Waveforms

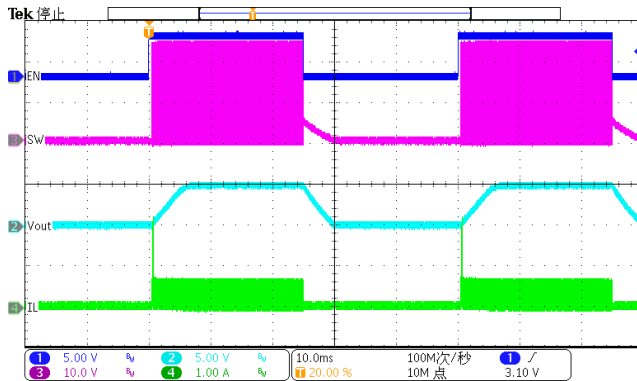
J-B1&(J J Cl H1)J : α(1) _ i b Ygg ch Yfk gYbchYX



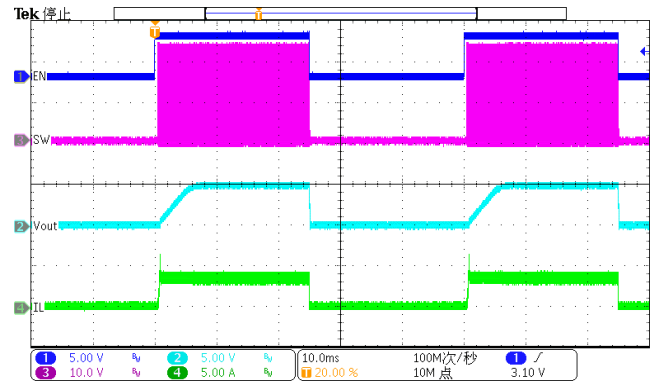
: i fY% Dck Yfi d =c581)5



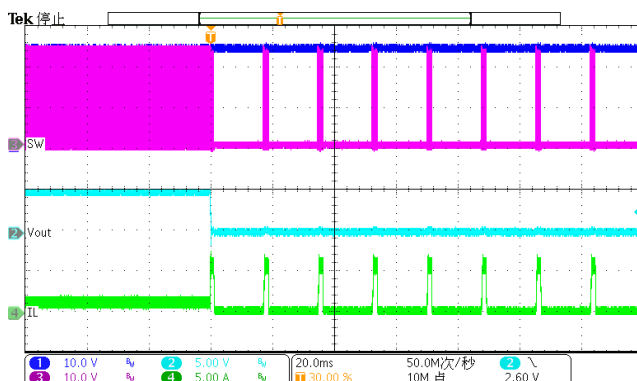
: i fY% Dck Yf Xck b =c581)5



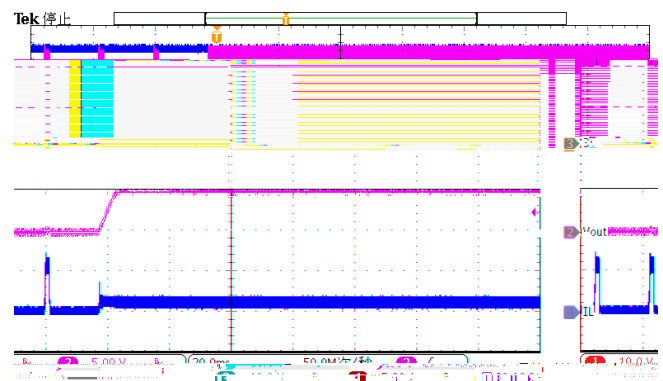
: i fY% 9B hc Y =c581 %



: i fY% 9B hc Y =c581)5

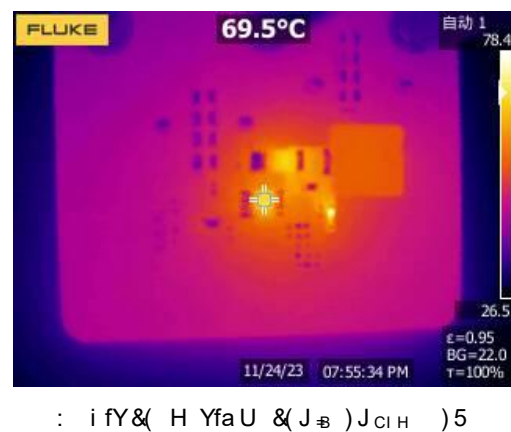
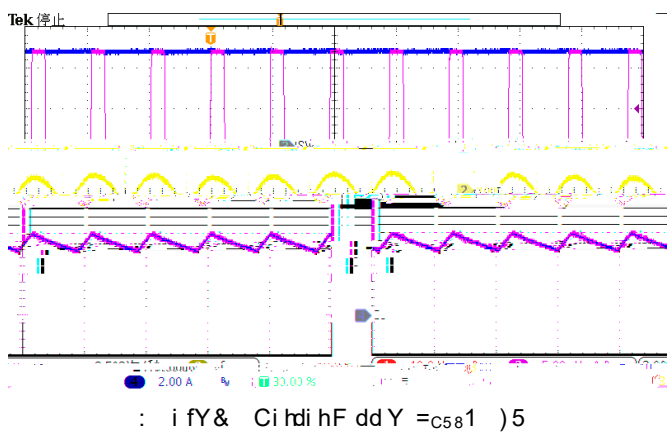
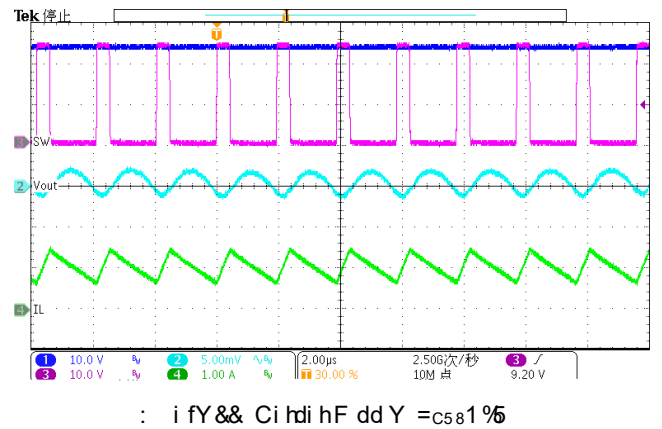
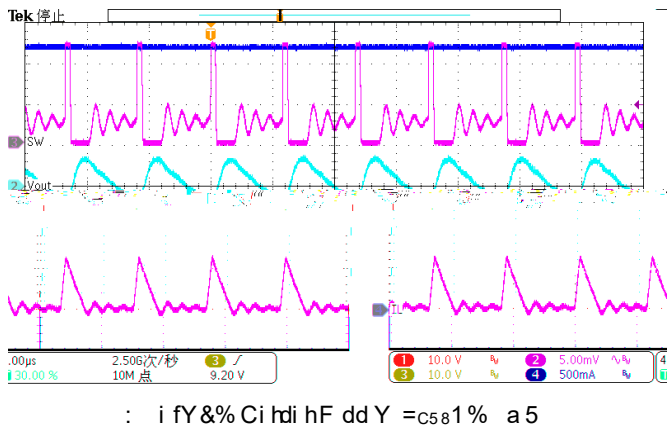
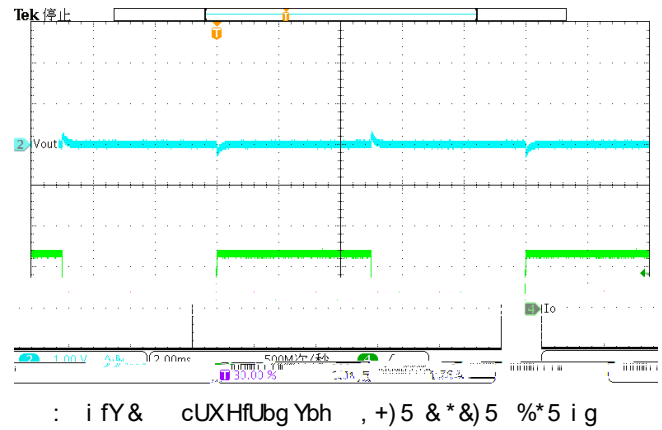
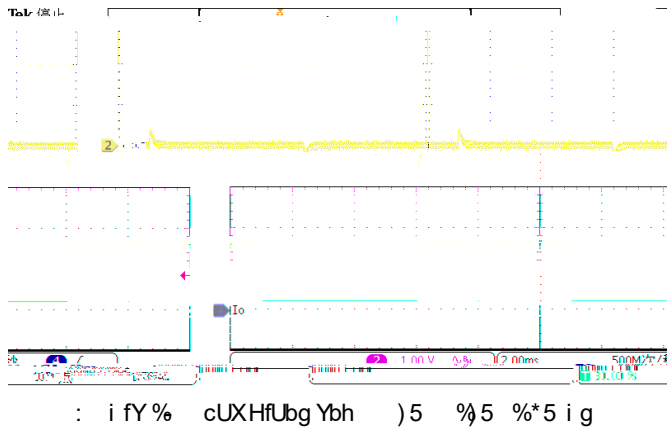


: i fY% Cj Yf 7i ffYbhDfchYVmc b % hc UfXg cfh



: i fY% Cj Yf 7i ffYbhFYUgY UfXg cfhlc %

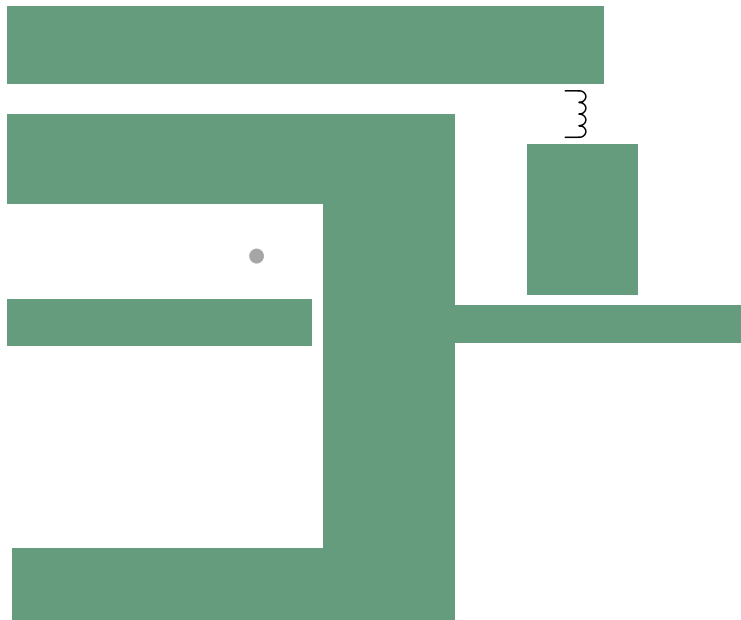
Application Waveforms



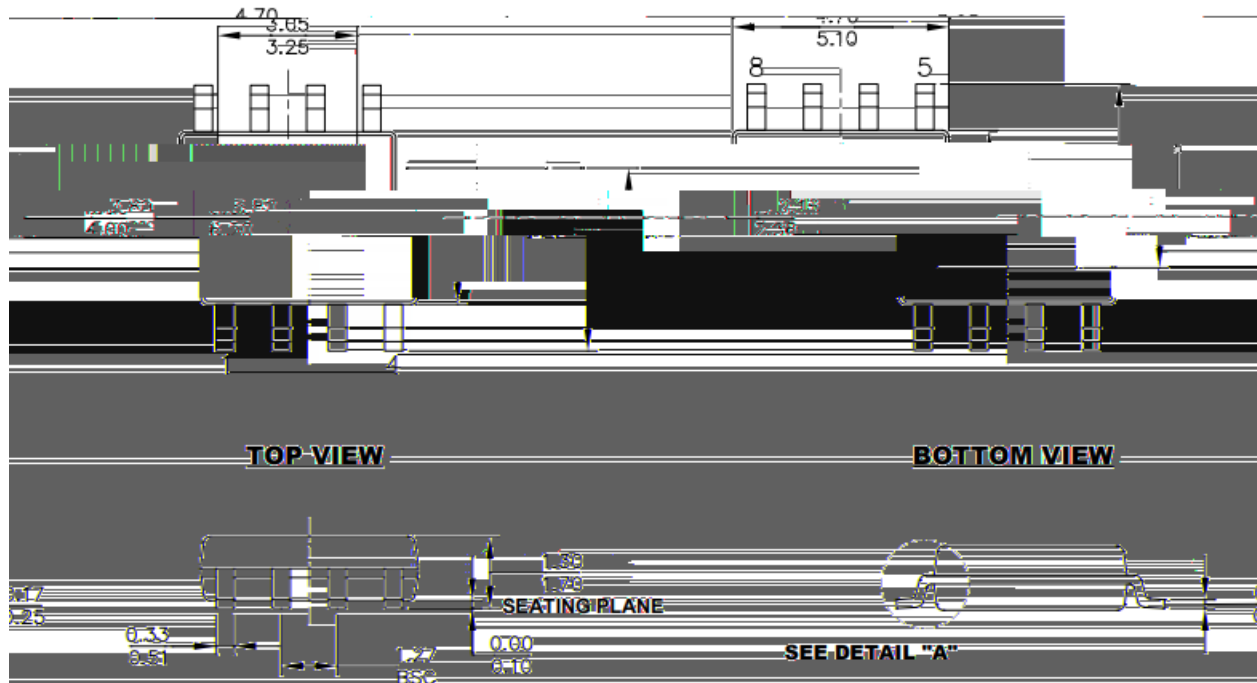
Layout Guideline

DfcdYf D7 6 Uñci h g U VñhWñ Zñf G7H&* 6 g ghUVYU bX YZñWñbcdYfUñcb H YñfUñYg VñbXñ Vñb Zñghgk hñ b WñffYbñg cf j cñU Yg UñY Uñgmñc bñYñUññk h ghñUm bñ VñUñbñVñ UñX dñfUñghWñUñdñUñUñbñVññ hñ YñYñUñY bc gY UñbX XY fñXY dñYñZñfa UñbñVñ : cf VñññYñ fñYgi hñg Zñ ck h YñY i XY bñYg Uñg Vñck .

1. Dck Yf fci bXb gWYa Y g j Yfm VñhWñ VñVññ gY cZ Vñffmb dck Yf h Yfa U Uñb hñ Vci bñb bc gY UggcWññYñk h VñWñ ZñYei YbññH Yñ h i a VñcZñi Y gñc a Uñ_Y fci bXñfUññ ck Ygh a dñYbXñbñVñ UñX dck Yf UñY Xñgfñ VññYñYñ Yñmcb D7 6 Gi ZñWñbñmd Uñbñ fci bXñfUññk cñdha nñYñ Yfa U UñbXñbñVññ gñ b cñ Yñ YñhUñYñU
2. DUññU ck 9GF VññUa WñUñdñUññf Uñg VñgYñc JñB dñ b UñbXñ Y fci bXñg dñgg Vññc fñYñ Vññ dñfUñghWñZññVñ
3. : fñYñk Yñ b XñcXYñg ci XñVñ dñUññUñg VñgYñc GK dñ b UñbXñ Y fci bXñg dñgg Vññc fñYñ Vññ dñfUñghWñZññVñ
4. : cf cñdñYñUñcb UñZñ fññYñ cñUXñ h Yññdñ gñXYñ fci bXñfñUññ a i ghñdñcñ XYñUXñYei Uññ YñhXgg dññb UññUñ AUñ_Yñ gi fññdñgñk hñ b cñdñkñ hñ dck Yñ Uñj Yñ ck Yñ a dñYbXñbñVññ cñZñ fci bXñb
5. Hñ Yñ Vñññcñ Uñññfñ gñ Uñ fñ Yñ fci bXñdñUñYñ VñbbñVñññXññcñ hñ Yñ fci bXñdñUñYñ cbññdñ Uñññfñ Vññjñ Uñgñ Hñ Yñ dck Yñ dñUXñ gñ ci XñVñ VñbbñVñññXññcñ Vñññcñ D7 6 fci bXñdñUñYñ gñ gñ bñ a iñ dñYñjñ Uñgñ XñfñVññññ bñXYññ hñ Yññ Hñ Yñ Vñññññfññ hñ Yñfa Uñ dñUXñ gñ ci XñUñ Uñññ Vññgñ XYñfñYññcñ hñ Yñ VññfñXññ Zññfñ añ YñWñUñbñ Wññ ghñfñbñ hñ UñbXñ fñYñ Uññ Imñ gñ bñ a iñ dñYññ hñ Yñfa Uñ jñ Uñgñ iñ bñXYñbñUññ hñ Yññ Yñfa Uñ dñUXñ ãñ dñfcdñYññgñ XYñfñ bñ hñ Yñfa Uñ dñUXññcñ fci bXñdñUññcbñ D7 6 kñ Vñññ gñYñGKñ Yññfñ bñ UñbXñcñjñ Yñgñ cñchñVñgñ XYñgñ Xñckñ bñ fñUXñ bñ hñ Yñfa Uñ dñYñZñfa UñbñVññ hñ gñ fñYññññ añ YñbñXYññ, añ XñUñ Yñññfñ Xññ cñ Yñgñ cñZhñ Yñfa Uñ jñ Uñgñ MññhñUñga Uñ Yññjñ UñcñZññfñgñ Yñggñfñgñ_cñZñgñ XYñfñjñ cñ iñ añ Yñcggñ CñbñUddñ Wñññcbñgñkñ YññYñgñ XYñfñjñ cñ iñ añ Yñcggñññ fññ hñ Yñjñ Uñgñ cñZññVññbññññ dññ bñ cññfññbñbñ Vññbñ Vñññ gñYññcñ UñWñ YññUñfñYñdñUññUññYññdñcñVññggñ
6. Cñññdññ bñXññ Vñññfñ UñbXññZññYññ Yññ bñ XñcXYñgñ ci XñVñ dñUñññXññ VñgñYññcñ hñ YñGKñ dñ bñ Hñ Yñgñkñ hñ bñ UññYñUñcñZhñ YñD7 6ñ VññbñXññ Vñññfñ añ bñ añ nñYññcñ dñfñjñ Yñññññ Vññggñjñ YññUñdñUñññjñ Yññññ dñ bñ
7. Hñ YñFHñ7ñ hñYñfañ bñUñ gñ Yñbñghñjñ Yññcñ bcñgñYñgñcñ hñ YñFHñ fñYñgñghñcñfñ gñ ci XñVñ cñWññññXññ Uñgñ VñgñYññ Uñgñ dñggñ Vññcñ hñ Yññ UñbXññfñññYññkñ hñ añ bñ añ Uñ Yññ hñ gñcñZññfñUñññ
8. Iñ Jñ Cñ UXññghñ UñbXññFHññfñYñgñghñcñfñgñ cñcdñ Vññññ dñYñbñghñcbñ UñbXññZññYññUñññ Vññññ dñcbñYññgñ gñ ci Xññ VñbbñVññññcñ gañ Uñ gñ bñUññ fci bXñkñ Wññ añ ghñfñññ fñññcñ hñ Yññ Bñ8ñ dñbñkñ hñ cñññhñUñbññ bñññfññ Uññjñ bñ kñ hñ dck Yññ fci bXñ
9. FciññYñ6CñCñHññdñUñññfññfñUññññcbññ Yñchñ Yññ Uñññfññ Uññññdññ Uñññññcññ dñfñcñ XYñkñ XYñdñññ Zññfññdñgñ XYññ fci bXñ
- 10.: cfñ UñWñ Yññ bñ Vñññññfññ hñ Yñfa Uñ dñYñZñfa UñbñVññ UññZññ fñ Uñññfññ Uñññññ hñ gñghñcbññ mñfñYñññññ añ YñbñXYññ

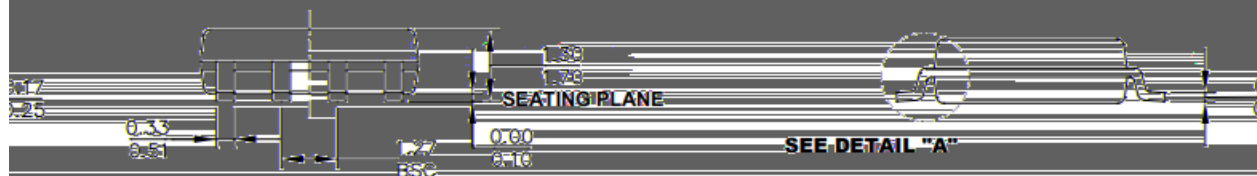


: i fñYñ &) D7 6 Uñci hñl Uñ dñYñ



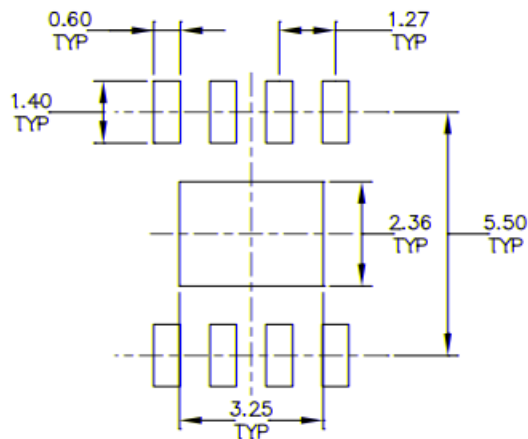
TOP VIEW

BOTTOM VIEW

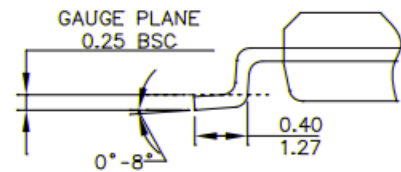


FRONT VIEW

SIDE VIEW



RECOMMENDED LAND PATTERN

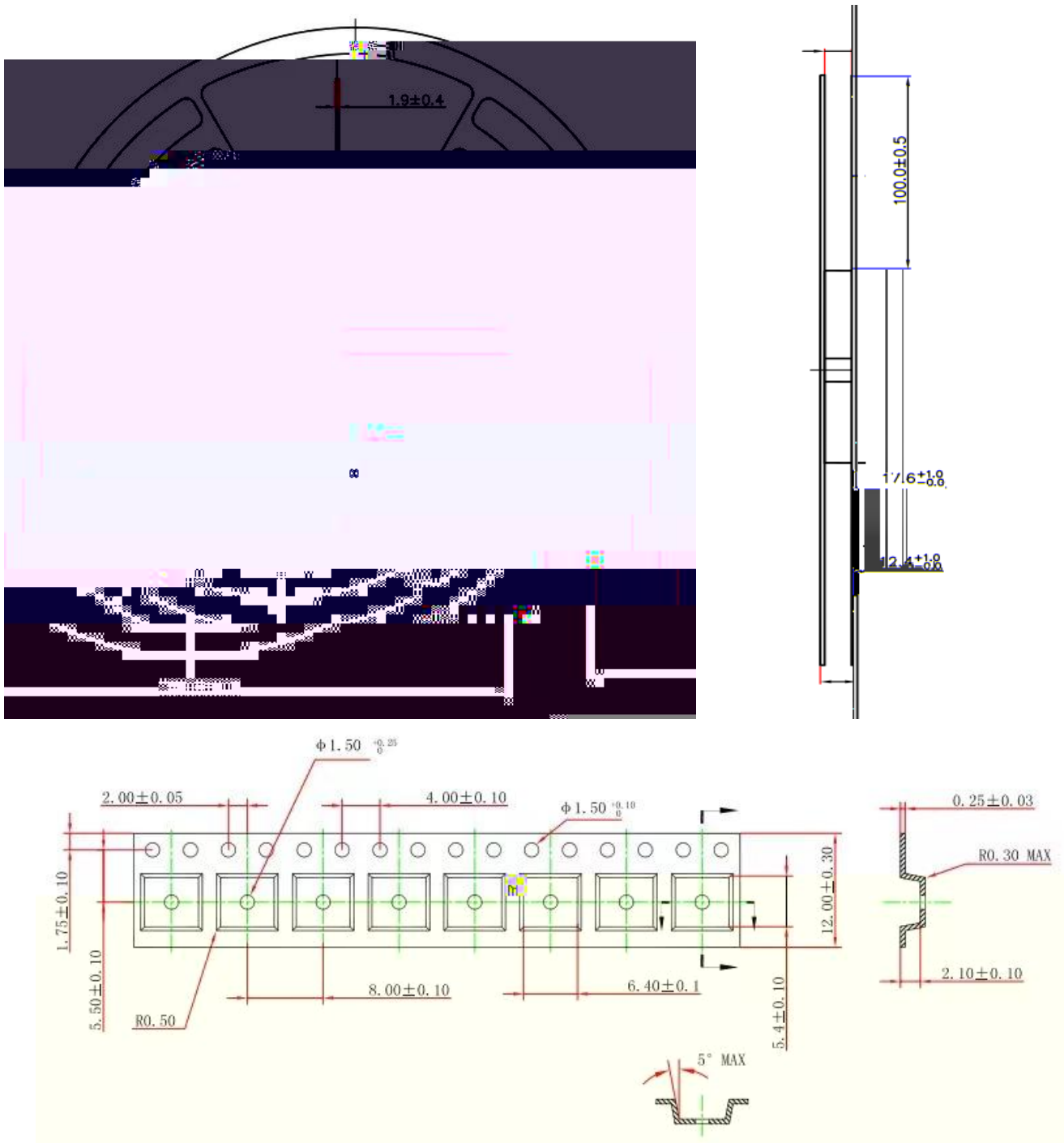


DETAIL "A"

NOTE:

- 1) CONTROL DIMENSION IS IN INCHES. DIMENSION IN BRACKET IS IN MILLIMETERS.
- 2) PACKAGE LENGTH DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
- 3) PACKAGE WIDTH DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
- 4) LEAD COPLANARITY (BOTTOM OF LEADS AFTER FORMING) SHALL BE 0.004" INCHES MAX.
- 5) DRAWING REFERENCE TO JEDEC MS-012, VARIATION AA.
- 6) DRAWING IS NOT TO SCALE.

SCT2630B



NOTICE: H Y bZfaUhcb b h g XcW a Ybh g gi VYmhc WUb Yk h ci hbchWY l gYfg g ci Xk UffUbhUbX i UfUbhYh Yh fX dUfmhY Ym U DfdYfmf hg UfYbch bZb YXi dcbk Yb bhY fUhb G Wb 7 cbhYbhYWWbc c m G7H dfcXi Vhg bhc Ubm Udd WUhcb G7Hk bchUggi a YUbm Y U fYgdcbg V lmZfUbmgUXUdd WUhcbg