^ Z/Wd/KEW

7KH SURGXFWV DUH OD SLQ 7RKSHWG HDGIUDPH LV D YHU\ VPDOO RXWOLQH DQG KLJK SRZHU GHQVLW\ VXLWDEOH IRU VXUIDFH PR DVVHPEO\ ,W FRQVLVWV RI DQ LQIUDUHG /(' RSWLFDOO\ FR SKRWR 026)(7 DQG LV9RK2RXVHGFLQQJH ,W IHDWXUHV ORZ RXWSXW FDSDFLWDQFH &2VV)RQQRGH VZLWFKLQJ RI KLJK IUHTXHQF\ VLJQDOV PRUNVZLWFKLQJ DSSOLFDWLR LQ KLJK VSHHG WHVWLQJ7KLHGSHURGXFHG LQ DXWRPDWL WHVW HTXLSPHQW KLJK VSHHUHG GHJLFV,&HHG PHPRU\ WHVWHUV DQG PHDVXULQJ LQVWUXPHQWV

D/E & dhZ ^

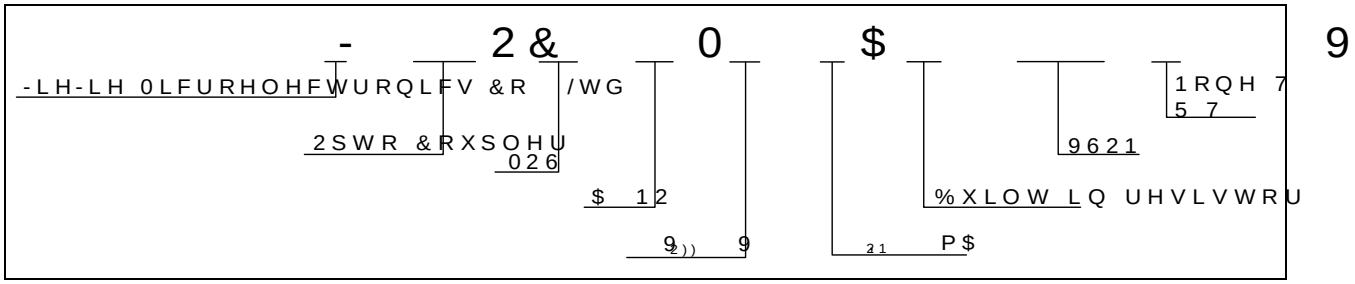
,VRODWLRQ YROWDJH
2SHUDWLQJ WHPSHUDWXUH& WR f&
5(&+ 5R+6 FRPSOLDQFH
+%0 + $ 00 0 &'0 &

^K>hd D y/DhD Z7dHPS^HUDWXUH f&

Parameter		Symbol	Value	Unit
,QSXW	,QSXW)RUZDUG 9ROWDJH	9	9	
	5HYHUVH 9ROWDJH	95		
	,QSXW 3RZHU 'LVVLSDWLRQ	3	3	
'HWHFWRU	2II VWDWH 2XWSXW 7HUPLQDO 9ROWDJH	92))		
	2Q VWDWH &XUUHQW	,21		P$
	2Q VWDWH &XUUHQW	21SXOVHG	,	P$
,VRODWLRQ 9ROWDJH		9LVR	7	9UPV
2SHUDWLQJ 7HPSHUDWXUH		7RSU	a	

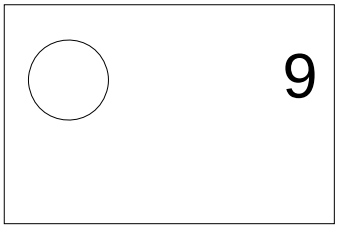
-XQFWLRQ 7HPSHUDWXUH 7M

K Z Z / E ' / E & K Z D d / K E



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K ‰ š] } v	Y µ v š] š Ç
s ^ K E ð	ï ì ì ì h v] š • l Z o

D Z < / E '



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FIG.1: 2SHUDWLQJ 9ROWDJH YV $PELHQW 7HPSHUDWXUH

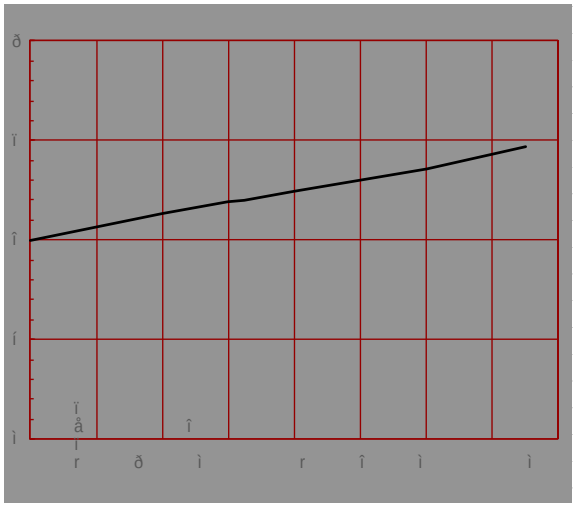
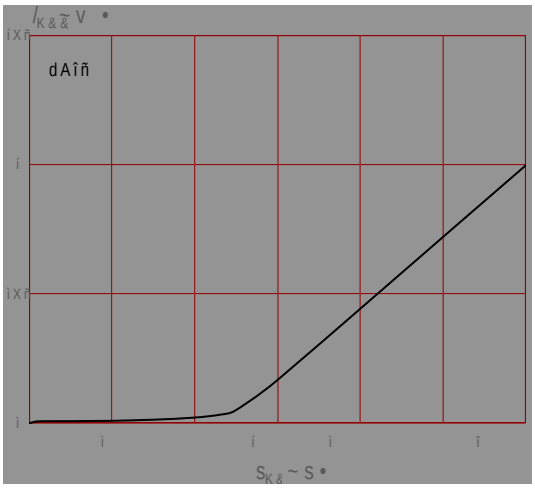


FIG.2: 2Q VWDWH &XUUHQW YV $PELHQW 7HPSHUDWXUH

FIG.7: 2II VWDWH &XUUHQW YV 2II VWDWH &XUUHQW

FIG.8: 2XWSXW &XUUHQW YV $PELHQW 7HPSHUDWXUH



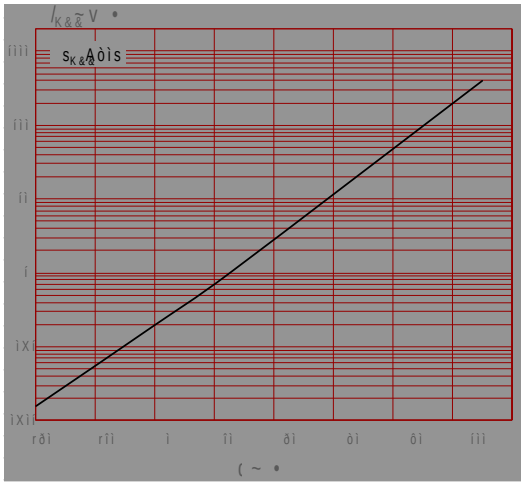


FIG.9: 2Q 5HVLVWDQFH YV -XQFWLRQ 7HPSHUDWXUH

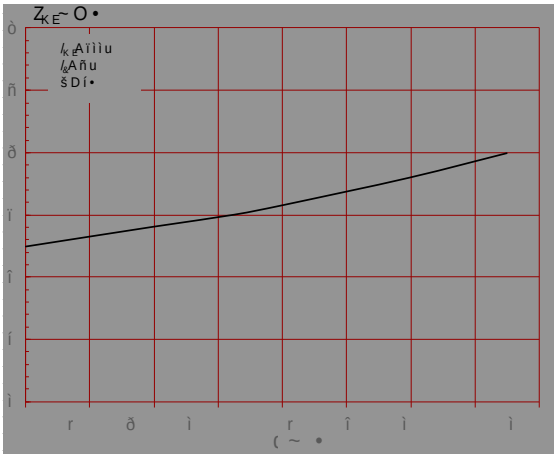
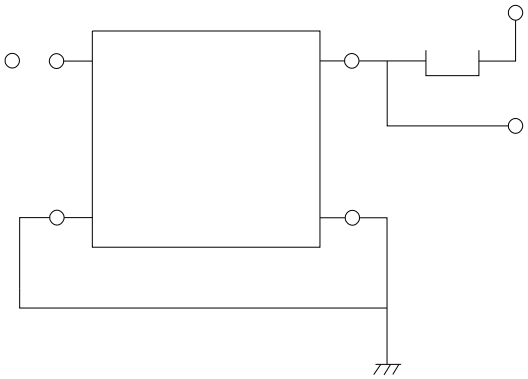
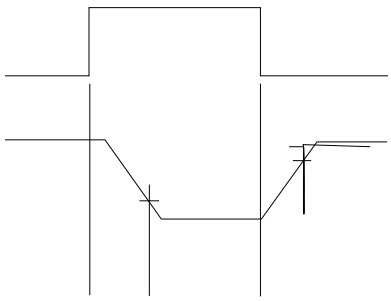
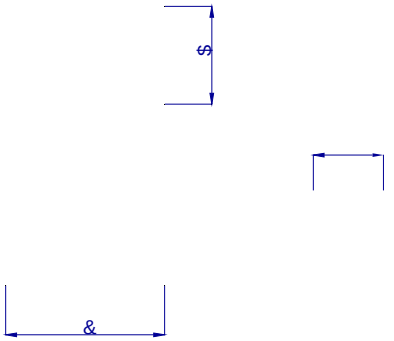


Fig.10: Switching Time Test Circuit and Waveform





W l P]u v•]}v ~hv]šW uu•

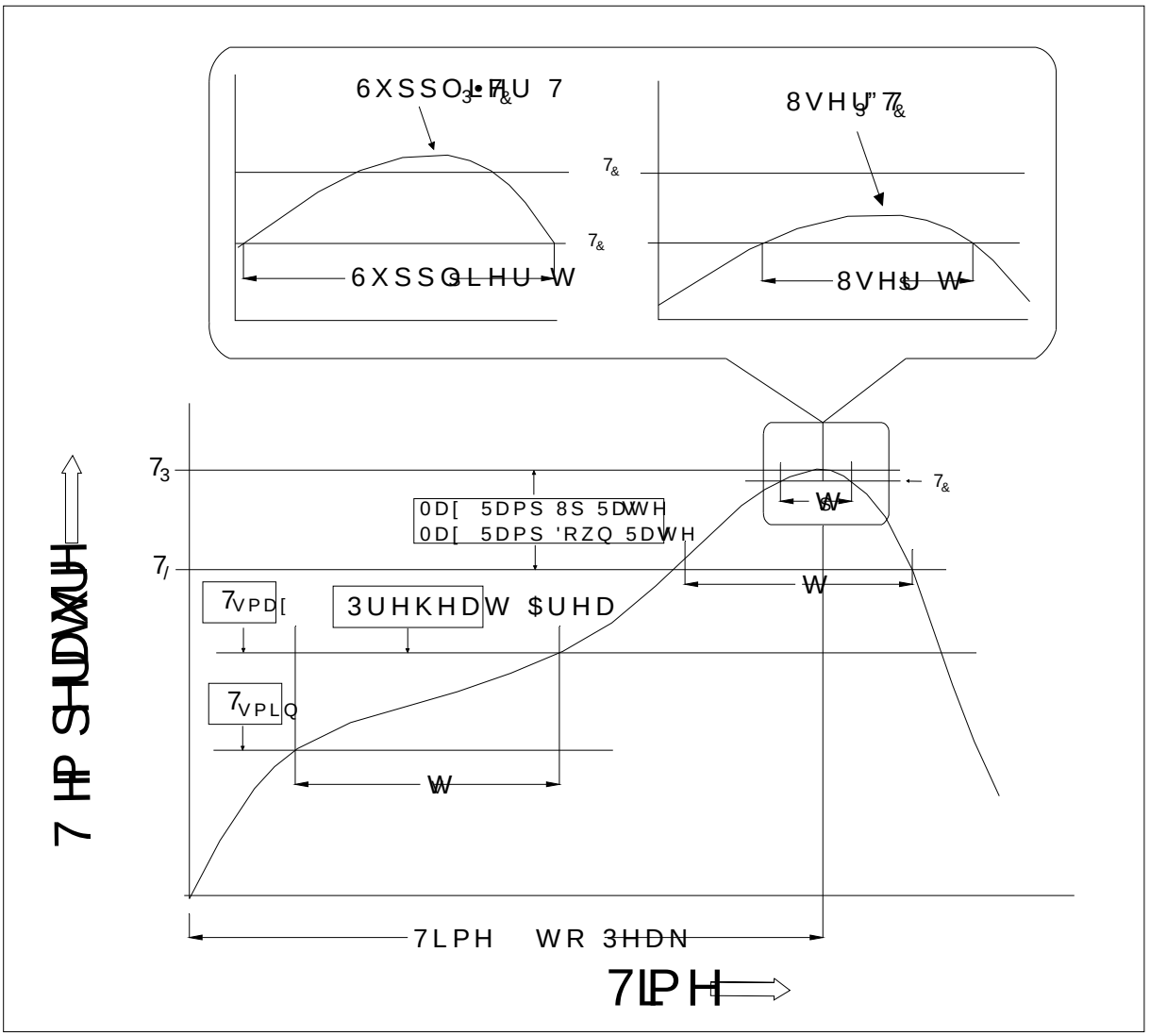




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5HI	'LPHQVLRQV					
	0LOOLPHWHUV			,QFKHV		
	0LQ	7\S	0D[	0LQ	7\S	0D[
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3						
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(						
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Z &>Kt /E&KZD d/KE



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
7HPSHUDWXUH 0LQ	7VPLQ	
7HPSHUDWXUH 0D[	7VPD[	
7LPH WV IURP 7VPLQ WR 7VPD[	VHFRQGV	VHFRQGV
5DPS XS 5DWH W/ WR WS	3HFRQG PD[	VHFRQG PD[
/LTXLGXV 7HPSHUDWXUH 7/		
7LPH W/ 0DLQWDLQHG $ERYH 7/	VHFRQGV	VHFRQGV
3HDN %RG\ 3DFNDJH	7HPSHUDWXUH	
7LPH W3 ZLWKLQ	VHFRQGV	VHFRQGV
5DPS GRZQ 5DWH	73 WR 7/	VHFRQG
7LPH WR 3HDN 7HPSHUDWXUH		PLQXWHV PD[

1RWH

5HIORZ VROGHULQJ LV UHFRPPHQGHG DVWKRZLQH QWRHPSHUDWWKDQHWRG

$YRLG GLUHFW FRQWHDFWRE[HQGZQQWRXRLDFRHV H[FHHGLQJ LWV PD
VWRUDJH WHPSHUDWXUH

$SSOLFDWLRQ RKHSUHSRV[XERGRKLWSOHGDWHGWHPSHUDWXUHV ,Q V
VFHQDULRV DQHDPSXOLQGRWRH[FHHG 1

(QVXUH WKH FRPSRQHQW KDV FRROHGWRRDPEHQWWHPSHUDWXUH
PDQXIDFWXULQJ VWHSV

7KH FRPSRQHQW HKDV EQVHKHOLZKHQVWRUGHGXQGLWLRQV

5HFRPPHQG VWRUDJH 7HPS a *f* &

5HFRPPHQG VWRUDJH KXPLGLW\

06/ OHYHO 06/

,QIRUPDWLRQ IXUQXVKHGW LQ WKLVHGRFG WR EH DFFXUDWH
-LDQJVX -LH-LH 0LFURHOHFWURQLFV XPHQW Q\MURHOYH G