



2XWSXW	6XSSO\ 9ROWDJH	&&	9	
	2XWSXW 9ROWDJH	9 ₂		
	2XWSXW &XUUHQW	, ₂		
	2XWSXW 3RZHU 'LVVLSDWLRQ	3	P :	
7RWDO 3RZHU 'LVVLSDWLRQ		3 _{WRW}		P :
,VRODWLRQ 9ROWDJH		9 _{LVR}	⁸	9UPV
2SHUDWLQJ 7HPSHUDWXUH		7 _{RSU}	a	
-XQFWLRQ 7HPSHUDWXUH		7 _M		
6WRUDJH 7HPSHUDWXUH		7 _{VWJ}	a	
6ROGHULQJ 7HPSHUDWXUH		7 _{VRO}		

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(}Æ íu]vμš U ZX,XAđì•đì9

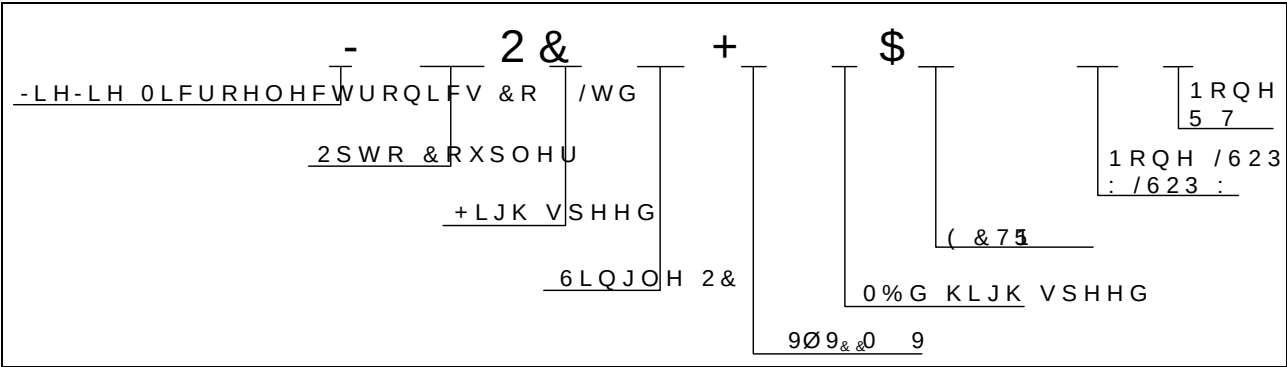
7HPSHUDWXUH *f* &

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
,Q SXW	)RUZDUG 9ROWDJH		,) 9 P\$				9
	5HYHUVH &XUUHQW		9 ₅ , 9				\$
	,Q SXW &DSDFLWDQFH		9 ₁ & 0+]				S)
2XWSXW	&XUUHQW WUDQVIRU UDWLR		P\$ & 9 &75 9 ₂ 9				
	+LJK /HYHO &XUUHQW		,) P\$ & 9 9 ₂ 9 ,) P\$ & 9 9 ₂ 9				Q\$ \$
	/RZ /HYHO 6XSSO\ &XUUHQW		9 ₂ 2SHQ 9&& 9 ,) P\$				P\$
	+LJK /HYHO 6XSSO\ &XUUHQW		9 ₂ 2SHQ 9&& 9 ,) P\$				\$
	/RJLF /RZ 2XWSXW 9ROWDJH		,) P\$ 2, P\$ 9&& 9				9
	,VRODWLRQ 5HVLVWDQFH		'& 9 a 5 +				
	)ORDWLQJ &DSDFLWDQFH		&,2 9 1 0+]				S)
	6ZLWFKLQJ &KDUDFWHULWV		,) P\$ 5, N 9&& 9				V



	3URSDJDWLRQ73/HOD\	) P\$				
	7LPH WR /RJLF +LJK	5, N				V
		9&& 9				

&RPPRQ 0RGH
7UDQVLHQW
0 U8Ç



>^KWñ	ïïïï hv]š•IZ o	î Z	o•l/vv Æ }Æ ïïñ h/w]š•Æ }A

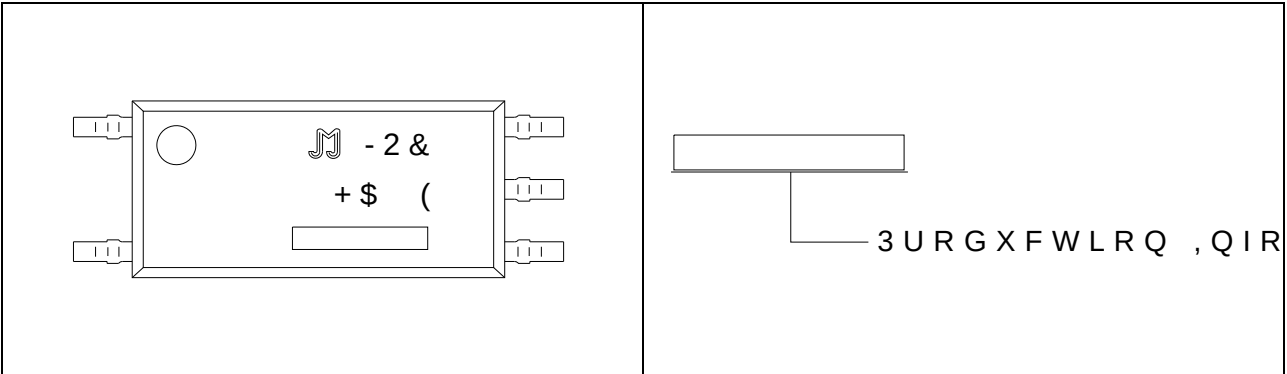


FIG2:9+LOW D H H HO 2XWSXW &XUUHQW
7HPSHUDWXUH

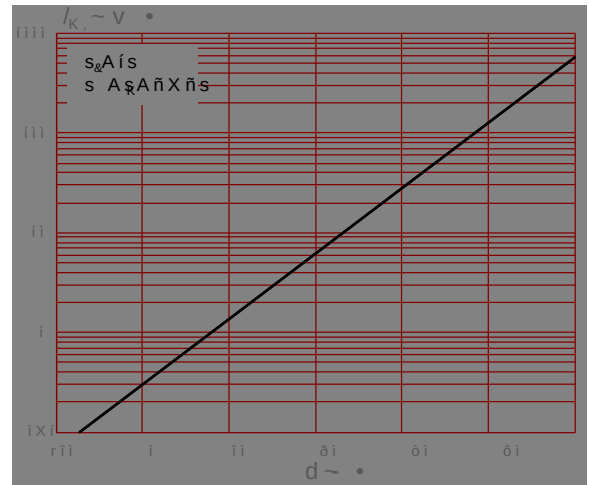


FIG. 4: XLRUPQWLHG &XUHHQW 7UDQV
YV)RUZDUG &XUHHQW

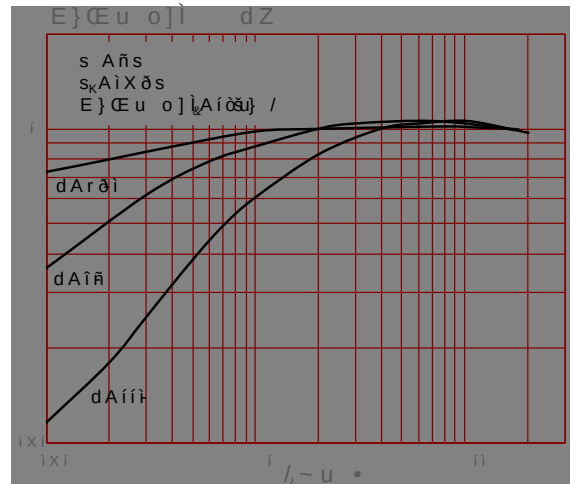


FIG. 6: $\mathbb{S} \times \mathbb{D} \times \mathbb{W} \times \mathbb{S} \times \mathbb{R} \times \mathbb{W} \times \mathbb{V} \times \mathbb{X} \times \mathbb{U} \times \mathbb{H} \times \mathbb{Q} \times \mathbb{W} \times \mathbb{Y} \times \mathbb{V} \times \mathbb{Z} \times \mathbb{X} \times \mathbb{W} \times \mathbb{S} \times \mathbb{X}$

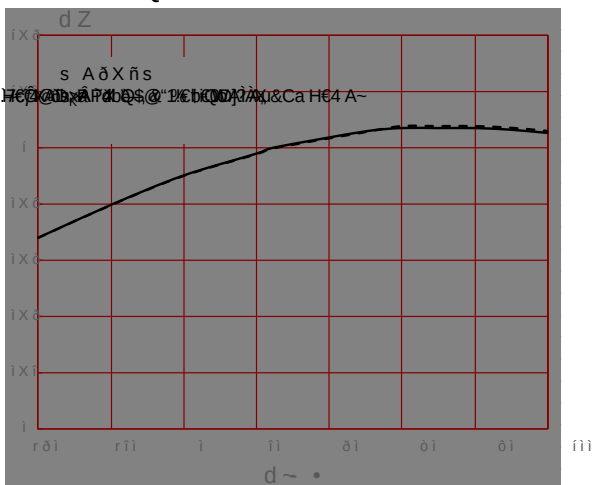


FIG.7: /RZ /HYHO 2XWDSJHWY9RO\$PELHQ\$ 7HPSHUDWXUH

FIG.8: 3URSDJDWLRQ 'HOD\ YV /RDG 5HVLVWDQFH

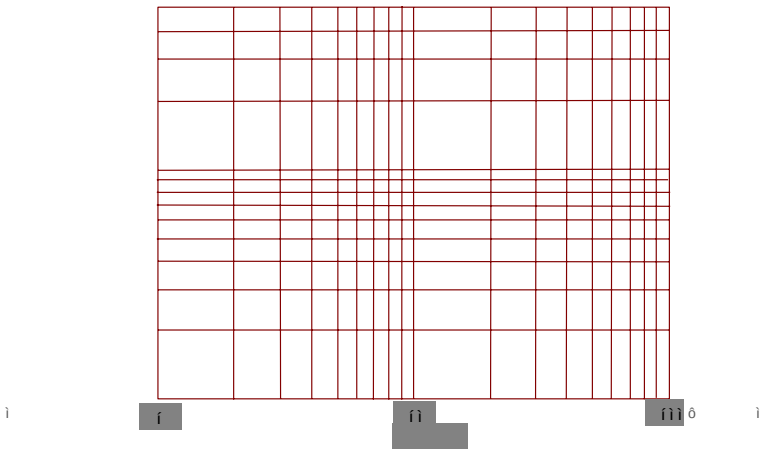
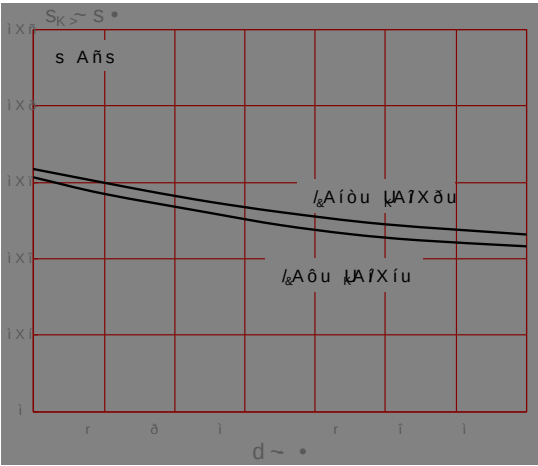


Fig.10: Switching Time Test Circuit and Waveform

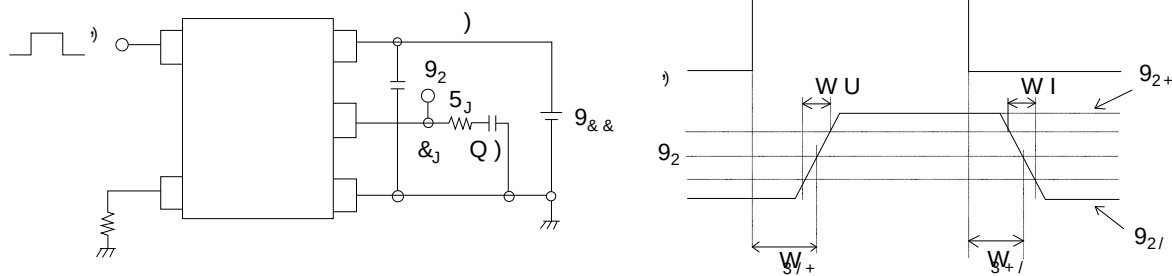
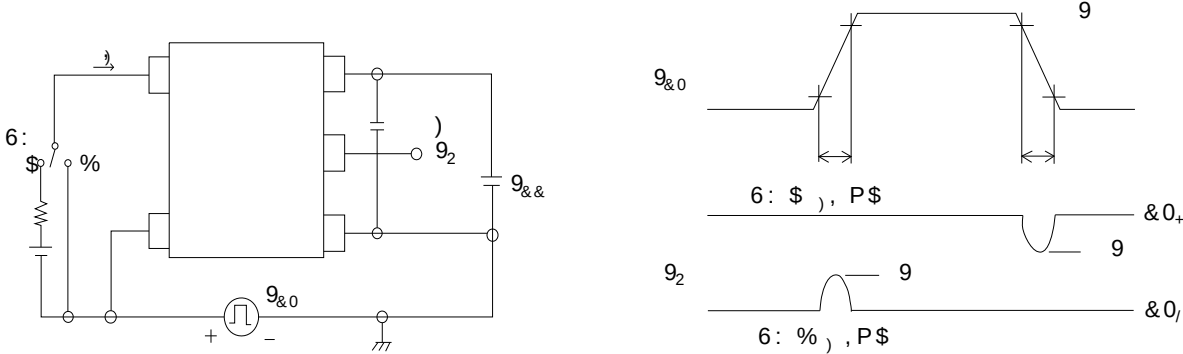
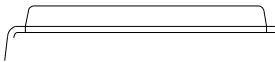
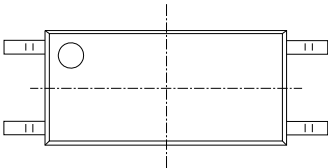
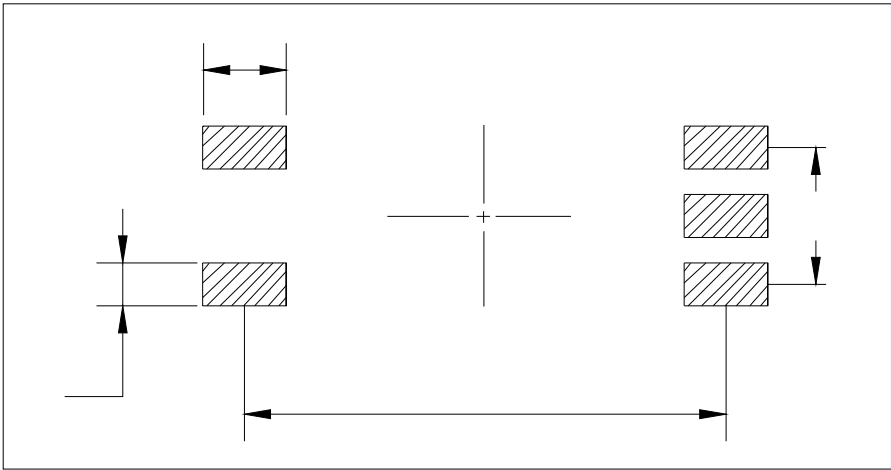
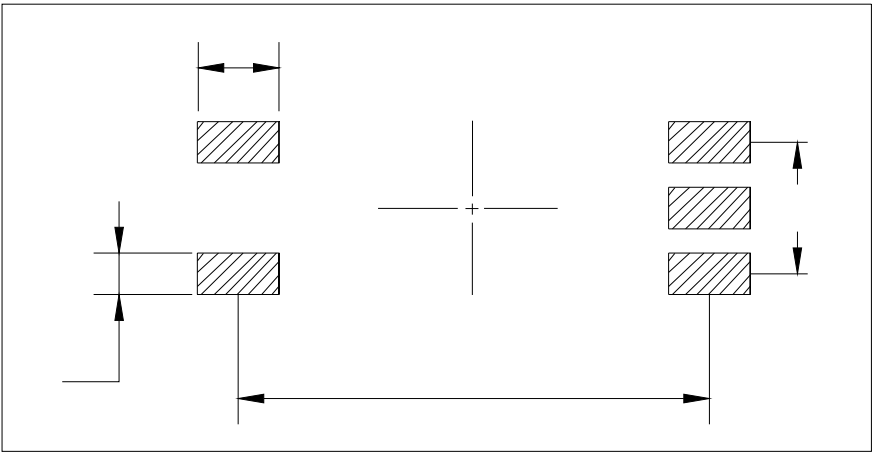


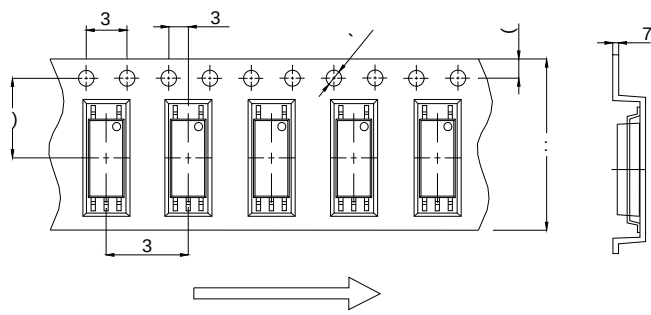
Fig.11: CMTI Test Circuit and Waveform



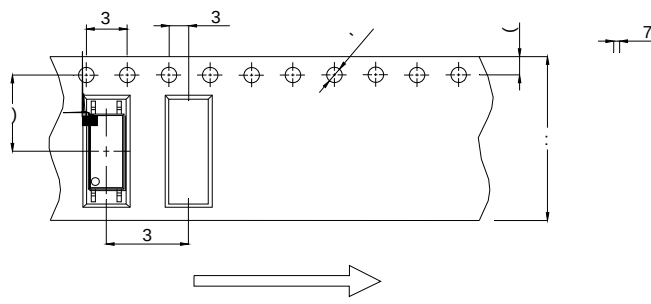


5HI	'LPHQVLRQV					
	0LOOLPHWHUV,QFKHV					
	0LQ	7\ S	0D[	0LQ	7\ S	0D[
\$						
%						
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-						
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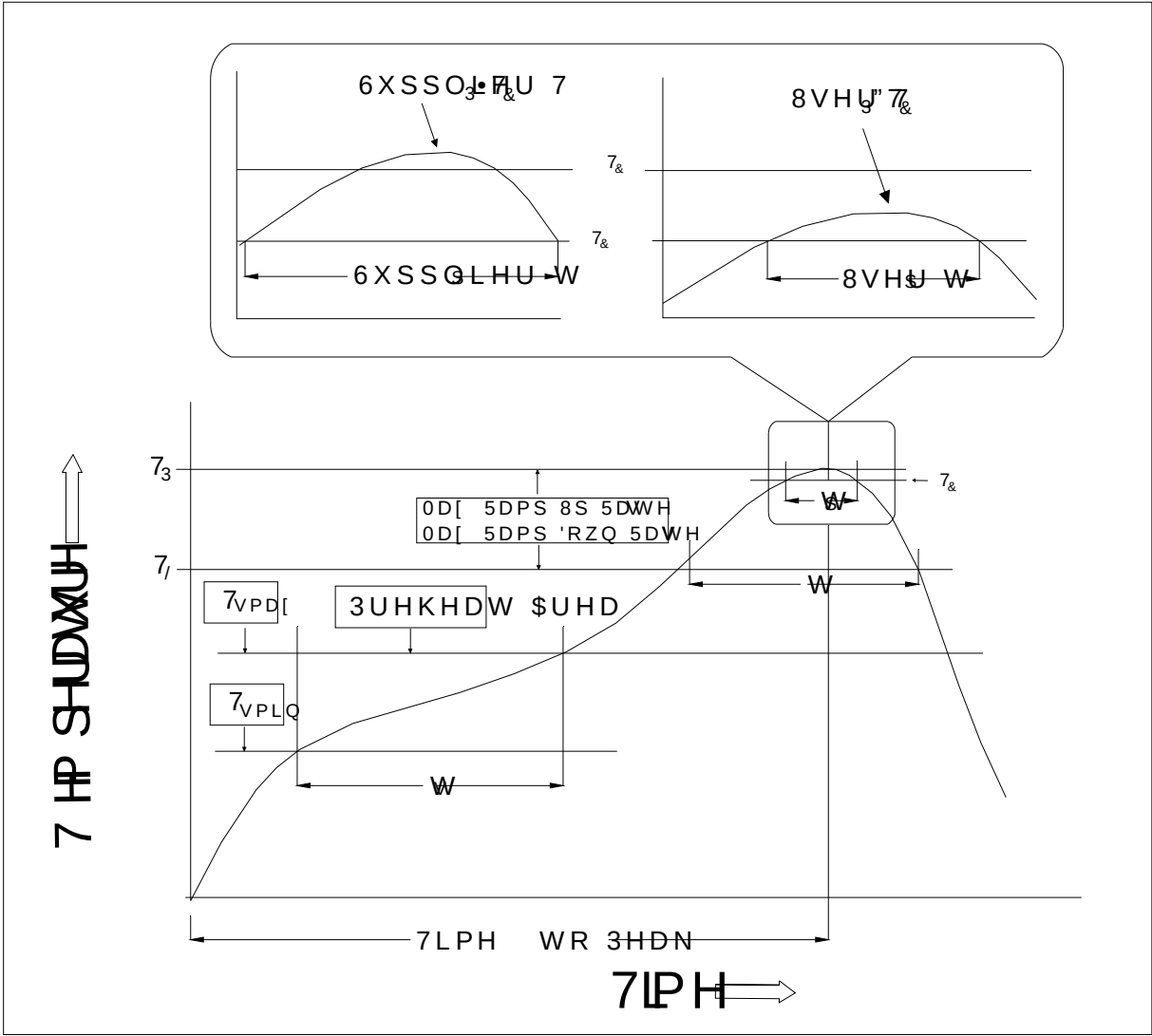




5HI	'LPHQVLRQV					
	0LOOLPHWHUV			,QFKHV		
	0LQ	7\ S	0D[	0LQ	7\ S	0D[
'						
3						
3						
3						
(						
)						
7						
:						



5HI	'LPHQVLRQV					
	0LOOLPHWHUV			,QFKHV		
	0LQ	7\ S	0D[	0LQ	7\ S	0D[
'						
3						
3						
3						
(						
)						
7						
:						



Profile Feature	Sn-Pb Assembly Profile	Pb-Free Assembly Profile
7HP SHUDWXUH 0LQ	7VPLQ	
7HP SHUDWXUH 0D[	7VPD[	
7LPH WV IURP 7VPLQ WR 7VPD[		VHFRQG GVV
5DPS XS 5DWH W/ WR W3	VHFRQG PD[	VHFRQG PD[
/LTXLGXV 7HP SHUDWXUH 7/		
7LPH W/ 0DLQWDLQH \$ERYH 7/		VHFRQG GVV
3HDN %RG\ 3DFNDJH	7HP SHUDWXUH	
7LPH W3 ZLWKLQ	VHFRQG	VHFRQG
5DPS GRZQ 5DWH 73 WR 7/	VHFRQG	VHFRQG
7LPH WR 3HDN 7HP SHUDWXUH	PLQXW 7/	PLQXW 7/



1RWH

5HIORZ VROGHULQJ LV UHFRPPHQGHG/ DWRZQH QHPSHWDWWDQW B C
 \$YRLG GLUHFV FRQWHDVSRPHQZDQ QWRUDFRU H[FHHGLQJ LWV PD
 VWRUDJH WHPSHUDWXUH
 \$SSOLFDWLRQ RKHUSRYXERGRQWLSOHGDDWHG WHPSHUDWXUHV ,QV
 VFHQDULRV DQHPSVOLHQWRHFFHHG 1
 (QVXUH WKH FRPSRQHQW KDV FRROHG SURFHENGHQWZMXRSHUDWXHQ
 PDQXIDFWXULQJ VWHSV
 7KH FRPSRQHQW KDV BQKHODUZKHQVWRQGHGKFRQGLWLRQV
 5HFRPPHQG VWRUDJH 7HPS a f &
 5HFRPPHQG VWRUDJH KXPLGLW\
 06/ OHYHO 06/

,QIRUPDWLRQ IXUQXPHQW ILQWKOLHGRHG WR EH DFFXUDWH D
 -LDQJYX -LH-LH 0LRRHOWHGDVROXLFHVQLVUHRUSRQVHLERQVHT
 RI XVH ZLWKRXW FRQVLGHUDWLRQ IRG MWFKQLQIRUPDWLRQ
 LQ WKLV GRFXPHQW LQJYXZLWHFRXWRQWLH DSDUW IURP V
 VLJQH -LDQJYXOLHVLZLWKPWKH DJUHHPHQW
 3URGXFV DQG LQIRUPDWLRQ SURYLGHGLQJHQWVRGSRXVPH
 -LDQJYX -LH-LH DVVXIPHLOQW\URVSDQVLQIULQJHPPHQW RI RW
 ZKLFK PD\ UHVXOW IURP WKH XVH RI VXLV SURGXPHQW DQSHL
 DQG UHSODFHV DOO LQIRUPDWLRQ SUHYLRXVO\ VXSSOLHG
 LV D UHJLVWHUHGDQJYXGLHUNRUF-URHOWHFWURQLFV &R
 &RS\UKJKW -LDQJYX -LH-LH OLVRHOWHFWURQLFGLJKWV UHVH