



17 & WKHUPLVWRUV IRU
WHP SHUDWXUH PHDVXUHPHQW

*ODVV HQFDSVXODWHG VHQVRUV
VWDQGDUG W\SH

6HULHV 7\SH % * % *

7KH IROORZLQJ SURGXFWV SUHVHUYHG ZLWKGUDZLQJ GDWD VKHHW

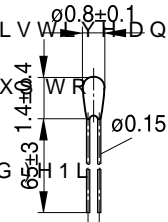
| 2UGHULQJ & RGH | 6XEVLWXWH 3URGXFWH | URDGWQH' / DMMR6KLS | SPHQW |
|----------------|--------------------|---------------------|--------|
| % * | % * | :LWKGUDZLQJ | 20GHUV |
| % * | % * | | |

)RU IXUWKHU LQIRUPDWLRQ SOHDVH FRQFWDZLWKRZLQJ D D V W
(RX LQ VHOHFWLQJ D VXLWDEOH VXRWDVZKHV VDKH D GHVZRUH
SUHVHQWHG DW ZZZ HSRV FRP VDOHV

(3&26 \$* 5HSURGXFWLRQ SXEOLFDWLRQ DQG GHWLPLQJ LQFORXUHWK
LQIRUPDWLRQ FRQWDLQHG WKHUHLQ ZLWKRXWE(3&26 SULRU H[SUHVV FRQ

7HPSHUDWXUH PHDVXUHPHQW % * % *
 *ODVV HQFDSVXODWHG VHQVRUV * *

\$SSOLFDWLRQV 'LPHQVLRQDO GUDZLQJ
 ■ 7HPSHUDWXUH PHDVXUHPHQW
)HDWXUHV
 ■ *ODVV HQFDSVXODWHG KHDW UHVLVWLYH DQG
 KLJKO\ VWDEOH
 ■)RU WHPSHUDWXUH PHDVXUHPHQW XGWR
 ■ 9HU\ VKRUW UHVSQRVH WLPH
 ■ 6PDOO GLPHQVLRQV
 ■ /HDGV GXPHW ZLUHV FRSSHU FODG
 2SWLRQV
 ■ /HDGV QLFNHO SODWHG GXPHW ZLUHV TNT0401-4
 ■ \$OWHUQDWLYH GLPHQVLRQV DYDLODEOH RQ UHTXHVW
 'HOLYHU\ PRGH 'LPHQVLRQV LQ PP
 %XON
 *HQHUDO WHFKQLFDO GDWD



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|---|---|-------------------------------------|-------------------------------|
| &OLPDWLF FDWHJRU\ , (& 0D[SRZHU °DW 5HVLVWDQFH WROHUDQFH 5DWHG WHPSHUDWXUH 'LVVLSDWLRQ IDFWRU 7KHUPDO FRROLQJ WLPH FRQVW +HDW FDSDFLW\ | 3 D ₅ 5 7 ₅ d _w Q DL D _w Q & _{wk} | ± ± ± DSSUR[DSSUR[DSSUR[| P: °& P: . V P- . |
|---|---|-------------------------------------|-------------------------------|



7HPSHUDWXUH PHDVXUHPHQW % * % *
 *ODVV HQFDSVXODWHG VHQRUV * *

(OHFWULFDO VSHFLILFDWLRQ DQG RUGHULQJ FRGH

| 5 W | 1R RI 5 FKDUDF | 7% W.HULVWL | % F | % . | 2UGHULQJ FRGH |
|--------|-------------------|----------------|--------|--------|---------------|
| N | | | ± | | % * |
| N | | | ± | | % * |
| N | | | | ± | % * |
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| N | | | ± | | % * |
| N | | | ± | | % * |

5HVLVWDQFH WROHUDQFH
) ±
 * ±
 + ±

7KH ODVW WKUHH GLJLWV RI WKH RUGHULQJ FRGH GHQRWH
 DQG GXPHW ZLUHV
 DQG QLFNHO SODWHG ZLUHV

%
 %



7HPSHUDWXUH PHDVXUHPHQW % * % *
 *ODVV HQFDSVXODWHG VHQRUV * *

5HOLDELOLW\ GDWD

| | | | |
|--------------------------|-----------------------|--|----------------------|
| 7HVW | 6WDQGDZHVW FRQGLWLRQV | D5 5 W\SLFD | 5HPDUNV DO |
| 6WRUDJHLQ GU\KHDW | ,(& | 6WRUDJH DW XSSHU FDWHJRU\ WHPSHUDWXUH 7 °& W K | 1R YLVLEOH GDPDJH |
| 6WRUDJHLQ KHDW VWHD | G(DPS G\ VWDW | 7HPSHUDWXUH&RIDLU EHODWLYH KXPLGLW\ RIDLU 'XUDWLRQ GD\ V | 1R YLVLEOH GDPDJH |
| 5DSLGH WHPSHU F\FOLQJ | (D H\ DWXUH | HRZHU WHVW WHPSHU 8SSHU WHVW WHPSHU 1XPEHURIF\FOHV | 1R YLVLEOH GDPDJH |



7HPSHUDWXUH PHDVXUHPHQW

% * % *

*ODVV HQFDSVXODWHG VHQRUV

* *

5 7 FKDUDFWHULVWLFV

| 5 7 1 R | | | | | | |
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| 7 ° & | % | . | % | . | % | . |
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7HP SHUDWXUH PHDVXUHPHQW

% * % *

*ODVV HQFDSVXODWHG VHQRUV

* *

| 5 7 1 R | | | | | | |
|---------|------------------|-----|------------------|-----|------------------|-----|
| 7 ° & | % | . | % | . | % | . |
| | 5 ₇ 5 | a . | 5 ₇ 5 | a . | 5 ₇ 5 | a . |
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7HPSHUDWXUH PHDVXUHPHQW

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*ODVV HQFDSVXODWHG VHQRUV

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5 7 F KDUDFWHULVWLFV

| 5 7 1 R | | | | | | |
|---------|------------------|---|------------------|---|------------------|---|
| 7 ° & | % | . | % | . | % | . |
| | 5 ₇ 5 | a | 5 ₇ 5 | a | 5 ₇ 5 | a |
| | | | | | | |



7HPSHUDWXUH PHDVXUHPHQW

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*ODVV HQFDSVXODWHG VHQRUV

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| 5 7 1 R | | | | | | |
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| | 5 ₇ 5 | a . | 5 ₇ 5 | a . | 5 ₇ 5 | a . |
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7HPSHUDWXUH PHDVXUHPHQW

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*ODVV HQFDSVXODWHG VHQRUV

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5 7 FKDUDFWHULVWLFV

| 5 7 1 R | | | | | | |
|---------|------------------|-----|------------------|-----|------------------|-----|
| 7 ° & | % | . | % | . | % | . |
| | 5 ₇ 5 | a . | 5 ₇ 5 | a . | 5 ₇ 5 | a . |
| | | | | | | |



7HPSHUDWXUH PHDVXUHPHQW

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*ODVV HQFDSVXODWHG VHQRUV

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| 5 7 1 R | | | | | | |
|---------|------------------|---|------------------|---|------------------|---|
| 7 ° & | % | . | % | . | % | . |
| | 5 ₇ 5 | a | 5 ₇ 5 | a | 5 ₇ 5 | a |
| | | | | | | |



7HPSHUDWXUH PHDVXUHPHQW

% * % *

*ODVV HQFDSVXODWHG VHQVRUV

* *

0RXQWLQJ LQVWUXFWLRQV

6ROGHULQJ

/HDGGH 17& WKHUPLVWRUV

/HDGGH WKHUPLVWRUV FRPSO\ ZLWK WKH VROGHUDELOLW\ UHTXLVLRQV
:KHQ VROGHULQJ FDUH PXVW EH WDNHQ WKDW WKH HIRSHUWV IURP
KHDW 7KH IROORZLQJ PD[LXP WHPSHUDWXUH V PD[LXP PHWLPHV
WR EH REVHUYHG

Dip soldering Iron soldering

%DWK WHPSHUDWXUH °& PD[°&
6ROGHULQJ WLPH PD[V PD[V
'LVWDQFH IURP WKHUPLVWRU PLQ PP PLQ PP
8QGHU PRUH VHYHUH VROGHULQJ FRQGLWLRQV WKH UHVLVWDQFH

/HDGOHV 17& WKHUPLVWRUV

,Q FDUH RI 17& WKHUPLVWRUV ZLWKRXW OHDGV VROGHULQJ
ZLWK D VROGHUDEOH PHWDOOL]DWLRQ 7KH WHPSHUDWXUH IURP
PD\SURGXFH ILQH FUDFNV LQ WKH FHUPLF UHVXOWLQJ LQ FKDQJHV
7R SUHYHQW OHDFKLQJ RI WKH PHWDOOL]DWLRQ WKH VROGHULQJ
VKRXOG EH XVHG ,Q DGGLWLRQ VROGHULQJ IURP SWKRGV VKRXOG
WLPHV

&ODPS FRQWDFWLQJ

3UHVXUH FRQWDFWLQJ E\ PHDQV RI FODPSV LRSXUWV RYHU
VZLWFKLQJ DQG KLJK WXUQ RQ SRZHU

5REXVQHV RI WHUPLQDWLRQV OHDGGH W\SHV

7KH OHDGV PHHW WKH UHTXLVLRQV RI (& FORVH WKH DQ
IURP WKH VROGHU MRLQW RQ WKH WKHUPLVWRU IURP
WKURXJKV 'XULQJ EHQGLQJ DQ\ PHFKDQLDQV
EHQGLQJ UDGLXV VKRXOG EH DW OHDVW PP

| | | | |
|------------------|---------|----|---|
| 7HQVLOH VWUHQJWK | 7HVW 8D | | |
| /HDGV | Æ £ | PP | 1 |
| | Æ £ | PP | 1 |
| | Æ £ | PP | 1 |
| | Æ £ | PP | 1 |
| | Æ £ | PP | 1 |



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|----------------------------|---|---|---|---|
| 7HPSHUDWXUH PHDVXUHPHQW | % | * | % | * |
| *ODVV HQFDSVXODWHG VHQVRUV | | | | |

%HQGLQJ VWUHQJWK 7HVW 8E
 7ZR ° EHQGV LQ RSSRVLWH GLUHFWLRQV DW D ZHLJKV
 7RUVLRQDO VWUHQJWK 7HVW 8F VHYHULW\
 7KH OHDG LV EHDVWGLVWDQFH RI WR PPIURP WKH
 7KHEHQGLQJ UDGLXV RI WKH OHDGV VKRXOG EHDSSU
 °HDFK VHYHULW\
 :KHQ VXEMHFWLQJ OHDGV WR PHFKDQLFDO VWUHQGV WKH IROORZ

Tensile stress on leads

'XULQJ PRXQWLQJ DQG RSHUDWLRQ WHQVLOHG RUFHV RQ WKH OH

Bending of leads

%HQGLQJ RI WKH OHDGV GLUHFWO\RQ WKH WKHUPLVWRU ERG\ LV
 \$ OHDG PD\ EH EHQW DW D PLQLXP GLVWDQFH RI WZEPHWKMKRZDQ
 MRLQW RQ WKH WKHUPLVWRU ERG\ 'XULQJ EHQGLQJWKH ZDWHPV
 7KHEHQGLQJ UDGLXV VKRXOG EHDW OHDVW PP

Twisting of leads

7KH WZLVWLQJ WRU DLOQDSEHQWSEHUPLVVLEOH DW PPIURP WK
 WKHUPLVWRU ERG\

6HDOLQJ DQG SRWWLQJ

:KHQ WKHUPLVWRUV DUH VHDOHG SRWWHG RU RYEGVWRUHQVGF DXXK
 E\ WKHUPDO H[SDQVLRQ GXULQJ WKH SURGXFWLRQ SQRSGXVLEQJ
 ODWHU RSHUDWLRQ 7KH XSSHU FDWHJRU\ WRWSEHUHQVWKH HRG WQ
 WKDW WKH PDWHULDOV XVHG VHDOLQJ SROW DLOQJFRPPSLFXODQ

&OHDQLQJ

,I FOHDQLQJ LV QHFHVVDU\ PLOG FOHDQLQJ D DLOQV VDXFRDLOQH
 UHFRPPHQGHG &OHDQLQJ DJHQWV EDVHG RQLZFDVHDDUQUGJRHWWKQ
 SHUPLVVLEOH

6WRUDJH

,Q RUGHU WR PDLQWDLQ WKHLU VROGHUDELOLWURWRMUPH DWRPWRV
 +XPLGLW\ WHPSHUDWXUH DQG FRQWDLQHU PDWHULDOV DUH FUL
 'R QRW VWRUH 60'V ZKHUH WKH\ DUH H[SRVHG WRKHVWKHSDGNUMGF
 WHULDO PD\ EH GHIRUPHG RU 60'V PD\ VWLFN WRJHWKHQJ SDWHL
 RSHQLQJ WKH IDFWRU\ VHDOV VXFK DV SRO\YLQ\O QEDSRG\SDFO



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|----------------------------|---|---|---|---|
| 7HPSHUDWXUH PHDVXUHPHQW | % | * | % | * |
| *ODVV HQFDSVXODWHG VHQVRUV | | | * | * |

7KH FRPSRQH QWV VKRXOG EH OHIW LQ WKH RWUDLQDQDOWSLRQ RQXQ
 WKHUPLVWRUV PD\FKDQJH WKHLU VROGHULQJ SURSHUWLHV
 6WRUDJH WHP SHUDWXUH ° & XS WR&
 5HODWLYH KXPLGLW\ ZLWKR&W DQDQDQDQDQDQDQ
 PD[LXP GD\VSHU DQQXP
 6ROGHU WKH WKHUPLVWRUV OLVWHG LQ WKLV ZLWK DQDQDQDQDQ
 ILHG
 60'V PRQWKV
 /HDGHG FRPSRQH QWV PRQWKV



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|----------------------------|---|---|---|---|
| 7HPSHUDWXUH PHDVXUHPHQW | % | * | % | * |
| *ODVV HQFDSVXODWHG VHQVRUV | | | | |

&DXWLRQV DQG ZDUQLQJV *HQHUDO
 6HH ,PSRUWDQW QRWHV DW WKH HQG RI WKLV GRFXPHQW
 6WRUDJH

- 6WRUH WKHUPLVWRUV RQO\ LQ RULJLQDO SDFNDJLQJ VWRUDJH RQ RWR RSR
- 6WRUDJH FRQGLWLRQV LQ RULJLQDO SDFNDJLQJ VWRUDJH RQ RWR RSR
- 'R QRW VWRUH WKHUPLVWRUV ZKHUH WKH\ DUHWHKSRZHGHW R\KHD SDFNLQJ PDWHULD PD\ EH GHIRUPHG RU FRPSRQHGOHWV PDXVWQ PRXQWLQJ
- \$YRLG FRQWDLQDWRQ RI WKHUPLVWRU VXUIDFH GXULQJ VWR
- \$YRLG VWRUDJH RI WKHUPLVWRUV LQ KDUPIXO HQYLUWEPHQWV
- 8VH WKH FRPSRQHQW DV VRRQ DV SRVVLEOH DIWKH RSHQLQJ W SRO\YLQ\O VHDHGH SDFNDJH
- 6ROGHU WKHUPLVWRUV ZLWKLQ WKH WLPH VSHFLILHG DIWHU VK)RU OHDGHG FRPSRQHQWV WKLV LV PRQWKV IRU 60'V PRQW

+DQGOLQJ

- 17& WKHUPLVWRUV PXVW QRW EH GURSSHG &KLW RHF\RXV DQ\ RV GXULQJ KDQGOLQJ RI 17&V
- 'R QRW WRXFK FRPSRQHQWV ZLWK EDUH KDQGV *ORYHV DUH UH
- \$YRLG FRQWDLQDWRQ RI WKHUPLVWRU VXUIDFH GXULQJ KDQ

%HQGLQJ WZLVWLQJ OHDGV

- \$ OHDG ZLUH PD\ EHEHQW DW D PLQLPXP GLVWISOXW RPPWZURR V WKH FRPSRQHQW KHDG RU KRXLQJ :KHQ EHQGLQJ LQ OXHYWGH FRPSRQHQW KHDG RU KRXLQJ 7KH EHQGLQJ RJDGLXV VKRXOGE
- 7ZLVWLQJ WRUVRLOHEDG EHQWSEHUPLVVLEOH DW PPIURP WKH WKHUPLVWRU ERG\

6ROGHULQJ

- 8VH UHVLQ W\SH IOX[RU QRQ DFWLYDWHG IOX[
- ,QVXIIFLHQW SUHKHDWLQJ PD\FDXVH FHUPLF FUDFNV
- 5DSLQ FRROLQJ E\ GLSSLQJ LQ VROYHQW LV QRW UHFRPPHQGHG
- &RPSOHWH UHPRYDO RI IOX[LV UHFRPPHQGHG



7HPSHUDWXUH PHDVXUHPHQW

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*ODVV HQFDSVXODWHG VHQVRUV

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0RXQWLQJ

- (QVXUH WKDW QR WKHUPR PHFKDQLFDO VWUHV RFFXUV GXH W RYHUPROGLQJ SURFHVVHV ZKHQ WKHUPLVWRUV DUGJWBDEHG : VXEVTXHGW RSHUDWLRQ 7KH PD[LXP WHPSHUDWVWUBRGWKH (QVXUH WKDW WKH PDWHULDORV XVHG VHDOLHULSDOWDLQFRFPS QHXWUDO
- (OHFWURGHV FRQWDFWV PXVW QRW EH VFUDWFKHPRXQWGLDQDJH SURFHVV
- &RQWDFWV DQG KRXLVQJ XVHG IRU DVVHPEO\ ZLWKHPRXQWVHQBP
- (QVXUH WKDW DGMDFHQW PDWHULDORV DUH GHVRLBQDGLDORHWRU VXUIDFH WHPSHUDWXUH RI WKH WKHUPLVWRU %HWRXFDHQWKDWV ZLWKVWDQG WKH WHPSHUDWXUH
- \$YRLG FRQWDLQDWRQRI WKH WKHUPLVWRU VXUIDFH GXULQJ
- 7KH FRQQHFWRQV RI VHQVRUV H J FDEOH HQG\ ZHUHQSHQGHG\ DQ HQYLURQPHQW ZLWK QRUPDO DWPRVSKHULF FRQLGLWRQV
- 7HQVLOH IRUFHV RQ FDEOHV RU OHDGV PXVW EH DWBRQHG GXUL
- %HQGLQJ RU WZLVWLQJ RI FDEOHV RU OHDLQCRWBFWDLRQLVGH
- \$YRLG XLVQJ FKHPLFDO VXEVDQFHV DV PRXQWLQWDLBVR, WFKX OLTXLGV HQWHU WKH 17 & WKHUPLVWRUV HFXODKURZDKHSDXWH VXEVDQFHV H J VRDS VXGV PXVW QRW EH XVHG DV PRXQWLQ

2SHUDWLRQ

- 8VH WKHUPLVWRUV RQO\ ZLWKLQ WKH VSHFLILHG RSHUDWLQJ W
- 8VH WKHUPLVWRUV RQO\ ZLWKLQ WKH VSHFLILHG SRZHU UDQJH
- (QYLURQPHQWDO FRQLGLWRQV PXVW QRW KDUP WKH WKHUPLVWRU QRUPDO DWPRVSKHULF FRQLGLWRQV RU ZLWKLQ WKH VSHFLILH
- &RQWDFW RI 17 & WKHUPLVWRUV ZLWK DQ\ OLRWLVG DWEXRVEHG HQVXUHG WKDW QR ZDWHU HQWHUV WKH 17 & WKHUPLVWRUV H J PHDVXUHPHQW SXUSRVHV FKHFNLQJ WKH VSHFLILHG HQWLVWD PXVW QRW EH LPPHUVHG LQ ZDWHU EXW LQ VXLWDEOH OLTXLGV
- \$YRLG GHZLQJ DQG FRQGHQVDWRQ XQOHVV WKHWRQWRU LV V
- %HQGLQJ RU WZLVWLQJ RI FDEOHV DQG RUHZZLWLRQ RIRWKSHPQ WKH DSSOLFDWRQ
- %HVXUH WR SURYLGH DQ DSSURSULDWH IDLO VDWXGDFWLRQ W FDXVHG E\ PDOIXQFWLRQ

7KLV OLVWLQJ GRHV QRW FODLP WR EH FRPSDHHQFH EKVRZHU\ O U



7HPSHUDWXUH PHDVXUHPHQW

% * % *

*ODVV HQFDSVXODWHG VHQVRUV

* *

6\PEROV DQG WHUPV

| 6\PERO | (QJOLVK | *HUPDQ |
|--------|--|---|
| \$ | \$UHD |)OIFKH |
| \$: * | \$PHULFDQ :LUH *DXJH | \$PHULNDQLVFKH 1RUP I•U 'UDKW |
| % | % YDOXH | % :HUW |
| % | % YDOXH GHWHUPLQH G E PHDVXUHPHQW ° & | % HVLVW DQG HWHW HOW GXUFK :LG PHVVXQJHQ ° & |
| &WK | +HDW FSDFLWDQFH | :IUPHNSD]LWIW |
| , | &XUUHQW | 6WURP |
| 1 | 1XPEHU LQWHJHU | \$Q]DKO JDQ]DKOLJHU :HUW |
| 3 | 0D[LPXP SRZHU & DW | 0D[LPDOH /HLVWXQJ EHL |
| 3GLVV | 3RZHU GLVVLSDWLRQ | 9HUOXVWOHLVWXQJ |
| 3HO | (OHFWULFDO SRZHU | (OHNVULVFKH /HLVWXQJ |
| 3PDI | 0D[LPXP SRZHU ZLWKLQ WHPSHUDWXUH UDQJH | 0D[LPDOH /HLVWXQJ LP DQJHJHEHQHQ7HPSHUDWXUEHU |
| D5% 5% | 5HVLVWDQFH WROHUDQFH VSUHDG RI % YDOXH | 5HVLVWDQFH WROHUDQFH GLH G 6WUHXXQJ GHV % :HUWHV YHUX |
| 5LQV | ,QVXODWLRQ UHVLVWDQFH | ,QVXODWLRQVZLGHUVDQGH |
| 53 | 3DUDOOHO UHVLVWDQFH | 3DUDOOHOZLGHUVDQGH |
| 55 | 5DWHG UHVLVWDQFH | 1HQZLGHUVDQGH |
| D55 56 | 5HVLVWDQFH WROHUDQFH | 5HVLVWDQGHV WROHUDQ] |
| 56 | 6HULHV UHVLVWDQFH | 6HULHQZLGHUVDQGH |
| 57 | 5HVLVWDQFH DW WHPSHUDWXUH H J 5UHVLVWDQFH DW | 5HVLVWDQGHV EHL 7HPSHUDWXU] % 5 :LGHUVDQGH EHL |
| 7 | 7HPSHUDWXUH | 7HPSHUDWXU |
| D7 | 7HPSHUDWXUH WROHUDQFH | 7HPSHUDWXUWROHUDQ] |
| W | 7LPH | =HLW |
| 7\$ | \$PELHQW WHPSHUDWXUH | 8PJHEXQJVWHPSHUDWXU |
| 7PDI | 8SSHU FDWHJRU\ WHPSHUDWXUH | 8SSHU FDWHJRU\ WHPSHUDWXU .DWHJRU\HWHPSHUDWXU |
| 7PLQ | /RZHU FDWHJRU\ WHPSHUDWXUH | 8SSHU FDWHJRU\ WHPSHUDWXU .DWHJRU\HWHPSHUDWXU |
| 7RS | 2SHUDWLQJ WHPSHUDWXUH | 2SHUDWLQJ WHPSHUDWXU |
| 75 | 5DWHG WHPSHUDWXUH | 1HQQWHPSHUDWXU |
| 7VXUI | 6XUIDFH WHPSHUDWXUH | 2EHUIOIFKHQWHPSHUDWXU |
| 9 | 9ROWDJH | 6SDQQXQJ |
| 9LQV | ,QVXODWLRQ WHVW YROWDJH | 9ROWDJH DWLRQVSU•IVSDQQXQJ |
| 9RS | 2SHUDWLQJ YROWDJH | %HWULHEVSDQQXQJ |
| 9WHVW | 7HVW YROWDJH | 3U•IVSDQQXQJ |



7HPSHUDWXUH PHDVXUHPHQW % * % *
 *ODVV HQFDSVXODWHG VHQVRUV * *

| 6\PERO | (QJOLVK | *HUPDQ |
|-----------------|----------------------|-----------------------------|
| a | 7HPSHUDWXUH FRHIILFL | 7HPSHUDWXUNRHIIL]LHQW |
| D | 7ROHUDQFH FKHQJH | 7ROHUDQ] bQGHUXQJ |
| d _{wk} | 'LVVLSDWLRQ IDFWRU | :IUPHOHLWZHUV |
| t _F | 7KHUPDO FRROLQJ WLP | 7KHUPDOFWH \$EN•KO]HLWNRQVV |
| t _D | 7KHUPDO WLP FRQVWD | 7KHUPLVFKH =HLWNRQVWDQWH |

\$EEUHYLDWLRQV 1RWHV

| 6\PERO | (QJOLVK | *HUPDQ |
|------------|----------------------|-----------------------------------|
| SMD | 6XUIDFH PRXQWHG GHY | 6XUIDFHPRXQWHG GHY =DKO LP %HVV |
| | 7REHUHSODFHGE\ DQX | 7REHUHSODFHGE\ DQX =DKO LP %HVV |
| | FRGHV W\SH GHVLJQDW | FRGHV W\SH GHVLJQDW =DKO LP %HVV |
| | 7REHUHSODFHGE\ DQH | 7REHUHSODFHGE\ DQH =DKO LP %HVV |
| | \$OOGPHQVLRQV DUH JL | \$OOGPHQVLRQV DUH JL =DKO LP %HVV |
| | 7KHFRPPDV XVHG LQ QX | 7KHFRPPDV XVHG LQ QX =DKO LP %HVV |
| | GHQRWH GHFLPDO SRLQ | GHQRWH GHFLPDO SRLQ =DKO LP %HVV |



,PSRUWDQW QRWHV

7KH IROORZLQJ DSSOLHV WR DOO SURGXFWV QDPHG LQ WKLV SXEOLFDWLRQ WKH VXLWDELOL

6RPH SDUWV RI WKLV SXEOLFDWLRQ FOLDFOLKQV FDEWDXWKH VXLWDELOL FHUWDLQ DUHDV RITKSHOHLFWDWRPHQWV DUH EDVHG RQ RXUN TXLUHPHQWV WKDW DUH RIWHQ SODFHG RQFDXULSQRFRQFFHWV QG QHYHUWKHOHV H[SUWKDWDVSRKQWV BWWPHQWV FDQQRW EH U VWDWHPHQWV DERXW WKH VXLWDELOLW\ RI RPHUS DSSOLFDWLR \$V D UXOH (3&26 LV HLWKHU XQIDPLOLDU ZLWK RYRGLYHG XDDP ZLWK WKHP WKDQ WKH FXVWRPHUV WKHPVHOYHVLPDRIWHQKHO/FRK EHQW RQ WKH FXVWRPHU WR FKHFN DQG GHFLGH SURSRSHUHLQ/ (VFULEHG LQ WKH SURGXFW VSHFLILFDWLRQRPHXKDVSDEOFDIRUR :H DOVR SRLQW RYXQWKDQ DO FDVHV D PDOIXQFWLRQ RI HOH IDLOXUH EIRUH WKH HQG RI WKHLU XVXDO WHOYUXH D GIRFXDQ FXUUHQW VWDWH RI WKH DUW HYHQ LI WKH IDUHWRS PHUDDVSD UHTXLULQJ D YHU\ KLJK OHYHO RI RSHUDWLRQ IDODSSOHLFDDQB ZKLFK WKH PDOIXQFWLRQ RU IDLOXUH RI DQ QHOHUFXURQD IDIRKHDOWK H J LQ DFFLGHQW SUHYHQWLRQ RU OIHHQD/XLQJGVEV PHDQV RI VXLWDEOH GHVLJQ RI WKH FXVWRPHUQDESVOK FDFXLRV H J LQVWDOODWLRQ RI SURWHFWLYH FLWFGD FDUJRIUVXQWODL WKLUG SDUWLHV LQ WKH HYHQW RI PDOIXQFWLRQ RU IDLOXUH F 7KH ZDUQLQJV FDXWLRQV DQG SURGXFW VSHFLILF QRWHV PXV ,Q RUGHU WR VDWLVI\ FHUWDLQRPHFRQKBSURGXEXWPHQWV SXEOLFDWLRQ PD\ FRQWDLQ VXEVWDQFHV WDEQIMXW WFGUFWV EHFDXVH WKH\ DUH FODVVHGSDVXODLQURXWLRQ RQ WKLV ZLO WHULDO 'DWD 6KHHWV RQ WKH ,QWHUQHW ZZZYHS DQVFRUPHGD WDLOHG TXHVWLRQV SOHDVH FRQWDFW RXU VDOHV RIILFHV :H FRQVWDQWO\ VWULYH WR LPSURYHWKXUSURGXFWV G&RQMLH SXEOLFDWLRQ PD\ FKDQJH IURPHWDPHHWR WWRH RI WKH FRUUVV VSHFLILFDWLRQV 3OHDVH FKHFN WKHUHIRUH QGZSDFLH\FDHO FRQWDLQHG LQ WKLV SXEOLFDWLRQ DUHXVODFOH DSSOLGD EOH UHVHUYH WKH ULJKW WR GLVFRQLQXH SXEOLFRQVWRVHQXQGWGH FDQQRW JXDUDQWHH WKDW DOO SURGXFWV DQVPEHG DLYD WOD E Q DIRUHPHQWLRQHG GRHV QRW DSSO\ LQ WKH FDDWLRQ J QURLP WGR JRLQJ IRU FXVWRPHU VSHFLILF SURGXFWV 8QOHVV RWKHUZLVH DJUHHG DQDQGLYHGD DDFRQWDFWVWR V VLRQ RI WKH *HQHUDO 7HUPV RI 'HOLYHU\ IRUWKURQJIFWU DQD GXVWU\ SXEOLVKHG E\ WKH *HUPDQ (OHFWULFDQV BQGD WLR =9(,

7KH WUDGH QDPHV (3&26 %\$2.(\$OX ; &HUD'LRGH &603 0LQL%OXH 0.. 0/6& 0RWUR&DS 3&& 3KDVH&DS 3KDVH&XE 6,) 6,.25(/ 6LOYHU&DS 6,0'\$' 6,0,' 6LQH)RUPHU 6,29 6,3 ' :LQG&DSVWGHGPDUNV UHJLVWHLQHQXURSSHQDQ Q RWKHU FRXO LQIRUPDWLRQ ZLOO EH IRXQG RQ WKH ,QWHUQHW DW ZZZ HSR