

General Description

The MAX7457 4-channel video switch is ideal for antialiasing and DAC-smoothing video applications or wherever analog video is reconstructed from a digital data stream such as cable/satellite/terrestrial set-top boxes (STBs), DVD players, hard disk recorders (HDRs), and personal video recorders (PVRs). The MAX7457 filters and buffers CVBS and RGB video signals, making it ideal for dual SCART (peritelevision) STBs with an auxiliary CVBS input. The MAX7457 operates from a single +5V supply and has a flat passband out to 5MHz with a stopband attenuation of 43dB at 27MHz, making it ideal for NTSC, PAL, and standard-definition digital TV (SDTV) video systems.

The MAX7457 output buffers have a fixed gain of +6dB and are capable of driving two standard 150 Ω video loads. The channel for CVBS video has high-frequency boost circuitry that enhances picture sharpness with up to +1.2dB of gain boost without degradation in the stopband. The video output drivers can be disabled by an external control input.

The MAX7457 is available in a 16-pin, 5mm x 5mm x 0.8mm TQFN package, and is specified over the extended (-40°C to +85°C) temperature range.

Applications

STBs/HDRs **DVD Players** Game Consoles Digital VCRs

Desktop Video Editors

Features

- ◆ 4-Channel Video Filter/Buffer for RGB and CVBS Signals with Auxiliary Input
- ♦ Allows Auxiliary Input for CVBS Video Loop-**Through Applications**
- ♦ Filter Response Ideal for NTSC, PAL, and **Interlaced SDTV Video Signals**
- ◆ 43dB (typ) Stopband Attenuation at 27MHz
- ♦ ±0.75dB (max) Passband Ripple Out to 5MHz
- ♦ Blanking Level Voltage on Cable <1V</p>
- ♦ Each Channel Drives Two 150Ω Video Loads
- **♦** +5V Single-Supply Operation
- ♦ Available in 5mm x 5mm x 0.8mm, 16-Pin TQFN

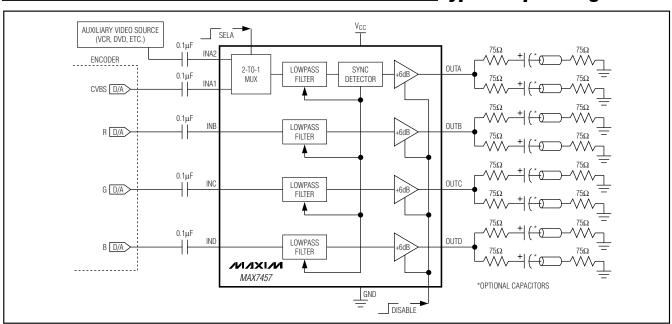
Ordering Information

PART	TEMP RANGE	PIN-PACKAGE	PKG CODE
MAX7457ETE	-40°C to +85°C	16 TQFN-EP*	T1655-2

^{*}EP = Exposed pad.

Pin Configuration appears at end of data sheet.

Typical Operating Circuit



Maxim Integrated Products 1

ABSOLUTE MAXIMUM RATINGS

V _{CC} to GND0.3V to +6V	Operating Temperature Range40°C to +85°C
INA1, INA2, INB, INC, IND to GND0.3V to (V _{CC} + 0.3V)	Storage Temperature Range65°C to +150°C
OUTA, OUTB, OUTC, OUTD to GND0.3V to $(V_{CC} + 0.3V)$	Junction Temperature+150°C
SELA, DISABLE to GND0.3V to (V _{CC} + 0.3V)	Lead Temperature (soldering, 10s)+300°C
Maximum Current into Any Pin Except VCC and GND±50mA	· · · · · · · · · · · · · · · · · · ·
Continuous Power Dissipation ($T_A = +70^{\circ}C$)	
16-Pin TQFN (derate 20.8mW/°C	

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

above +70°C)......1666.7mW

 $(V_{CC} = +5V \pm 5\%, C_L = 0 \text{ to } 20 \text{pF}, R_L = 75\Omega \text{ to GND for DC-coupled load}, R_L = 75\Omega \text{ to } V_{CC}/2 \text{ for AC-coupled load}, T_A = T_{MIN} \text{ to } T_{MAX}$, unless otherwise noted. Typical values are at $V_{CC} = 5V$, $T_A = +25^{\circ}C$.)

PARAMETER	SYMBOL	CONDITI	ONS	MIN	TYP	MAX	UNITS
		(Channel INA_	+0.9	+1.2	+1.5	
Passband Flatness		f = 100kHz to 5MHz, relative to 100kHz	Channels INB, INC, IND	-0.75	+0.15	+0.75	dB
Stopband Attenuation	AsB	f ≥ 27MHz	<u> </u>	40	43		dB
Differential Gain	dG	5-step modulated stairca	ase		0.15	0.5	%
Differential Phase	dθ	5-step modulated stairca	ase		0.15	0.5	Degrees
Signal-to-Noise Ratio	SNR	Peak signal (2V _{P-P}) to RI to 50MHz	MS noise, f = 100Hz		80		dB
			Channel INA_		17	30	
Group Delay Deviation	$\Delta t_{ m g}$	Deviation from 100kHz to 4.1MHz	Channels INB, INC, IND		11	20	ns
Line-Time Distortion	H _{DIST}	18µs, 100 IRE bar	<u> </u>			0.3	%
Field-Time Distortion	V _{DIST}	130 lines, 18µs, 100 IRE	bar			0.5	%
Clamp Settling Time	tCLAMP	To ±1%			300		Lines
Output DC Clamp Level		Channel INA_		0.6	0.9	1.1	V
Output DC Claimp Level		Channel INB, INC, IND		1.1	1.5	1.8	V
Low-Frequency Gain Accuracy	Ay	f = 100kHz, relative to ga	ain of +6dB	-3		+3	%
Low-Frequency Gain Matching	Av(MATCH)	Low-frequency channel- matching, f = 100kHz	to-channel			4	%
Group Delay Matching	tg(MATCH)	Low-frequency channel- matching, f = 100kHz	to-channel		2		ns
Channel-to-Channel Crosstalk	XTALK	f = 100kHz to 3.58MHz			-60		dB
Disabled Output Impedance	Z _{DISABLE}	At 5MHz			2		kΩ
Output Short-Circuit Current	Isc	OUT_ shorted to GND or	· VCC		70		mA

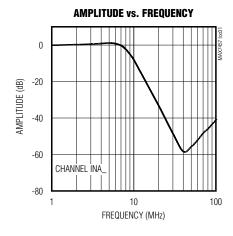
ELECTRICAL CHARACTERISTICS (continued)

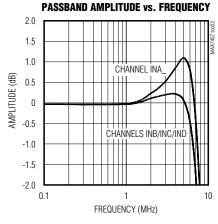
 $(V_{CC}=+5V~\pm5\%,~C_L=0~to~20pF,~R_L=75\Omega~to~GND~for~DC$ -coupled load, $R_L=75\Omega~to~V_{CC}/2~for~AC$ -coupled load, $T_A=T_{MIN}~to~T_{MAX}$, unless otherwise noted. Typical values are at $V_{CC}=5V,~T_A=+25^{\circ}C$.)

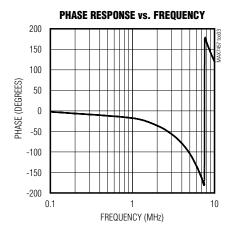
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Leakage Current	I _{IN}				10	μΑ
Innut Dunamia Cuina		Channel INA_			1.2	\/
Input Dynamic Swing		Channels INB, INC, IND			0.9	V _{P-P}
Mux Crosstalk		f = 100kHz to $4.1MHz$		-60		dB
SUPPLY						
Supply Voltage Range	Vcc		4.75		5.25	V
Supply Current	ICC	No load		100	140	mA
Power-Supply Rejection Ratio	PSRR	$V_{IN} = 100 \text{mV}_{P-P}, f = 0 \text{ to } 3.5 \text{MHz}$		40		dB
LOGIC INTERFACE						
Logic Input High Voltage	VIH		2.0			V
Logic Input Low Voltage	VIL			•	0.8	V
Logic Input Current		V _{IL} = 0 (sink), V _{IH} = V _{CC} (source)		•	±10	μΑ

Typical Operating Characteristics

($V_{CC} = +5V$, $T_A = +25$ °C, unless otherwise noted.)

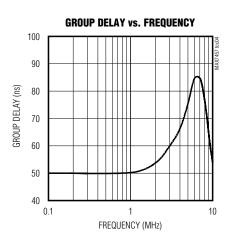


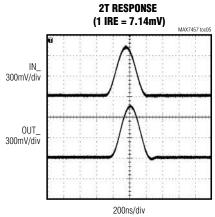


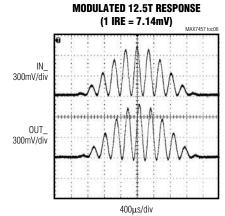


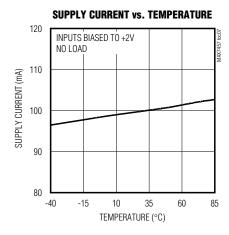
Typical Operating Characteristics (continued)

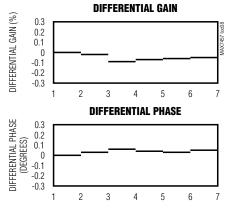
($V_{CC} = +5V$, $T_A = +25$ °C, unless otherwise noted.)

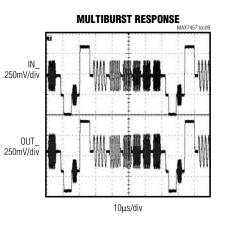












Pin Description

PIN	NAME	FUNCTION
1	INB	Channel INB Video Input. Use channel INB for the red (R) signal. AC-couple INB with a series 0.1µF capacitor.
2	INC	Channel INC Video Input. Use channel INC for the green (G) signal. AC-couple INC with a series 0.1µF capacitor.
3	IND	Channel IND Video Input. Use channel IND for the blue (B) signal. AC-couple IND with a series 0.1µF capacitor.
4	DISABLE	Disable Logic Input. A logic low on DISABLE enables the output buffers. A logic high on DISABLE disables all buffer outputs and puts them in a high-impedance state.
5	SELA	Select A Input. A logic low on SELA selects INA1 and a logic high on SELA selects INA2.
6, 8, 14	N.C.	No Connection. Not internally connected.
7	GND	Ground
9	V _C C	+5V Supply Input
10	OUTD	Channel D Video Output. OUTD can be either AC- or DC-coupled.
11	OUTC	Channel C Video Output. OUTC can be either AC- or DC-coupled.
12	OUTB	Channel B Video Output. OUTB can be either AC- or DC-coupled.
13	OUTA	Channel A Video Output. OUTA can be either AC- or DC-coupled.
15	INA2	Channel INA2 Video Input. Connect auxiliary CVBS to INA2. AC-couple INA2 with a series 0.1µF capacitor.
16	INA1	Channel INA1 Video Input. Connect CVBS to INA1. AC-couple INA1 with a series 0.1µF capacitor.
_	EP	Exposed Pad. Connect to GND for improved thermal heat sinking.

Detailed Description

The MAX7457 4-channel video switch filters and buffers video encoder DAC outputs in applications such as STBs, HDRs, DVD players, and digital VCRs. The MAX7457 offers an auxiliary CVBS loop-through feature required in dual SCART applications. Audio and video switching in SCART STBs utilize a costly integrated A/V switch offering high-end features such as volume control and high audio-drive capability. A more cost-effective solution uses the MAX7457 for the video switching along with low-cost standard passive analog switches for the audio switching.

The MAX7457 reconstructs and cleans up analog video signals from the video encoder's DAC output. Each channel consists of a lowpass filter and an output video buffer that drives two standard 150 Ω video loads. The MAX7457 operates from a single +5V supply and has a nominal cutoff frequency of 5MHz, optimized for NTSC, PAL, and SDTV.

Filter

Filter Response

The reconstruction filter consists of two 2nd-order Sallen-Key stages. The Butterworth-type response features a maximally flat passband for NTSC and PAL bandwidths. The stopband offers at least 43dB (typ) of attenuation at the video encoder's DAC sampling frequency of 27MHz (see the *Typical Operating Characteristics*).

High-Frequency Boost

INA1/INA2 have +1.2dB of high-frequency boost that increases image sharpness by compensating for signal degradation and rolloff in the video encoder. Channels INB/INC/IND (RGB) do not boost high-frequency signals and have a flat response over the video bandwidth.

Output Buffers

Each output buffer has a fixed gain of +6dB and can drive two 150Ω video loads with a 2VP-P signal. The MAX7457 can drive an AC-coupled load or drive a DC-coupled load, eliminating the large coupling capacitors. The output buffers drive DC loads with an output blanking level of less than 1V.

Output Clamp Level

The video signal processed by channel INA_ (CVBS video signal) must include a sync pulse. This sync pulse provides the required timing to all four channels. When channel INA_ detects a sync pulse, the DC restore loop is activated. The function of the loop is to set the DC level of the video signal to a specified voltage. See Table 1 for clamp levels.

Table 1. Output Clamp Level

CHANNEL	CLAMP LEVEL (V)
А	0.9
В	1.5
С	1.5
D	1.5

Input Multiplexer

The MAX7457 has a 2-to-1 input multiplexer at channel INA_. The input to the CVBS channel comes from either a DAC output or from a CVBS source and is selected by SELA. Pull SELA low to select INA1 or high to select INA2.

Applications Information

Input Considerations

Use 0.1µF ceramic capacitors to AC-couple the inputs. The input capacitors store a DC level so the outputs are clamped to an appropriate DC voltage level.

Output Considerations

The outputs are typically connected to a 75Ω series back-match resistor followed by the video cable. Because of the inherent divide-by-two of this configuration, the voltage on the video cable is always less than 1V, complying with industry-standard video requirements such as the European SCART standard (which allows up to 2V of DC on the video cable). The video buffer can also drive an AC-coupled video load. An output capacitor as low as $220\mu F$ provides good video performance.

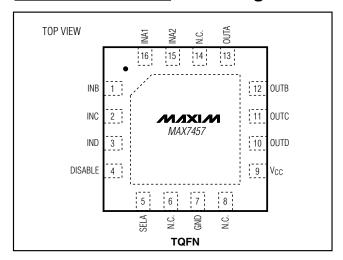
Power-Supply Bypassing and Layout

The MAX7457 operates from a single +5V supply. Bypass V_{CC} to GND with a 0.1 μ F capacitor. Place all external components as close to the device as possible.

Exposed Pad

The TQFN package has an exposed pad on the bottom of the package. This pad is electrically connected to GND and should be connected to the ground plane for improved thermal conductivity. Do not route signals under this package.

Pin Configuration



Chip Information

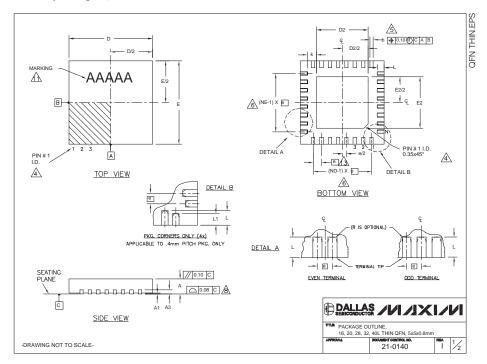
TRANSISTOR COUNT: 4579

PROCESS: BiCMOS

_ /N/IXI/N

Package Information

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information go to www.maxim-ic.com/packages.)



			С	OMM	ON D	IMEN:	SION	3							
PKG.	- 1	6L 5x	5	2	OL 5	ι5	2	8L 5	(5	3	2L 5>	ι5	4	0L 5	(5
SYMBOL	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MA)
Α	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.8
A1	0	0.02	0.05	0	0.02	0.05	0	0.02	0.05	0	0.02	0.05	0	0.02	0.0
А3	0.	20 RE	F.	0.	20 RE	F.	0.	20 RE	F.	0.	20 RE	F.	0.	20 RE	F.
b	0.25	0.30	0.35	0.25	0.30	0.35	0.20	0.25	0.30	0.20	0.25	0.30	0.15	0.20	0.2
D	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.1
E	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.10	4.90	5.00	5.1
е	0	.80 BS	SC.	0	.65 B	SC.	0	.50 B	SC.	0	.50 BS	SC.	0	.40 B	SC.
k	0.25	-	ŀ	0.25		-	0.25	-	-	0.25	ŀ		0.25	0.35	0.4
L	0.30	0.40	0.50	0.45	0.55	0.65	0.45	0.55	0.65	0.30	0.40	0.50	0.40	0.50	0.6
L1	-	-	-	-	-	-	-	-	-	-	-	-	0.30	0.40	0.5
N		16			20			28			32			40	
ND		4			5			7			8			10	
NE		4			5			7			8			10	
JEDEC		WHHE	3	_	WHH	c	١	VHHD)-1	V	VHHD	-2			

- DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-1994
- 2. ALL DIMENSIONS ARE IN MILLIMETERS. ANGLES ARE IN DEGREES.
- 3. N IS THE TOTAL NUMBER OF TERMINALS.

A THE TERMINAL #1 IDENTIFIER AND TERMINAL NUMBERING CONVENTION SHALL CONFORM TO JESD 95-1 SPP-012. DETAILS OF TERMINAL #1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED. THE TERMINAL #1 IDENTIFIER MAY BE EITHER A MOLD OR MARKED FEATURE.

- △ DIMENSION 5 APPLIES TO METALLIZED TERMINAL AND IS MEASURED BETWEEN 0.25 mm AND 0.30 mm FROM TERMINAL TIP.
- M ND AND NE REFER TO THE NUMBER OF TERMINALS ON EACH D AND E SIDE RESPECTIVELY.
- DEPOPULATION IS POSSIBLE IN A SYMMETRICAL FASHION. ⚠ COPLANARITY APPLIES TO THE EXPOSED HEAT SINK SLUG AS WELL AS THE TERMINALS.
- DRAWING CONFORMS TO JEDEC MO220, EXCEPT EXPOSED PAD DIMENSION FOR T2855-3 AND T2855-6.
- WARPAGE SHALL NOT EXCEED 0.10 mm.
- MARKING IS FOR PACKAGE ORIENTATION REFERENCE ONLY.
 NUMBER OF LEADS SHOWN ARE FOR REFERENCE ONLY.
- 12. NUMBER OF LEADS SHOWN ARE FOR REFERENCE UNLT.

 LEAD CENTERLINES TO BE AT TRUE POSITION AS DEFINED BY BASIC DIMENSION "6", ±0.05.

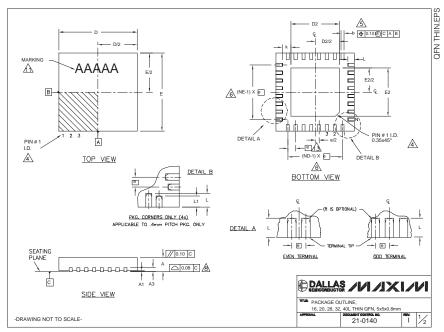
-DRAWING NOT TO SCALE-

	EXF	POSE) PAD	VARI	ATION	S		
PKG.		D2			E2		Escaptions	DOWN
CODES	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	±0.15	BONDS ALLOWED
T1655-2	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
T1655-3	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
T1655N-1	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
T2055-3	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
T2055-4	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
T2055-5	3.15	3.25	3.35	3.15	3.25	3.35	0.40	YES
T2855-3	3.15	3.25	3.35	3.15	3.25	3.35	**	YES
T2855-4	2.60	2.70	2.80	2.60	2.70	2.80	**	YES
T2855-5	2.60	2.70	2.80	2.60	2.70	2.80	**	NO
T2855-6	3.15	3.25	3.35	3.15	3.25	3.35	**	NO
T2855-7	2.60	2.70	2.80	2.60	2.70	2.80	**	YES
T2855-8	3.15	3.25	3.35	3.15	3.25	3.35	0.40	YES
T2855N-1	3.15	3.25	3.35	3.15	3.25	3.35	**	NO
T3255-3	3.00	3.10	3.20	3 .00	3.10	3.20	**	YES
T3255-4	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
T3255-5	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
T3255N-1	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
T4055-1	3.20	3.30	3.40	3.20	3.30	3.40	**	YES

DALLAS /VI/JXI/VI 21-0140

Package Information (continued)

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information go to www.maxim-ic.com/packages.)



			С	OMM	ON D	IMEN	SIONS	3										EXF	POSE	D PAD	VARI	ATION	IS		
PKG.	1	6L 5:	(5	2	20L 5	x5	2	8L 5x	5	3	2L 5x	5		40L 5	x5		PKG.		D2			E2		L	DOWN
SYMBOL	MIN.	NOM	MAX.	MIN.	NOM	MAX.	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	MIN.	NOM	MAX.		CODES	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	±0.15	BONDS
Α	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80		T1655-2	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
A1	0	0.02	0.05	0	0.02	0.05	0	0.02	0.05	0	0.02	0.05	0	0.02	0.05		T1655-3	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
A3	0.	20 RI	EF.	0.	20 RI	EF.	0.	20 RE	F.	0.3	20 RE	F.	0	.20 RI	F.		T1655N-1	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
b						0.35											T2055-3	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
D	4.90			4.90						4.90							T2055-4	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
E						5.10											T2055-5	3.15	3.25	3.35	3.15	3.25	3.35	0.40	YES
e k		.80 B	ას. T	0.25	.65 B		0.25	.50 BS	i.		50 BS	oU.	_	0.40 B			T2855-3	3.15		3.35	3.15	3.25	3.35	**	YES
I I	0.25	0.40	0.50	0.25	0.55	- 0.65		0.55	0.65	0.25	0.40	0.50	0.20	0.35	0.45		T2855-4	2.60	2.70		2.60	2.70	2.80	**	YES
11	0.30	0.40	0.50	0.45	0.55	0.65	U.45	0.55	0.00	0.30	0.40	0.50	-	0.50	-		T2855-5	2.60	2.70	2.80	2.60	2.70	2.80	**	NO
N	Ė	16	· ·	i i	20	-		28	_		32		0.30	40	0.50		T2855-6	3.15	3.25	3.35	3.15	3.25	3.35	**	NO
ND		4			5			7			8			10	-		T2855-7	2.60	2.70	2.80	2.60	2.70	2.80	**	YES
NE		4			5			7			8			10			T2855-8	3.15	3.25	3.35	3.15	3.25	3.35	0.40	YES
JEDEC	,	WHH	В	,	WHH	С	٧	VHHD	-1	W	/HHD	-2					T2855N-1	3.15	3.25	3.35	3.15	3.25	3.35	**	NO
																	T3255-3	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
IOTES:																	T3255-4	3.00	3.10	3.20	3.00	3.10	3.20	**	NO
1. DIM	ENSI	ONING	G & T0	DLER/	NCIN	NG CO	NFOR	M TO	ASM	E Y14.	5M-19	994.					T3255-5	3.00	3.10	3.20	3.00	3.10	3.20	**	YES
		NOIO										EC					T3255N-1	3.00	3.10	3.20	3.00	3.10	3.20	**	NO.
2. ALL				RE IN I		METE	RS. AI	NGLES	SARI	E IN DI								0.00		_			0.20		
3. NIS	THE	TOTA	L NUI	MBER	OF T	ERMIN	IALS.										T4055-1	3.20		3.40	3.20	3.30	3.40	** DIMENSI	YES ONS TABL
3. N IS CON OPT IDE B. DIM	THE TERI NFORI FIONA NTIFIE	MINA M TO L, BU ER M	L #1 IE JESD IT MU: AY BE APPLI	MBER 95-1: ST BE EITHI ES TO	OF T FIER SPP-(LOC. ER A	ERMIN AND T 012. D ATED MOLD	ERMI ETAIL WITHI OR N	NAL N S OF N THE IARKE	UMB TERI ZON	ERING JINAL JE IND ATUR	#1 ID ICATI	IVEN ENTI ED. T	FIER . HE TI	ARE ERMIN	IAL #1			0.00		_	3.20	3.30	3.40		YES
3. N IS CON OPT IDE B. DIM	THE TERI NFORI FIONA NTIFIE IENSI 5 mm /	MINA M TO L, BU ER MA ON b	L #1 IE JESD IT MU: AY BE APPLI 0.30 m	MBER 95-1: 95-1: ST BE EITHI ES TO m FRO	OF T FIER SPP-(LOC ER A) MET OM TI	AND TO	ERMI ETAIL WITHI OR M ED TE AL TII	NAL N S OF IN THE IARKE RMIN P.	UMB TERI ZON D FE	ERING MINAL ME IND ATUR ND IS	CON #1 ID IICATI E. MEAS	IVEN ENTI ED. T	FIER : HE TI	ARE ERMIN	IAL #1	TIVE	T4055-1	0.00		_	3.20	3.30	3.40		YES
3. N IS COPT OPT IDE DIM 0.25	THE TERI NFORI FIONA NTIFIE ENSIGN THE TENSION THE THE TENSION THE THE TENSION THE THE TENSION THE TENSION THE TENSION THE TENSION THE TENSION THE THE TENSION THE TENSION THE TENSION THE TENSION THE TENSION THE THE TENSION THE	MINA M TO L, BU ER M ON b AND (L #1 IE JESD IT MU: AY BE APPLI 0.30 m	MBER 95-1: 95-1: ST BE EITHI ES TO m FRO	OF T FIER SPP-(LOC. ER A O MET OM TI	ERMIN AND T D12. D ATED MOLD ALLIZ ERMIN	ERMI ETAIL WITHI OR N ED TE AL TII	NAL N S OF N THE IARKE ERMIN P.	IUMB TER! ZON D FE AL A	ERING MINAL ME IND ATUR ND IS	#1 ID H1 ID HICATI E. MEAS	IVEN ENTI ED. T	FIER : HE TI	ARE ERMIN	IAL #1	TIVE	T4055-1	0.00		_	3.20	3.30	3.40		YES
3. N IS THE COPT OPT IDE DIM 0.25	THE TERI NFORI FIONA NTIFIE S mm / AND N	MINA M TO L, BU ER M ON b AND (NE RE	L H1 IE JESD IT MU: AY BE APPLI).30 m EFER	MBER 95-1: ST BE EITHI ES TO m FRO TO TH	OF T FIER SPP-(LOC. ER A O MET OM TI IE NU	ERMIN AND TO D12. D ATED MOLD FALLIZ ERMIN IMBER IN A S'	ERMI ETAIL WITHI OR M ED TE AL TII OF T	NAL N S OF IN THE IARKE ERMIN P. ERMIN	IUMB TERM ZOM D FE AL A	ERING MINAL ME IND ATUR ND IS ON EA	G CON #1 ID IICATI E. MEAS ACH E	IVEN ENTI ED. T	FIER . HE TI D BET	ARE ERMIN TWEE DE RE	N N SPEC		T4055-1	0.00		_	3.20	3.30	3.40		YES
3. N IS THE COP OPT IDEI S DIM 0.25 ND 7. DEF COP 9. DRA	E THE E TERI NFORI FIONA NTIFIE ENSIGN 5 mm / AND N POPUL	MINAL M TO L, BU ER MA ON 6 AND G ARITY G COR	L NUM L #1 IE JESD IT MUS AY BE APPLI).30 m EFER TON IS F	MBER 95-1: 95-1: ST BE EITHI ES TO TH POSSI LIES T	OF T FIER SPP-(LOC. ER A O MET OM TI IE NU IBLE I	AND TO	ERMI ETAIL WITHI OR M ED TE AL TII OF T /MME	NAL N S OF N THE IARKE ERMIN P. ERMIN TRICA	IUMB TERI ZON D FE AL A NALS AL FA	ERING MINAL ME IND ATUR ND IS ON EA SHION K SLU	MEAS ACH E	IVEN ENTI ED. T SURE O ANI	FIER : HE TI D BET D E SI	ARE ERMIN TWEE DE RE	N SPEC ERMIN		T4055-1	0.00		_	3.20	3.30	3.40		YES
3. N IS THE COP OPT IDEI A DIM 0.25 A ND 7. DEF 8. COP 9. DRA T28	THE TERINFORI FIONA NTIFIE S mm / AND N POPUL PLAN/ AWING	MINAL MITO L, BU ER MA ON b AND O ARITY ARITY COI	L NUM L #1 IE JESD IT MUS AY BE APPLI).30 m EFER D ON IS F APPL APPLI V APPLI 12855-	MBER DENTI 95-1: ST BE EITHI ES TO TH POSSI LIES T 6.	OF T FIER SPP-(LOC. ER A O MET OM TI IE NU IBLE I	AND TO	IALS. ERMI ETAIL WITHI OR N ED TE AL TII OF T /MME OSED	NAL N S OF N THE IARKE ERMIN P. ERMIN TRICA	IUMB TERI ZON D FE AL A NALS AL FA	ERING MINAL ME IND ATUR ND IS ON EA SHION K SLU	MEAS ACH E	IVEN ENTI ED. T SURE O ANI	FIER : HE TI D BET D E SI	ARE ERMIN TWEE DE RE	N SPEC ERMIN		T4055-1	3.20	3.30	3.40	3.20	3.30 SEE CO	3.40 DMMON	DIMENSI	YES ONS TABL
3. N IS THE COP OPT IDEI S DIM 0.25 ND 7. DEF 8 COP 9. DRA	THE TERINFORI FIONA NTIFIE S mm / AND N POPUL PLAN/ AWING 55-3 / RPAG	MINAL M TO L, BU ER MA ON 6 AND (NE RE ATIO ARITY G COI ARITY F C	L NUM L #1 IE JESD T MUS AY BE APPLI 0.30 m EFER T ON IS F APPL VFORI 2855- ALL N	MBER DENTI 95-1: ST BE EITHI ES TO TO TH POSSI LIES T MS TO 6. OT EX	OF T FIER SPP-(LOC. ER A O MET OM TI JE NU JED TH	ERMIN AND TO D12. D ATED MOLD FALLIZ ERMIN MBER N A S' E EXP EC MC	IALS. ERMI ETAIL WITHI OR N ED TE AL TII OF T /MME OSED 0220, mm.	NAL N S OF IN THE IARKE ERMIN P. ERMIN TRICA) HEAT	IUMB TERI E ZON D FE AL A NALS F SIN PT E	ERING MINAL ME IND ATUR ND IS ON EA SHION K SLU KPOSE	MEAS ACH E N. G AS	IVEN ENTI ED. T SURE O ANI	FIER : HE TI D BET D E SI	ARE ERMIN TWEE DE RE	N SPEC ERMIN		T4055-1	3.20	3.30	3.40	3.20	3.30 SEE CO	3.40 DMMON	DIMENSI	YES ONS TABL
3. N IS THE COR OPT IDEI 3. DIM 0.25 3. N IS 0.27 4. ND 7. DEF 6. ND 9. DRA T28 WAL	THE TERINFORI FIONA NTIFIE S mm / AND N POPUL PLAN/ AWING 55-3 / RPAG RKING	MINAM TO L, BU ER MA DN b. AND (ME RE ATIC ARITY ARITY FOR TO ARITY FOR TO A A ARITY FOR TO ARITY FOR TO A A A A A A A A A A A A A A A A A A A	L NUI L #1 IE JESD IT MU: AY BE APPLI).30 m EFER ' ON IS F ' APPL VFORI '2855- ALL NO	MBER DENTI 95-1: ST BE EITHI ES TO TH POSSI LIES T MS TO 6. OT EX	OF T FIER SPP-(LOC. ER A OMET OM TI IE NU IBLE I O TH O JED	ERMIN AND TO D12. D ATED MOLD FALLIZ ERMIN IMBER N A S' E EXP EC MO	WALS. ERMI ETAIL WITHI OR N ED TE AL TII OF T (MME OSED)220, mm. ATION	NAL N.S OF IN THE IARKE ERMIN P. ERMIN TRICA HEATENCE I REFE	UMB TERI E ZON D FE AL A NALS AL FA F SIN PT E:	ERING MINAL JE IND ATUR ND IS ON EA SHION K SLU KPOSE	MEAS ACH E N. G AS	IVEN ENTI ED. T SURE O ANI	FIER : HE TI D BET D E SI	ARE ERMIN TWEE DE RE	N SPEC ERMIN		T4055-1	3.20	3.30	3.40	3.20	3.30 SEE CC	3.40 DMMON	DIMENSI	YES

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