

MAX40075/MAX40088

10MHz/42MHz Low-Noise, Low-Bias Op Amps

General Description

Benefits and Features

+;8 \$/ \$/ 4E8 J<7854A7 ?BJ AB<F8 ?BJ ^ #BJ ACHG -B?G4:8 %B<F8 8AF<GL AVM > M
 <ACHG 5<4F 6HEE8AG BC8E4G<BA4? 4@C?<9<8EF B998E;BA: ACHG 6HEE8AG %B<F8 8AF<GL M V
 E4<? BHGCHGF 4A7 F<A: ?8 FHCC?L BC8E4G<BA 7BJA^GBBJ -ACHG <4F HEE8AG C GLC
 +;8L 7E4J @ B9 DH<8F68AG FHCC?L 6HEE8AG C8E 4@C?<9<8EF ;8E FGBEG<BA BE 7 + % >_
 J;8A 8A45?87 4A7 ;4I8 H?GE4 ?BJ 7<FGBEG<BA #B47
 + % 4F J8?? 4F ?BJ <ACHG IB?G4:8 AB<F8 78AF<GL* <A: ?8 *HCC?L &C8E4G<BA 9EB@ - GB -
 A- V M 4A7 ?BJ <ACHG 6HEE8AG AB<F8 78AF<GL ACHG B@@BA \$B78 -B?G4:8)4A:8 A6?H78F EBHA7
 9 V M +;8 ?BJ <ACHG 5<4F 6HEE8AG 4A7 ?BJ AB<F8 GB? GB)4<? &HGCHG *J<A: F J<G; 4 >_ #B47
 :8G;8E J<G; G;8 J<78 54A7J<7G; FH<G GE4AF<@C874A68 4@C M . 'EB7H6G ,A<GL 4<A *G45?8 \$/
 C?<9<8EF 4A7 <@4:<A: 4CC?<64G<BAF &A?L
 BE CBJ8E 6BAF8E14G<BA G;8 \$/ \$/ B998E ^ \$ M . 'EB7H6G 4<A S -- \$/ &A?L
 4 ?BJ CBJ8E F;HG7BJA @B78 G;4G E87H68F FHCC?L 6HEE8AG ^ K68??8AG ;4E46G8E<FG<6F ACHG - a-
 GB a 4A7 C?468F G;8 4@C?<9<8EF BHGCHGF <AGB 4 ;<:;#B a
 C874A68 FG4G8 +;8F8 4@C?<9<8EF ;4I8 BHGCHGF J;<6; FJ<A: ^ #BJ 'BJ8E *;HG7BJA \$B78)87H68F *HCC?L HEE8AG
 E4<? GB E4<? 4A7 G;8<E <ACHG 6B@@BA @B78 IB?G4:8 ^ I4<?45?8 <A *C468 *4I<A: H@C .# 4A7 '<A
 6?H78F :EBHA7 +;8 \$/ <F HA<GL :4<A FG45?8 J<G; * &+ '46>4:8F
 4 :4<A 54A7J<7G; CEB7H6G B9 \$ M +;8 \$/ <F ^ ((H4?<9<87 *88 6)*6.2. 2+361&8.32
 :4<A B9 FG45?8 J<G; 4 :4<A 54A7J<7G; CEB7H6G B9 \$ M

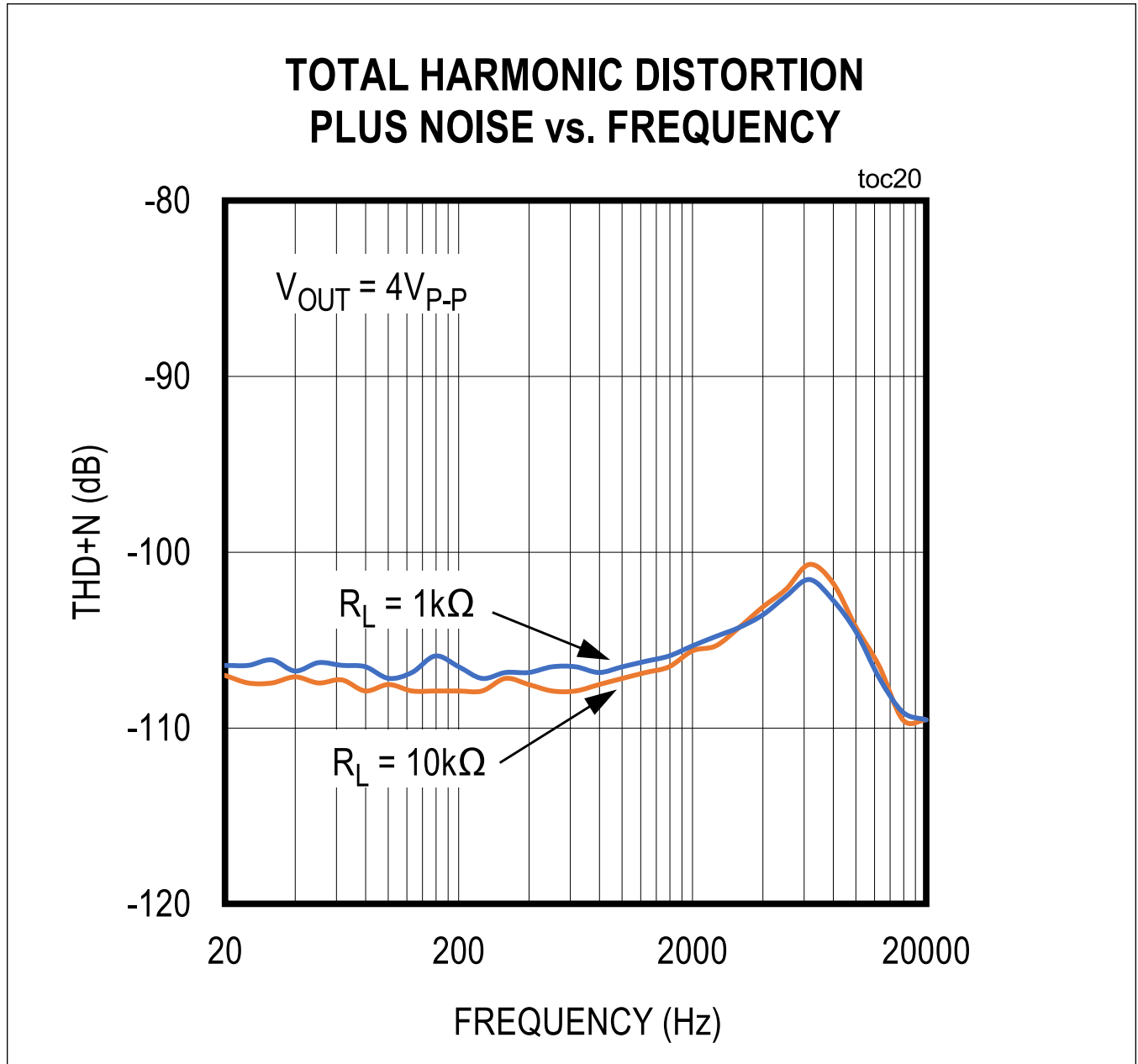
[Ordering Information](#) appears at end of data sheet.

Applications

- ^ H998EF
- ^ &HGCHG @C?<9<8EF
- ^ #BJ %B<F8 \$<6EBC;BA8 'E84@C?<9<8EF
- ^ <:<G4? *64?8F
- ^ *GE4<A 4H:8F *8AFBE @C?<9<8EF
- ^ +E4AF<@C874A68 @C?<9<8EF
- ^ \$87<64? AFGEH@8AG4G<BA
- ^ HGB@BG<I8 'BJ8E +E4<A



THD+N Performance



\$ / \$ /

\$ M \$ M #BJ %B<F8 #BJ <4F &C @CF

Electrical Characteristics (continued)

- - - ** - - \$ - * % - - &, + -) # G<87 GB - + O GB O HA?8FF BG;8EJ<F8 ABG87
+LC<64? I4?H8F 4E8 4G +O 38*

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
(H<8F68AG *HCC?L HEE8AG C8E @C?<9<8E		- -				@
'BJ8E ,C +<@8		- GB - FG8C - &, + - Q				TF
*;HG7BJA *HCC?L HEE8AG	$\frac{*}{\%}$	&I8E G8@C8E4GHE8 GB O				T
ACHG &99F8G -B?G4:8	- &*	G O &I8E G;8 9H?? G8@C8E4GHE8 E4A:8				T-
ACHG &99F8G E<9G	- &* +	&I8E G8@C8E4GHE8 GB O				T-O
ACHG <4F HEE8AG*						C
ACHG &99F8G HEE8AG <u>38*</u>	&*					C
<998E8AG<4? ACHG)8F<FG4A68) %					U
ACHG 4C46<G4A68	%	<G;8E <ACHG BI8E 8AG<E8 \$)				C
ACHG B@@BA \$B78)4A:8	- % - %	H4E4AG887 5L \$)) G8FG 4G O H4E4AG887 5L \$)) G8FG 9H?? G8@C8E4GHE8 E4A:8			-	-
B@@BA \$B78)8=86G<BA)4G<B	\$))	- \$) - - 4G O - \$) - - 9H?? G8@C8E4GHE8 E4A:8				7
B@@BA \$B78)8=86G<BA)4G<B	\$))	@- ' ' \$ M J<G; <A - GB - - E4A:8				7
'BJ8E *HCC?L)8=86G<BA)4G<B	*)	- - -				7
'BJ8E *HCC?L)8=86G<BA)4G<B	*)	@- ' ' \$ M FHC8E<@CBF87 BA -				7
&C8A #BBC 4<A	&#) # >U GB - - &, + @- GB - @-) # >U GB - - &, + @- GB - @-) # U GB - - &, + @- GB - @-				7
&HGCHG -B?G4:8 *J<A: <;	- - &) # >U GB - - - &) # >U GB - - - &) # U GB - - - &				@-
&HGCHG -B?G4:8 *J<A: #BJ	- &#) # >U GB - - - **) # >U GB - - &# - **) # U GB - - &# - **				@-

\$ / \$ /

\$ M \$ M #BJ %B<F8 #BJ <4F &C @CF

Electrical Characteristics (continued)

- - - ** - - \$ - * % - - &, + -) # G<87 GB - + O GB O HA?8FF BG;8EJ<F8 ABG87
 +LC<64? I4?H8F 4E8 4G +O 38*

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
*;BEG <E6H<G HEE8AG	*	*;BEG87 GB 8<G;8E CBJ8E FHCC?L				@
&HGCHG #84>4:8 HEE8AG .;8A *;HG BJA		- ** - &, + -				T
*;HG7BJA ACHG #BJ #8I8?					K	-
*;HG7BJA ACHG <; #8I8?			K			-
*;HG7BJA ACHG <4F						T
7 4A7J<7G; .		,A<GL :4<A I8EF<BA 4<A B9 FG45?8 .				\$ M
';4F8 \$4E:<A	l @	,A<GL :4<A I8EF<BA 4<A B9 FG45?8 .				O
4<A \$4E:<A	\$					7
*?8J)4G8	*)	,A<GL :4<A I8EF<BA 4<A B9 FG45?8 .				- TF
*8GG?<A: +<@8		,A<GL :4<A I8EF<BA GB - &, + - FG8C 4<A B9 FG45?8 . GB - &, + - FG8C				TF
*G45?8 4C46<G<I8 #B47	#&	H4E4AG887 FG45<?<GL BI8E 4?? 6BA7<G<BAF				C
AG8:E4G87 9 ACHG -B?G4:8 %B<F8		M GB M				T- . .
ACHG -B?G4:8 %B<F8 8AF<GL	- %	9 M 9 > M 9 > M				A- V \overline{M}
ACHG HEE8AG %B<F8 8AF<GL	%	9 > M				9 V \overline{M}

\$ / \$ /

\$ M \$ M #BJ %B<F8 #BJ <4F &C @CF

Electrical Characteristics (continued)

- - - ** - - \$ - * % - - &, + -) # G<87 GB - + O GB O HA?8FF BG;8EJ<F8 ABG87
 +LC<64? I4?H8F 4E8 4G +O 38*

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
+BG4? 4E@BA<6 <FGBEG<BA %B<F8	+ %	,A<GL :4<A I8EF<BA - &, + - '' >U GB % > M				7 6
		,A<GL :4<A I8EF<BA - &, + - '' >U GB % > M				
		,A<GL :4<A I8EF<BA - &, + - '' >U GB % > M				
		,A<GL :4<A I8EF<BA - &, + - '' >U GB % > M				
		4<A B9 I8EF<BA . - &, + - '' >U GB % > M				
		4<A B9 I8EF<BA . - &, + - '' >U GB % > M				
		4<A B9 I8EF<BA . - &, + - '' >U GB % > M				
		4<A B9 I8EF<BA . - &, + - '' >U GB % > M				
?86GEB@4:A8G<6 AG8E98E8A68)8=86G<BA \$)))4G<B		-) 3'' @- 9 \$ M GB \$ M				7

Note 1: #<@<GF 4E8 G8FG87 4G + O #<@<GF BI8E G;8 BC8E4G<A: G8@C8E4GHE8 E4A:8 4A7 E8?8I4AG FHCC?L IB?G4:8 E4A:8 4 :H4E4AG887 5L 78F<:A 4A7 6;4E46G8E<M4G<BA

Note 2: H4E4AG887 5L 78F<:A 4A7 58A6; 6;4E46G8E<M4G<BA

\$ / \$ /

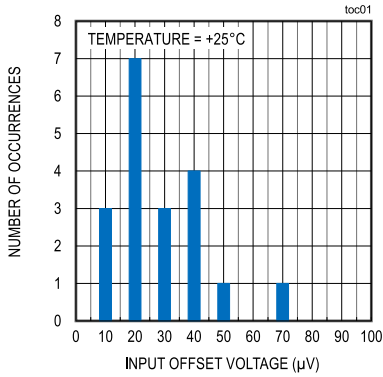
\$ M \$ M #BJ %B<F8 #BJ <4F &C @CF

Typical Operating Characteristics

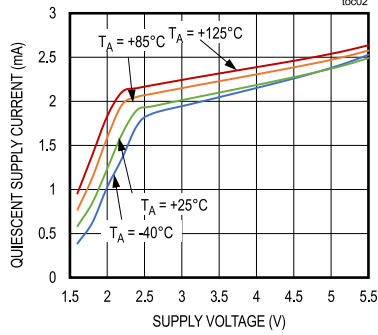
- - - ** - - \$ -) # >_ GB - # C GB % +

O HA?8FF BG;8EJ<F8 ABG87

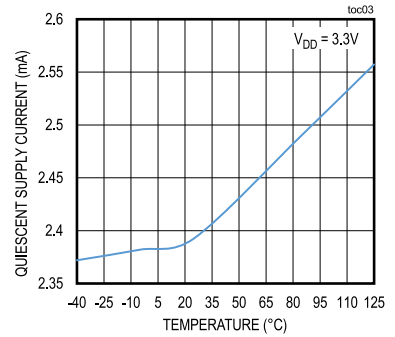
INPUT OFFSET VOLTAGE HISTOGRAM



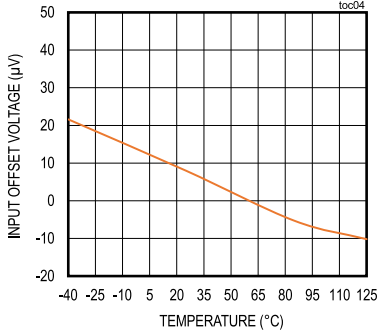
SUPPLY CURRENT vs. SUPPLY VOLTAGE



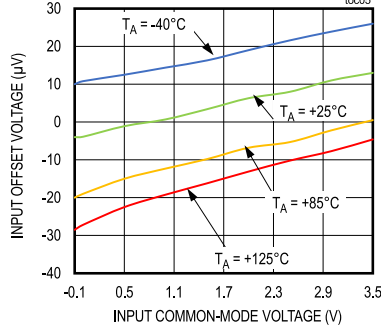
SUPPLY CURRENT vs. TEMPERATURE



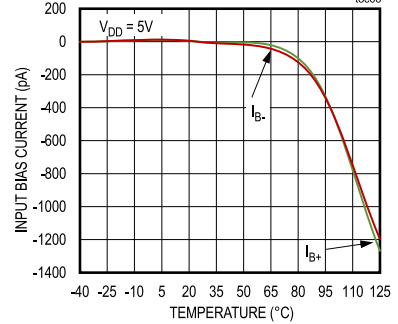
INPUT OFFSET VOLTAGE vs. TEMPERATURE



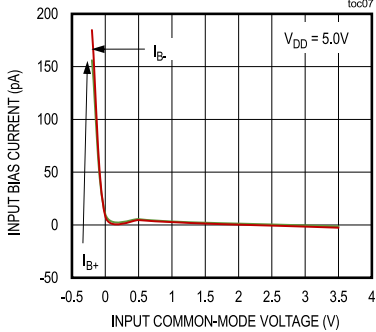
INPUT OFFSET VOLTAGE vs. INPUT COMMON-MODE VOLTAGE



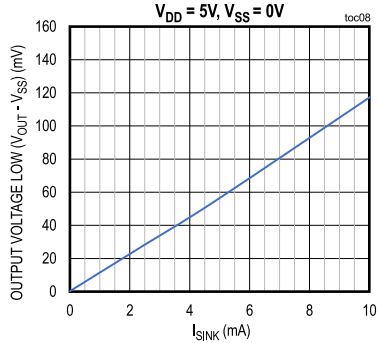
INPUT BIAS CURRENT vs. TEMPERATURE



INPUT BIAS CURRENT vs. INPUT COMMON-MODE VOLTAGE



OUTPUT VOLTAGE LOW vs. OUTPUT SINK CURRENT



OUTPUT VOLTAGE HIGH vs. OUTPUT SOURCE CURRENT

