

## 1.4GHz Current Feedback Amplifiers with Enable

The 5962-0625601QXC and 5962-0625602QXC are fully DSCC SMD compliant parts and the SMD data sheets are available on the DSCC website (<http://www.dscclia.mil/programs/specfind/default.asp>). The 5962-0625601QXC is electrically equivalent to the EL5166, the 5962-0625602QXC is electrically equivalent to the EL5167. Reference equivalent "EL" data sheet for additional information. The amplifiers are of the current feedback variety and exhibit a very high bandwidth of 1.4GHz at  $A_V = +1$  and 800MHz at  $A_V = +2$ . This makes these amplifiers ideal for today's high speed video and monitor applications, as well as a number of RF and IF frequency designs.

With a supply current of just 12mA and the ability to run from a single supply voltage from 5V to 12V, these amplifiers offer very high performance for little power consumption.

The 5962-0625601QXC also incorporates an enable and disable function to reduce the supply current to 13 $\mu$ A typical per amplifier. Allowing the CE pin to float or applying a low logic level will enable the amplifier.

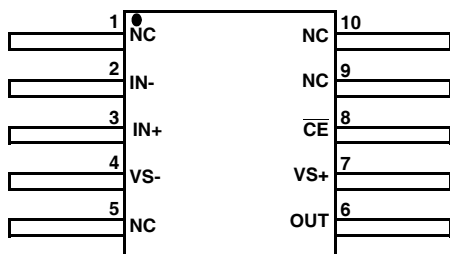
## Ordering Information

PART NUMBER	PART MARKING	PACKAGE	PKG. DWG. #
5962-0625601QXC	06256 01QXC	10 Ld Flat Pack	K10.A
5962-0625602QXC	06256 02QXC	10 Ld Flat Pack	K10.A

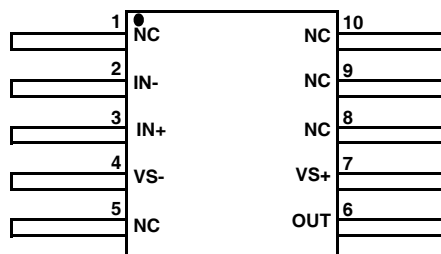
NOTE: These Intersil Pb-free Hermetic packaged products employ 100% Au plate - e4 termination finish, which is RoHS compliant and compatible with both SnPb and Pb-free soldering operations.

## Pinouts

**5962-0625601QXC**  
**(10 LD FLAT PACK)**  
TOP VIEW



**5962-0625602QXC**  
**(10 LD FLAT PACK)**  
TOP VIEW



## Features

- Gain-of-1 bandwidth = 1.4GHz/gain-of-2 bandwidth = 800MHz
- 6000V/ $\mu$ s slew rate
- Single and dual supply operation from 5V to 12V
- Low noise = 1.5nV/ $\sqrt{\text{Hz}}$
- 12mA supply current
- Fast enable/disable (5962-0625601QXC only)

## Applications

- Video amplifiers
- Cable drivers
- RGB amplifiers
- Test equipment
- Instrumentation
- Current to voltage converters

**Absolute Maximum Ratings** ( $T_A = +25^\circ\text{C}$ )

Supply Voltage between $V_{S+}$ and $V_{S-}$ . . . . .	12.6V
Slewrate between $V_{S+}$ and $V_{S-}$ . . . . .	1V/ $\mu\text{s}$
Maximum Continuous Output Current . . . . .	20mA
I into $V_{IN+}$ , $V_{IN-}$ , Enable Pins . . . . .	$\pm 4\text{mA}$
Pin Voltages . . . . .	$V_{S-} -0.5\text{V}$ to $V_{S+} +0.5\text{V}$

**Thermal Information**

Thermal Resistance (Typical)	$\theta_{JA}$ ( $^\circ\text{C}/\text{W}$ )	$\theta_{JC}$ ( $^\circ\text{C}/\text{W}$ )
Flat Pack Package (Notes 1, 2) . . . . .	165	60
Storage Temperature . . . . .	$-65^\circ\text{C}$ to $+150^\circ\text{C}$	
Ambient Operating Temperature . . . . .	$-55^\circ\text{C}$ to $+125^\circ\text{C}$	
Die Junction Temperature . . . . .	$+150^\circ\text{C}$	
Power Dissipation . . . . .	144mW	

**CAUTION:** Do not operate at or near the maximum ratings listed for extended periods of time. Exposure to such conditions may adversely impact product reliability and result in failures not covered by warranty.

**NOTES:**

1.  $\theta_{JA}$  is measured with the component mounted on a low effective thermal conductivity test board in free air. See Tech Brief TB379 for details.
2. For  $\theta_{JC}$ , the "case temp" location is the center of the exposed metal pad on the package underside.

**IMPORTANT NOTE:** All parameters having Min/Max specifications are guaranteed. Typical values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore:  $T_J = T_C = T_A$

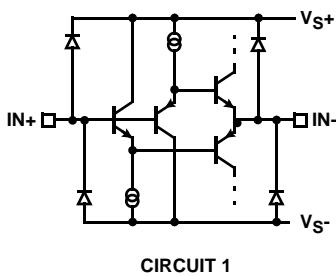
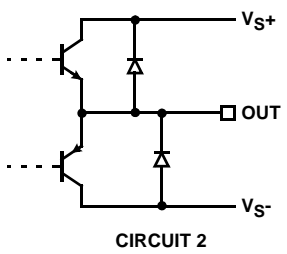
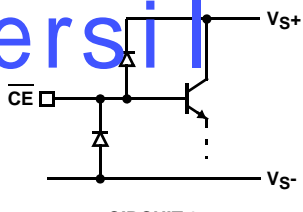
**Electrical Specifications**  $V_{S+} = +5\text{V}$ ,  $V_{S-} = -5\text{V}$ ,  $R_F = 392\Omega$  for  $A_V = 1$ ,  $R_F = 250\Omega$  for  $A_V = 2$ ,  $R_L = 150\Omega$ ,  $T_A = +25^\circ\text{C}$   
 Unless Otherwise Specified.

PARAMETER	DESCRIPTION	CONDITIONS	MIN	TYP	MAX	UNIT
<b>AC PERFORMANCE</b>						
BW	-3dB Bandwidth	$A_V = +1$		1400		MHz
		$A_V = +2$		800		MHz
BW1	0.1dB Bandwidth	$A_V = +2$		100		MHz
SR	Slew Rate	$V_O = -2.5\text{V}$ to $+2.5\text{V}$ , $A_V = +2$		6000		V/ $\mu\text{s}$
$t_S$	0.1% Settling Time	$V_{OUT} = -2.5\text{V}$ to $+2.5\text{V}$ , $A_V = -1$		8		ns
$e_N$	nV/ $\sqrt{\text{Hz}}$ Voltage Noise			1.7		nV/ $\sqrt{\text{Hz}}$
$i_{N-}$	IN- Input Current Noise			19		pA/ $\sqrt{\text{Hz}}$
$i_{N+}$	IN+ Input Current Noise			50		pA/ $\sqrt{\text{Hz}}$
dG	Differential Gain Error (Note 3)	$A_V = +2$		0.01		%
dP	Differential Phase Error (Note 3)	$A_V = +2$		0.03		$^\circ$
<b>INPUT CHARACTERISTICS</b>						
$C_{IN}$	Input Capacitance			1.5		pF
<b>ENABLE (5962-0625601QXC ONLY)</b>						
$t_{EN}$	Enable Time			170		ns
$t_{DIS}$	Disable Time			1.25		$\mu\text{s}$

**NOTE:**

3. Standard NTSC test, AC signal amplitude = 286mV,  $f = 3.58\text{MHz}$ .

## Pin Descriptions

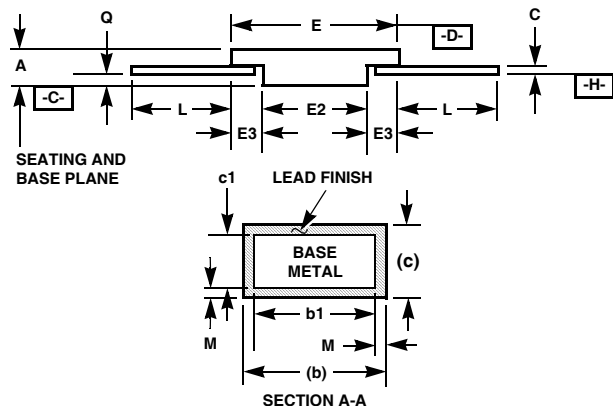
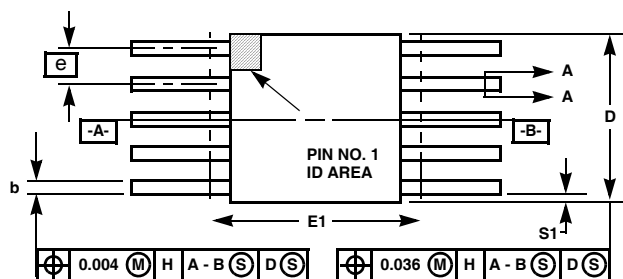
5962-0625601QXCIS (10 Ld FLAT PACK)	5962-0625602QXCIS (10 Ld FLAT PACK)	Pin Name	Function	Equivalent Circuit
1, 5, 9, 10	1, 5, 8, 9, 10	NC	Not connected	
2	2	IN-	Inverting input	 <p>CIRCUIT 1</p>
3	3	IN+	Non-inverting input	(See circuit 1)
4	4	VS-	Negative supply	
6	6	OUT	Output	 <p>CIRCUIT 2</p>
7	7	VS+	Positive supply	
8	8	$\overline{\text{CE}}$	Chip enable	 <p>CIRCUIT 3</p>

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**Ceramic Metal Seal Flatpack Packages (Flatpack)****K10.A MIL-STD-1835 CDFP3-F10 (F-4A, CONFIGURATION B)  
10 LEAD CERAMIC METAL SEAL FLATPACK PACKAGE**

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.045	0.115	1.14	2.92	-
b	0.015	0.022	0.38	0.56	-
b1	0.015	0.019	0.38	0.48	-
c	0.004	0.009	0.10	0.23	-
c1	0.004	0.006	0.10	0.15	-
D	-	0.290	-	7.37	3
E	0.240	0.260	6.10	6.60	-
E1	-	0.280	-	7.11	3
E2	0.125	-	3.18	-	-
E3	0.030	-	0.76	-	7
e	0.050 BSC		1.27 BSC		-
k	0.008	0.015	0.20	0.38	2
L	0.250	0.370	6.35	9.40	-
Q	0.026	0.045	0.66	1.14	8
S1	0.005	-	0.13	-	6
M	-	0.0015	-	0.04	-
N	10		10		-

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**NOTES:**

1. Index area: A notch or a pin one identification mark shall be located adjacent to pin one and shall be located within the shaded area shown. The manufacturer's identification shall not be used as a pin one identification mark. Alternately, a tab (dimension k) may be used to identify pin one.
2. If a pin one identification mark is used in addition to a tab, the limits of dimension k do not apply.
3. This dimension allows for off-center lid, meniscus, and glass overrun.
4. Dimensions b1 and c1 apply to lead base metal only. Dimension M applies to lead plating and finish thickness. The maximum limits of lead dimensions b and c or M shall be measured at the centroid of the finished lead surfaces, when solder dip or tin plate lead finish is applied.
5. N is the maximum number of terminal positions.
6. Measure dimension S1 at all four corners.
7. For bottom-brazed lead packages, no organic or polymeric materials shall be molded to the bottom of the package to cover the leads.
8. Dimension Q shall be measured at the point of exit (beyond the meniscus) of the lead from the body. Dimension Q minimum shall be reduced by 0.0015 inch (0.038mm) maximum when solder dip lead finish is applied.
9. Dimensioning and tolerancing per ANSI Y14.5M - 1982.
10. Controlling dimension: INCH.