

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED



Prepared in accordance with ASME Y14.24

Vendor item drawing

[illegible]

DISTRIBUTION STATEMENT A. Approved for public release. Distribution is unlimited.

AMSC N/A

5962-V120-19

1. SCOPE

1.1 Scope. This drawing documents the general requirements of a high performance high input common mode voltage, precision difference amplifier microcircuit, with an operating temperature range of -55°C to +125°C.

1.2 Vendor Item Drawing Administrative Control Number. The manufacturer's PIN is the item of identification. The vendor item drawing establishes an administrative control number for identifying the item on the engineering documentation:

<u>V62/19619</u>	-	<u>01</u>	<u>X</u>	<u>E</u>
Drawing number		Device type (See 1.2.1)	Case outline (See 1.2.2)	Lead finish (See 1.2.3)

1.2.1 Device type(s).

<u>Device type</u>	<u>Generic</u>	<u>Circuit function</u>
01	AD8479-EP	High input common mode voltage, precision difference amplifier

1.2.2 Case outline(s). The case outline(s) are as specified herein.

<u>Outline letter</u>	<u>Number of pins</u>	<u>JEDEC PUB 95</u>	<u>Package style</u>
X	8	MS-012-AA	Small outline package

1.2.3 Lead finishes. The lead finishes are as specified below or other lead finishes as provided by the device manufacturer:

<u>Finish designator</u>	<u>Material</u>
A	Hot solder dip
B	Tin-lead plate
C	Gold plate
D	Palladium
E	Gold flash palladium
F	Tin-lead alloy (BGA/CGA)
Z	Other

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 2

1.3 Absolute maximum ratings. 1/

Supply voltage range (VS)	±18 V
Input voltage range (VIN):	
Continuous	±600 V
Common mode and differential, 10 seconds	±900 V
Output short circuit duration	Indefinite
Negative reference voltage input REF(-) and positive reference voltage input REF(+)	-VS – 0.3 V to +VS + 0.3 V
Maximum junction temperature (TJ)	150°C
Storage temperature range (TSTG)	-65°C to +150°C
Lead temperature (soldering, 60 seconds)	300°C
Thermal resistance, junction to case (θJC)	87°C/W <u>2/</u>
Thermal resistance, junction to ambient (θJA)	122°C/W <u>3/</u>

1.4 Recommended operating conditions. 4/

Supply voltage range (VS)	±15 V
Operating temperature range (TA)	-55°C to +125°C

1/ Stresses beyond those listed under “absolute maximum rating” 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 under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

2/ Thermal impedance simulated values are based on a JEDEC 1S0P thermal board test. See JEDEC JESD-51.

3/ Thermal impedance simulated values are based on a JEDEC 2S2P thermal board test. See JEDEC JESD-51.

4/ Use of this product beyond the manufacturers design rules or stated parameters is done at the user’s risk. The manufacturer and/or distributor maintain no responsibility or liability for product used beyond the stated limits.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 3

2. APPLICABLE DOCUMENTS

JEDEC Solid State Technology Association

JEDEC JESD51 – Methodology for the Thermal Measurement of Component Packages (Single Semiconductor Device)
JEDEC PUB 95 – Registered and Standard Outlines for Semiconductor Devices

(Copies of these documents are available online at <https://www.jedec.org>.)

3. REQUIREMENTS

3.1 Marking. Parts shall be permanently and legibly marked with the manufacturer's part number as shown in 6.3 herein and as follows:

- A. Manufacturer's name, CAGE code, or logo
- B. Pin 1 identifier
- C. ESDS identification (optional)

3.2 Unit container. The unit container shall be marked with the manufacturer's part number and with items A and C (if applicable) above.

3.3 Electrical characteristics. The maximum and recommended operating conditions and electrical performance characteristics are as specified in 1.3, 1.4, and table I herein.

3.4 Design, construction, and physical dimension. The design, construction, and physical dimensions are as specified herein.

3.5 Diagrams.

3.5.1 Case outline. The case outline shall be as shown in 1.2.2 and figure 1.

3.5.2 Terminal connections. The terminal connections shall be as shown in figure 2.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 4

TABLE I. Electrical performance characteristics. 1/

Test	Symbol	Conditions <u>2/</u>	Temperature, T _A	Device type	Limits		Unit
					Min	Max	
Gain V _{OUT} = ±10 V, R _L = 2 kΩ							
Nominal gain	G		+25°C	01	1 typical		V/V
Gain error	GE		+25°C	01	0.01 typical		%
						0.02	
Gain nonlinearity	GNL		+25°C	01	4 typical		ppm
						10	
Gain drift	GD		-55°C to +125°C	01	3 typical		ppm / °C
						5	
Offset voltage							
Offset voltage	V _{OS}	V _S = ±15 V	+25°C	01	0.5 typical		mV
						3	
		V _S = ±5 V			0.5 typical		
						3	
Offset voltage drift	ΔV _{OS}		-55°C to +125°C	01	3 typical		μV/°C
						15	
Power supply rejection ratio	PSRR	V _S = ±2.5 V to ±15 V	+25°C	01	100 typical		dB
					84		
Input							
Common mode rejection ratio	CMRR	V _{CM} = ±600 V dc	+25°C	01	90 typical		dB
					80		
			-55°C to +125°C		80		
		V _{CM} = 1200 V _{p-p} , dc to 12 kHz	+25°C		80		
Operating voltage range	V _S	Common mode	+25°C	01		±600	V
		Differential				±14.7	

See footnotes at end of table.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 5

TABLE I. Electrical performance characteristics – Continued. 1/

Test	Symbol	Conditions <u>2/</u>	Temperature, T _A	Device type	Limits		Unit
					Min	Max	
Input – continued.							
Input operating impedance	Z _{IN}	Common mode	+25°C	01	500 typical		kΩ
		Differential			2 typical		MΩ
Output							
Output voltage swing	I _{OUT}	R _L = 2 kΩ	+25°C	01	-V _S + 0.3	+V _S – 0.3	V
Output short circuit current	I _{OS}		+25°C	01	±55 typical		mA
Capacitive load	C _L	Stable operation	+25°C	01	500 typical		pF
Dynamic response							
Small signal -3 dB bandwidth	SSBW		+25°C	01	130 typical		kHz
Slew rate	SR		+25°C	01	9 typical		V/μs
						9.3	
Full power bandwidth	FPBW	V _{OUT} = 20 V _{p-p}	+25°C	01	100 typical		kHz
Settling time	t _s	0.01%, V _{OUT} = 10 V step	+25°C	01	11 typical		μs
		0.001%, V _{CM} = 10 V step			15.4 typical		
Output voltage noise							
0.01 Hz to 10 Hz	N		+25°C	01	30 typical		μV _{p-p}
						35	
Noise spectral density	NSD	Frequency ≥ 100 Hz	+25°C	01	1.6 typical		μV / √Hz

See footnotes at end of table.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 6

TABLE I. Electrical performance characteristics – Continued. 1/

Test	Symbol	Conditions <u>2/</u>	Temperature, T _A	Device type	Limits		Unit
					Min	Max	
Power supply							
Operating voltage range	V _S		+25°C	01	±2.5	±18	V
Supply current	I _S	V _{OUT} = 0 V	+25°C	01	550 typical		μA
						650	
			-55°C to +125°C		850 typical		
Temperature							
Operating range (T _{MIN} to T _{MAX})	T _A			01	-55	+125	°C

1/ Testing and other quality control techniques are used to the extent deemed necessary to assure product performance over the specified temperature range. Product may not necessarily be tested across the full temperature range and all parameters may not necessarily be tested. In the absence of specific parametric testing, product performance is assured by characterization and/or design.

2/ Unless otherwise specified, supply voltage (V_S) = ±15 V, REF(-) = REF(+) = 0 V, load resistance (R_L) = 2 kΩ, and T_A = +25°C.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 7

Case X

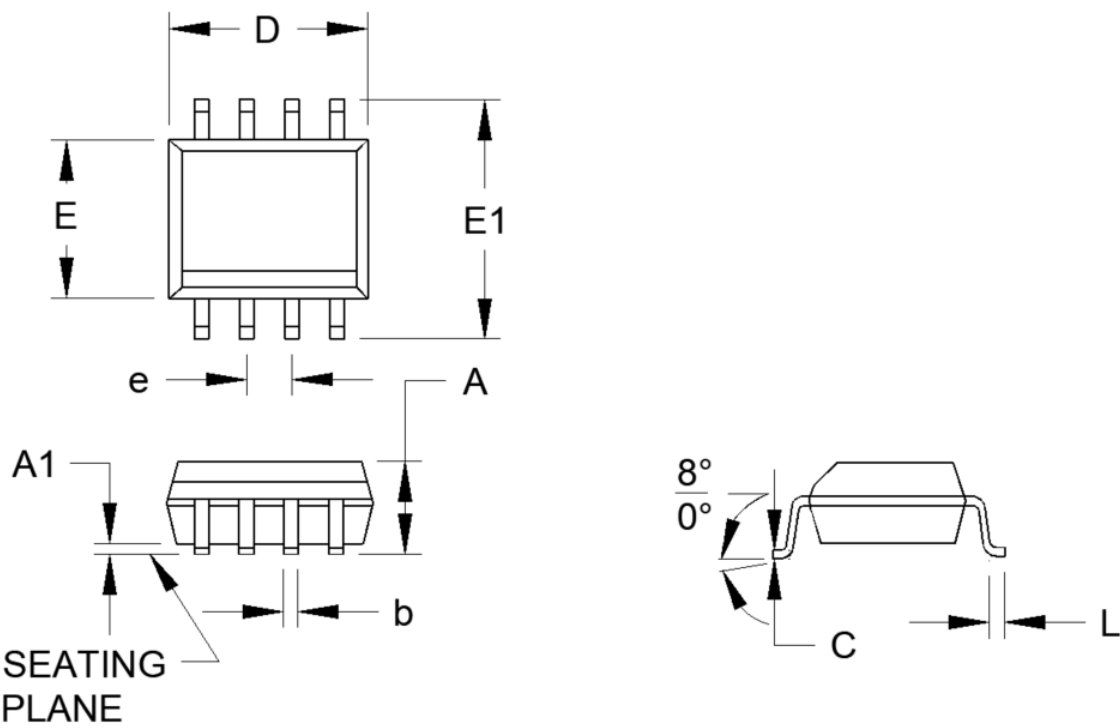


FIGURE 1. Case outline.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 8

Case X - continued

Symbol	Dimensions			
	Inches		Millimeters	
	Minimum	Maximum	Minimum	Maximum
A	.0532	.0688	1.35	1.75
A1	.0040	.0098	0.10	0.25
b	.0122	.0201	0.31	0.51
C	.0067	.0098	0.17	0.25
D	.1890	.1968	4.80	5.00
E	.1497	.1574	3.80	4.00
E1	.2284	.2441	5.80	6.20
e	.0500 BSC		1.27 BSC	
L	.0157	.0500	0.40	1.27

NOTES:

1. Controlling dimensions are millimeter, inch dimensions are given for reference only.
2. Falls within reference to JEDEC MS-012-AA.

FIGURE 1. Case outline - Continued.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 9

Device type	01	
Case outline	X	
Terminal number	Terminal symbol	Description
1	REF(-)	Negative reference voltage input.
2	-IN	Inverting input.
3	+IN	Noninverting input.
4	-VS	Negative supply voltage
5	REF(+)	Positive reference voltage input.
6	OUTPUT	Output.
7	+VS	Positive supply voltage.
8	NC	No connect. Do not connect to this pin.

FIGURE 2. Terminal connections.

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 10

4. VERIFICATION

4.1 Product assurance requirements. The manufacturer is responsible for performing all inspection and test requirements as indicated in their internal documentation. Such procedures should include proper handling of electrostatic sensitive devices, classification, packaging, and labeling of moisture sensitive devices, as applicable.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Preservation, packaging, labeling, and marking shall be in accordance with the manufacturer's standard commercial practices for electrostatic discharge sensitive devices.

6. NOTES

6.1 ESDS. Devices are electrostatic discharge sensitive and are classified as ESDS class 1 minimum.

6.2 Configuration control. The data contained herein is based on the salient characteristics of the device manufacturer's data book. The device manufacturer reserves the right to make changes without notice. This drawing will be modified as changes are provided.

6.3 Suggested source(s) of supply. Identification of the suggested source(s) of supply herein is not to be construed as a guarantee of present or continued availability as a source of supply for the item. DLA Land and Maritime maintains an online database of all current sources of supply at <https://landandmaritimeapps.dla.mil/programs/smcr/>.

Vendor item drawing administrative control number <u>1/</u>	Device manufacturer CAGE code	Mode of transportation and quantity	Top side marking	Vendor part number
V62/19619-01XE	24355	Tube, 98 units	DNK	AD8479TRZ-EP
		Reel, 2500 units	DNK	AD8479TRZ-EP-R7

1/ The vendor item drawing establishes an administrative control number for identifying the item on the engineering documentation.

CAGE code

24355

Source of supply

Analog Devices
Route 1 Industrial Park
P.O. Box 9106
Norwood, MA 02062
Point of contact: 20 Alpha Road
Chelmsford, MA 01824-4123

DLA LAND AND MARITIME COLUMBUS, OHIO	SIZE A	CODE IDENT NO. 16236	DWG NO. V62/19619
		REV	PAGE 11