REVISIONS			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
A	Delete A1 dimension COPLANARITY limits from Figure 1. Update document paragraphs to current requirements. - ro	23-10-18	J. ESCHMEYER

Prepared in accordance with ASME Y14.24

Vendor Item Drawing

Revision Status of Sheets

REV																						
SHEET																						
REV	A	A	A	A	A	A	A	A	A													
SHEET	1	2	3	4	5	6	7	8	9													

PMIC N/A

Original date of drawing

YY-MM-DD
18-02-01

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TITLE
MICROCIRCUIT, LINEAR, ULTRACOMPACT, PRECISION 2.5 V VOLTAGE REFERENCE, MONOLITHIC SILICON

SIZE	CAGE CODE
A	16236

DWG NO. **V62/18604**

REV A

PAGE 1 OF 9

AMSC N/A

5962-V133-23

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

1. SCOPE

1.1 Scope. This drawing documents the general requirements of a high performance ultracompact, precision 2.5 V voltage reference 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:

V62/18604	-	01	X	E
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).

Device type	Generic	Circuit function
01	ADR03-EP	Ultracompact, precision 2.5 V voltage reference

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

Outline letter	Number of pins	JEDEC PUB 95	Package style
X	5	MO-203-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:

Finish designator	Material
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

1.3 Absolute maximum ratings. 1/

Supply voltage	15.0 V
Output short circuit duration to GND	Indefinite
Junction temperature range (T_J)	-65°C to +150°C
Storage temperature range (T_{STG})	-65°C to +150°C
Lead temperature (soldering, 60 seconds)	260°C
Thermal resistance, junction to ambient (θ_{JC})	203.7°C/W 2/
Thermal resistance, junction to ambient (θ_{JA})	266.4°C/W 2/

1.4 Recommended operating conditions. 3/

Input voltage range (V_{IN})	4.5 V to 15.0 V
Operating temperature range	-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/ Test condition 1: thermal impedance simulated values are based on JEDEC 2S2P thermal test board. See JEDEC JESD-51.

3/ 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.

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.

TABLE I. Electrical performance characteristics. 1/

Test	Symbol	Conditions V_{IN} = 4.5 V to 15.0 V, unless otherwise specified	Temperature, T_A	Device type	Limits		Unit
					Min	Max	
Output voltage	V_O		+25°C	01	2.495	2.505	V
					2.500	typical	
Initial accuracy	V_{OERR}		+25°C	01		5	mV
						0.2	%
Temperature coefficient	TCV_O		-55°C to +125°C	01		30	ppm / °C
					3	typical	
Dropout voltage	V_{DO}		+25°C	01	2		V
Line regulation	$\Delta V_O / \Delta V_{IN}$	V_{IN} = 4.5 V to 15.0 V	-55°C to +125°C	01		40	ppm / V
					7	typical	
Load regulation	$\Delta V_O / \Delta I_{LOAD}$	Load current (I_{LOAD}) = 0 mA to 10 mA, V_{IN} = 7.0 V	-55°C to +125°C	01		80	ppm / mA
					45	typical	
Quiescent current	I_{IN}	No load	-55°C to +125°C	01		1	mA
					0.65	typical	
Voltage noise	e_{Np-p}	0.1 Hz to 10.0 Hz	+25°C	01	6	typical	µVp-p
Voltage noise density	e_N	1 kHz	+25°C	01	230	typical	nV/$\sqrt{Hz}$
Turn on settling time	t_R		+25°C	01	4	typical	µs
Long term 2/ stability	ΔV_O	1000 hours	+25°C	01	50	typical	ppm
Output voltage hysteresis	ΔV_{O_HYS}		+25°C	01	70	typical	ppm
			-55°C to +125°C		80	typical	
Ripple rejection ratio	RRR	Input frequency (f_{IN}) = 10 kHz	+25°C	01	-75	typical	dB
Short circuit to ground	I_{SC}		+25°C	01	30	typical	mA

See footnotes at end of table.

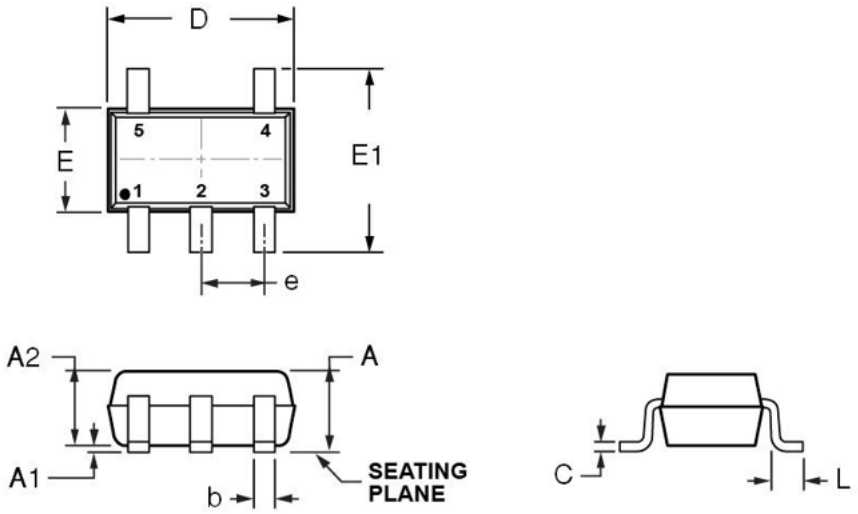
TABLE I. Electrical performance characteristics – Continued. 1/

Test	Symbol	Conditions	Temperature, T_A	Device type	Limits		Unit
					Min	Max	
Temperature sensor							
Voltage output at TEMP pin	V_{TEMP}		+25°C	01	550 typical		mV
Temperature sensitivity	TCV_{TEMP}		+25°C	01	1.96 typical		mV / °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/ The long term stability specification is noncumulative. The drift in subsequent 1000 hour periods is significantly lower than in the first 1000 hour periods.

Case X



Symbol	Dimensions					
	Inches			Millimeters		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
A	.0314	---	.0433	0.80	---	1.10
A1	---	---	.0039	---	---	0.10
A2	.0275	.0354	.0393	0.70	0.90	1.00
b	.0059	---	.0118	0.15	---	0.30
c	.0031	---	.0086	0.08	---	0.22
D	.0708	.0787	.0866	1.80	2.00	2.20
E	.0452	.0492	.0531	1.15	1.25	1.35
E1	.0708	.0826	.0944	1.80	2.10	2.40
e	.0255 BSC			0.65 BSC		
L	.0102	.0141	.0181	0.26	0.36	0.46

NOTES:
1. Controlling dimensions are millimeter, inch dimensions are given for reference only.
2. Falls within reference to JEDEC MO-203-AA.

FIGURE 1. Case outline.

Device type	01	
Case outline	X	
Terminal number	Terminal symbol	Description
1	TEMP	Temperature sensing and approximation.
2	GND	Ground.
3	V_{IN}	Input voltage.
4	V_{OUT}	Output voltage.
5	TRIM	Adjustment of the output voltage.

FIGURE 2. Terminal connections.

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 1/	Device manufacturer CAGE code	Mode of transportation and quantity	Vendor part number
V62/18604-01XE	24355	Reel, 3,000 units	ADR03TKSZ-EP-R7

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

CAGE code	Source of supply
24355	Analog Devices Route 1 Industrial Park P.O. Box 9106 Norwood, MA 02062 Point of contact: 20 Alpha Road Chelmsford, MA 01824-4123