ZXRE4041

SOT23 MICROPOWER 1.225V VOLTAGE REFERENCE

Description

The ZXRE4041 is a bandgap circuit designed to achieve a precision micropower voltage reference of 1.225 volts. The device is available in the small outline SOT23 surface mount package which is ideal for applications where space saving is important.

SOT23 tolerance is available to 0.5% C grade for precision applications. Excellent performance is maintained over the 30 A to 12mA operating current range with a typical temperature coefficient of only 20ppm/℃. The device has been designed to be highly tolerant of capacitive loads so maintaining excellent stability.

This device offers a SOT23 pin for pin compatible alternative to LM4041 voltage references.

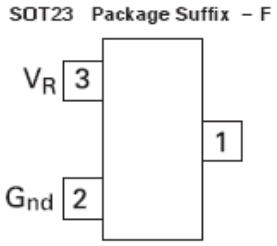
Features

- High performance alternative to LM4041
- Small outline SOT23
- 30μA knee current
- 20ppm/℃ typical temperature coefficient
- Unconditionally stable
- 0.5%, 1%, and 2% tolerance
- Green molding compound (No Br, Sb)

Applications

- Battery powered equipment
- Precision power supplies
- Portable instrumentation
- Portable communication devices
- Notebook and palm top computers
- Data acquisition systems
- A/D and D/A converters
- Test equipment

Pin Assignments



(Top view)

Pin 1 floating or connected to pin 2

Schematic Diagram

Application Circuit

Absolute Maximum Ratings (Voltages to GND Unless Otherwise Stated)

Parameter	Symbol	Rating	Unit
Reverse Current	V_Z	30	mA
Forward Current		10	mA
Operating Temperature	T_{OMP}	-40 to 125	℃
Storage Temperature	T_{STG}	-55 to 125	℃
Power Dissipation (T_{AMB} = 25℃)	P_D	330	mW

Electrical Characteristics (Test conditions: T_{amb} = 25℃, unless otherwise specified.)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Tol. (%)	Unit
V_R	Reverse breakdown voltage	I_R = 100µA	1.219 1.213	1.225 1.225	1.231 1.237	C/0.5 D/1	V
I_{MIN}	Minimum operating current				30		µA
I_R	Recommended operating current		0.03		12		mA
T_C(*)	Average reverse breakdown voltage temperature coefficient	$I_{R(min)}$ to $I_{R(max)}$		20	100		ppm/℃
R_S(†)	Reverse Breakdown Change with Current Voltage	I_R = 30µA to 1µA I_R = 1mA to 12mA			1 10		mV
Z_R	Reverse dynamic impedance	I_R = 1mA f = 100Hz $I_{AC} = 0.1I_R$		0.2	0.6		Ω
E_N	Wideband noise voltage	I_R = 8µA to 100µA f = 10Hz to 10kHz		60			µV(rms)

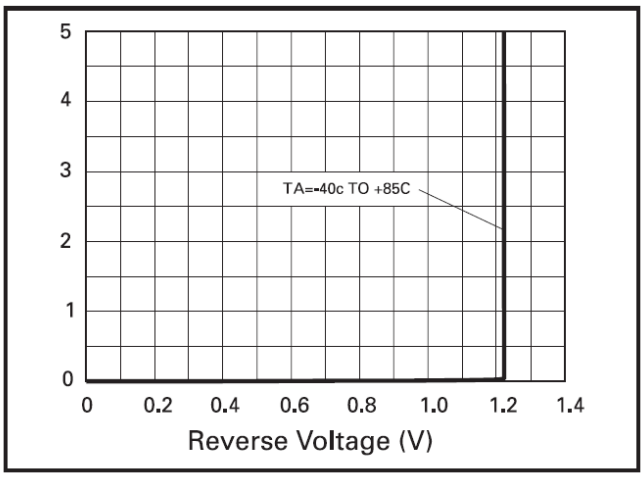
Notes:

(*) $$T_C = \frac{(V_{R(MAX)} - V_{R(MIN)}) \times 1000000}{V_R \times (T_{(MAX)} - T_{(MIN)})}$$

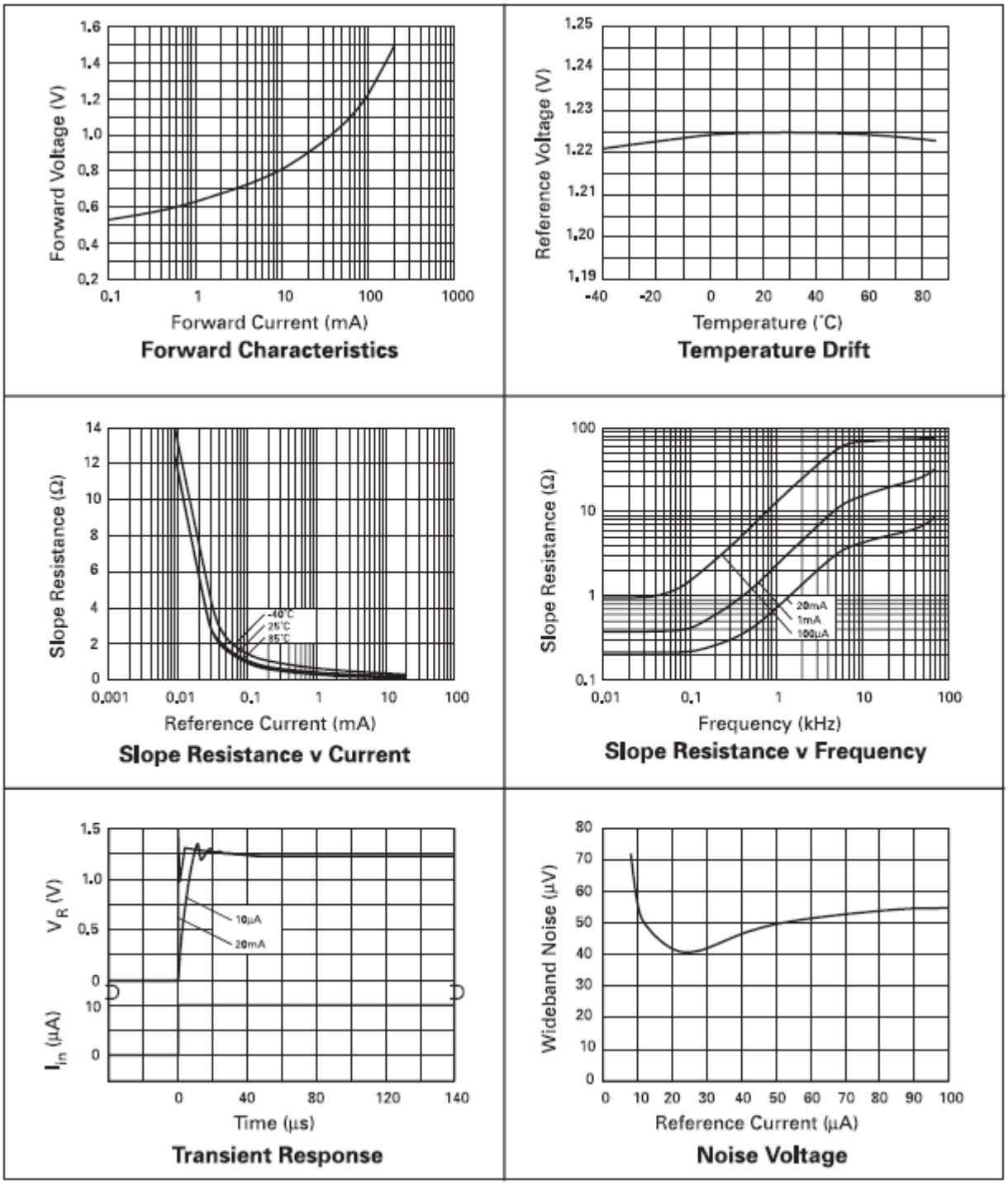
Note: $V_{R(MAX)}$ - $V_{R(MIN)}$ is the maximum deviation in reference voltage measured over the full operating temperature range.

(†) $$R_S = \frac{\Delta V_R}{\Delta I_R}$$

REVERSE CHARACTERISTICS



Typical Characteristics

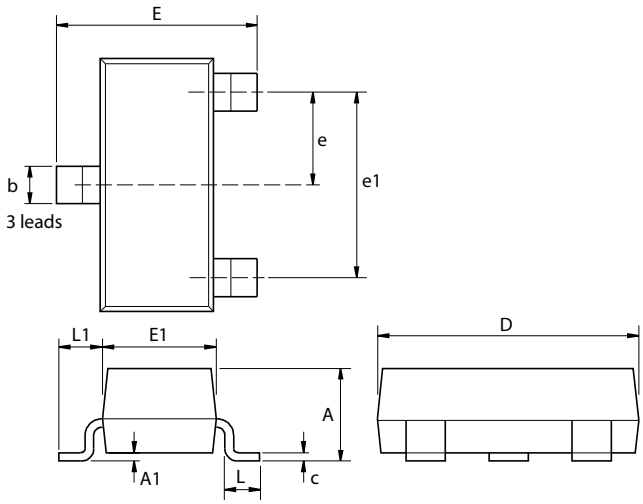


Ordering Information*

Order Reference	Tol (%)	Device Mark	Grade	Status (*)	Reel Size (inches)	Quantity per reel	Tape Width (mm)
ZXRE4041CF	0.5	10J	C	Released	7	3000	8
ZXRE4041DF	1	10H	D	Released	7	3000	8

Notes: *All E-LINE variants of ZXRE4041 are obsolete and no longer available for sale. The closet alternative is the SOT23

Package Outline SOT23



Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.12	-	0.044	e1	1.90 NOM		0.075 NOM	
A1	0.01	0.10	0.0004	0.004	E	2.10	2.64	0.083	0.104
b	0.30	0.50	0.012	0.020	E1	1.20	1.40	0.047	0.055
c	0.085	0.20	0.003	0.008	L	0.25	0.60	0.0098	0.0236
D	2.80	3.04	0.110	0.120	L1	0.45	0.62	0.018	0.024
e	0.95 NOM		0.037 NOM		-	-	-	-	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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