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 30µA to 12mA operating current range with a typical temperature coefficient of only 20ppm/°C. 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. SO8 and E-Line (TO92 style) packages can also be made available.

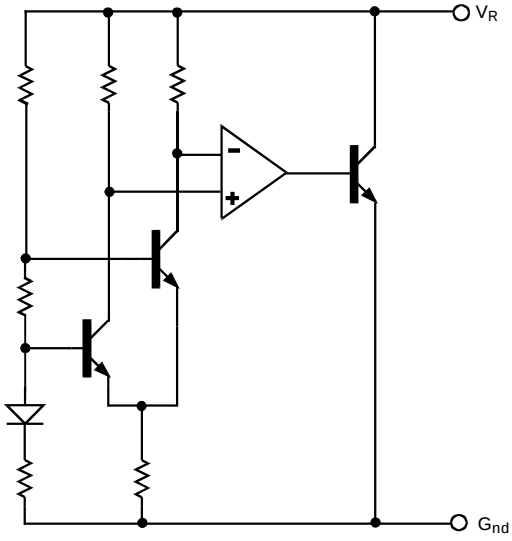
FEATURES

- High performance alternative to LM4041
- Small outline SOT23
- SO8 and E-Line alternatives available
- 30µA knee current
- 20ppm/°C typical temperature coefficient
- Unconditionally stable
- 0.5%, 1%, 2% and 3% tolerance
- Contact Zetex marketing for availability of tighter tolerance devices

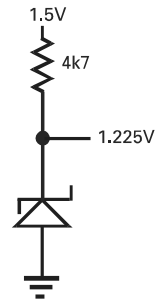
APPLICATIONS

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

SCHEMATIC DIAGRAM



APPLICATIONS CIRCUIT



Low quiescent reference from a 1.5V battery source.

ABSOLUTE MAXIMUM RATINGS

Reverse Current	30mA
Forward Current	10mA
Operating temperature.	-40 to 85°C
Storage temperature.	-55 to 125°C

Power Dissipation (T_{amb}=25°C)

SOT23	330mW
SO8	625mW
E-Line	500mW

ELECTRICAL CHARACTERISTICS

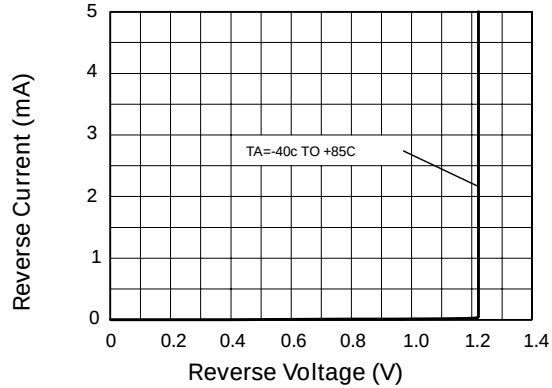
TEST CONDITIONS (Unless otherwise stated) T_{amb}=25°C

SYMBOL	PARAMETER	CONDITIONS	LIMITS			GRADE	UNITS
			MIN	TYP	MAX		
V_R	Reverse Breakdown Voltage	I_R=100µA	1.214 1.208 1.196 1.183	1.225 1.225 1.225 1.225	1.226 1.232 1.244 1.257	C ‡ D E F	V
I_{MIN}	Minimum Knee Current				30		µA
I_R	Recommended Operating Current Range		0.03		12		mA
T_C †	Average Reverse Breakdown Voltage Temperature Coefficient	$I_{R(min)}$ to $I_{R(max)}$		20	75		ppm/°C
$\frac{\Delta V_R}{\Delta I_R}$	Reverse Breakdown Voltage change with Current	I_R=30µA to 1mA I_R=1mA to 12mA			1 10		mV mV
Z_R	Reverse Dynamic Impedance	I_R =1mA f =100Hz I_{AC}=0.1 I_R		0.2	0.6		Ω
E_N	Wideband Noise Voltage	I_R=8µA to 100µA f=10Hz to 10kHz		60			µV(rms)

† $T_C = \frac{(V_{R\,(max)} - V_{R\,(min)}) \times 1000000}{V_R \times (T_{(max)} - T_{(min)})}$

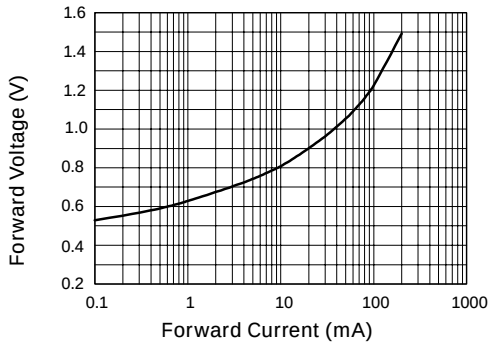
Note: $V_{R(max)}$ - $V_{R(min)}$ is the maximum deviation in reference voltage measured over the full operating temperature range.

‡ Note: C grade SOT23 only.

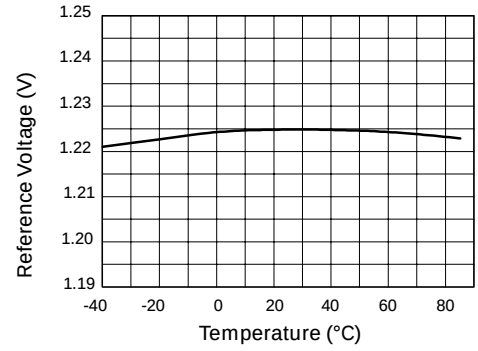


Reverse Characteristics

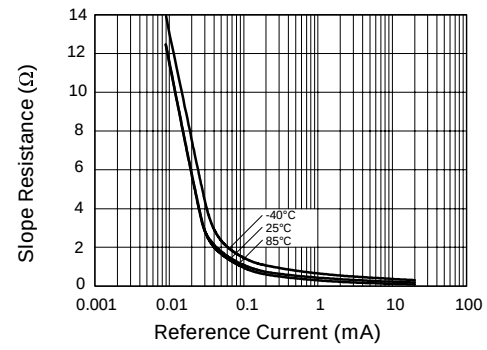
TYPICAL CHARACTERISTICS



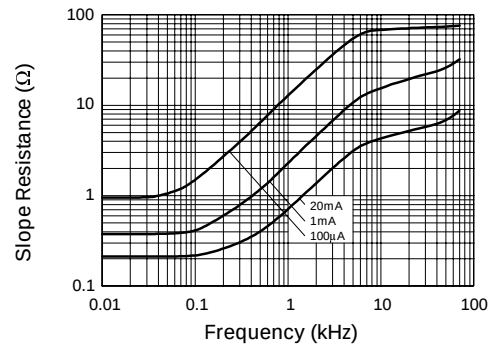
Forward Characteristics



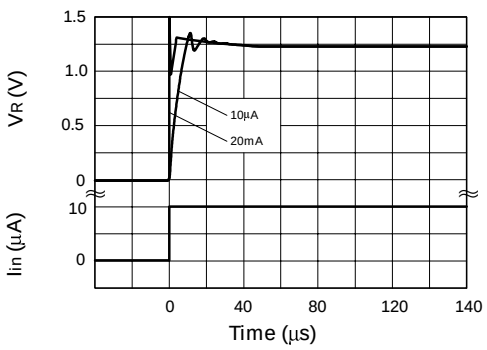
Temperature Drift



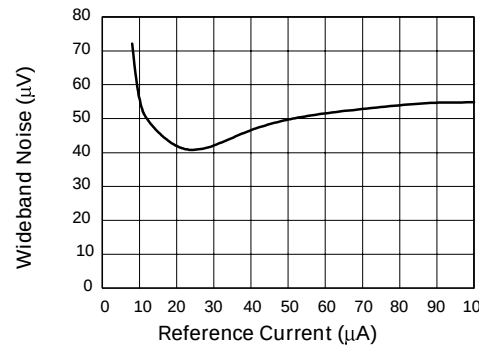
Slope Resistance v Current



Slope Resistance v Frequency



Transient Response



Noise Voltage

Ordering Information

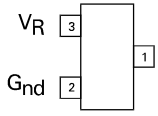
Device	TOL%	Grade	Package	Partmarking
ZXRE4041CF	0.5	C	SOT23	10J
ZXRE4041DF	1	D	SOT23	10H
ZXRE4041EF	2	E	SOT23	10G
ZXRE4041FF	3	F	SOT23	10F
ZXRE4041DN8 †	1	D	SO8	ZXRE4041D
ZXRE4041EN8 †	2	E	SO8	ZXRE4041E
ZXRE4041FN8 †	3	F	SO8	ZXRE4041F
ZXRE4041DR †	1	D	E-Line	ZXRE4041D
ZXRE4041ER †	2	E	E-Line	ZXRE4041E
ZXRE4041FR †	3	F	E-Line	ZXRE4041F

†Contact Zetex marketing for availability of these package options

NOTE:
for tape and reel options add suffix TA to the part number
eg ZXRE4041DFTA

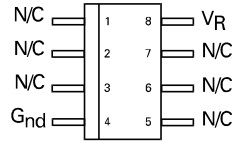
Connection Diagrams

SOT23
Package Suffix – F



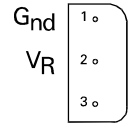
Top View –
Pin 1 floating or
connected to pin 2

SO8
Package Suffix – N8



Top View

E-Line, 3 pin,Rev
Package Suffix – R



Bottom View –
Pin 3 floating or
connected to pin 1

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