SOT23 MICROPOWER 1.225V VOLTAGE REFERENCE

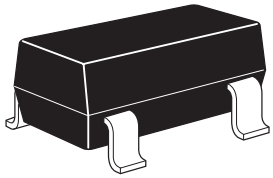
SUMMARY

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.



SOT23

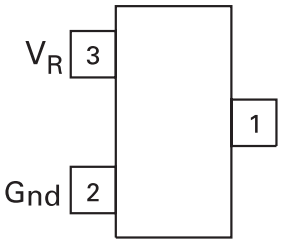
FEATURES

- High performance alternative to LM4041
- Small outline SOT23
- 30μA knee current
- 20ppm/°C typical temperature coefficient
- Unconditionally stable
- 0.5%, 1%, 2% and 3% tolerance

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

SOT23
Package Suffix - F



Top view -
Pin 1 floating or connected to pin 2

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

NOTE:
For tape and reel options add suffix TA to part number - e.g. ZXRE4041DFTA

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ZETEX SEMICONDUCTORS

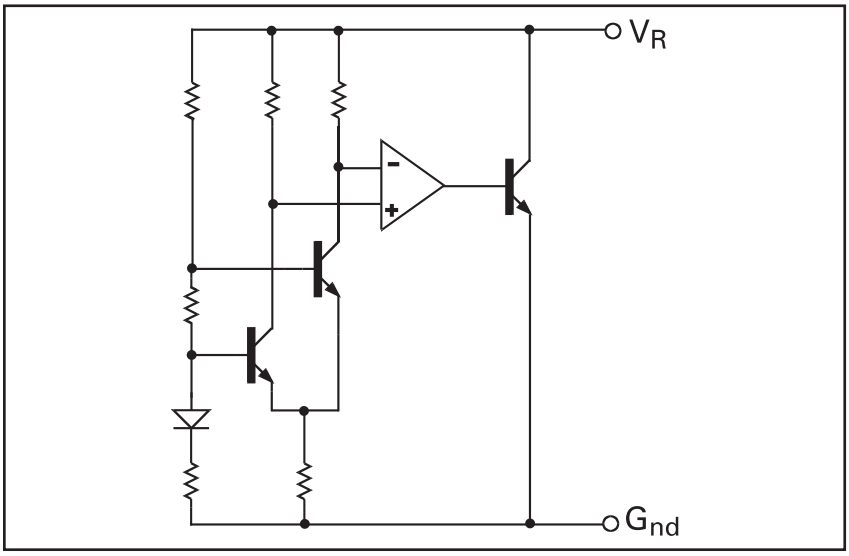
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Reverse current	V_Z	30	mA
Forward current		10	mA
Operating temperature	T_{OMP}	-40 to 125	°C
Storage temperature	T_{STG}	-55 to 125	°C

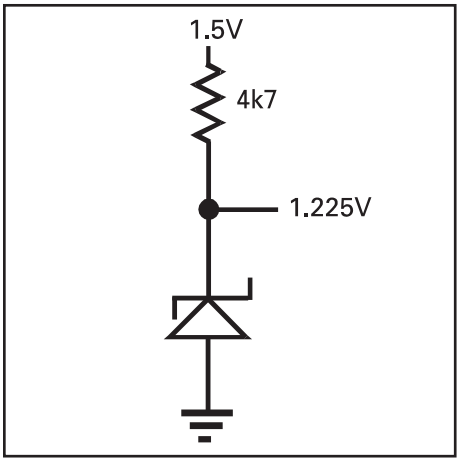
POWER DISSIPATION (at T_{amb} = 25°C, T_{jmax} = 25°C)

PACKAGE	VALUE	UNIT
SOT23	330	mW

SCHEMATIC DIAGRAM



APPLICATIONS CIRCUIT



ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

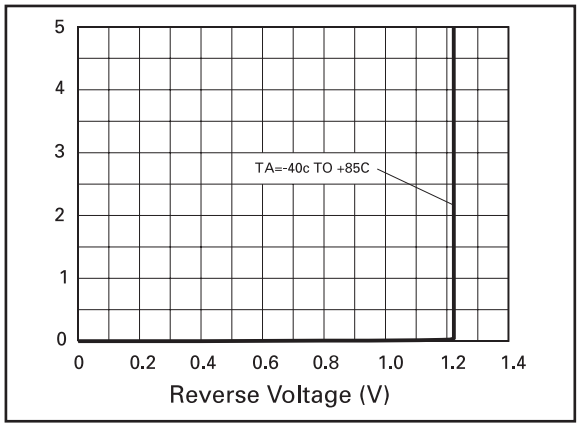
PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	GRADE/ TOL%	UNITS
Reverse Breakdown Voltage	V_R	I_R = 100μA	1.219	1.225	1.231	C/0.5	V
			1.213	1.225	1.237	D/1	V
			1.200	1.225	1.250	E/2	V
			1.189	1.225	1.261	F/3	V
Minimum Knee Current	I_{MIN}				30		μA
Recommended Operating Current Range	I_R		0.03		12		mA
Average Reverse Breakdown Voltage Temperature Coefficient	T_C (1)	$I_{R(min)}$ to $I_{R(max)}$		20	100		ppm/°C
Reverse Breakdown Change with Current Voltage	$\frac{\Delta V_R}{\Delta I_R}$	I_R = 30μA to 1 μA			1		mV
		I_R = 1mA to 12mA			10		mV
Reverse Dynamic Impedance	Z_R	I_R = 1mA f = 100Hz $I_{AC} = 0.1I_R$		0.2	0.6		Ω
Wideband Noise Voltage	E_N	IR = 8μA to 100μA f = 10Hz to 10kHz		60			μV(rms)

NOTE:

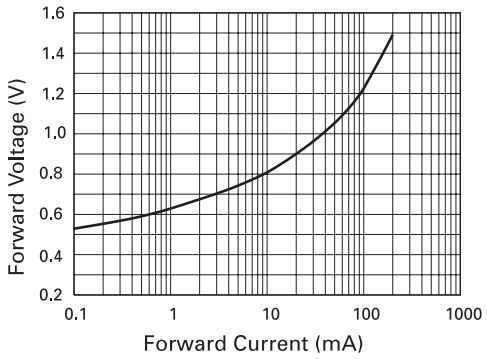
(1) $T_C = \frac{(V_{R\,(max)} - V_{R\,(min)})\,x1000000}{V_R\,x(T_{(max)} - T_{(min)})}$

VR(max) - VR(min) is the maximum deviation in reference voltage measured from -40°C to 85°C.

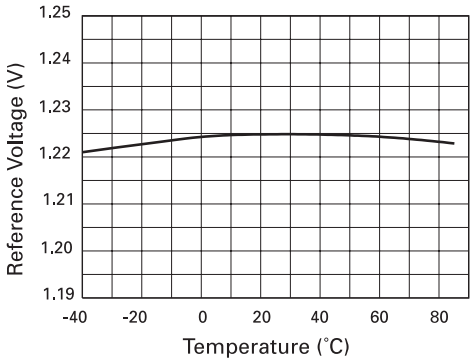
REVERSE CHARACTERISTICS



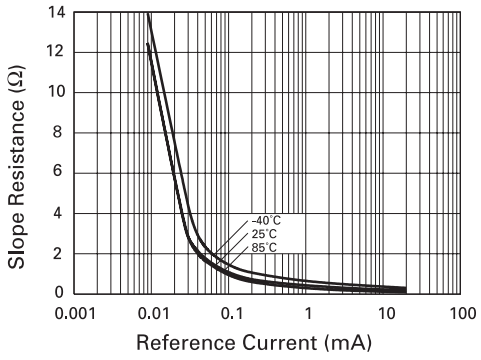
TYPICAL CHARACTERISTICS



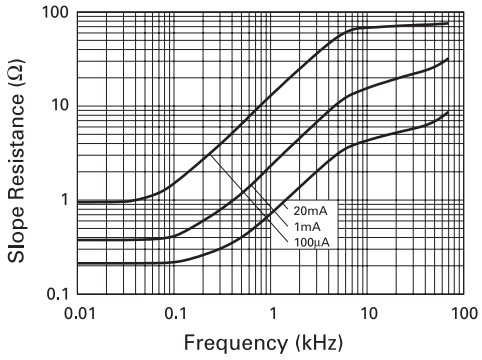
Forward Characteristics



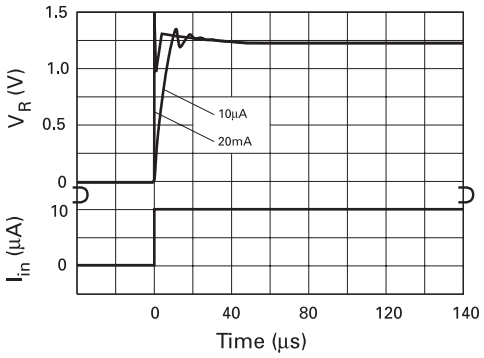
Temperature Drift



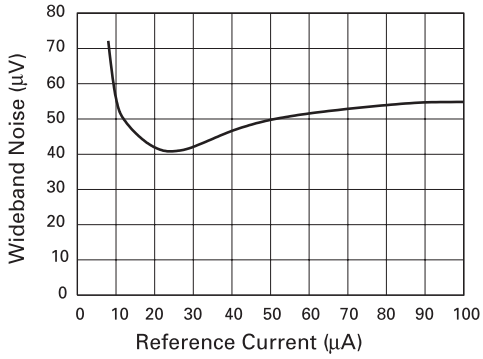
Slope Resistance v Current



Slope Resistance v Frequency



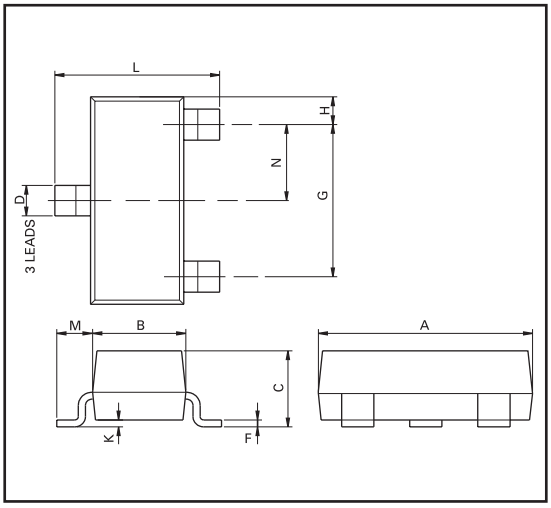
Transient Response



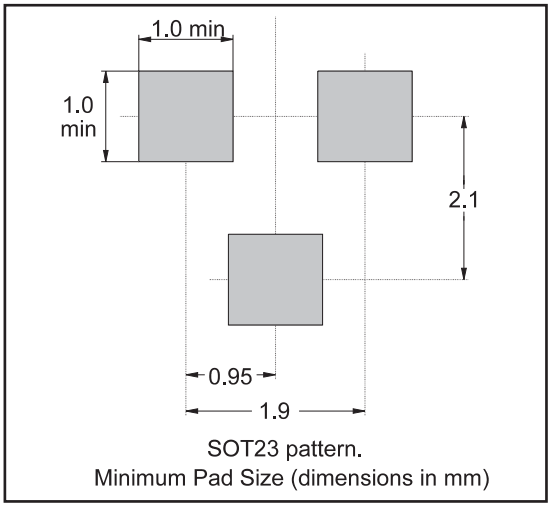
Noise Voltage

ZXRE4041

PACKAGE OUTLINE



PAD LAYOUT



Controlling dimensions are in millimetres. Approximate conversions are given in inches

PACKAGE DIMENSIONS

DIM	Millimetres		Inches		DIM	Millimetres		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	2.67	3.05	0.105	0.120	G	NOM 1.9		NOM 0.037	
B	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
C	–	1.10	–	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.0145	0.021	N	NOM 0.95		NOM 0.037	
F	0.085	0.15	0.0033	0.0059					

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