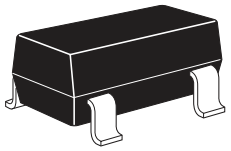
SOT23 MICROPOWER 1.22V VOLTAGE REFERENCE

SUMMARY



SOT23

E-line

DESCRIPTION

The ZXRE125 is a bandgap circuit designed to achieve a precision micropower voltage reference of 1.22 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% for precision applications. Excellent performance is maintained over the 8μA to 20mA 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 replacement of the ZRA124 and ZRA125 series of voltage references. An E-Line (TO92 style) package is also available.

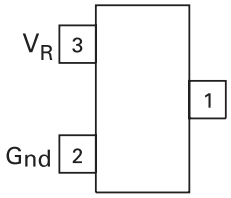
FEATURES

- High performance 1.220V reference
- 0.5%, 1%, 2% and 3% tolerance
- 4μA knee current
- 20ppm/°C typical temperature coefficient
- Unconditionally stable
- Small outline SOT23

APPLICATIONS

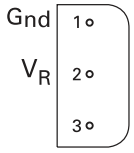
- Battery powered equipment
- Precision power supplies
- Portable instrumentation
- Portable communications devices
- Data acquisition systems

SOT23
Package Suffix - F



Top view -
Pin 1 floating or connected to pin 2

E-line
Package Suffix - R



Bottom view -
Pin 3 floating or connected to pin 1

ORDERING INFORMATION

DEVICE	TOL%	GRADE	PACKAGE	PARTMARKING	REEL	QUANTITY PER REEL
ZXRE125CFTA	0.5	C	SOT23	12J	7”	3,000
ZXRE125DFTA	1	D	SOT23	12H	7”	3,000
ZXRE125EFTA	2	E	SOT23	12G	7”	3,000
ZXRE125FFTA	3	F	SOT23	12F	7”	3,000
ZXRE125DRSTOA	1		E-line	ZXRE125D	-	2,000
ZXRE125ERSTOA	2		E-line	ZXRE125E	-	2,000
ZXRE125FRSTOA	3		E-line	ZXRE125F	-	2,000

NOTE:
E-line parts available loose in boxes of 2,000 units, omit “STOA” from order code i.e. ZXRE125DR

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ZETEX SEMICONDUCTORS

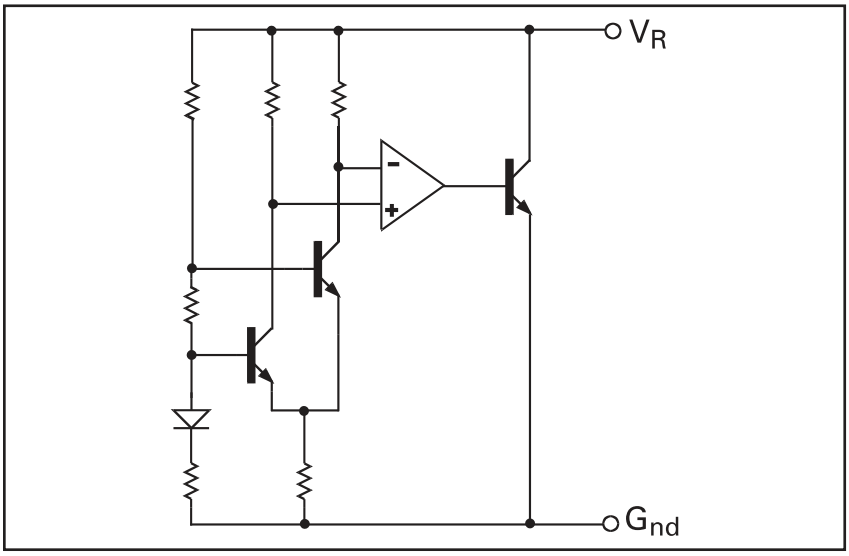
ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Reverse current	V_Z	30	mA
Forward current		10	mA
Operating temperature	T_{OMP}	-40 to 85	°C
Storage temperature	T_{STG}	-55 to 125	°C

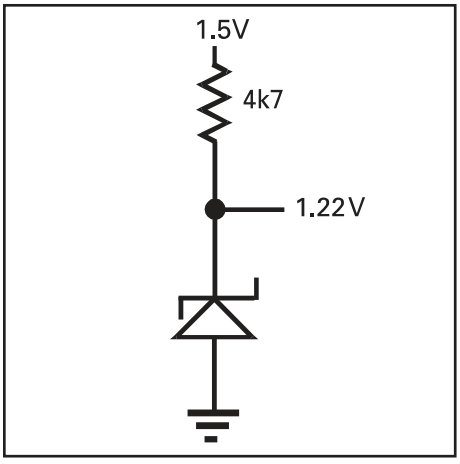
POWER DISSIPATION (at T_{amb} = 25°C, T_{jmax} = 25°C)

PACKAGE	VALUE	UNIT
SOT23	330	mW
E-line	500	mW

SCHEMATIC DIAGRAM



APPLICATIONS CIRCUIT



ZXRE125

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	1.214	1.220	1.226	C/0.5[1]	V
			1.208	1.220	1.232	D/1	V
			1.196	1.220	1.244	E/2	V
			1.183	1.220	1.257	F/3	V
Minimum Knee Current	I_{MIN}			4	8		µA
Recommended Operating Current Range	I_R		0.008		20		mA
Average Reverse Breakdown Voltage Temperature Coefficient	T_C [2]	$I_{R(min)}$ to $I_{R(max)}$		20	75		ppm/°C
Reverse Breakdown Change with Current Voltage	$\frac{\Delta V_R}{\Delta I_R}$	I_R = 30µA to 1 mA			1		mV
		I_R = 1mA to 5mA			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)

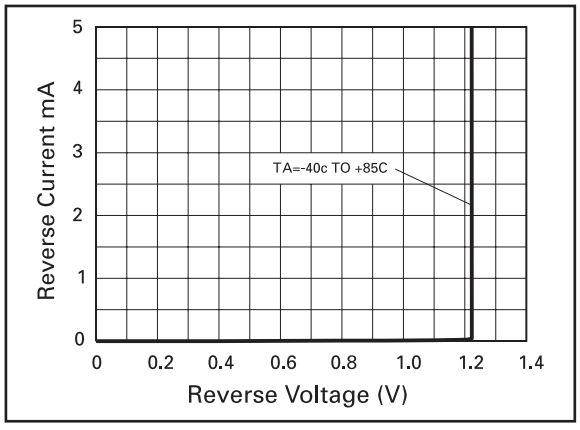
NOTE:

(1) 0.5% SOT23 only

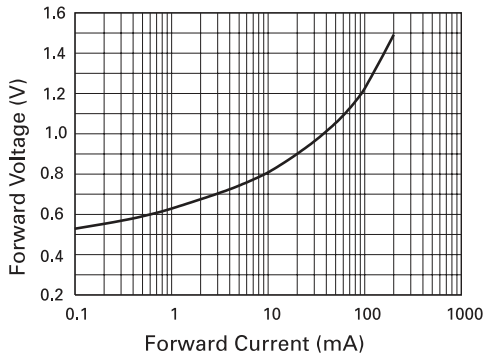
(2) $T_C = \frac{(V_{R(max)} - V_{R(min)}) x 1000000}{V_R x (T_{(max)} - T_{(min)})}$

VR(max) - VR(min) is the maximum deviation in reference voltage measured over the full operating temperature range

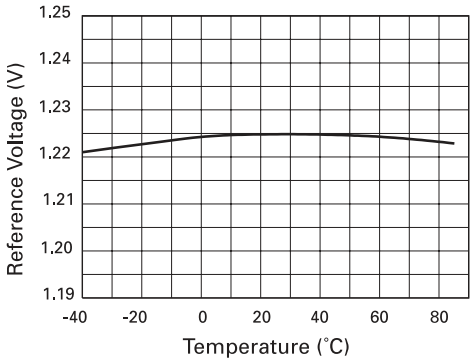
REVERSE CHARACTERISTICS



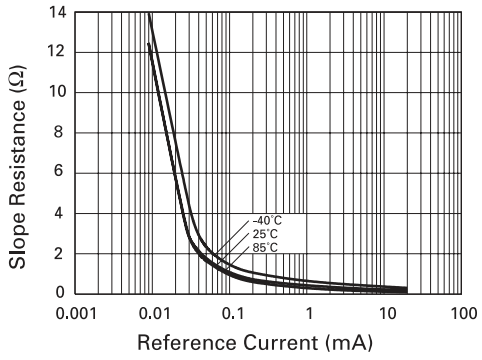
TYPICAL CHARACTERISTICS



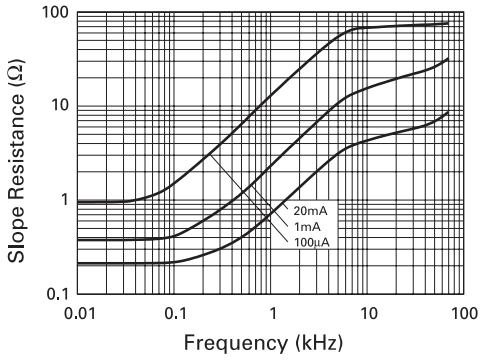
Forward Characteristics



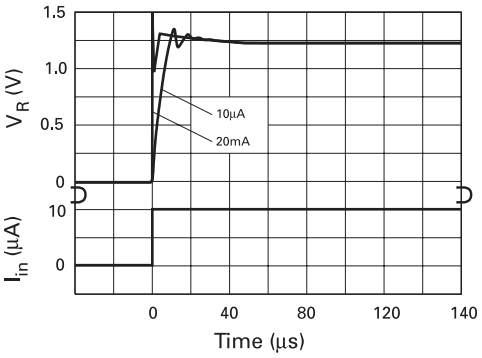
Temperature Drift



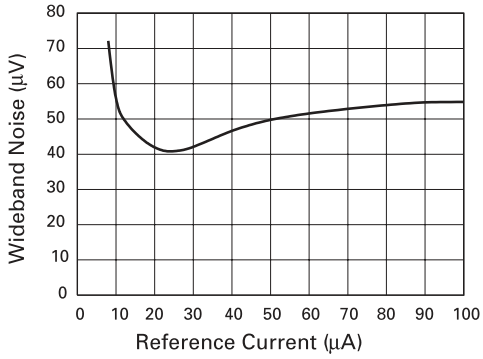
Slope Resistance v Current



Slope Resistance v Frequency



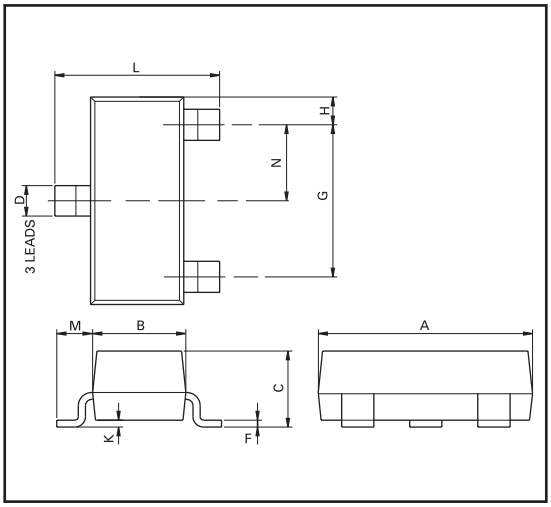
Transient Response



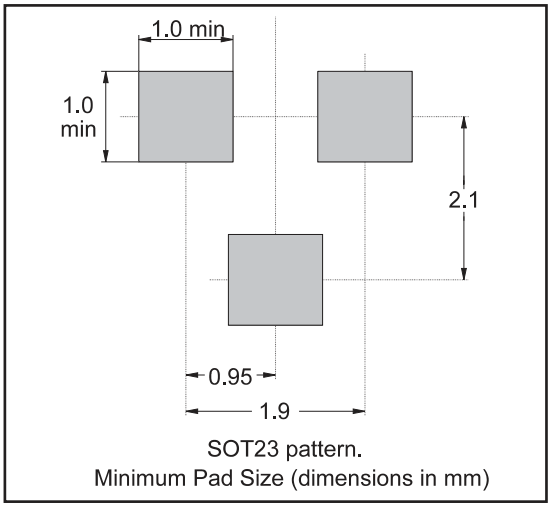
Noise Voltage

SOT23 PACKAGE OUTLINE AND PAD LAYOUT DETAILS

PACKAGE OUTLINE



PAD LAYOUT



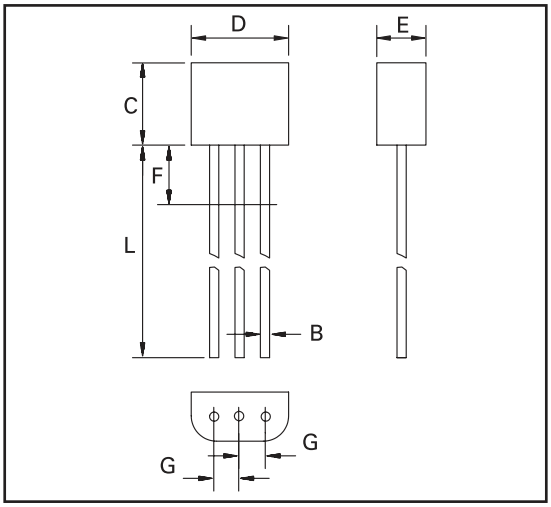
Controlling dimensions are in millimetres. Approximate conversions are given in inches

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					

E-LINE PACKAGE OUTLINE

PACKAGE OUTLINE



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

PACKAGE DIMENSIONS

DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	0.41	0.495	0.016	0.0195
B	0.41	0.495	0.016	0.0195
C	3.61	4.01	0.142	0.158
D	4.37	4.77	0.172	0.188
E	2.16	2.41	0.085	0.095
F	—	2.50	—	0.098
G	1.27 NOM		0.050 NOM	
L	13.00	13.97	0.512	0.550

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