PRECISION 1.24 VOLT MICROPOWER VOLTAGE REFERENCE

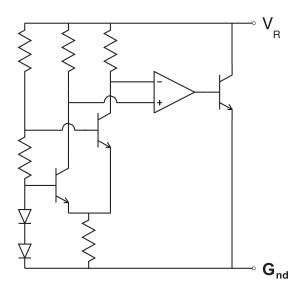
DEVICE DESCRIPTION

The ZRA124 uses a bandgap circuit design to achieve a precision micropower voltage reference of 1.24 volts. The device is available in a small outline surface mount packages, ideal for applications where space saving is important.

The ZRA124 design provides a stable voltage without an external capacitor and is stable with capacitive loads. The ZRA124 is recommended for operation between $50\mu A$ and 5mA and so is ideally suited to low power and battery powered applications.

Excellent performance is maintained to an absolute maximum of 25mA, however the rugged design and 20 volt processing allows the reference to withstand transient effects and currents up to 200mA. Superior switching capability allows the device to reach stable operating conditions in only a few microseconds.

SCHEMATIC DIAGRAM

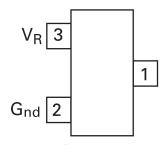


FEATURES

- Typical T_C 30ppm/°C
- Typical slope resistance 0.65Ω
- ± 1% tolerance
- Industrial temperature range
- $\bullet~$ Operating current $50\mu\text{A}$ to 5mA
- · No stabilising capacitor required
- Transient response, stable in less than 10μs
- Small SOT23 package

APPLICATIONS

- Battery powered and portable equipment
- · Metering and measurement systems
- Instrumentation
- Precision power supplies
- Test equipment
- · Data acquisition systems



TOP VIEW

Pin 1 floating or connected to pin 2

ORDERING INFORMATION

DEVICE	TOL %	REEL SIZE	TAPE WIDTH	REEL QUANTITY	PART MARK
ZRA124F01TA	1	7"	8mm	3,000	12C



ZRA124

ABSOLUTE MAXIMUM RATING

Power dissipation (Tamb = 25°C)

Reverse current 25mA

SOT23 330mW

Forward current 25mA

Operating temperature -40 to 85°C Storage temperature -55 to 125°C

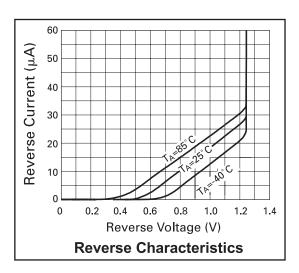
ELECTRICAL CHARACTERISTICS TEST CONDITIONS (Unless otherwise stated) T_{amb}=25°C

SYMBOL	PARAMETER	CONDITIONS	LIMITS		TOL %	UNITS	
			MIN.	TYP.	MAX.		
V _R	Reverse breakdown voltage	I _R = 150μA	1.228	1.24	1.252	1	V
I _{MIN}	Minimum operating current			30	50		μΑ
I _R	Recomended operating current		0.05		5		mA
T _C ⁽¹⁾	Average reverse breakdown voltage temp. co.	I _R (min) to I _R (max)		30	90		ppm/°C
R _S ⁽²⁾	Slope resistance			0.65	2		Ω
Z _R	Reverse dynamic impedance	I _R = 1mA f = 100Hz 1 _{AC} = 0.1IR		0.5	1		Ω
E _N	Wideband noise voltage	I _R = 150μA f = 100Hz to 10kHz		40			μV(rms)

NOTES:

(1)
$$T_{c} = \frac{V_{R} Change \ x \ 1000000}{V_{R} \ x Temperature Change}$$

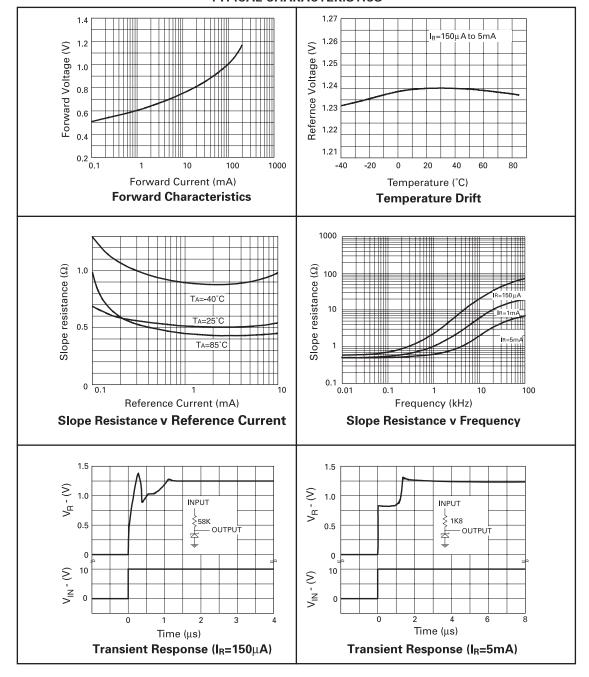
(2)
$$R_{\rm S} = \frac{V_{\rm R} \; Change \; (I_{\rm R}({\rm min}) \; to \; I_{\rm R}({\rm max}))}{I_{\rm R}({\rm max}) - I_{\rm R}({\rm min})}$$





ZRA124

TYPICAL CHARACTERISTICS

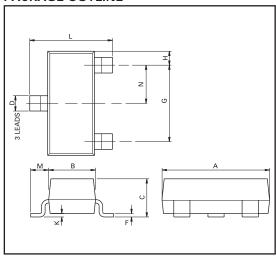


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ZRA124

PACKAGE OUTLINE



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

PACKAGE DIMENSIONS

	Millin	neters	Inc	hes	Millim		neters	Inches	
DIM	Min	Max	Min	Max	DIM	Min	Max	Max	Max
Α	2.67	3.05	0.105	0.120	Н	0.33	0.51	0.013	0.020
В	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
С	_	1.10	_	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.015	0.021	М	0.45	0.64	0.018	0.025
F	0.085	0.15	0.0034	0.0059	N	0.95 NOM		0.0375 NOM	
G	1.90	NOM	0.075	NOM		_		_	

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