
PRECISION 2.45 VOLT VOLTAGE REFERENCE

DEVICE DESCRIPTION

The ZRA245 uses a bandgap circuit design to achieve a precision voltage reference of 2.45 volts. The device is available in small outline surface mount packages, ideal for applications where space saving is important.

The ZRA245 design provides a stable voltage without an external capacitor and is stable with capacitive loads. The ZRA245 is recommended for operation between 2mA and 120mA.

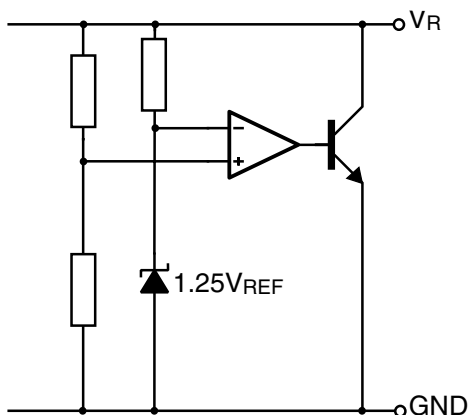
FEATURES

- Small outline SOT23, SO8 and TO92 style package
- No stabilising capacitor required
- Typical T_C 15ppm/°C
- Typical slope resistance 0.26Ω
- $\pm 3\%$, 2% and 1% tolerance
- Industrial temperature range
- Operating current 2mA to 120mA

APPLICATIONS

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

SCHEMATIC DIAGRAM



ZRA245

ABSOLUTE MAXIMUM RATING

Reverse Current	200mA	Power Dissipation (T_{amb}=25°C)	
Forward Current	25mA	SOT23	330mW
Operating Temperature	-40 to 85°C	E-Line, 3 pin (TO92)	500mW
Storage Temperature	-55 to 125°C	E-Line, 2 pin (TO92)	500mW
		SO8	625mW

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 =5mA	2.43 2.40 2.38	2.45 2.45 2.45	2.47 2.50 2.52	1 2 3	V
I _{MIN}	Minimum Operating Current				2		mA
I _R	Recommended Operating Current		2		120		mA
T _C †	Average Reverse Breakdown Voltage Temp. Co.	I _R (min) to I _R (max)		15	50		ppm/°C
R _S §	Slope Resistance			0.26	0.5		Ω
Z _R	Reverse Dynamic Impedance	I _R =5mA f =100Hz I _{AC} =0.1 I _R		0.28	1		Ω
E _N	Wideband Noise Voltage	I _R = 5mA f = 10Hz to 10kHz		65			μV(rms)

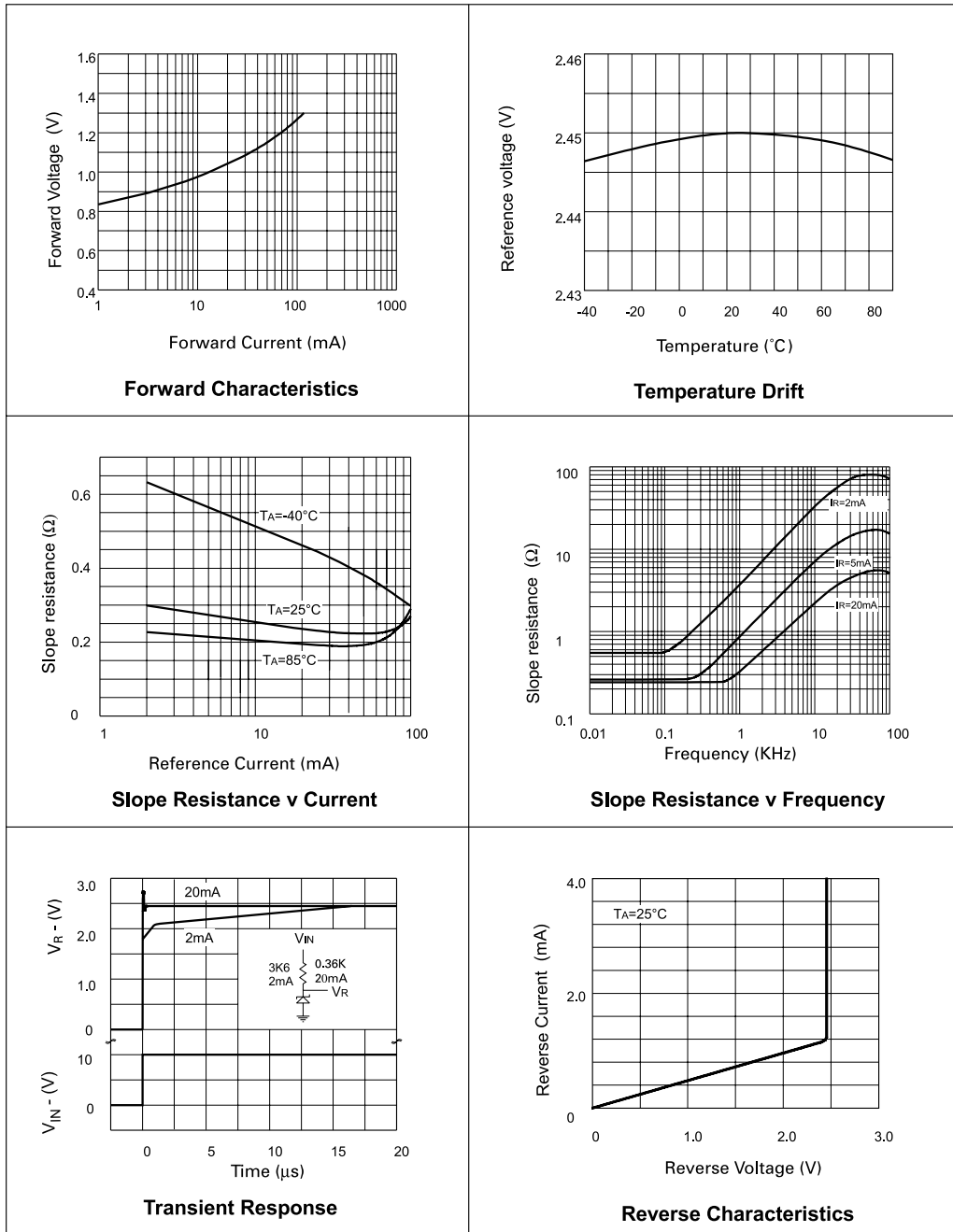
$$\dagger \quad T_c = \frac{(V_{R(max)} - V_{R(min)}) \times 1000000}{V_R \times (T_{(max)} - T_{(min)})}$$

Note: V_R(max) - V_R(min) is the maximum deviation in reference voltage measured over the full operating temperature range.

$$\S \quad R_s = \frac{V_R \text{ Change}(I_{R(MIN)} \text{ to } I_{R(MAX)})}{I_{R(MAX)} - I_{R(MIN)}}$$

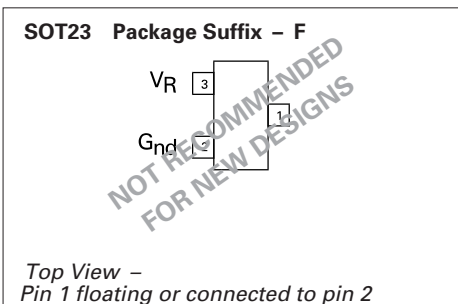
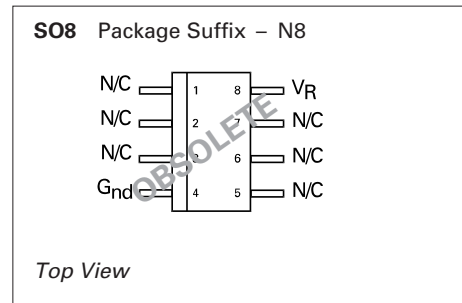
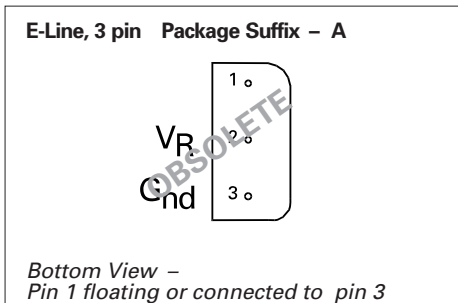
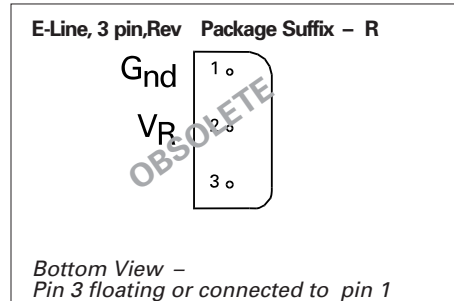
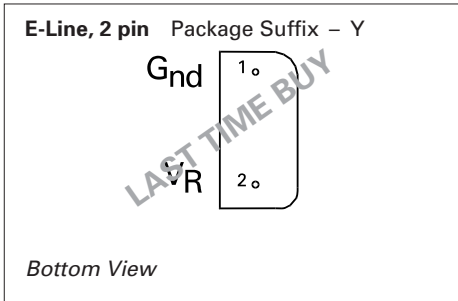
ZRA245

TYPICAL CHARACTERISTICS



ZRA245

CONNECTION DIAGRAMS



ZRA245

ORDERING INFORMATION

Part No	Tol. %	Package	Partmark
ZRA245A03	3	E-Line •	ZRA24503
ZRA245A02	2	E-Line •	ZRA24502
ZRA245A01	1	E-Line •	ZRA24501
ZRA245F03	3	SOT23	24A
ZRA245F02	2	SOT23	24B
ZRA245F01	1	SOT23	24C
ZRA245N803	3	SO8	ZRA24503
ZRA245N802	2	SO8	ZRA24502
ZRA245N801	1	SO8	ZRA24501

Part No	Tol. %	Package	Partmark
ZRA245R03	3	E-Line *	ZRA245R3
ZRA245R02	2	E-Line *	ZRA245R2
ZRA245R01	1	E-Line *	ZRA245R1
ZRA245Y03	3	E-Line †	ZRA24503
ZRA245Y02	2	E-Line †	ZRA24502
ZRA245Y01	1	E-Line †	ZRA24501

* E-Line 3 pin Reversed
† E-Line 2 pin
• E-Line 3 pin

© Zetex Semiconductors plc 2006

Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europa.sales@zetex.com	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Zetex Semiconductors plc Zetex Technology Park Chadderton, Oldham, OL9 9LL United Kingdom Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

These offices are supported by agents and distributors in major countries world-wide.

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

For the latest product information, log on to www.zetex.com

ISSUE 4 — JANUARY 2006