
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.

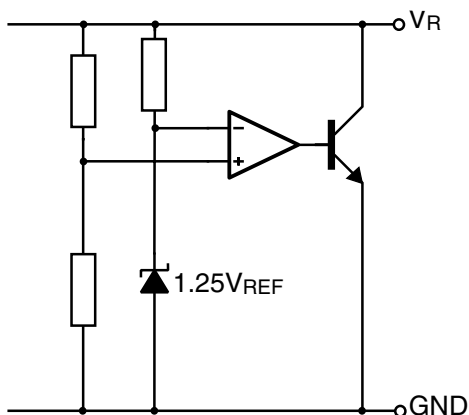
FEATURES

- Small outline SOT23, SO8 and TO92 style package
- No stabilising capacitor required
- Typical T_C 15ppm/°C
- Typical slope resistance 0.26Ω
- ± 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 |
| | | S08 | 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) |

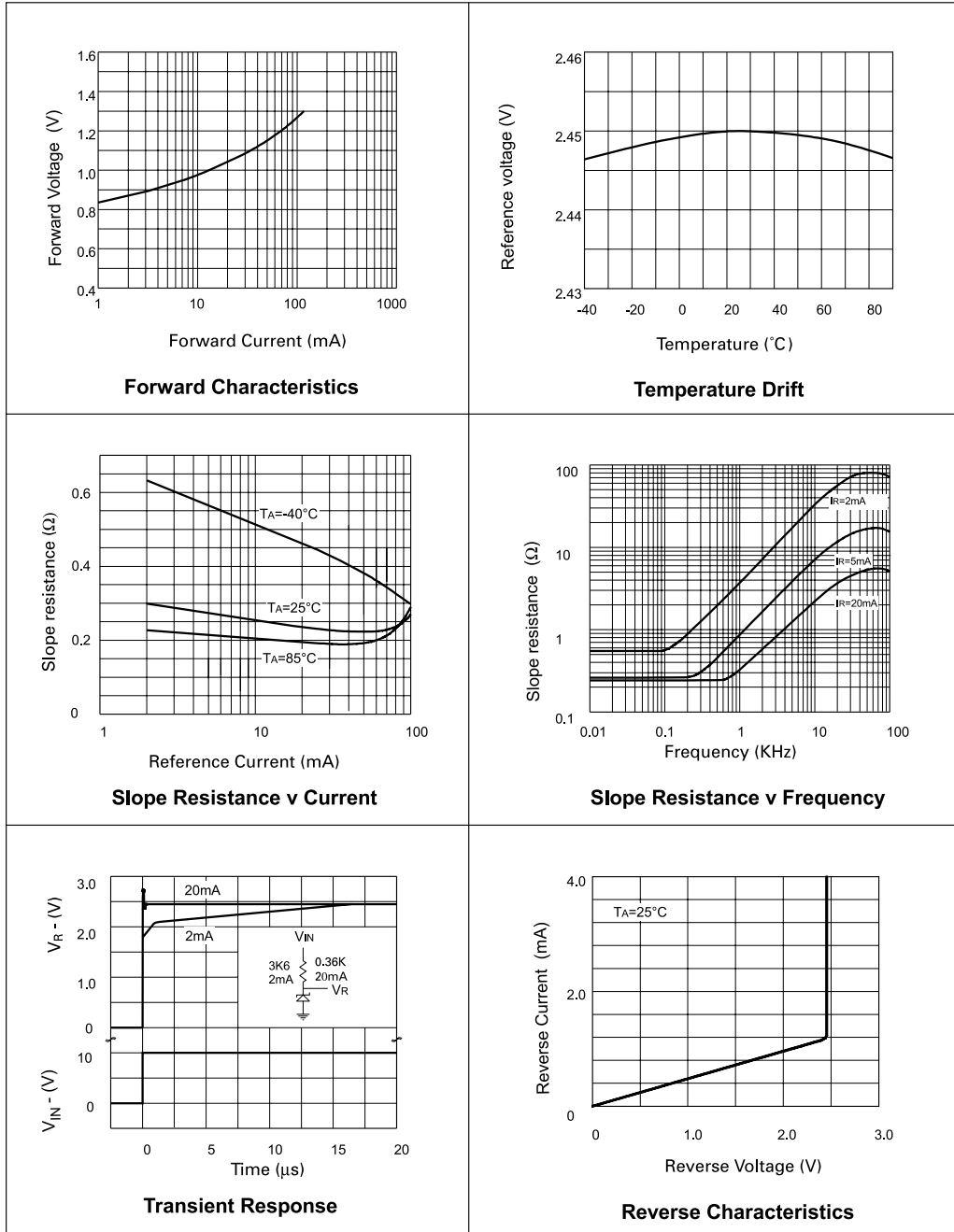
$$\dagger T_c = \frac{(V_{R(max)} - V_{R(min)}) \times 1000000}{V_R \times (T_{(max)} - T_{(min)})}$$

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

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

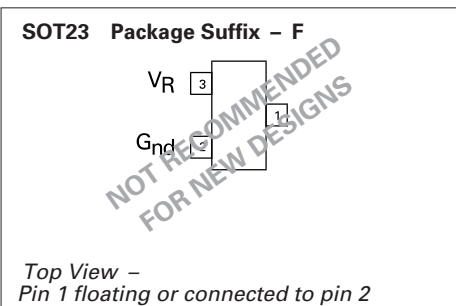
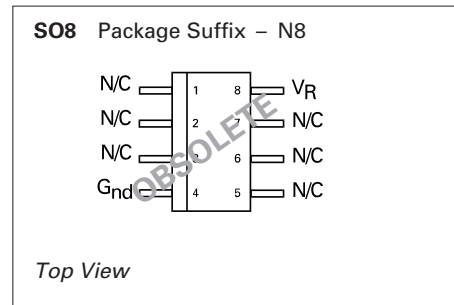
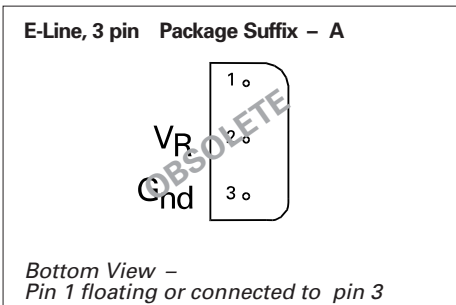
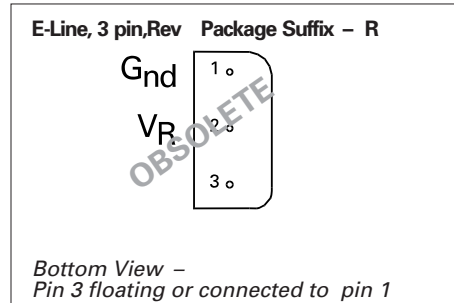
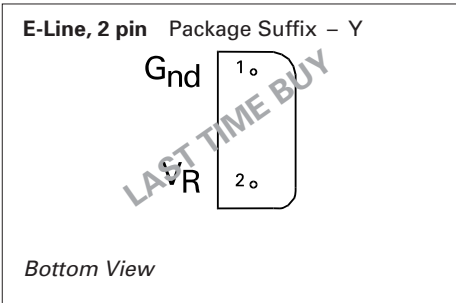
ZRA245

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

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