



# ZR4040-5.0

## ABSOLUTE MAXIMUM RATING

Reverse Current	25mA
Forward Current	25mA
Operating Temperature	-40 to 85°C
Storage Temperature	-55 to 125°C

## Power Dissipation ( $T_{amb}=25^{\circ}\text{C}$ )

SOT23	330mW
SO8	625mW
E-Line, 3 pin (TO92)	500mW

## ELECTRICAL CHARACTERISTICS

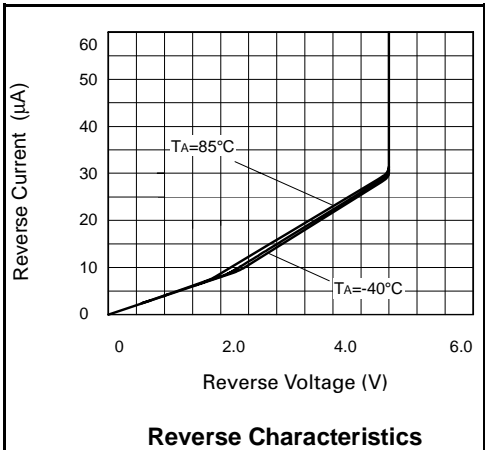
### TEST CONDITIONS (Unless otherwise stated) $T_{amb}=25^{\circ}\text{C}$

SYMBOL	PARAMETER	CONDITIONS	LIMITS			TOL. %	UNITS
			MIN	TYP	MAX		
$V_R$	Reverse Breakdown Voltage	$I_R=150\mu\text{A}$	4.95 4.90	5.0 5.0	5.05 5.10	1 2	V
$I_{MIN}$	Minimum Operating Current			30	60		$\mu\text{A}$
$I_R$	Recommended Operating Current		0.06		15		mA
$T_C \dagger$	Average Reverse Breakdown Voltage Temp. Co.	$I_{R(min)}$ to $I_{R(max)}$		20	100		ppm/ $^{\circ}\text{C}$
$R_S \S$	Slope Resistance			0.33	1.5		$\Omega$
$Z_R$	Reverse Dynamic Impedance	$I_R = 1\text{mA}$ $f = 100\text{Hz}$ $I_{AC}=0.1 I_R$		0.4	1.0		$\Omega$
$E_N$	Wideband Noise Voltage	$I_R = 1\text{mA}$ $f = 10\text{Hz to } 10\text{kHz}$		105			$\mu\text{V}$ (rms)

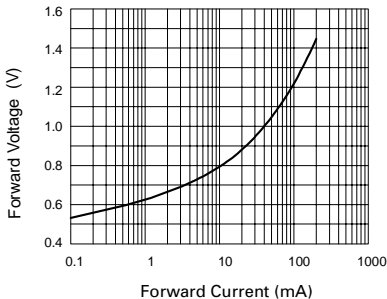
$$\dagger T_C = \frac{(V_{R(max)} - V_{R(min)}) \times 1000000}{V_R \times (T_{(max)} - T_{(min)})}$$

Note:  $V_{R(max)} - V_{R(min)}$  is the maximum deviation in reference voltage measured over the full operating temperature range.

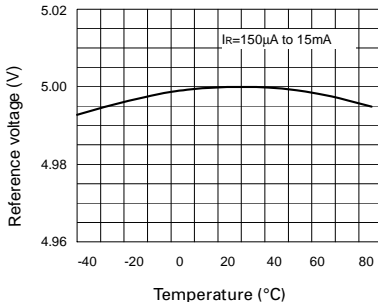
$$\S R_S = \frac{V_R \text{ Change}(I_R(min) \text{ to } I_R(max))}{I_R(max) - I_R(min)}$$



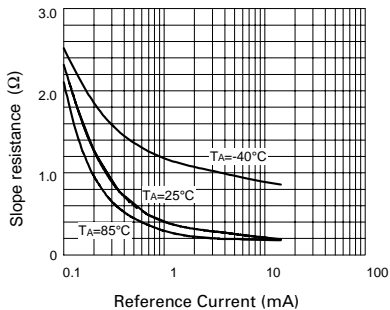
## TYPICAL CHARACTERISTICS



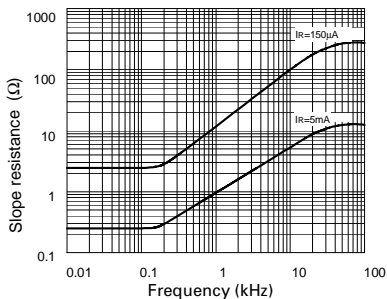
**Forward Characteristics**



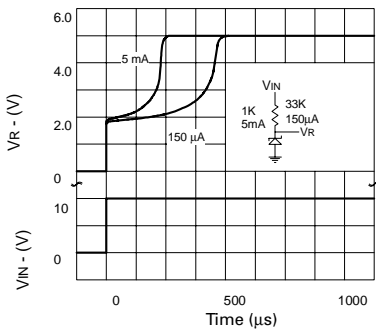
**Temperature Drift**



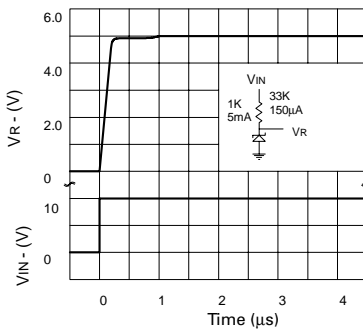
**Slope Resistance v Current**



**Slope Resistance v Frequency**



**Transient Response  
(Single Pulse)**

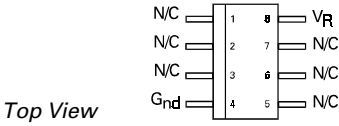


**Transient Response  
(Repetitive Pulse)**

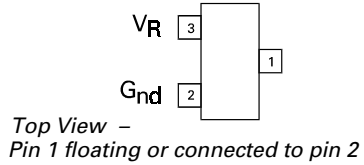
# ZR4040-5.0

## CONNECTION DIAGRAMS

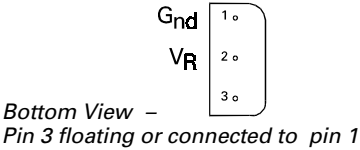
### SO8 Package Suffix – N8



### SOT23 Package Suffix – F



### E-Line, 3 pin, Rev Package Suffix – R



## ORDERING INFORMATION

Part Number	Tol%	Package	Partmark
ZR40402F50	2	SOT23	50L
ZR40401F50	1	SOT23	50M
ZR40402N850	2	SO8	ZR4040250
ZR40401N850	1	SO8	ZR4040150
ZR40402R50	2	E-Line *	ZR4040250
ZR40401R50	1	E-Line *	ZR4040150

\* E-Line, 3 pin Reversed