

## RELIABILITY ENGINEERING MTTF and FIT Calculation Report

<b>Part Number Family Series :</b> <b>1.5KE SERIES</b>	<b>Test :</b> <b>HTRB</b>
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### Enter the Test Variables:

No. of failures	=	0	units
No. of devices	=	309	units
No. of hours	=	1,000	hours
Total no. of device hours	=	309,000	hours
Accelerated Temp (Ta)	=	175	° C
Operating Temp (Tu)	=	50	° C
Activation Energy (Ea)	=	1.0	eV
Confidence Level	=	80	%
Boltzman's Constant (k)	=	8.617E-05	eV / °K

### Calculations:

Chi squared value	=	<b>3.218875825</b>	@ 80% Confidence Level
Failure Rate (@Ta)	=	$\frac{(\text{Chi squared value})}{2(\text{No of devices})(\text{No of hours})}$	
	=	<b>5208.54</b>	<b>FIT</b>
Acceleration Factor	=	$e^{(Ea/k)(1/Tu - 1/Ta)}$	
	=	<b>22578.33597</b>	

<b>Failure Rate (@Tu)</b>	=	(Failure Rate (@Ta)) / (Acceleration Factor)	
	=	<b>0.23</b>	<b>FIT</b>

<b>MTTF</b>	=	<b>4,334,871,051.58</b>	hours
	=	<b>494,848.3</b>	years