



Texas Instruments Enhanced Plastic (EP) products provide a means to facilitate, not replace, OEM qualification of COTS devices through baseline control and enhanced qualification pedigree. TI EP package qualification comprehends performance at extended temperatures with package element concerns such as glass transition temperature and thermal expansion coefficients taken into account. Electrical testing is warranted to meet the data sheet over the specified temperature range.

EP devices are qualified in accordance with TI Quality System Standards. Reliability monitors are performed on a regular basis and include EFR/IFR (life test), temperature cycle, and Biased Humidity (or HAST). TI Quality System Standards are based upon accepted JEDEC and EIA standards for the test methods used.

In specific cases, when noted on the TI Enhanced Plastic Data sheet, long term high-temperature storage and/or extended use at maximum recommended operating temperatures may result in a reduction of overall device life. The following information is provided as a guide for those specific cases. Please see the attached Enhanced Plastic disclaimer for more information.

Enhanced Plastic Quality and Reliability Data Disclaimer

The quality and reliability information provided by Texas Instruments is specific to the TI Enhanced Plastic product family of plastic encapsulated commercial-off-the-shelf (COTS) semiconductor products and components. Due to possible differences in product assembly and test baselines, this information is NOT APPLICABLE to TI standard, industrial, or automotive catalog commercial products.

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The buyer's use of this data, and all consequences of such use, is solely the buyer's responsibility. Buyer assumes full responsibility to perform sufficient engineering and additional qualification testing in order to properly evaluate the buyer's application and determine whether a candidate device is suitable for use in that application. The information provided by TI shall not be considered sufficient grounds on which to base any such determination.

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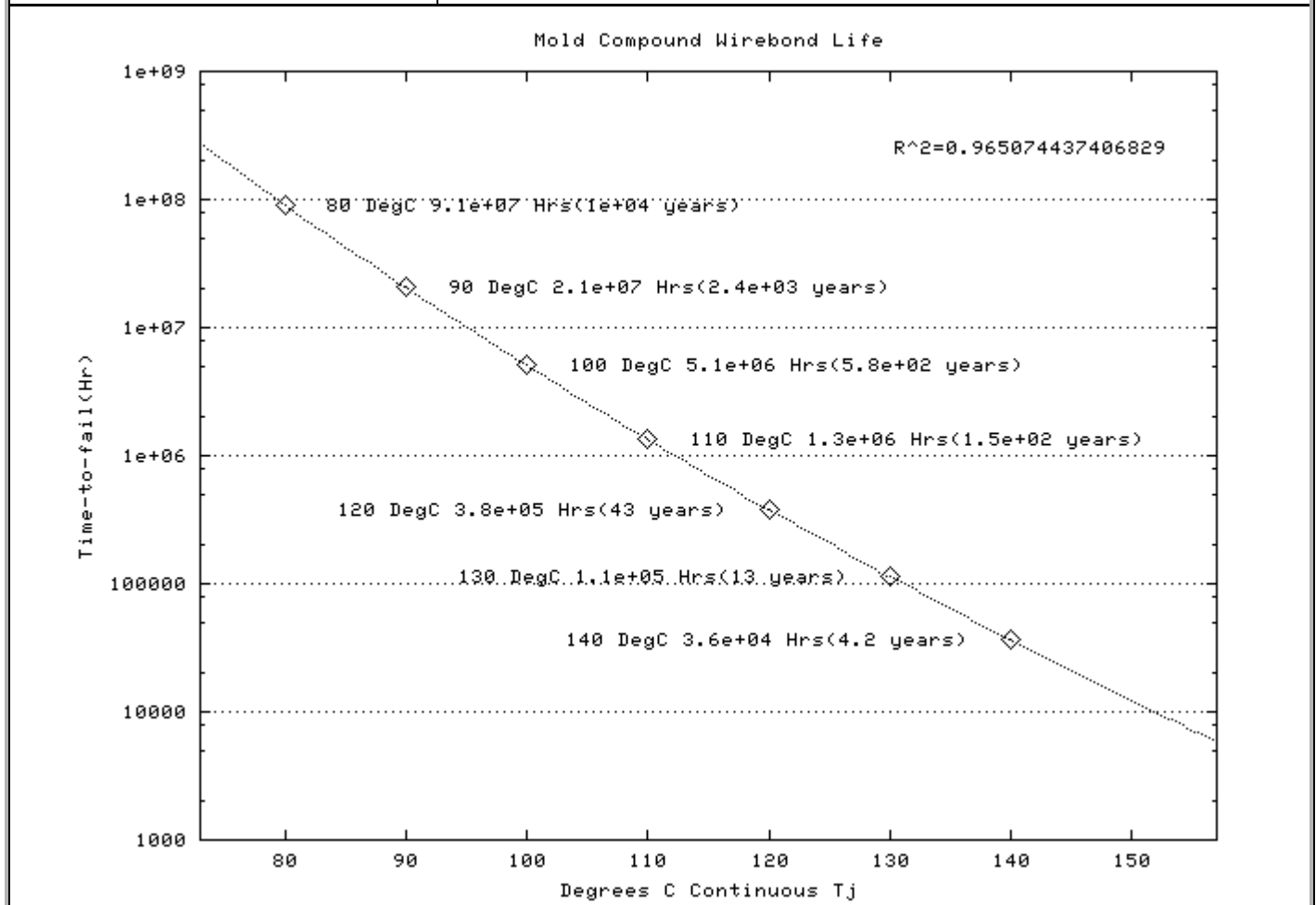
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Wirebond Life Estimator

Elevated Temperature Kirkendall Voiding Fail Mode

only valid for die pads with Al surface - N/A if pads have other types of surface metal (BOAC, Cu etc.)

1. Select Mold Compound	2. Junction Temp	OR	2. Ambient, Tja and Power
GE1030MDP <input type="text"/>	<input type="text" value="136"/> Tj(C)		<input type="text"/> Ta(C) <input type="text"/> Tja(C/W) <input type="text"/> Power(W)
Standard Plot <input type="checkbox"/>	Std <input type="checkbox"/> Min Temp Std <input type="checkbox"/> Max Temp		<input type="text"/> Alternate Title
<input type="button" value="Calculate"/>	Estimated Wirebond Life is 57123 hours(6.5 Years)		

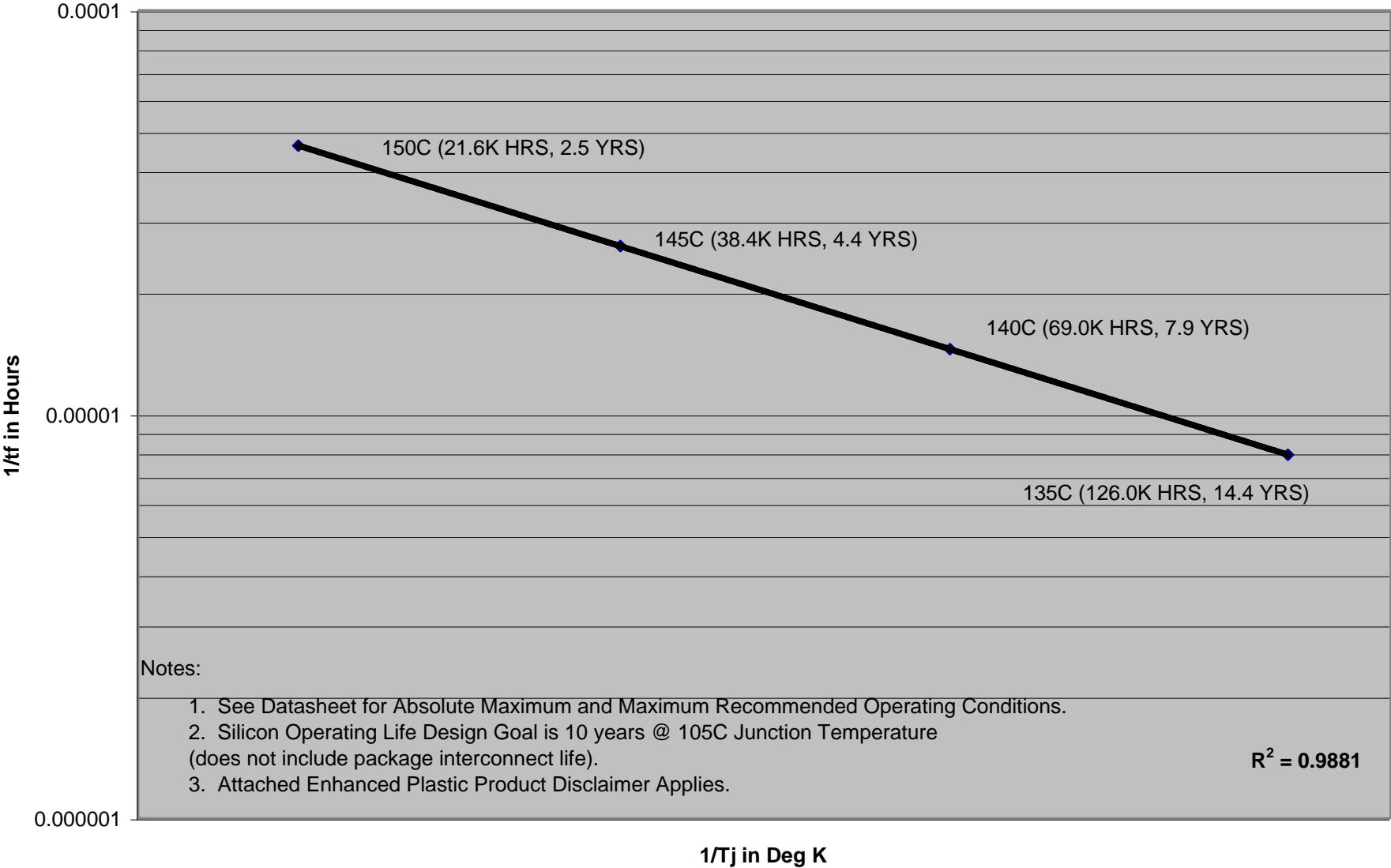


Reference [Assessing Encapsulant Impact on Ball Bond Life](#)

Any questions or comments regarding this area should go to :

[Andy Pauley 903-868-6379](#)

OPERATING LIFE DERATING TABLE - LM2901QPWREP
1/TF versus 1/Tj in °K

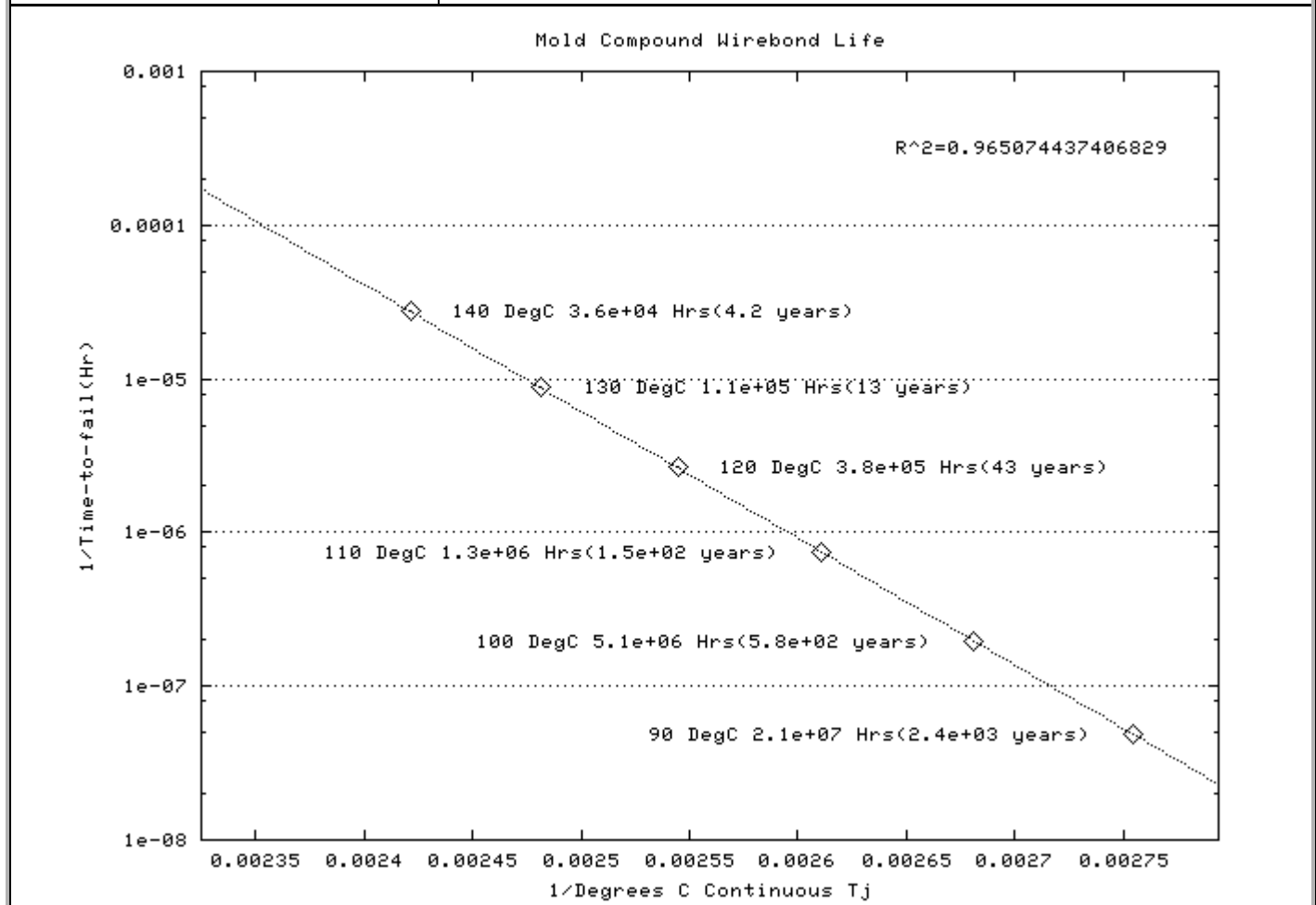


Wirebond Life Estimator

Elevated Temperature Kirkendall Voiding Fail Mode

only valid for die pads with Al surface - N/A if pads have other types of surface metal (BOAC, Cu etc.)

1. Select Mold Compound	2. Junction Temp	OR	2. Ambient, Tja and Power
GE1030MDP <input type="checkbox"/>	<input type="text" value="142"/> Tj(C)		<input type="text"/> Ta(C) <input type="text"/> Tja(C/W) <input type="text"/> Power(W)
Official Plot <input type="checkbox"/>	Std <input type="checkbox"/> Min Temp Std <input type="checkbox"/> Max Temp		<input type="text"/> Alternate Title
<input type="button" value="Calculate"/>	Estimated Wirebond Life is 29181 hours(3.3 Years)		

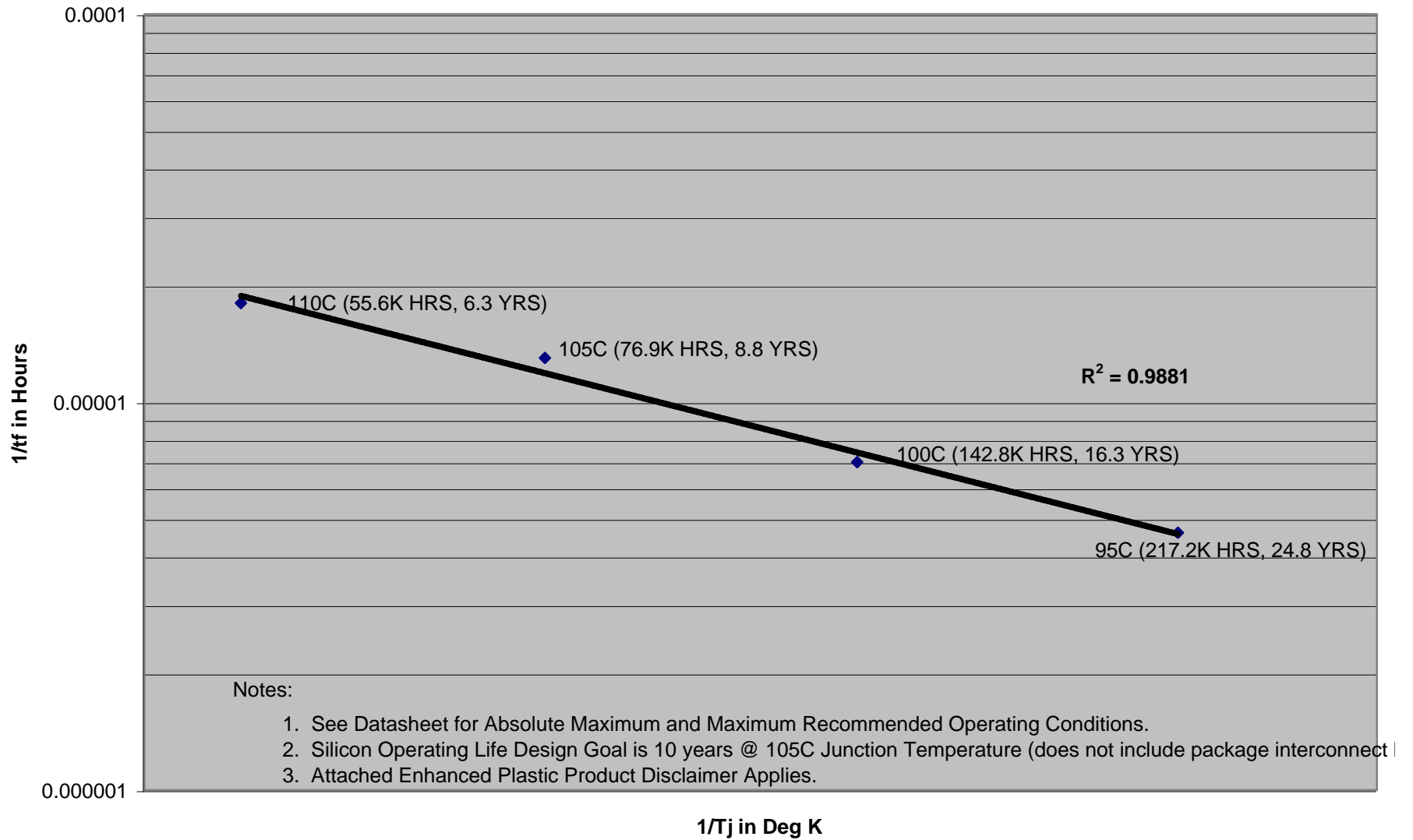


Reference [Assessing Encapsulant Impact on Ball Bond Life](#)

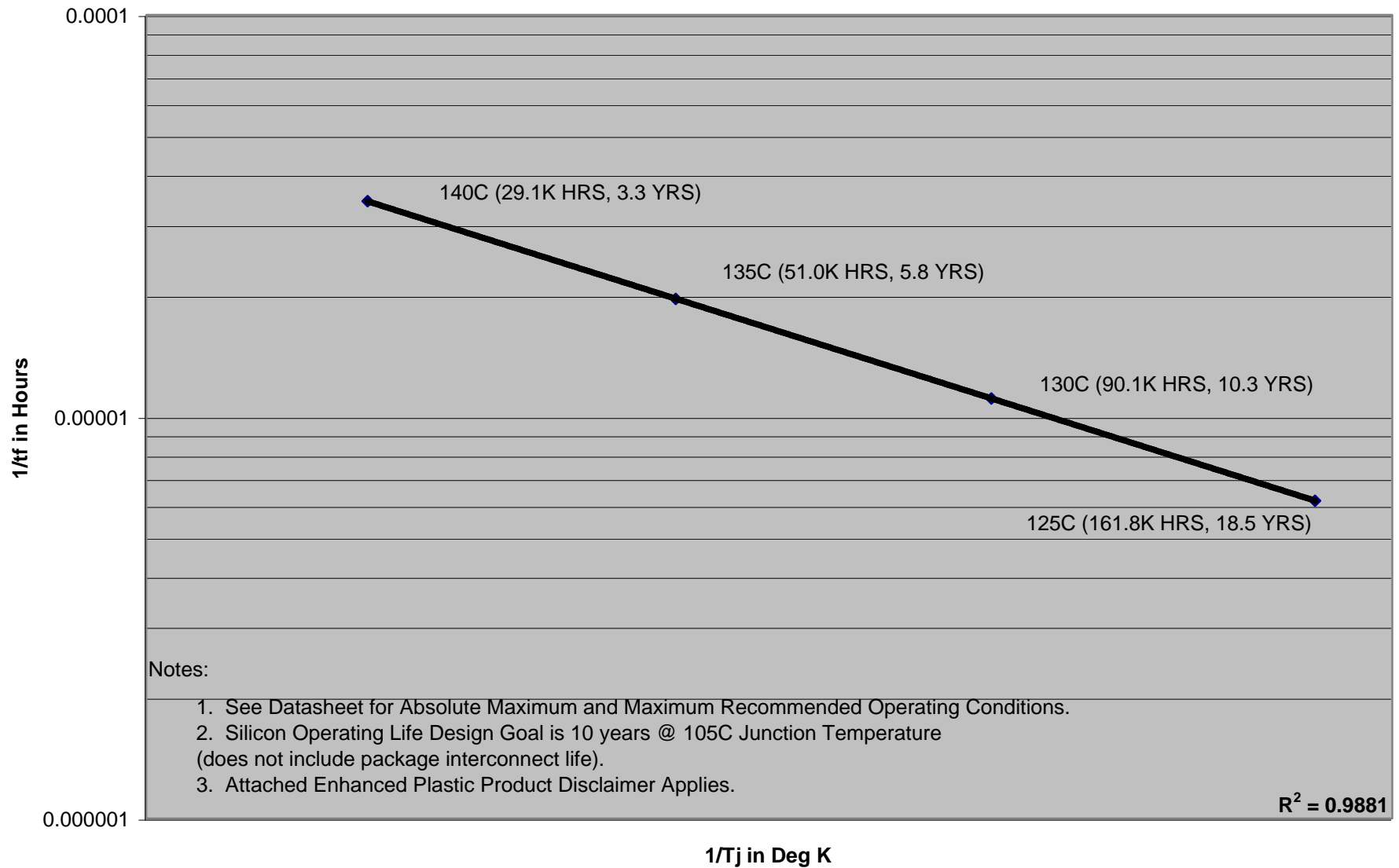
Any questions or comments regarding this area should go to :

[Andy Pauley 903-868-6379](#)

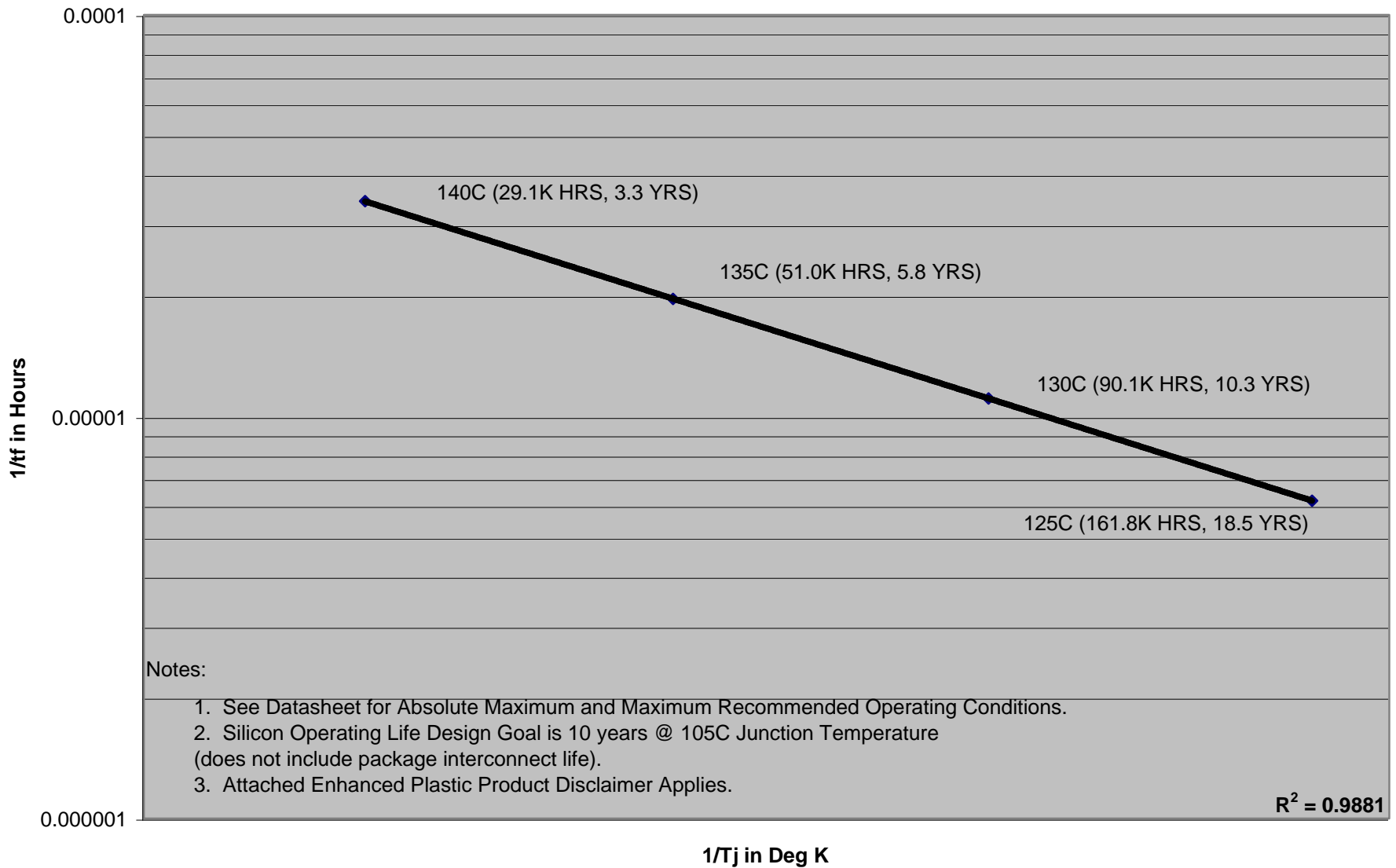
OPERATING LIFE DERATING TABLE - SM320VC33PGEA120EP
1/TF versus 1/Tj in °K



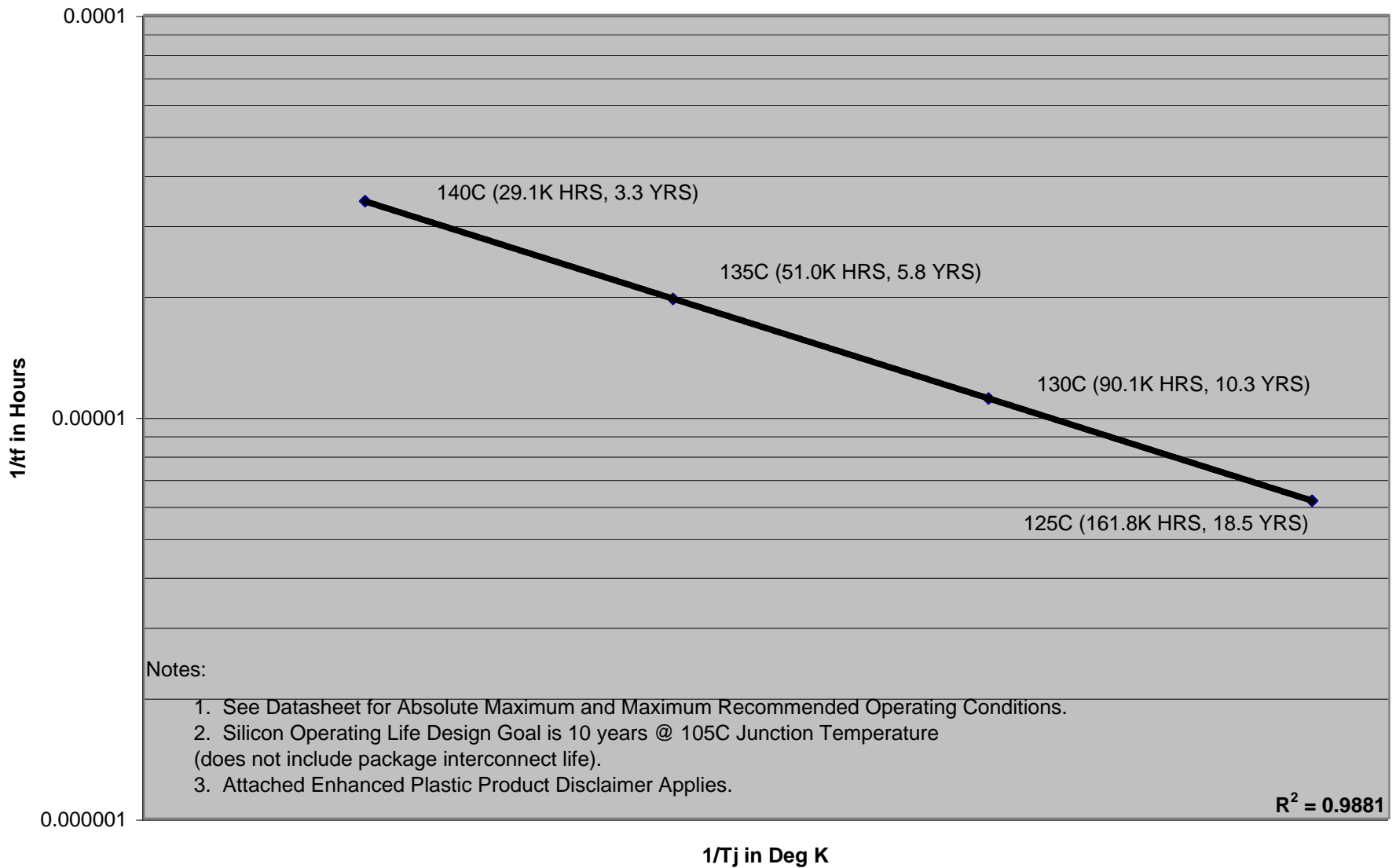
OPERATING LIFE DERATING TABLE - SN65LBC176QDREP
1/TF versus 1/Tj in °K



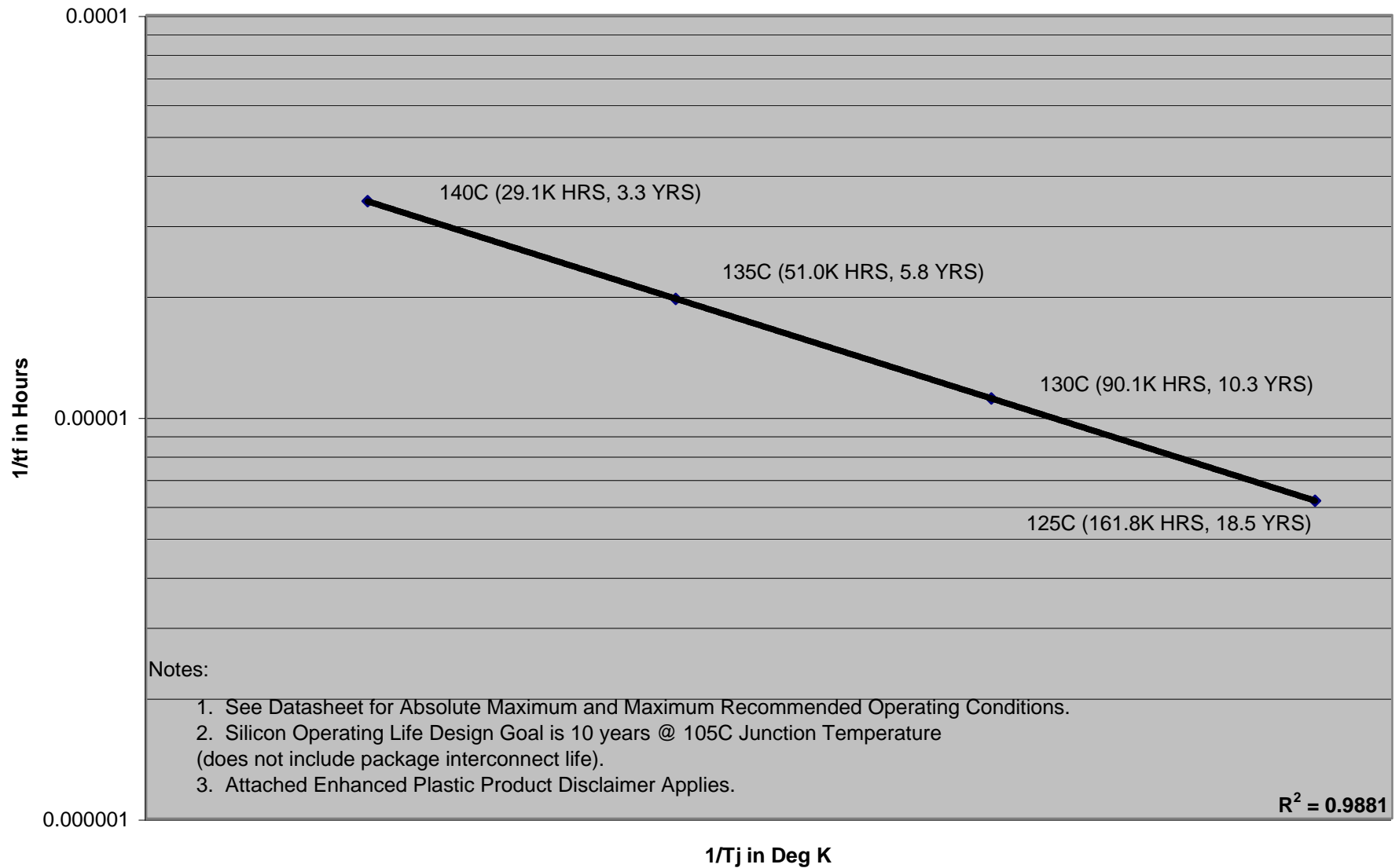
OPERATING LIFE DERATING TABLE - SN74AC04MDREP
1/TF versus 1/Tj in °K



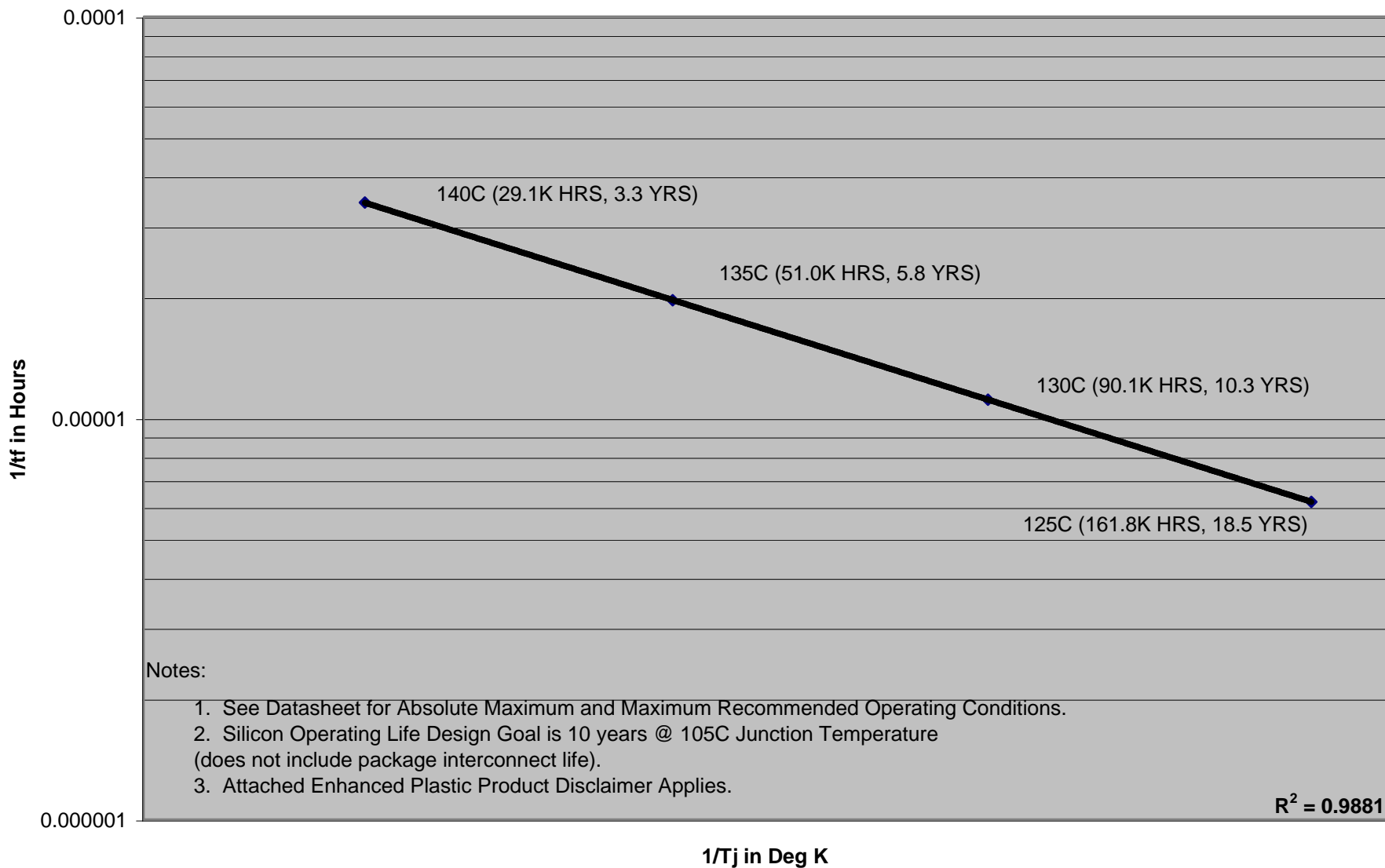
OPERATING LIFE DERATING TABLE - SN74AC14MDREP
1/TF versus 1/Tj in °K



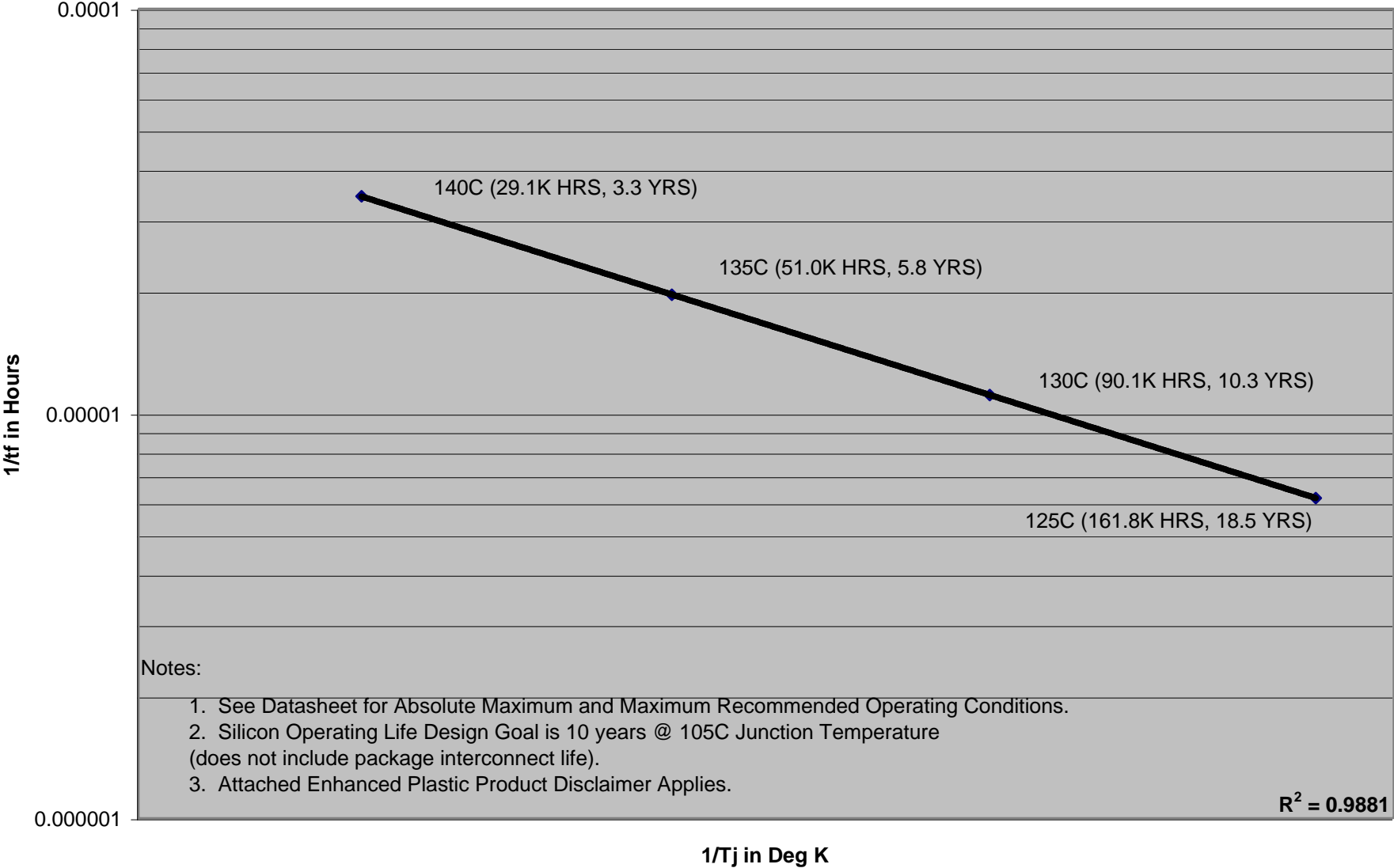
OPERATING LIFE DERATING TABLE - SN74AC244MDREP
1/TF versus 1/Tj in °K



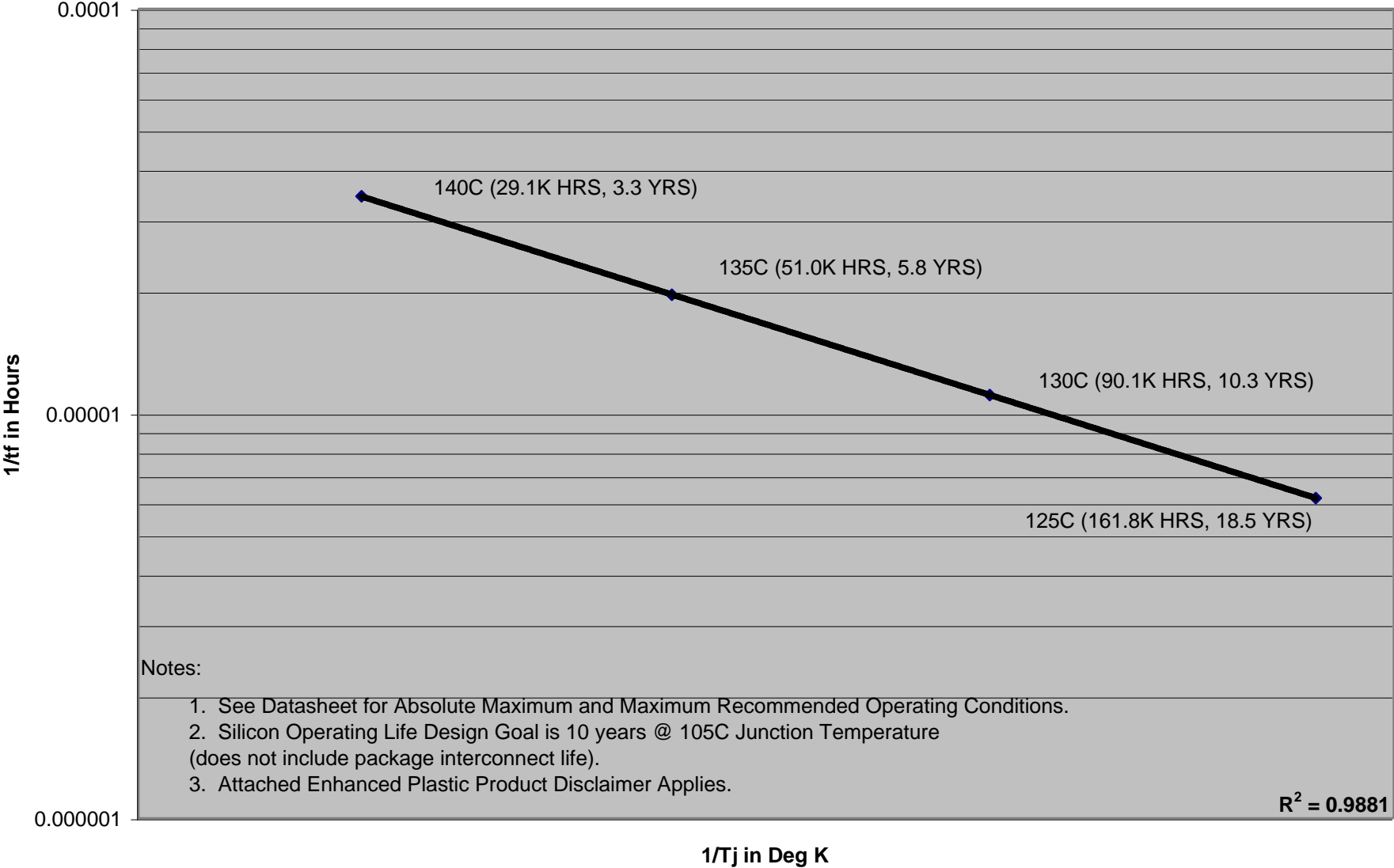
OPERATING LIFE DERATING TABLE - SN74AC373MDWREP
1/TF versus 1/Tj in °K



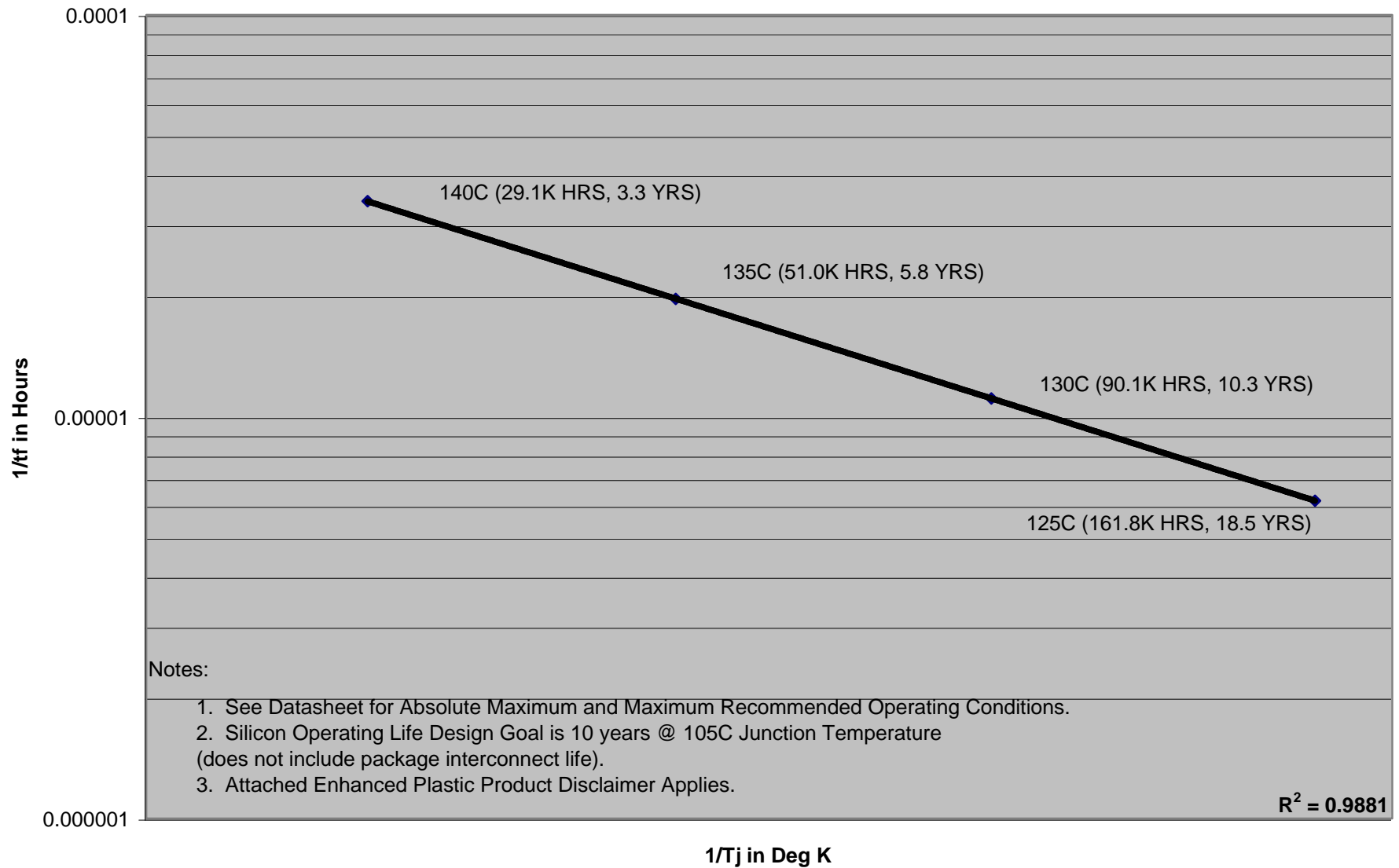
OPERATING LIFE DERATING TABLE - SN74ACT244MDWREP
1/TF versus 1/Tj in °K



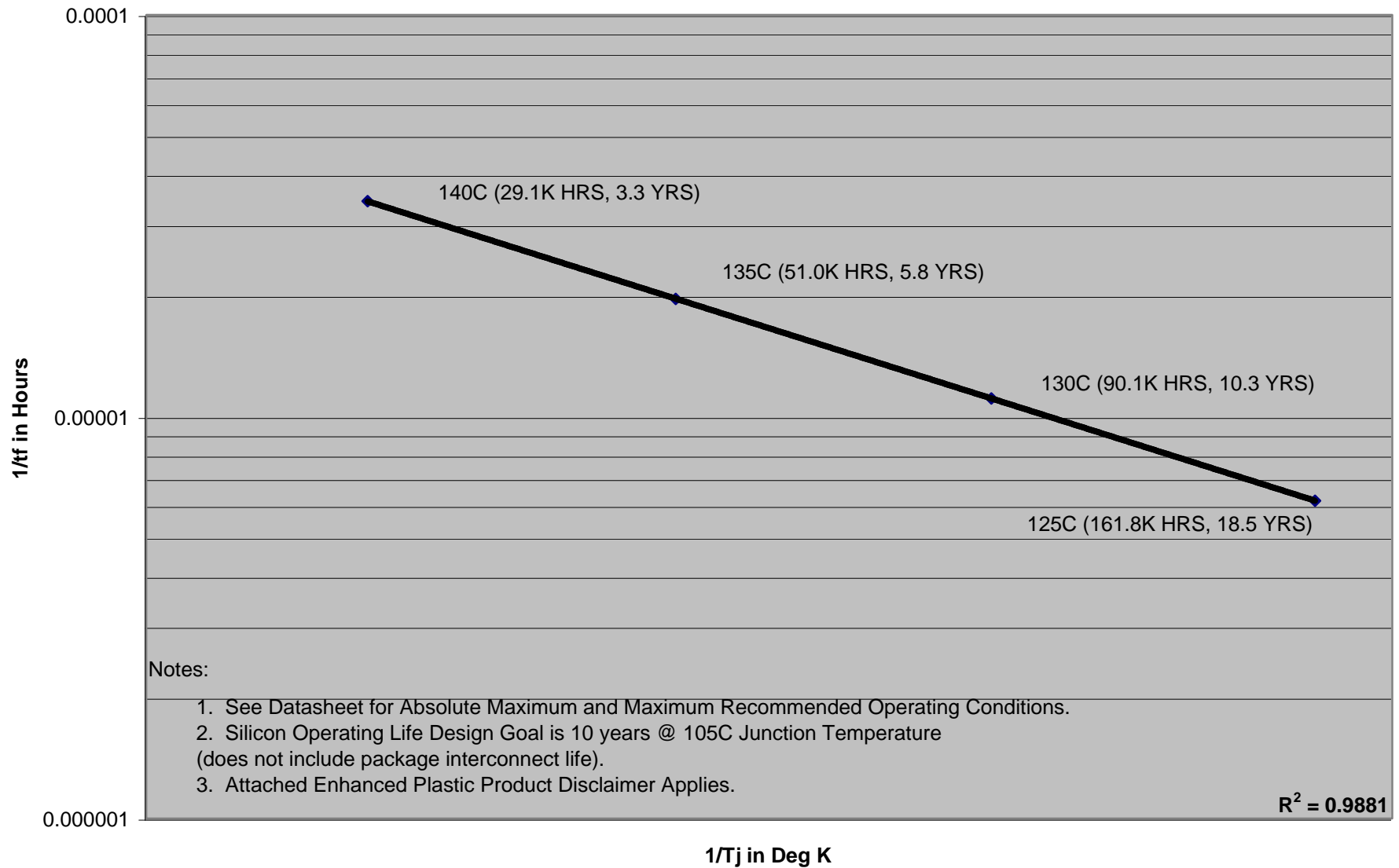
OPERATING LIFE DERATING TABLE - SN74ACT373MDWREP
1/TF versus 1/Tj in °K



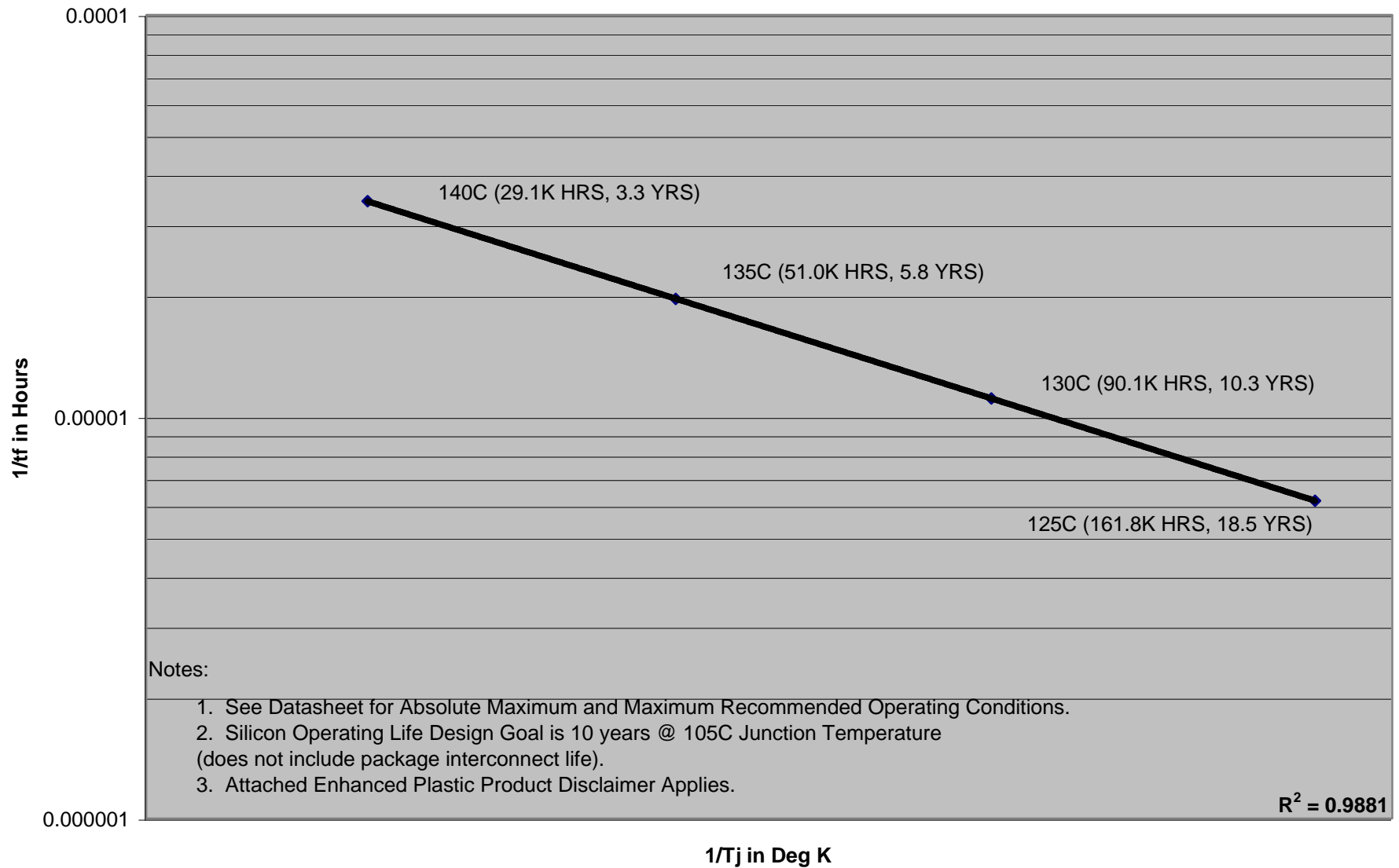
OPERATING LIFE DERATING TABLE - SN74ACT74MDREP
1/TF versus 1/Tj in °K



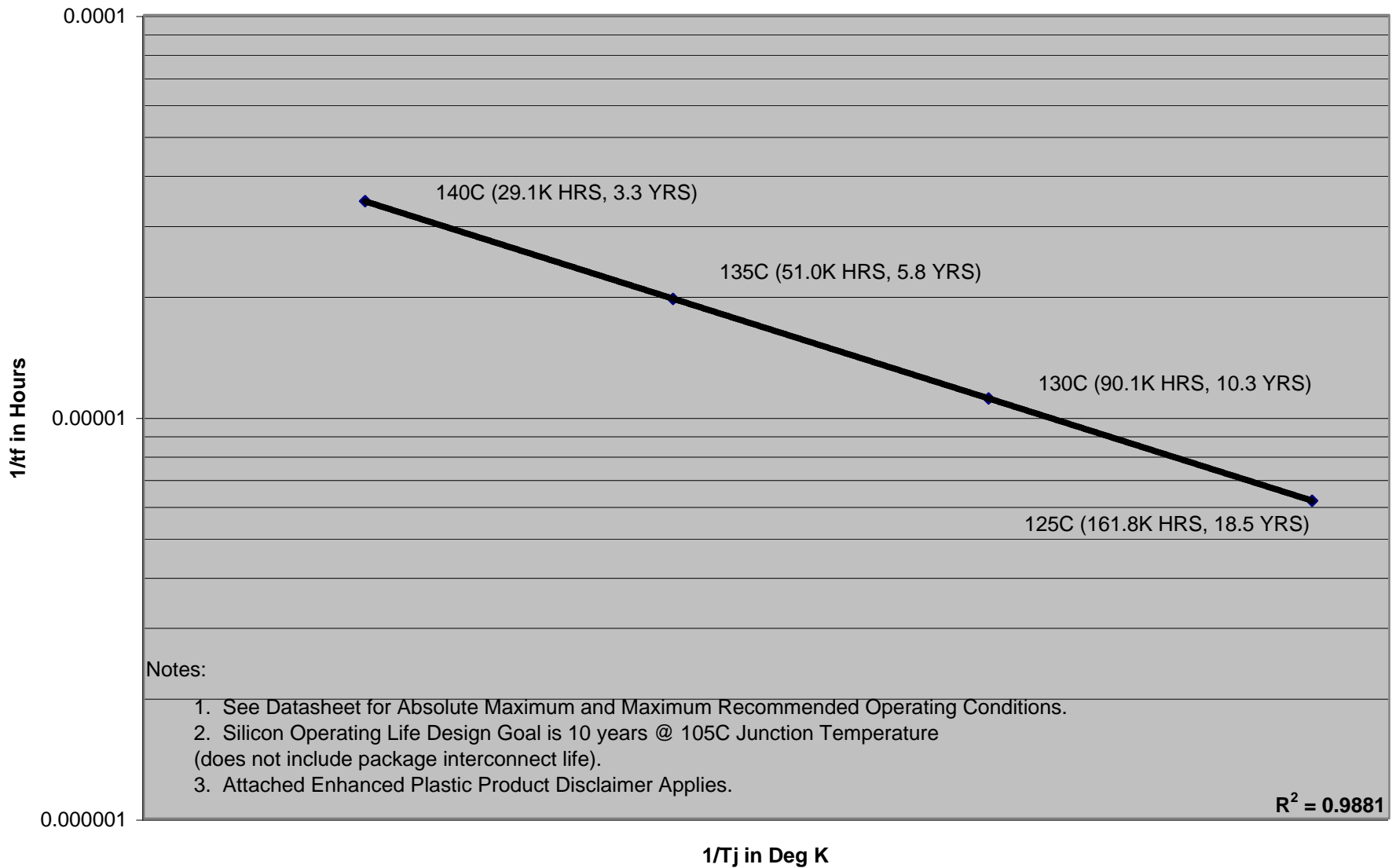
OPERATING LIFE DERATING TABLE - SN74LVC04AQDREP 1/TF versus 1/Tj in °K



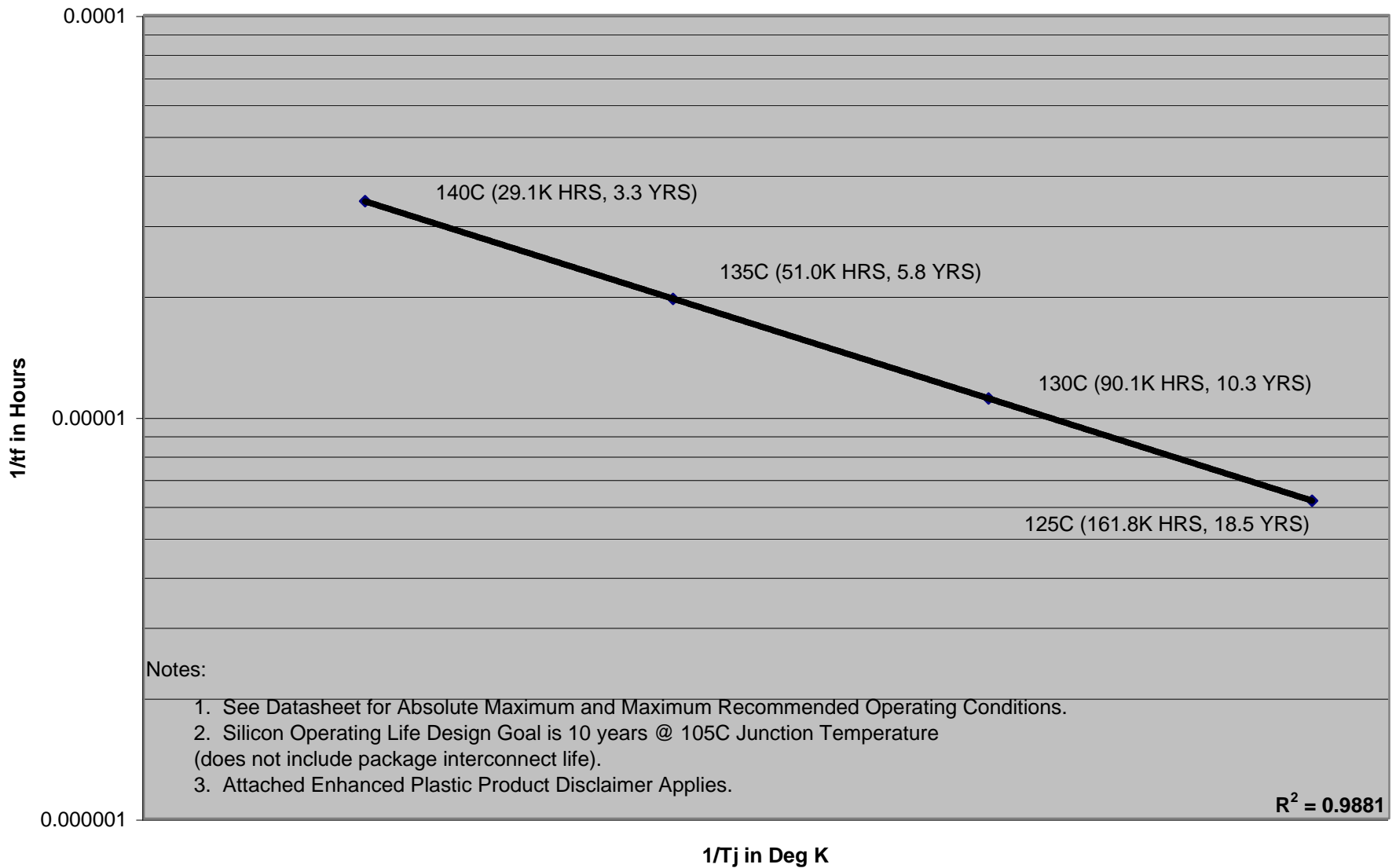
OPERATING LIFE DERATING TABLE - SN74LVC138AQDREP
1/TF versus 1/Tj in °K



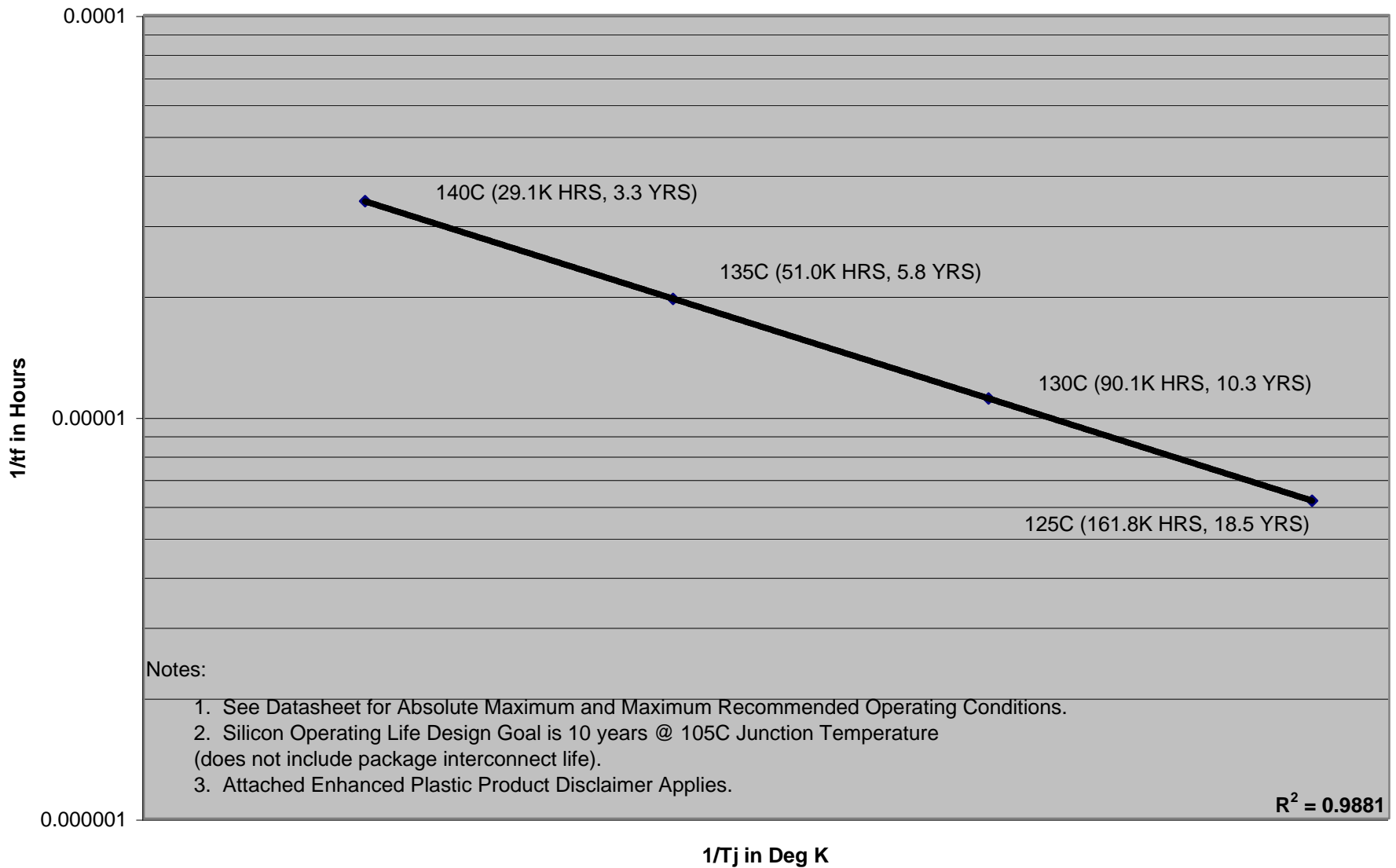
OPERATING LIFE DERATING TABLE - SN74LVC373AQDWREP
1/TF versus 1/Tj in °K



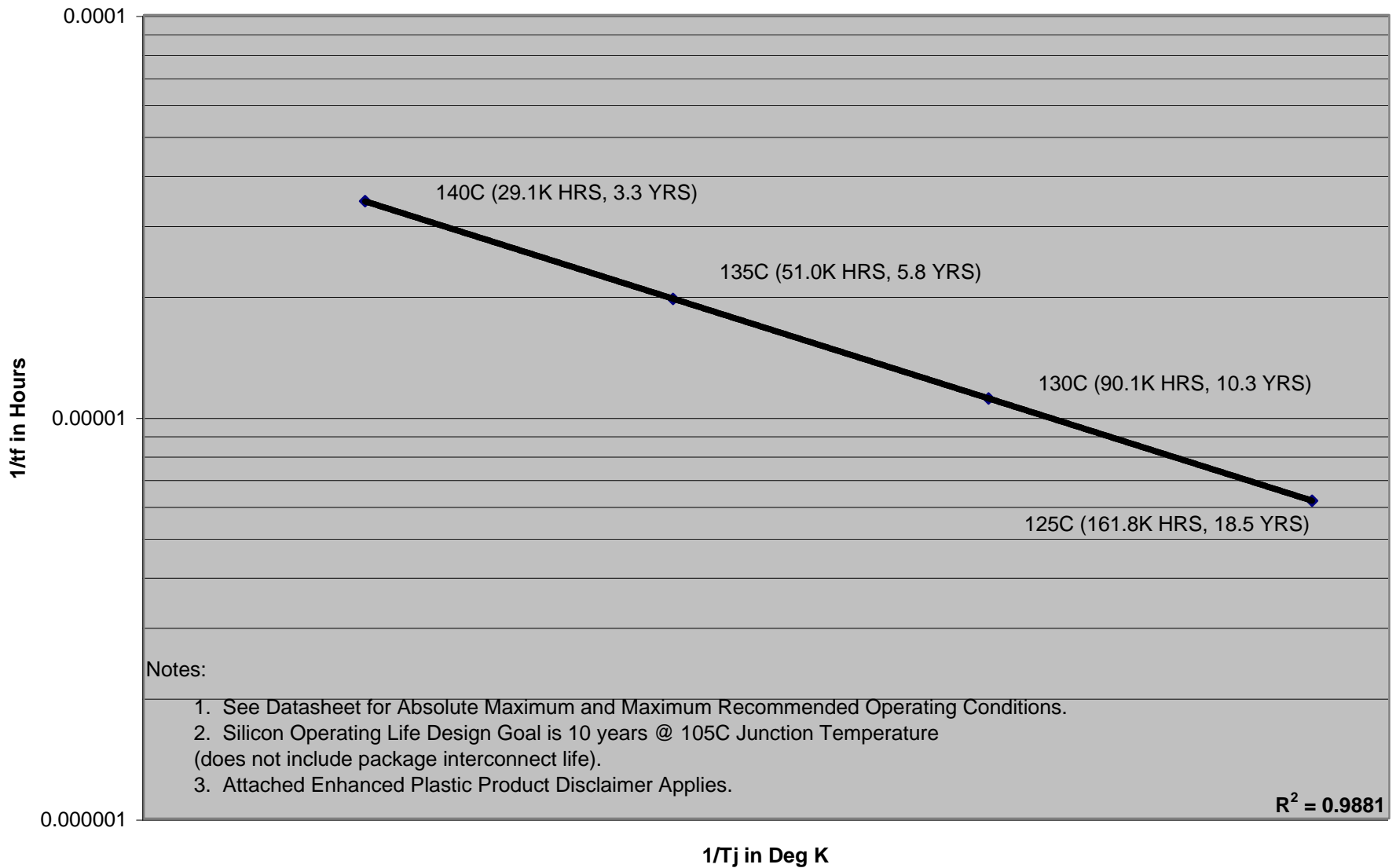
OPERATING LIFE DERATING TABLE - SN74LVC374AQDWREP
1/TF versus 1/Tj in °K



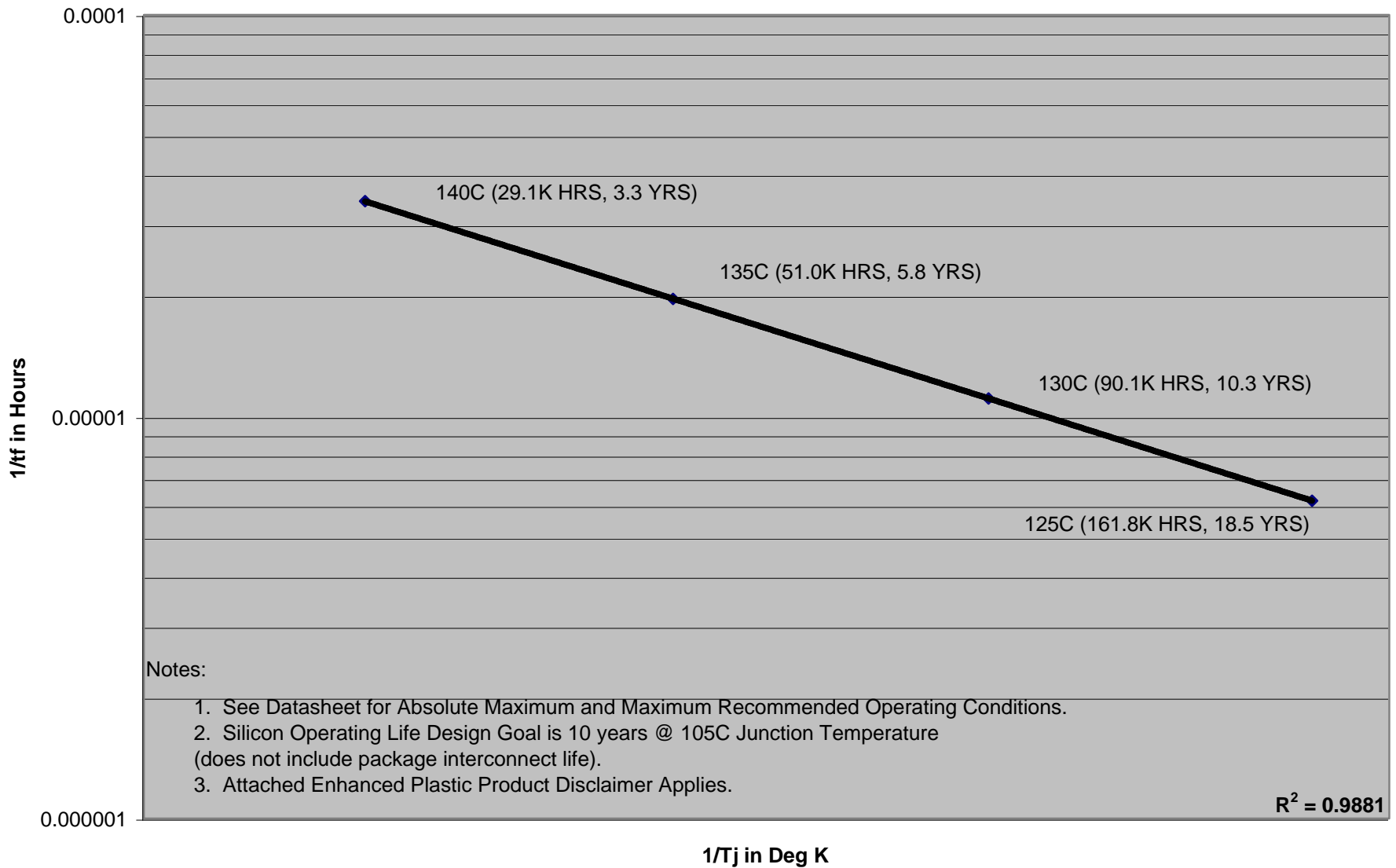
OPERATING LIFE DERATING TABLE - SN74LVC540AQDWREP
1/TF versus 1/Tj in °K



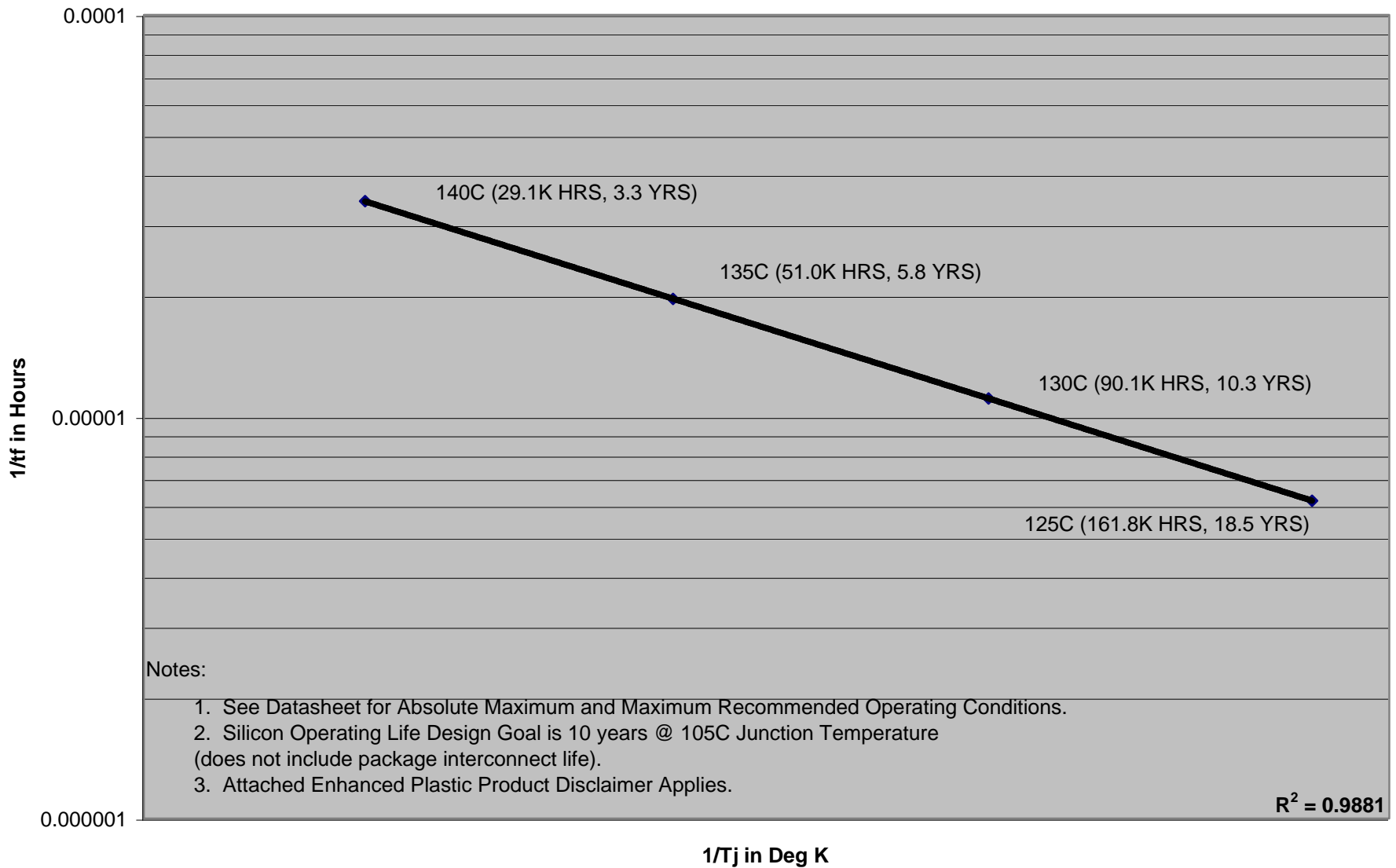
OPERATING LIFE DERATING TABLE - SN74LVC541AQDWREP
1/TF versus 1/Tj in °K



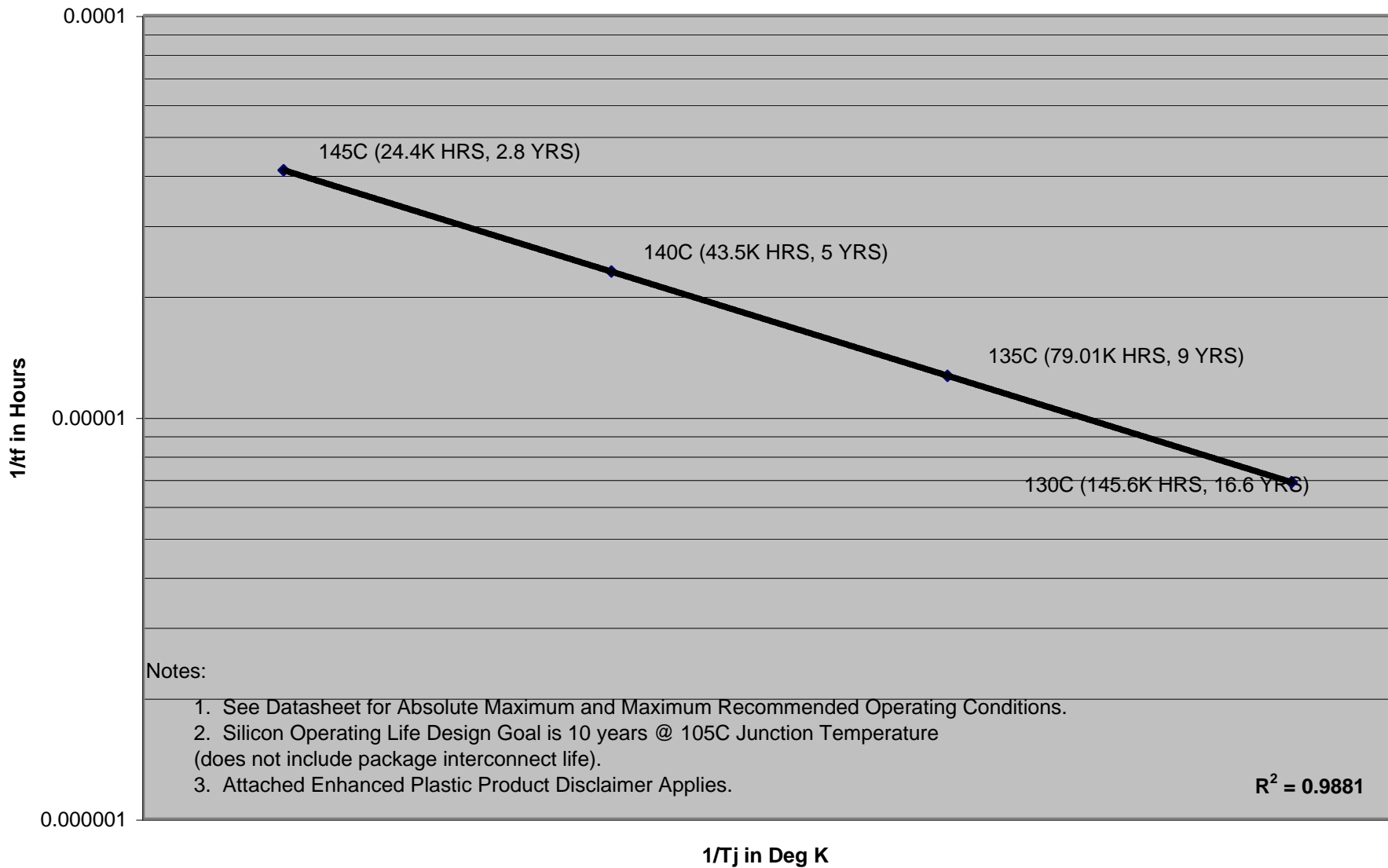
OPERATING LIFE DERATING TABLE - SN74LVC573AQDWREP
1/TF versus 1/Tj in °K



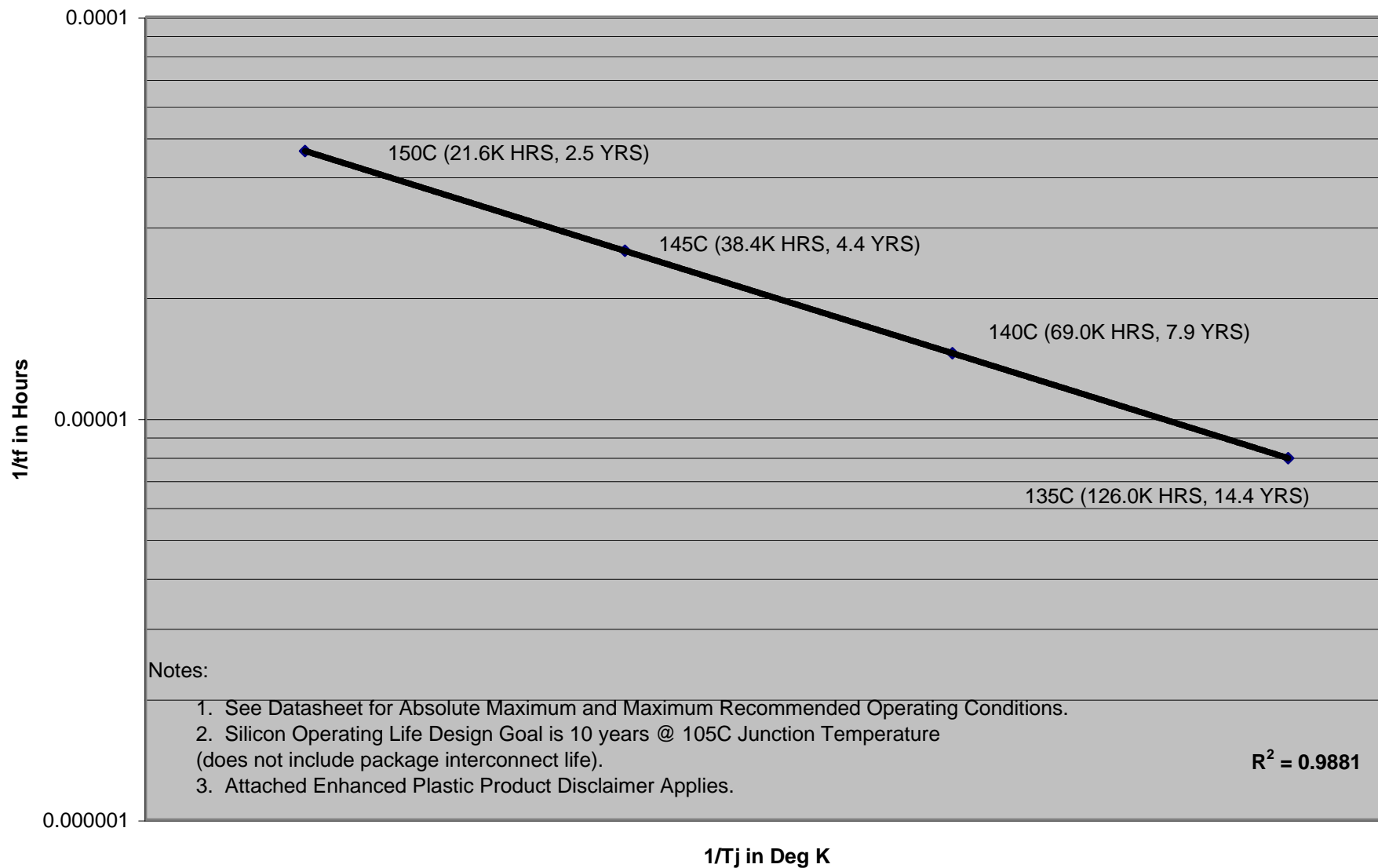
OPERATING LIFE DERATING TABLE - SN74LVC574AQDWREP
1/TF versus 1/Tj in °K



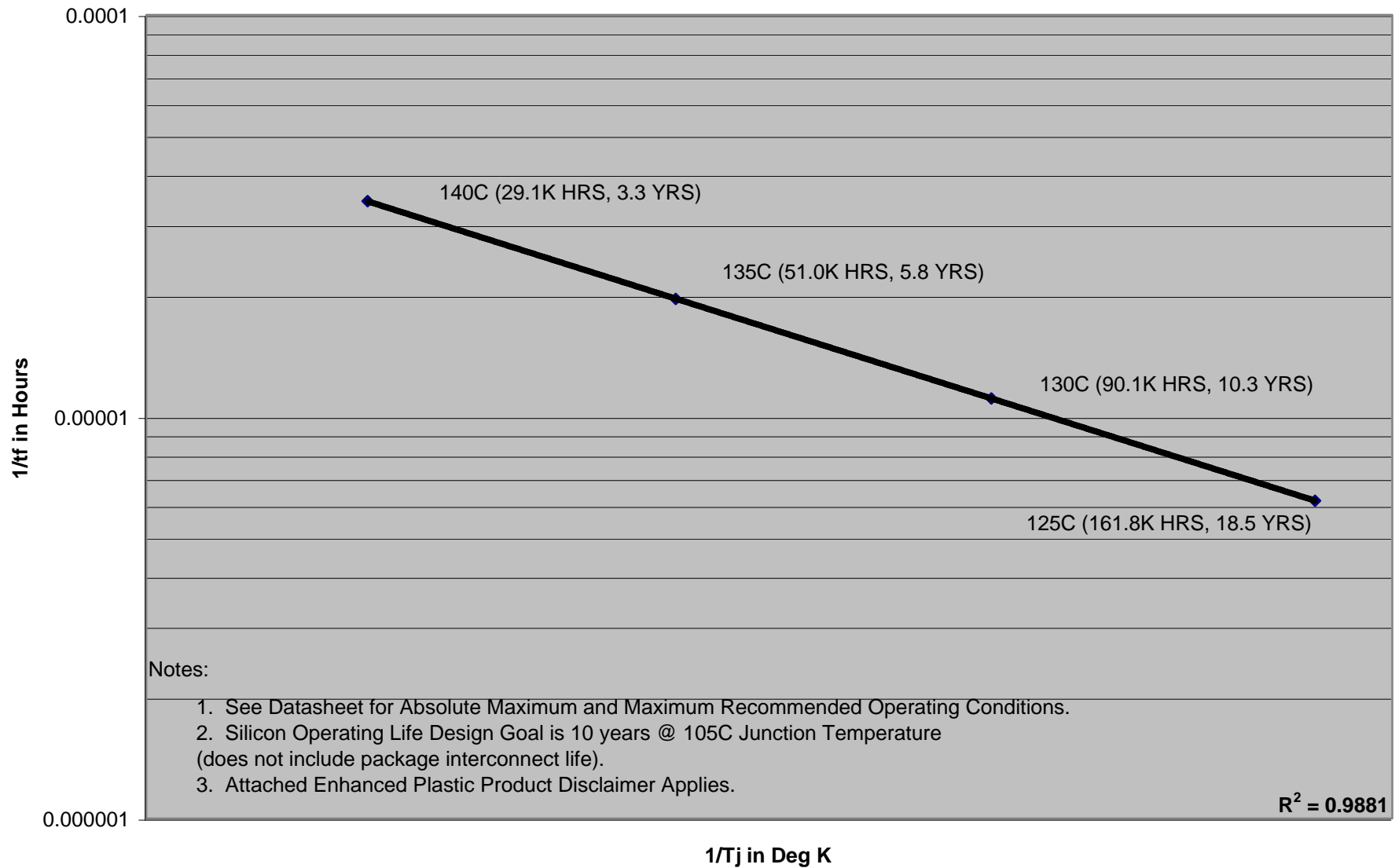
OPERATING LIFE DERATING TABLE - SN74LVTH244AQDBREP
1/TF versus 1/Tj in °K



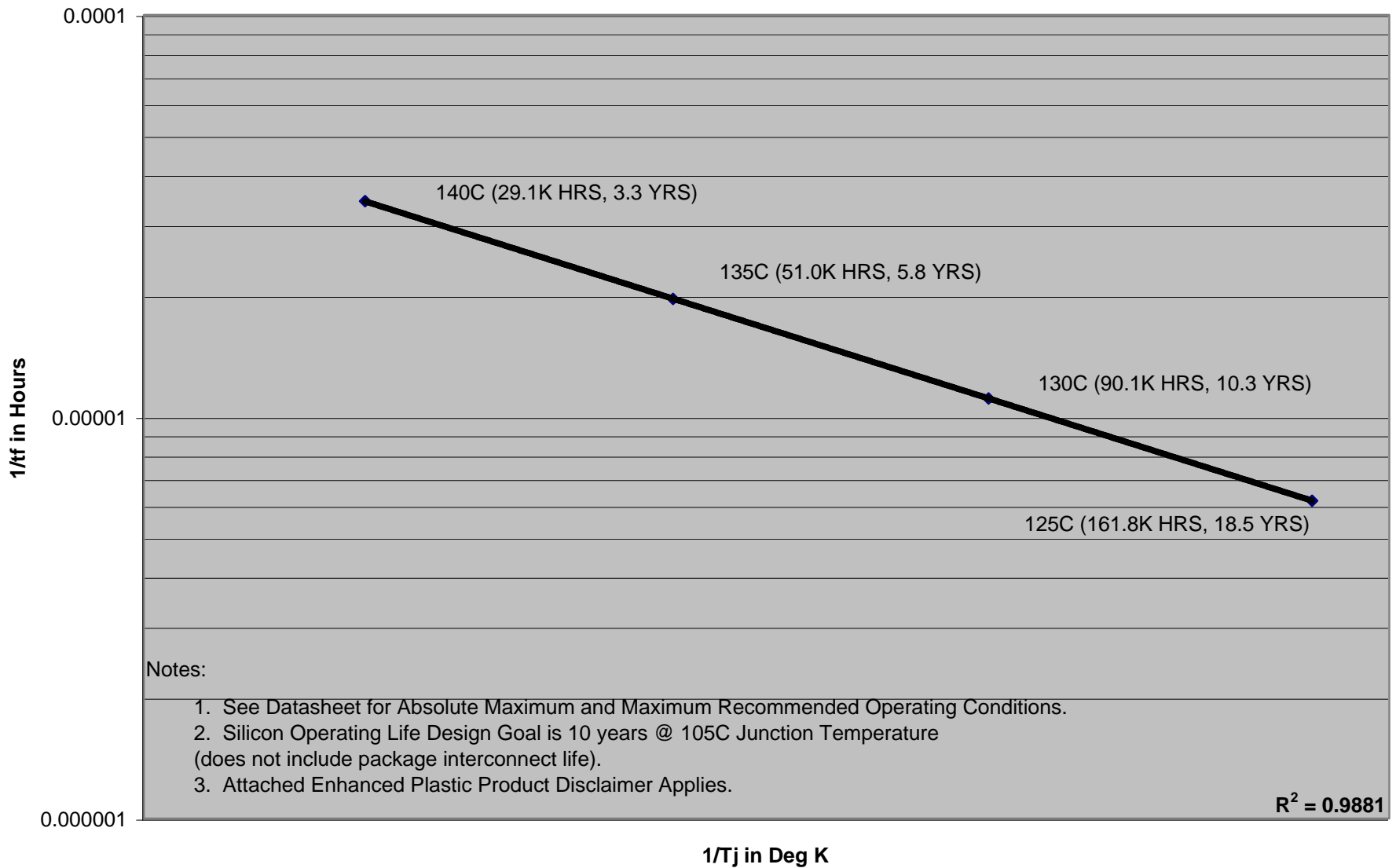
OPERATING LIFE DERATING TABLE - SN74LVTH244AQPWREP
1/TF versus 1/Tj in °K



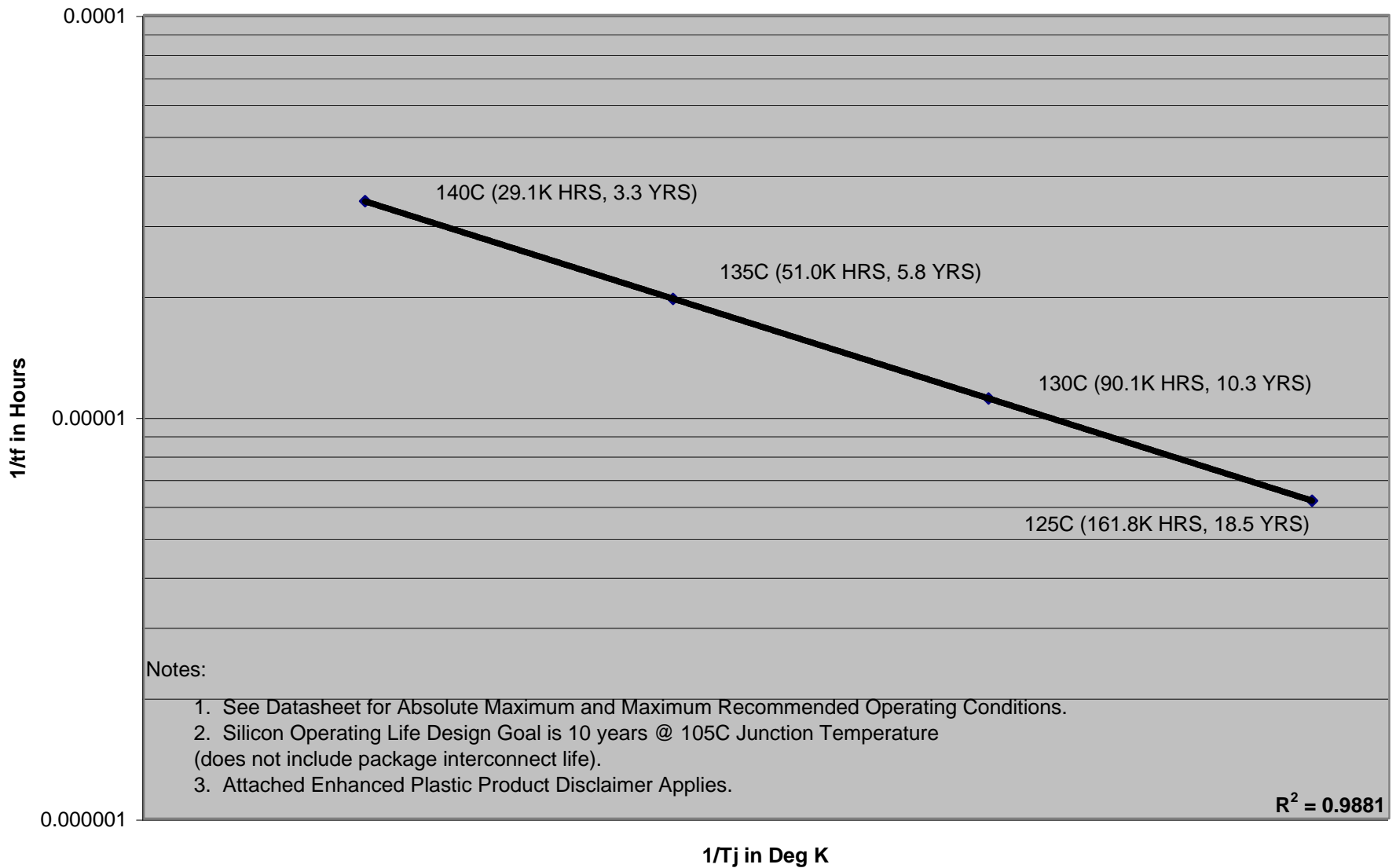
OPERATING LIFE DERATING TABLE - TLC2274xDREP 1/TF versus 1/Tj in °K



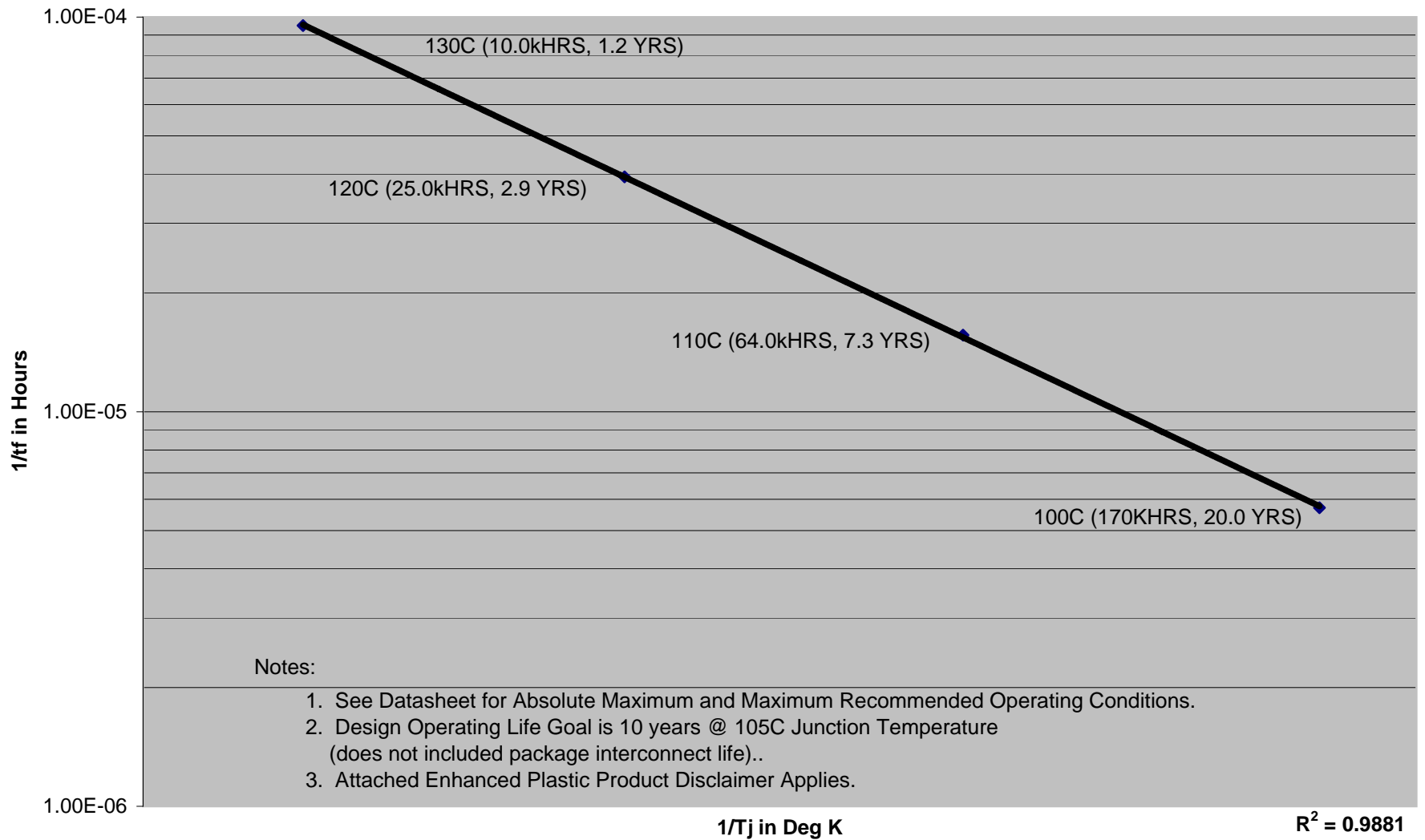
OPERATING LIFE DERATING TABLE - UC1843AMDREP
1/TF versus 1/Tj in °K



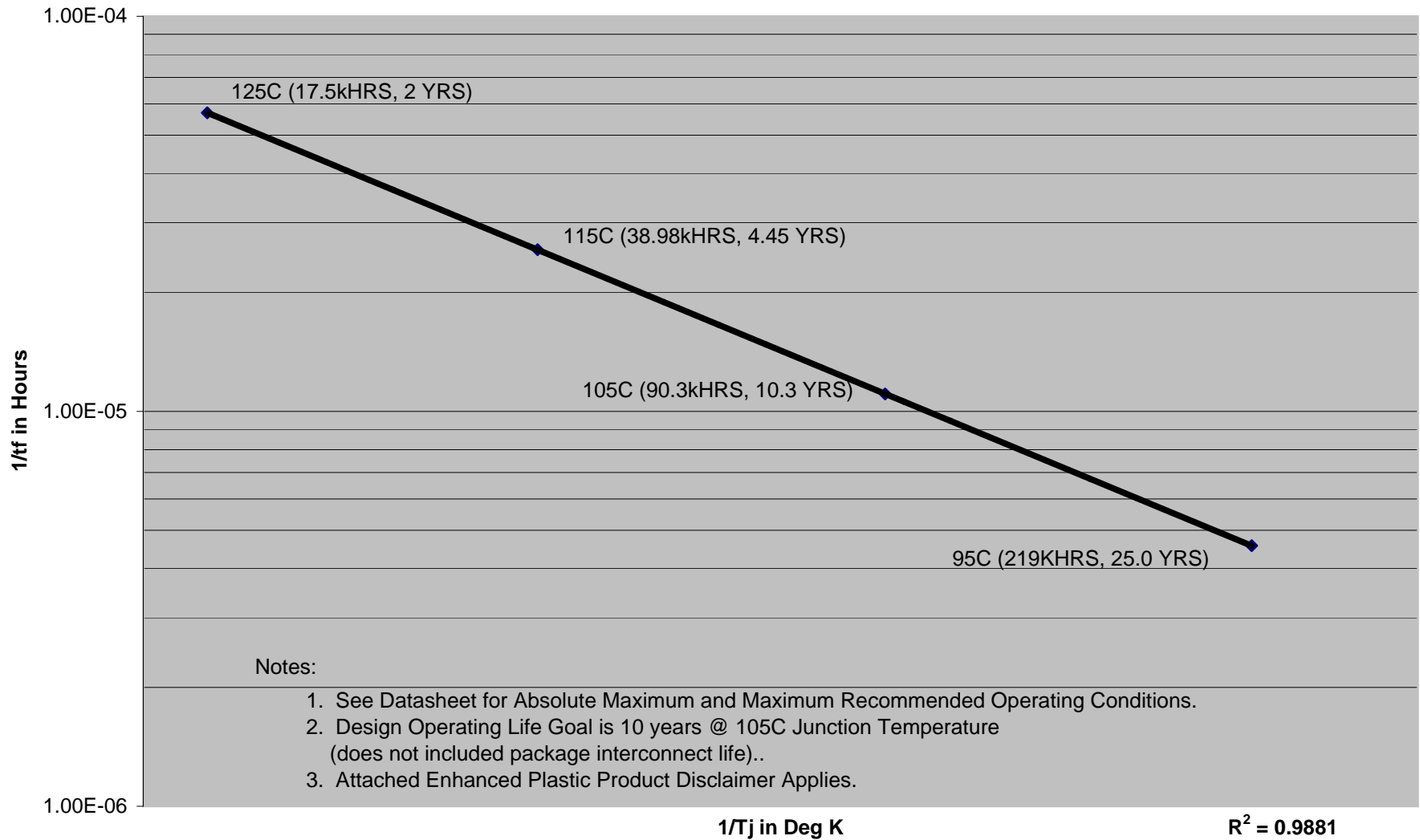
OPERATING LIFE DERATING TABLE - UCC2808AQDREP
1/TF versus 1/Tj in °K



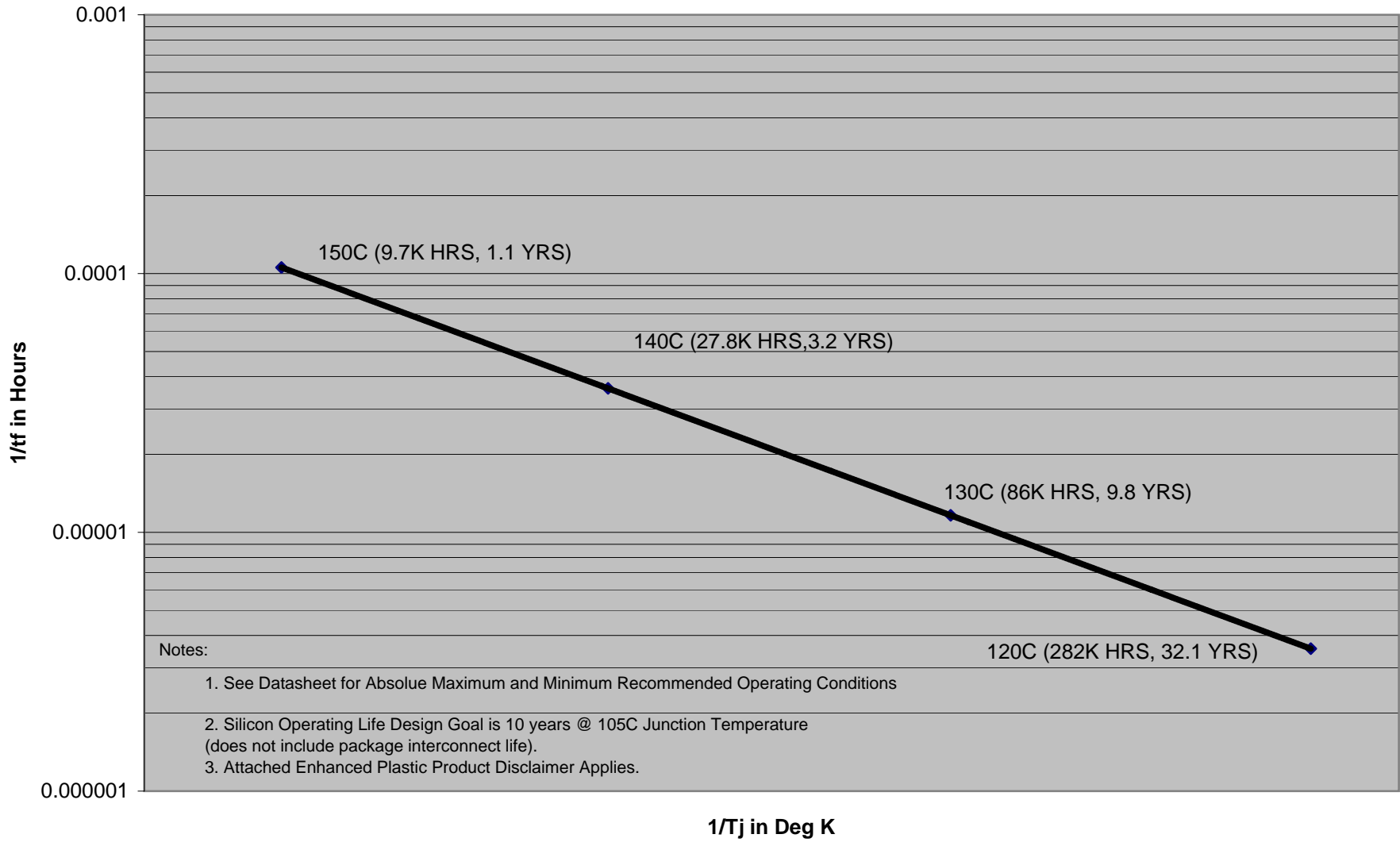
OPERATING LIFE DERATING TABLE - SM320F2812GHHMEP
1/TF versus 1/Tj in °K



OPERATING LIFE DERATING TABLE - SM320F2812PGFMEP
1/TF versus 1/Tj in °K



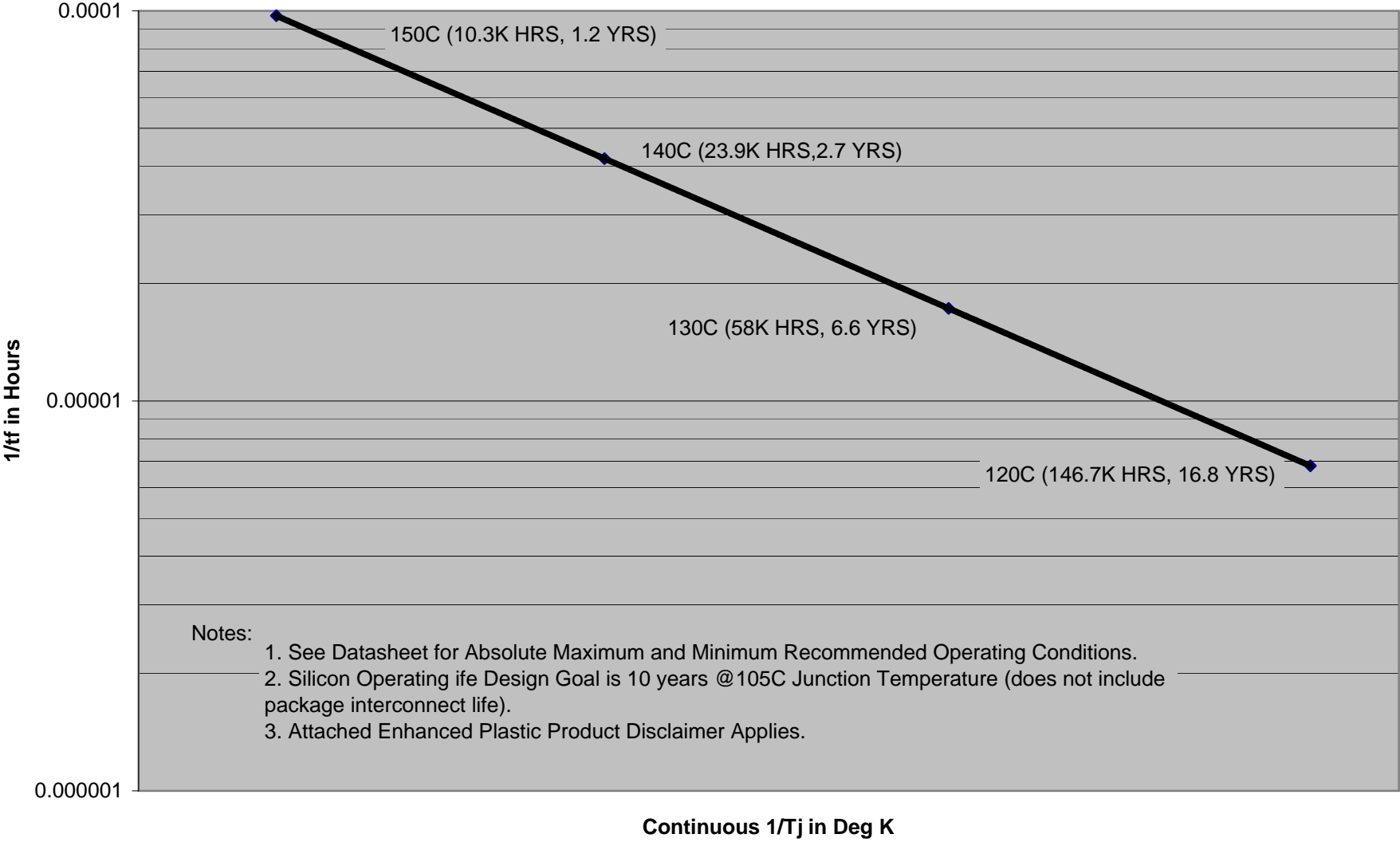
OPERATING LIFE DERATING TABLE - TL441MNSREP
1/TF versus 1/Tj in °K



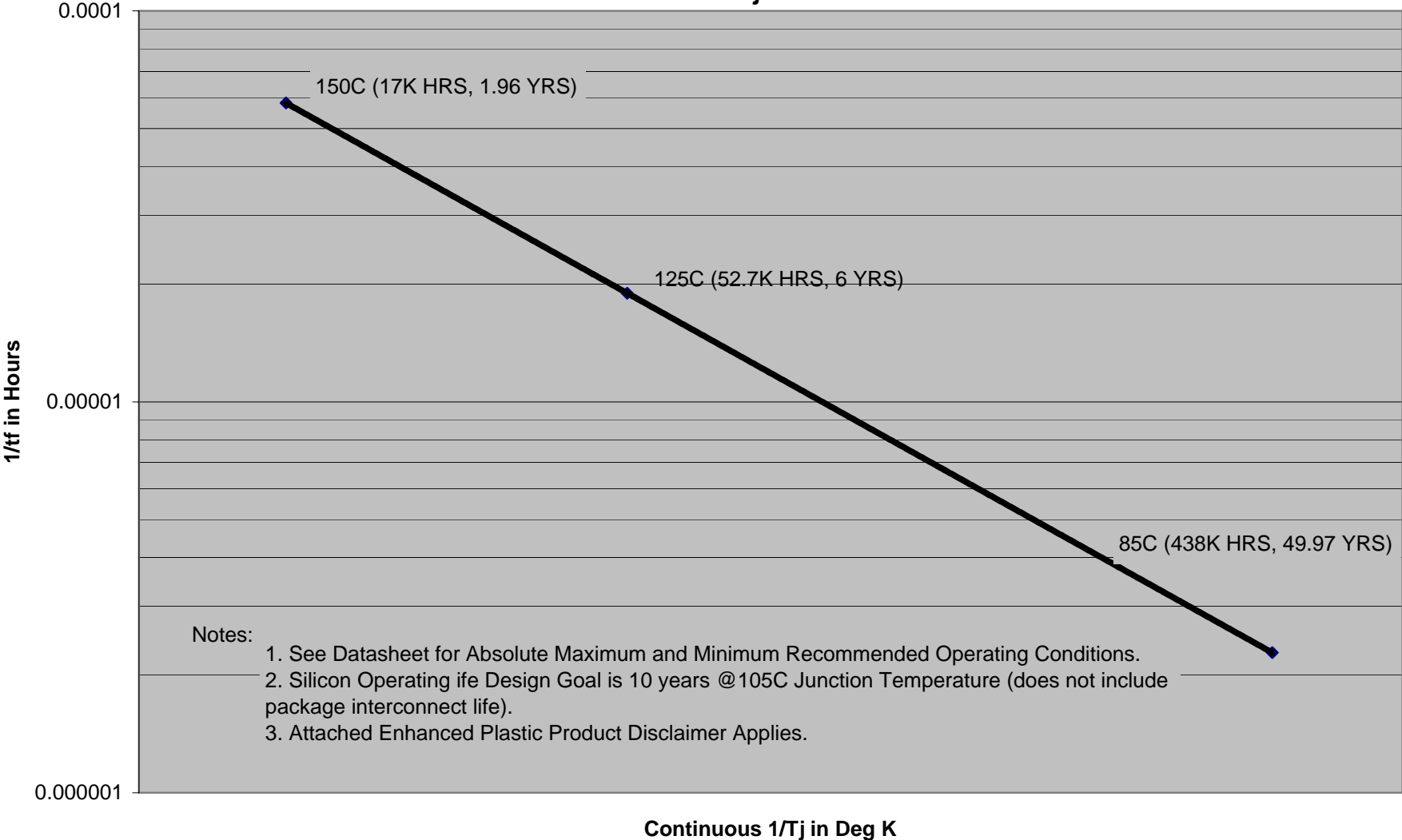
Notes:

- 1. See Datasheet for Absolute Maximum and Minimum Recommended Operating Conditions
- 2. Silicon Operating Life Design Goal is 10 years @ 105C Junction Temperature (does not include package interconnect life).
- 3. Attached Enhanced Plastic Product Disclaimer Applies.

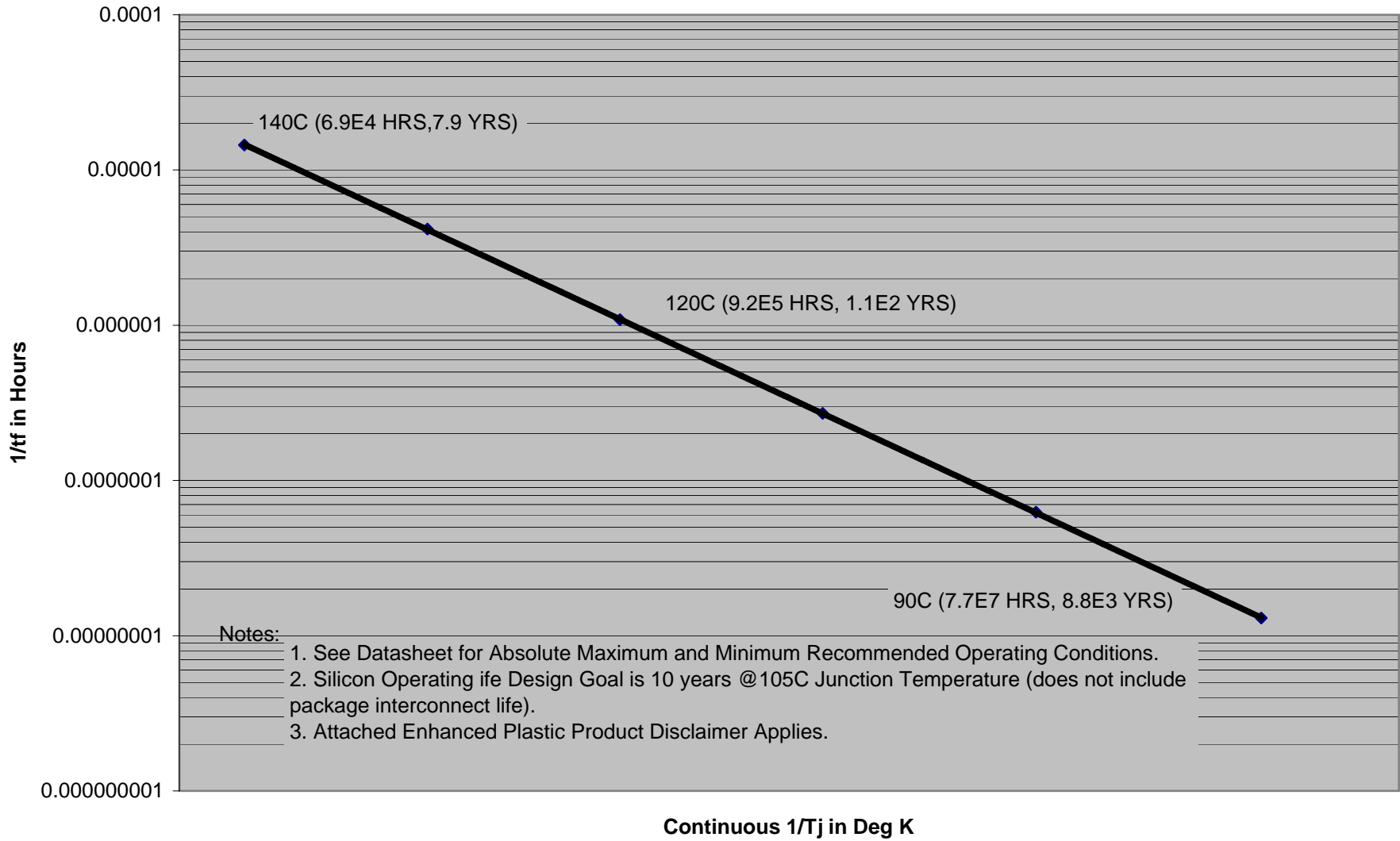
OPERATING LIFE DERATING TABLE TPS3803/3805XXXXDCK
1/TF versus 1/Tj in °K



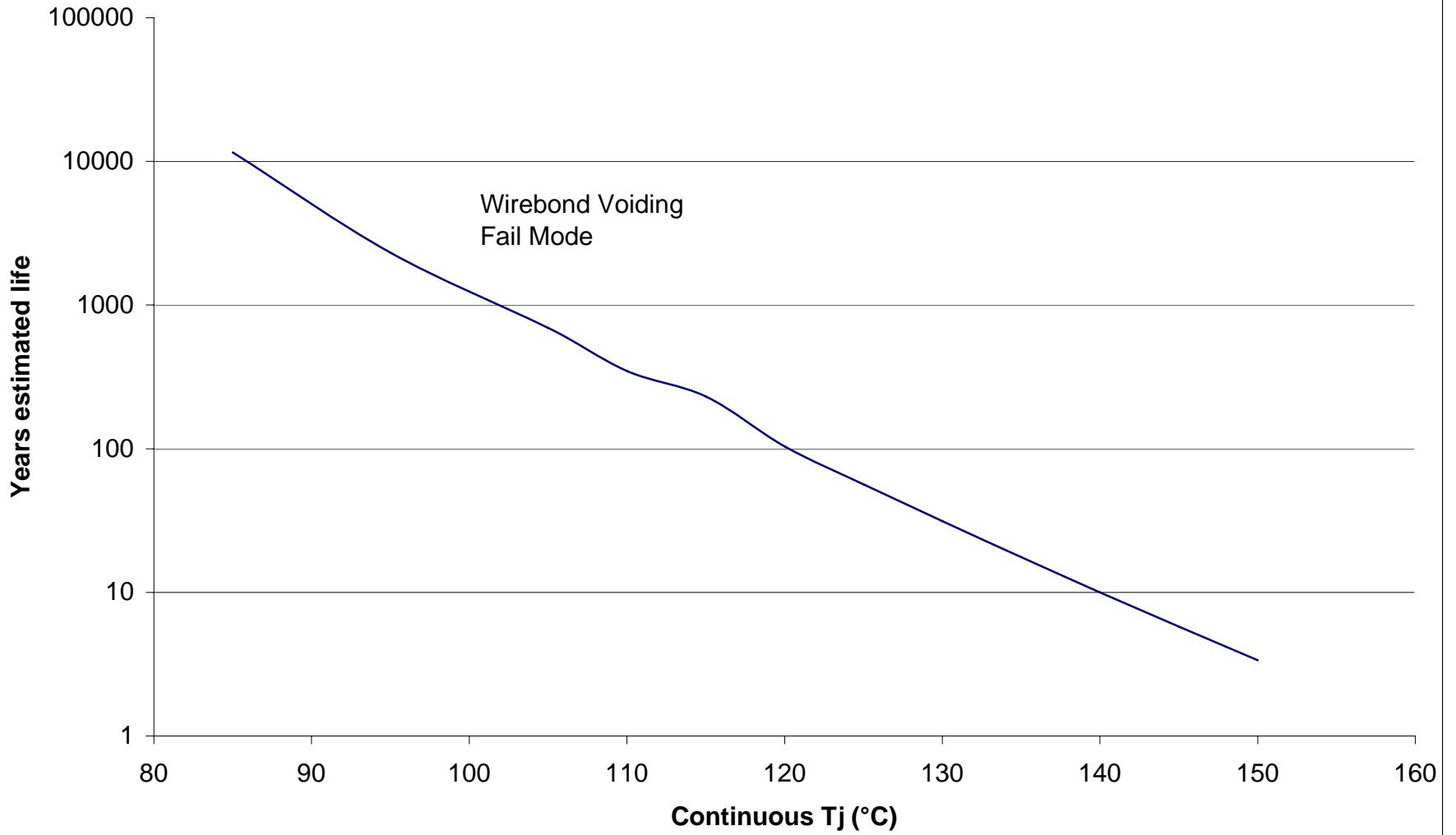
OPERATING LIFE DERATING TABLE 74VMEH22501A
Based on Electromigration Fail Mode
1/TF versus 1/Tj in °K



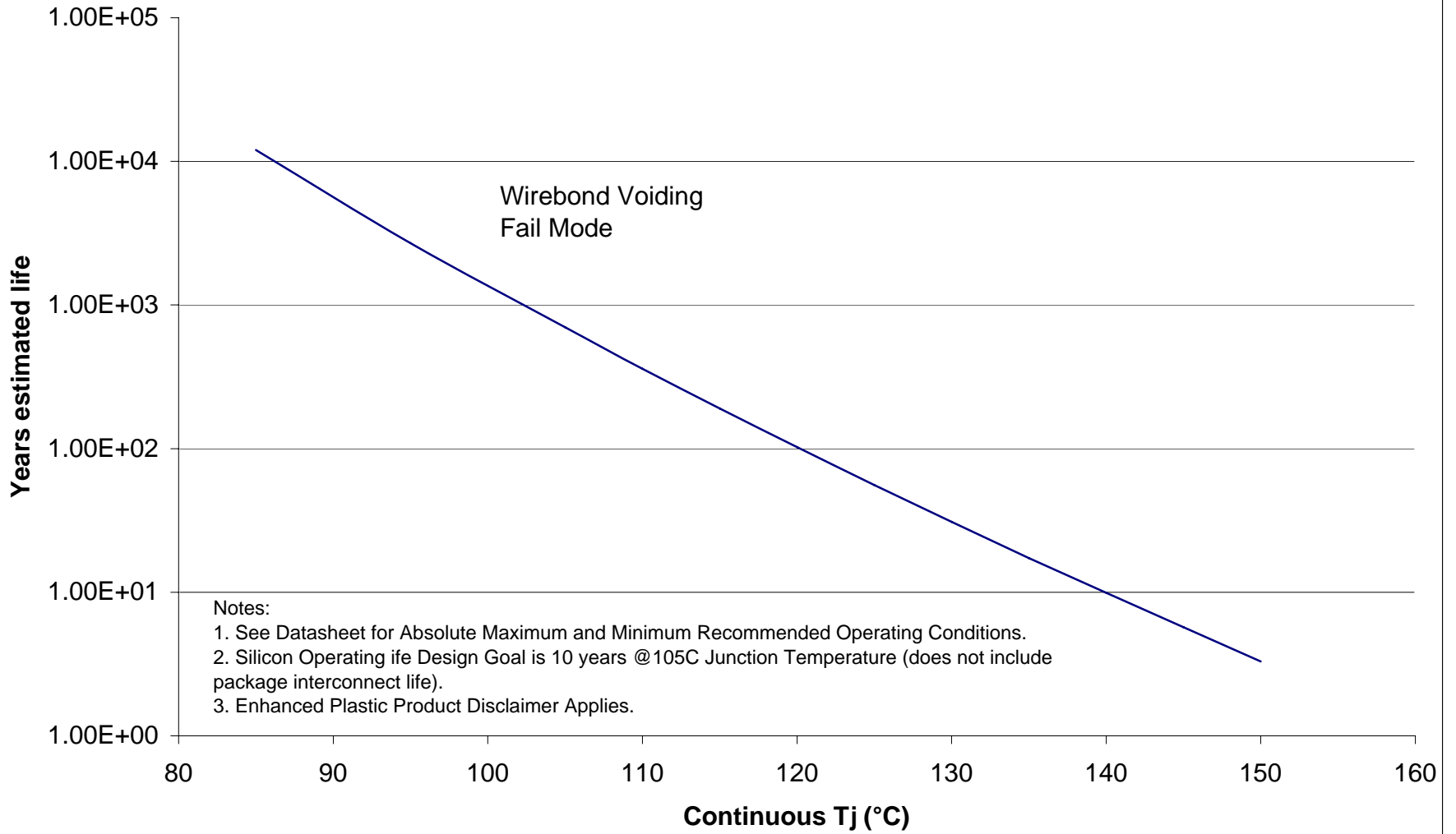
OPERATING LIFE DERATING TABLE TPS40055xPWPxEP
1/TF versus 1/Tj in °K



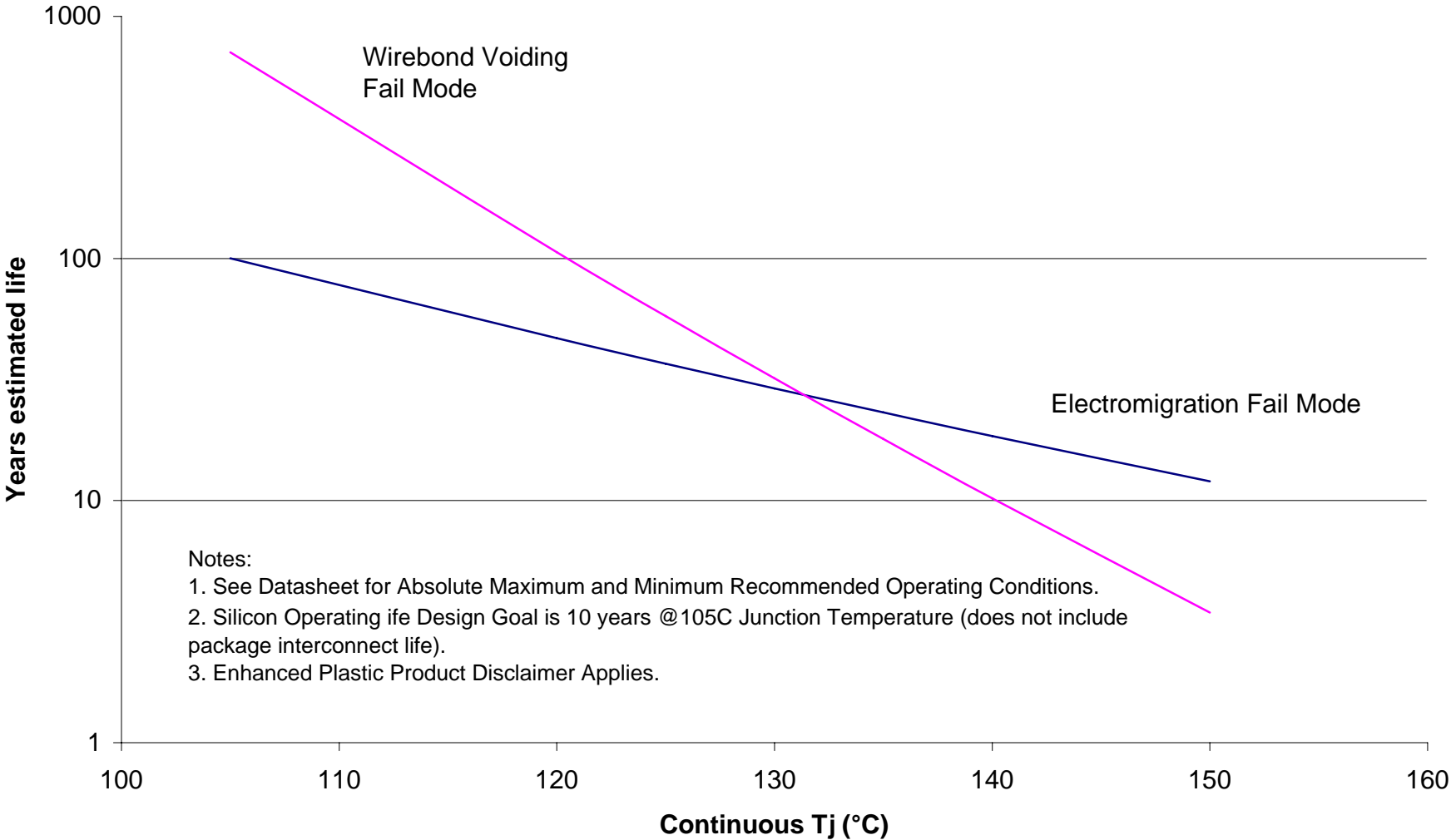
SN74HVD230MDREP Operating Life Derating Chart



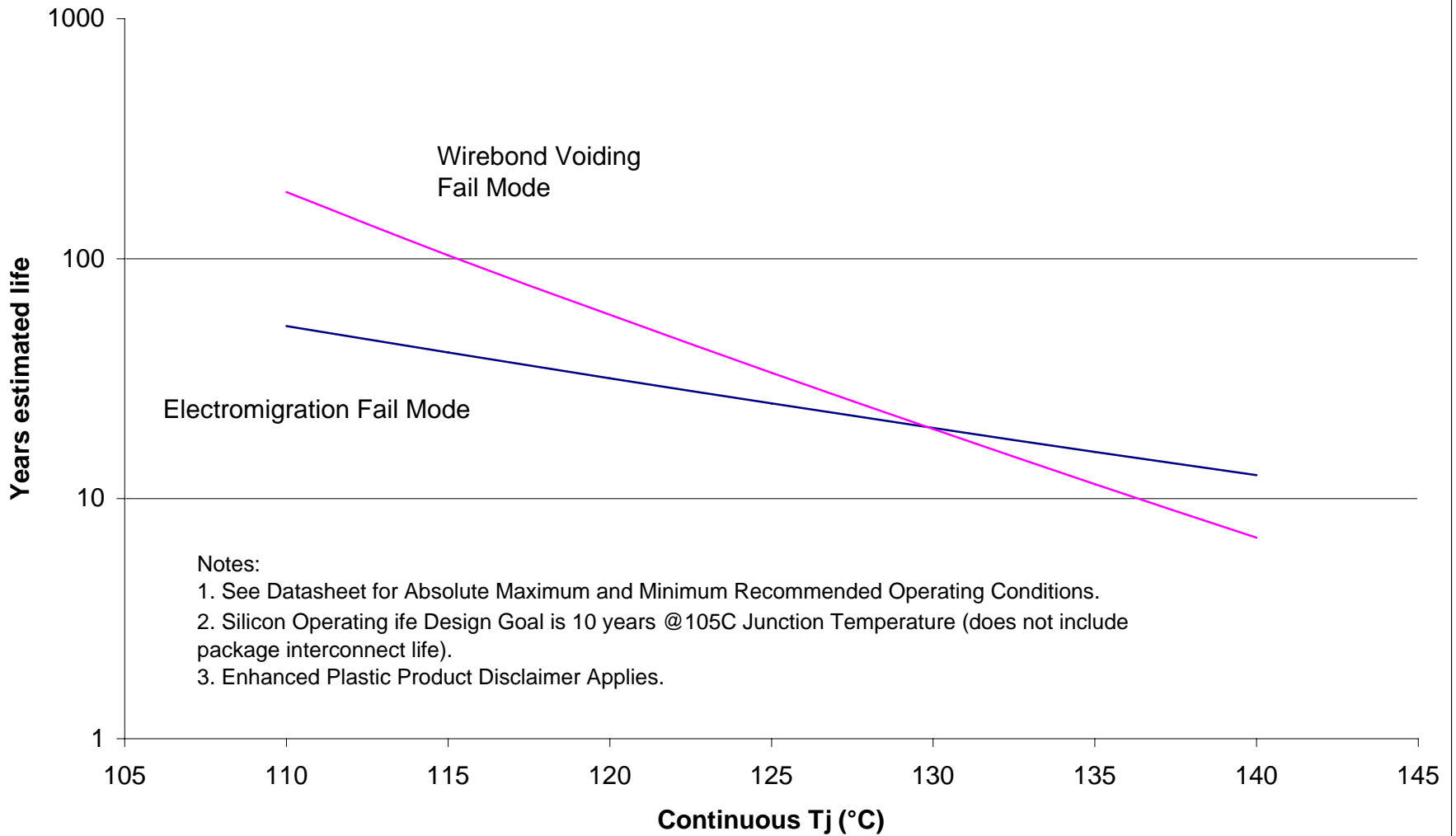
SN74LVTH162373MDLREP Operating Life Derating Chart



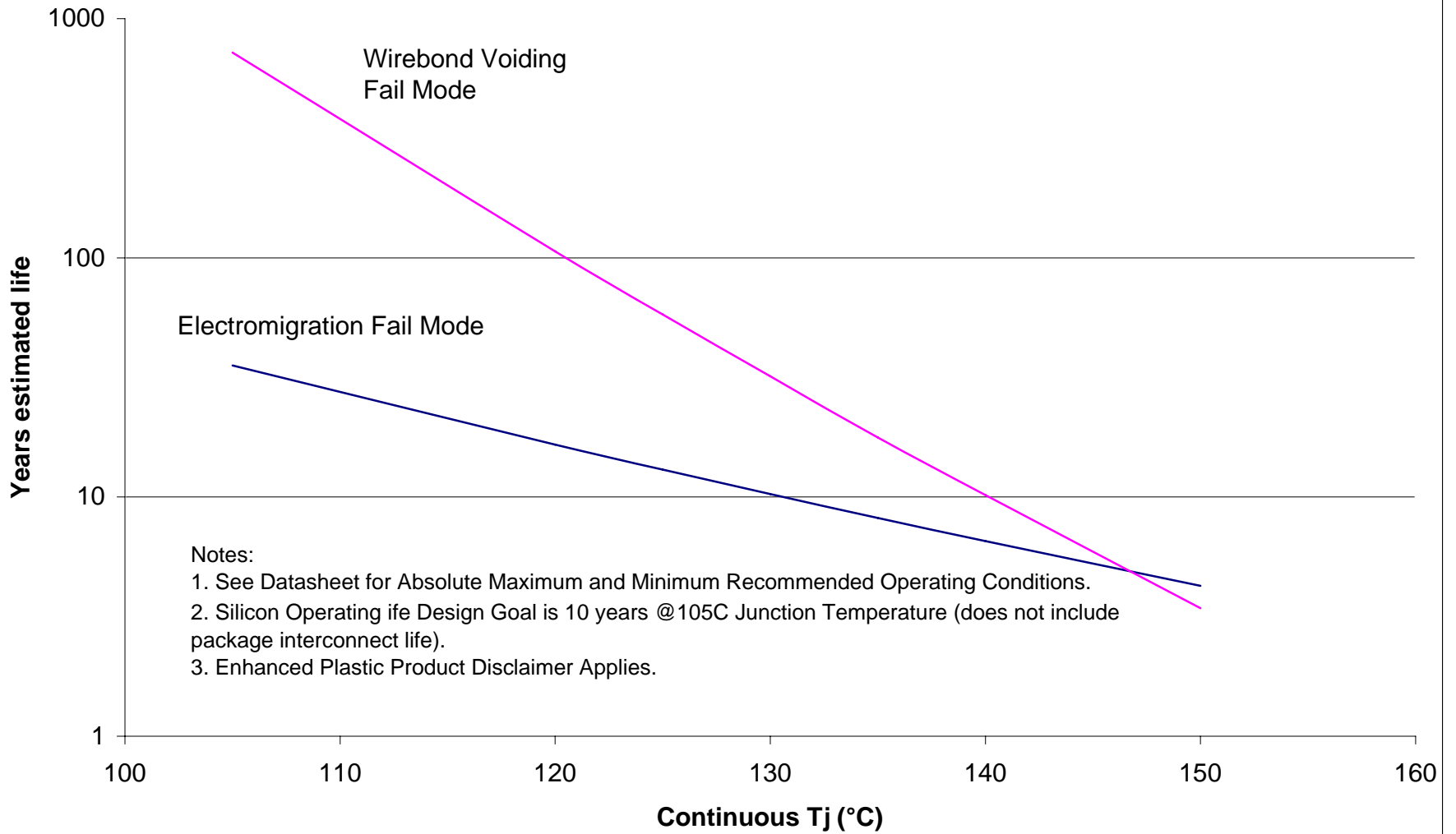
LM211MD*EP Operating Life Derating Chart



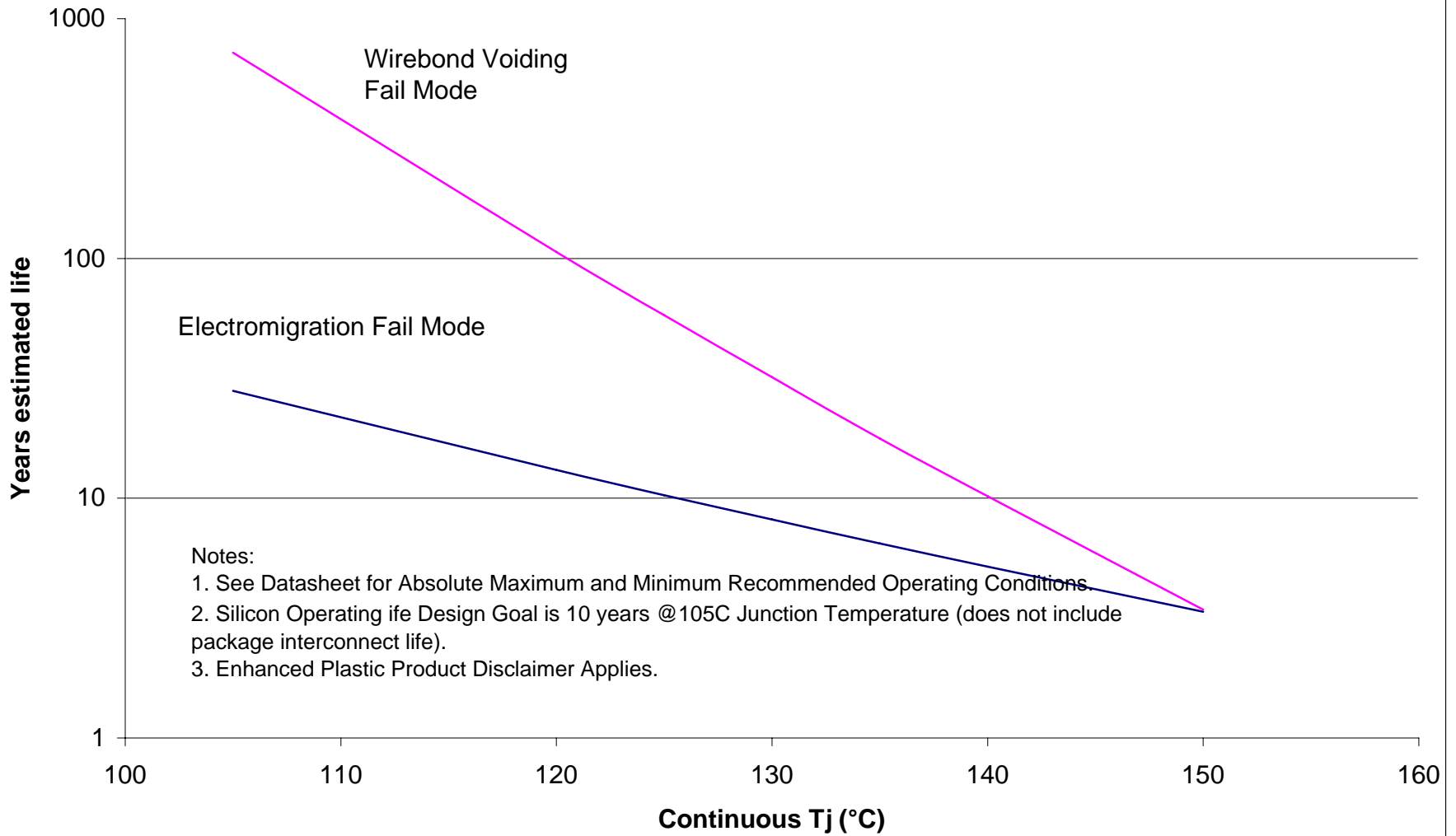
UC2825AMDW*EP Operating Life Derating Chart



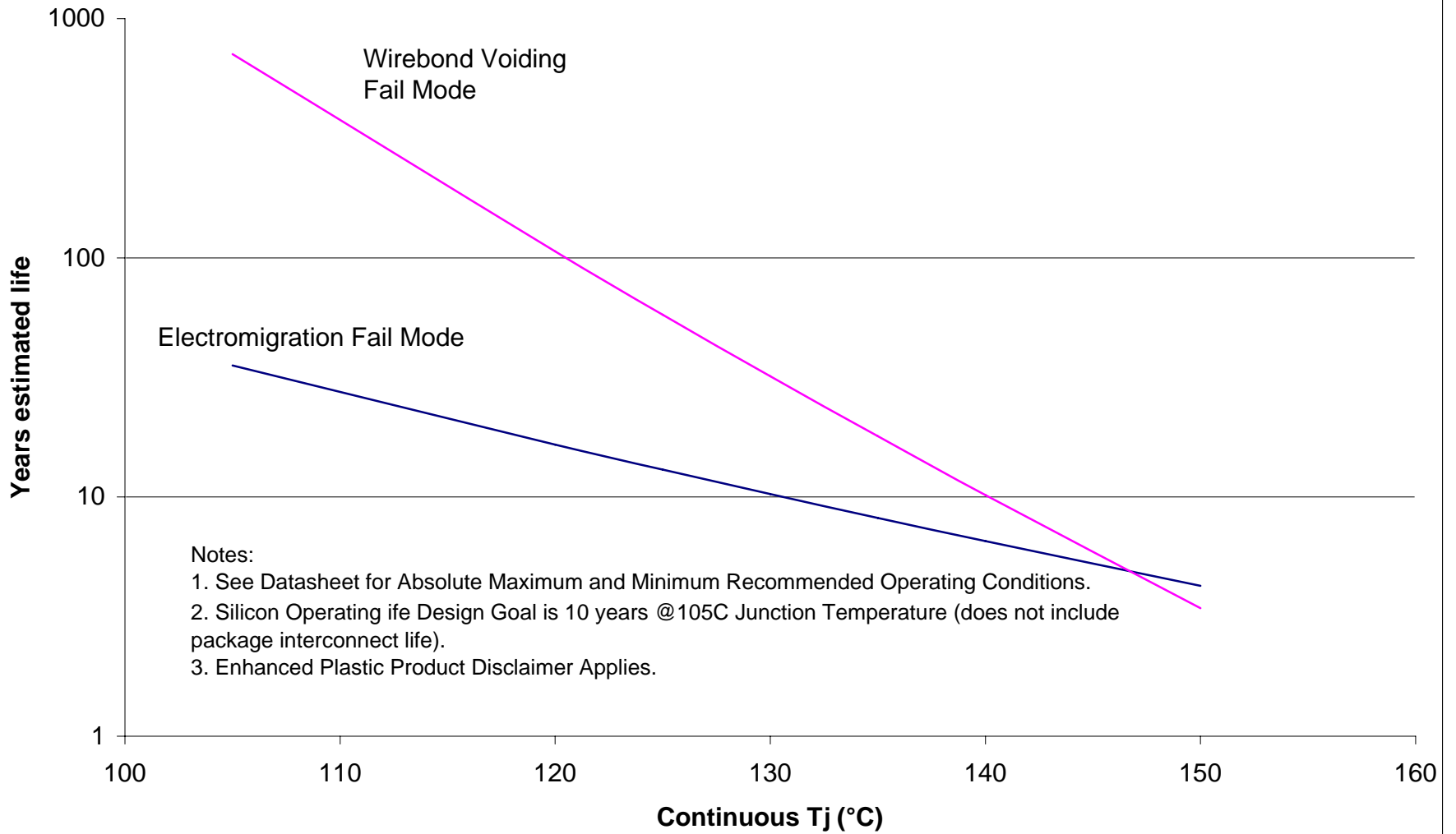
CLVTH16543MDL*EP Operating Life Derating Chart



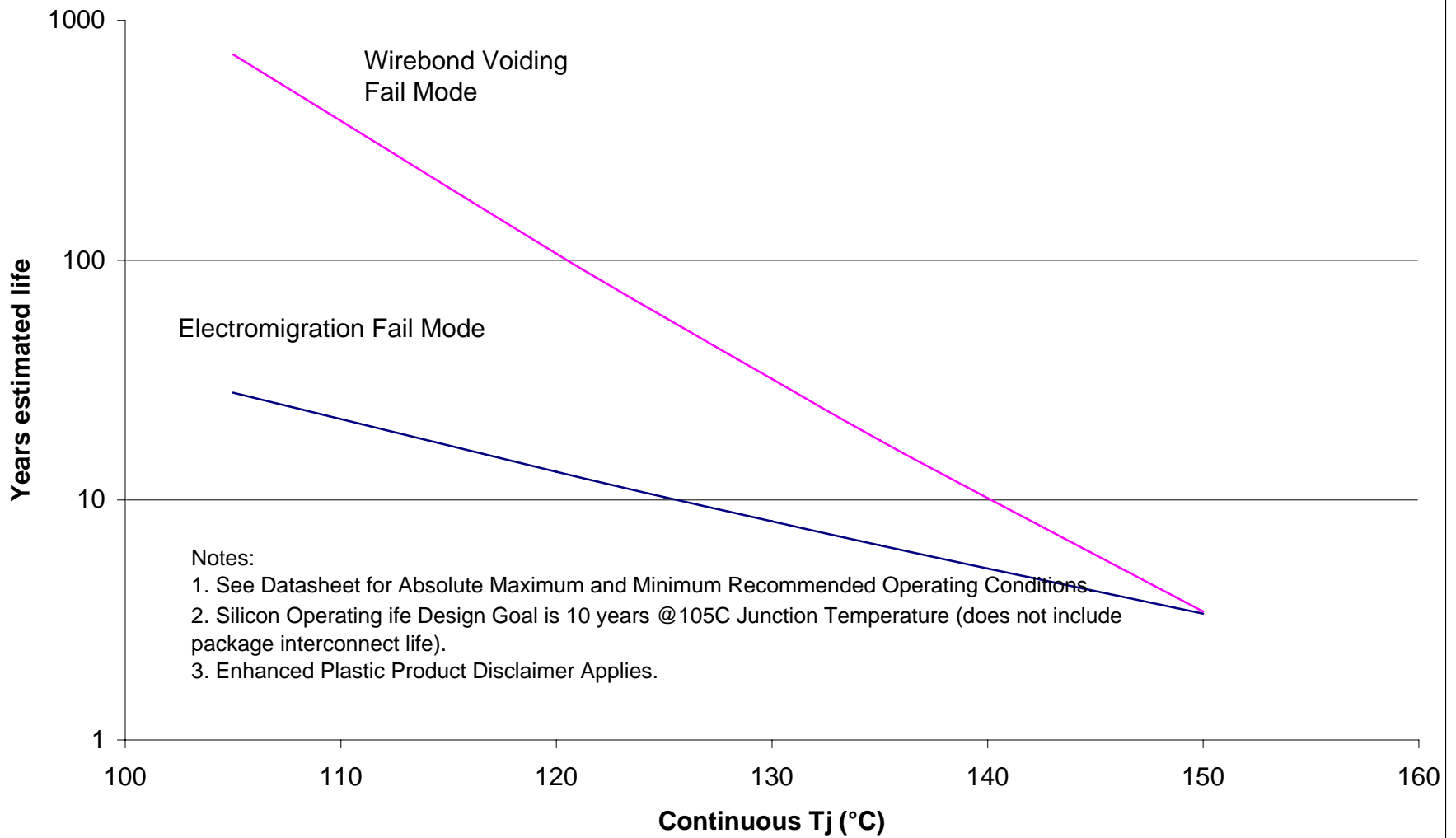
SN74LVTH245AMDB*EP Operating Life Derating Chart



SN74LVTH162245AMDLEP Operating Life Derating Chart



SN74LVTH16245AMDB*EP Operating Life Derating Chart



SN74LVTH273NSREP Operating Life Derating Chart

