



## HolyStone High Temperature Capacitors

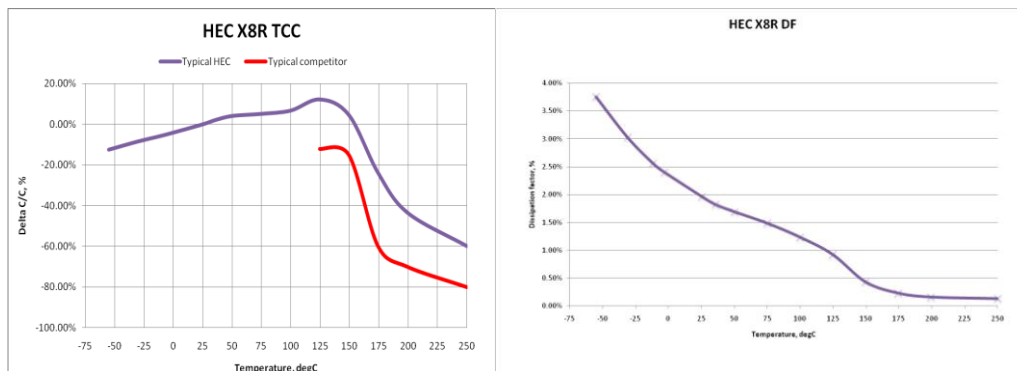
HolyStone is offering high temperature capacitors in a range of designs with operating temperatures of 150, 175, 200, and 250°C. These can be ordered as commercial or HIREL tested versions. The HolyStone high temperature dielectric offers superior performance to those offered by most of the MLCC industry. Lead times are short for most of the product offering.

High Temperature caps are popular for many applications that require stable performance in harsh environments. These applications include down-hole oil exploration and logging, jet aircraft engine controls, under the hood automotive electronics as well as a host of other harsh environment applications. HolyStone High Temperature caps offer very stable performance when compared to typical industry offerings and come in a full range of sizes and CV values.

- 150°C rating.
  - HolyStone dielectric exceeds X8R standards.
    - X8R allows for cap loss of 15% at 150°C. HolyStone dielectric typical performance at 150°C is -7%.
      - Better than typical industry X7R is at 125°C (-15%)
  - Utilize high temperature solder in assembly.
  - Available in Stacked cap designs (HSC series), same sizes as SMC series.
  - Available in Radial designs (HXX series), same sizes as RXX series.
  - Soon to be available in full size stacked caps (HFC series), sizes include 87106 case sizes, popular European metric sizes and LCC series insert sizes.
- 175°C rating.
  - Cap loss at 175°C is in the range of 25/30%.
    - Much better than typical industry performance of >60% loss.
  - Utilize high temperature solder in assembly.
  - Available in Stacked cap designs (HSC series), same sizes as SMC series.
  - Available in Radial designs (HXX series), same sizes as RXX series.
    - Radial designs are currently uncoated radials.
    - New epoxy encased/potted offering to be available later in 2009.
  - Soon to be available in full size stacked caps (HFC series), sizes include 87106 case sizes, popular European metric sizes and LCC series insert sizes.

- 200°C rating.
  - Cap loss at 200°C is 38%.
    - Much better than typical industry performance of > 60% loss.
  - Utilize high temperature solder in assembly.
  - Available in Stacked cap designs (HSC series), same sizes as SMC series.
  - Available in Radial designs (HXX series), same sizes as RXX series.
    - Radial designs are currently uncoated radials.
    - New epoxy encased/potted offering to be available later in 2009.
  - Soon to be available in full size stacked caps (HFC series), sizes include 87106 case sizes, popular European metric sizes and LCC series insert sizes.
- 250°C rating.
  - Cap loss at 250°C is 60%.
    - Much better than typical industry performance of > 80% loss.
  - Utilize high temperature solder in assembly.
  - Available in Stacked cap designs (HSC series), same sizes as SMC series.
  - Available in Radial designs (HXX series), same sizes as RXX series.
    - Radial designs are currently uncoated radials.
    - New epoxy encased/potted offering to be available later in 2009.
  - Soon to be available in full size stacked caps (HFC series), sizes include 87106 case sizes, popular European metric sizes and LCC series insert sizes.

Typical data:

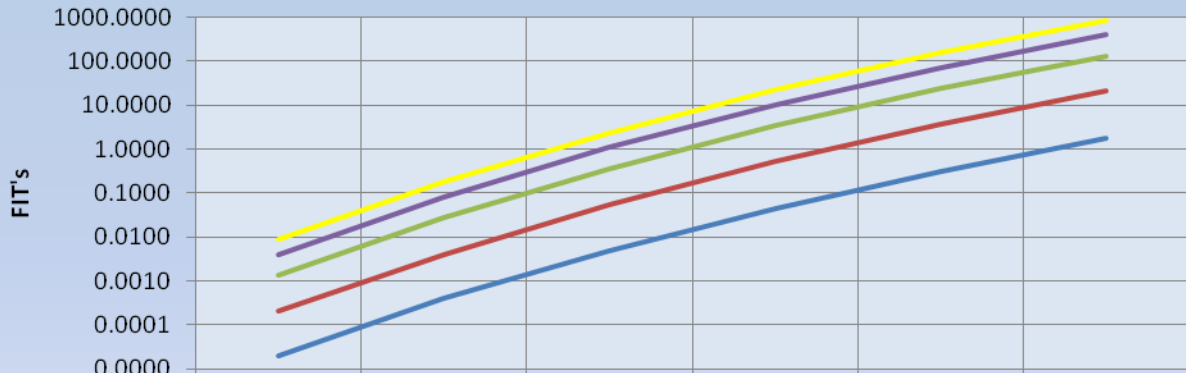


Reliability:

HolyStone and the manufacturer of the X8R dielectric have done extensive reliability testing on this dielectric and have compiled the following FIT's data which is very impressive.

# HEC X8R Failure Rates

FIT rates Calculated at 60% confidence Level



	25	50	75	100	125	150
10%	0.0000	0.0004	0.0050	0.0440	0.3100	1.7400
25%	0.0002	0.0040	0.0560	0.5200	3.6900	20.7000
50%	0.0014	0.0280	0.3650	3.4000	23.9900	134.2000
75%	0.0041	0.0830	1.0900	10.1700	71.6800	401.1000
100%	0.0089	0.1800	2.3700	22.1100	155.8600	872.2000

Data derived from 200,000 component test hours from which there was 1 failure

Data sheets for each series are now available on the web at [www.holystonecaps.com](http://www.holystonecaps.com).