

NEW GENERATION OF Add-A-Pak (TO240) MODULES



WHAT

The Generation VII of Diode and Thyristor Modules in TO240 package style (Add-A-Pak) has been designed and qualified.

Major Highlights:

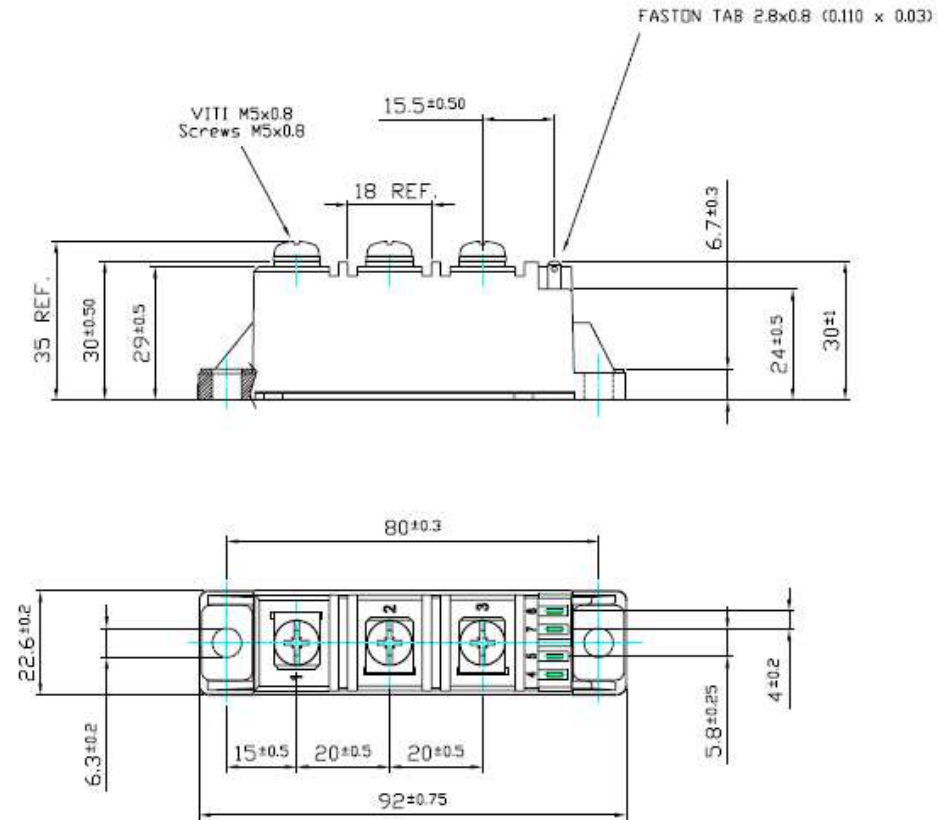
- Package Outline Dimensions Conforms to JEDEC outline TO240
- Piece Parts and Process Automated on key steps
- Better Thermal Dissipation Performance than Current Design
- Improved life at Thermal Fatigue (IOL)
- Excellent Mechanical Characteristics
- Totally Lead Free and RoHS Compliant



Technical Assessment – Key Features

- High Blocking Voltage → up to 1600V
- High DV/dt → $DV/dt > 1000 \text{ V/usec}$
- High Isolation Capability → 3500 Volt rms
- High Surge Capability → Ifsm up to 3000 A
- No toxic material → Totally Lead Free, RoHS and UL Compliant
- Elimination of Copper base plate → Light devices; weight 75 grams
- Elimination of process steps requiring usage of chemicals and related waste treatment → Environmental friendly manufacturing process

Outline

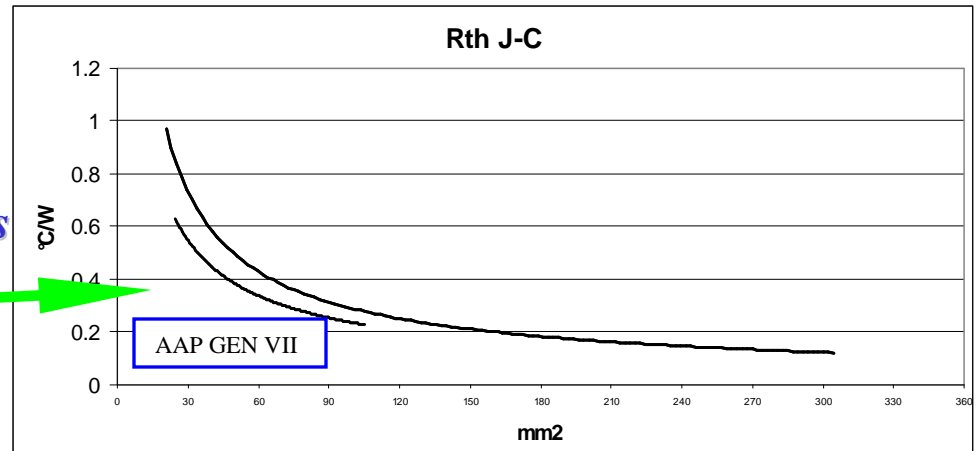


Benefits to the Customer

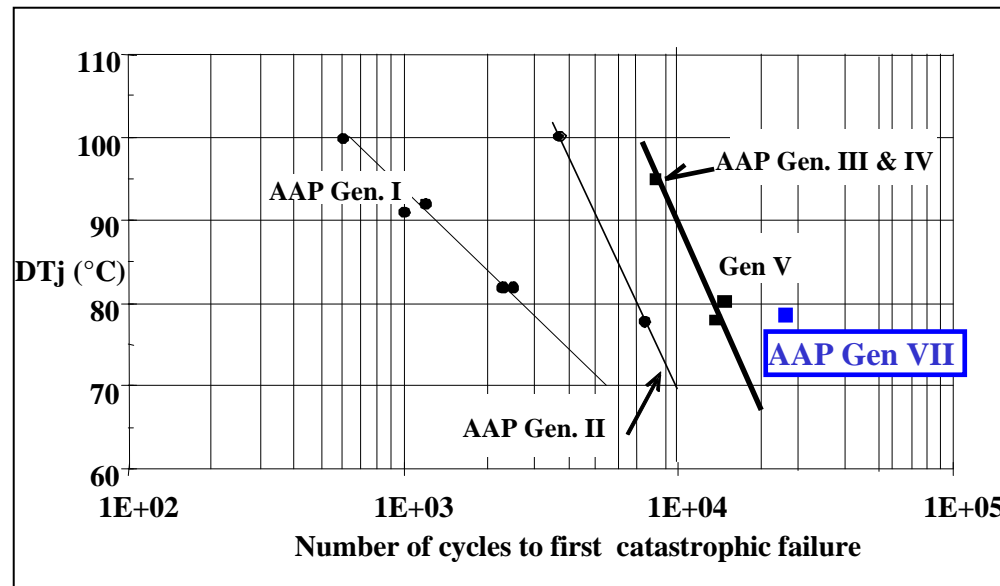
Quality Improvements with AAP GEN VII:

Lower Thermal Resistance

Improved thermal dissipation performances



Longer Life at Power Cycling



Technical Assessment – Process Description

The AAP Gen VII modules are designed with an exposed DBC Al_2O_3 substrate.

This is used to optimize the thermal behaviour of the module. To reduce the risk of damage during mounting, the ceramic has been given additional mechanical ruggedness in the form of two separate 15.8-mm by 21.1-mm (0.62-in. by 0.83-in.) pieces of DBC substrate, as it could be clearly seen in the picture below





Mechanical Performance

AAP GEN VII have leads not directly soldered to the die

TORQUE TEST

RESULTS :

Torque on heatsink: Screw breakage after **9 Nm (79.6 Lbf in)** Die still OK
Data sheet: **4 Nm**

Torque on Busbar: Screw breakage after **10 Nm (88.5 Lbf in)** Die still OK
Data sheet: **3 Nm**