

## PHASE CONTROL MODULE

# ADT250HVI

Repetitive voltage up to

**4500 V**

Mean forward current

**259 A**

Surge current

**5,9 kA**

### FINAL SPECIFICATION

apr 17 - ISSUE : 02

| Symbol               | Characteristic                                   | Conditions                                   | T <sub>j</sub><br>[°C] | Value                 | Unit             |
|----------------------|--|--|------------------------|-----------------------|------------------|
| <b>BLOCKING</b>      |  |  |                        |                       |                  |
| V <sub>RRM</sub>     | Repetitive peak reverse/off-state voltage        |  | 125                    | 4500                  | V                |
| V <sub>RSM</sub>     | Non-repetitive peak reverse voltage              |  | 125                    | 4600                  | V                |
| I <sub>RRM/DRM</sub> | Repetitive peak reverse/off-state current        |  | 125                    | 75                    | mA               |
| <b>CONDUCTING</b>    |  |  |                        |                       |                  |
| I <sub>T(AV)</sub>   | Mean forward current                             | 180° sin, 50 Hz, Th=85°C, single side cooled |                        | 259                   | A                |
| I <sub>T(AV)</sub>   | Mean forward current                             | 180° sin, 50 Hz, Tc=55°C, single side cooled |                        | 383                   | A                |
| I <sub>TSM</sub>     | Surge forward current                            | Sine wave, 10 ms                             | 125                    | 5,9                   | kA               |
| I <sup>2</sup> t     | I <sup>2</sup> t                                 | without reverse voltage                      |                        | 174 x 10 <sup>3</sup> | A <sup>2</sup> s |
| V <sub>T</sub>       | On-state voltage                                 | On-state current = 1600 A                    | 25                     | 3,34                  | V                |
| V <sub>T(TO)</sub>   | Threshold voltage                                |  | 125                    | 1,35                  | V                |
| r <sub>T</sub>       | On-state slope resistance                        |  | 125                    | 1,335                 | mohm             |
| <b>SWITCHING</b>     |  |  |                        |                       |                  |
| di/dt                | Critical rate of rise of on-state current, min.  | From 75% VDRM up to 1050 A; gate 10V, 5Ω     | 125                    | 200                   | A/μs             |
| dv/dt                | Critical rate of rise of off-state voltage, min. | Linear ramp up to 70% of VDRM                | 125                    | 500                   | V/μs             |
| t <sub>d</sub>       | Gate controlled delay time, typical              | VD=100V; gate source 25V, 10Ω, tr=.5 μs      | 25                     | 1,6                   | μs               |
| t <sub>q</sub>       | Circuit commutated turn-off time, typical        | dv/dt = 20 V/μs linear up to 75% VDRM        |                        | 320                   | μs               |
| Q <sub>rr</sub>      | Reverse recovery charge                          | di/dt = -20 A/μs, I= 700 A                   | 125                    |                       | μC               |
| I <sub>rr</sub>      | Peak reverse recovery current                    | VR= 50 V                                     |                        |                       | A                |
| I <sub>H</sub>       | Holding current, typical                         | VD=5V, gate open circuit                     | 25                     | 300                   | mA               |
| I <sub>L</sub>       | Latching current, typical                        | VD=5V, tp=30μs                               | 25                     | 700                   | mA               |
| <b>GATE</b>          |  |  |                        |                       |                  |
| V <sub>GT</sub>      | Gate trigger voltage                             | VD=5V  | 25                     | 3,50                  | V                |
| I <sub>GT</sub>      | Gate trigger current                             | VD=5V  | 25                     | 200                   | mA               |
| V <sub>GD</sub>      | Non-trigger gate voltage, min.                   | VD=VDRM                                      | 125                    | 0,25                  | V                |
| V <sub>FGM</sub>     | Peak gate voltage (forward)                      |  |                        | 30                    | V                |
| I <sub>FGM</sub>     | Peak gate current                                |  |                        | 10                    | A                |
| V <sub>RGM</sub>     | Peak gate voltage (reverse)                      |  |                        | 5                     | V                |
| P <sub>GM</sub>      | Peak gate power dissipation                      | Pulse width 100 μs                           |                        | 150                   | W                |
| P <sub>G</sub>       | Average gate power dissipation                   |  |                        | 2                     | W                |
| <b>MOUNTING</b>      |  |  |                        |                       |                  |
| R <sub>th(j-c)</sub> | Thermal impedance, DC                            | Junction to case, per element                |                        | 70,0                  | °C/kW            |
| R <sub>th(c-h)</sub> | Thermal impedance                                | Case to heatsink, per element                |                        | 20,0                  | °C/kW            |
| T <sub>j</sub>       | Operating junction temperature                   |  |                        | -30 / 125             | °C               |
| V <sub>ins</sub>     | RMS insulation voltage                           | 50 hz, circuit to base, all terminal shorted | 25                     | 6000                  | V                |
| T                    | Mounting torque                                  | Case to heatsink                             |                        | 4 to 6                | Nm               |
| T                    | Mounting torque                                  | Busbars to terminal                          |                        | 12 to 18              | Nm               |
|                      | Mass   |  |                        | 1500                  | g                |

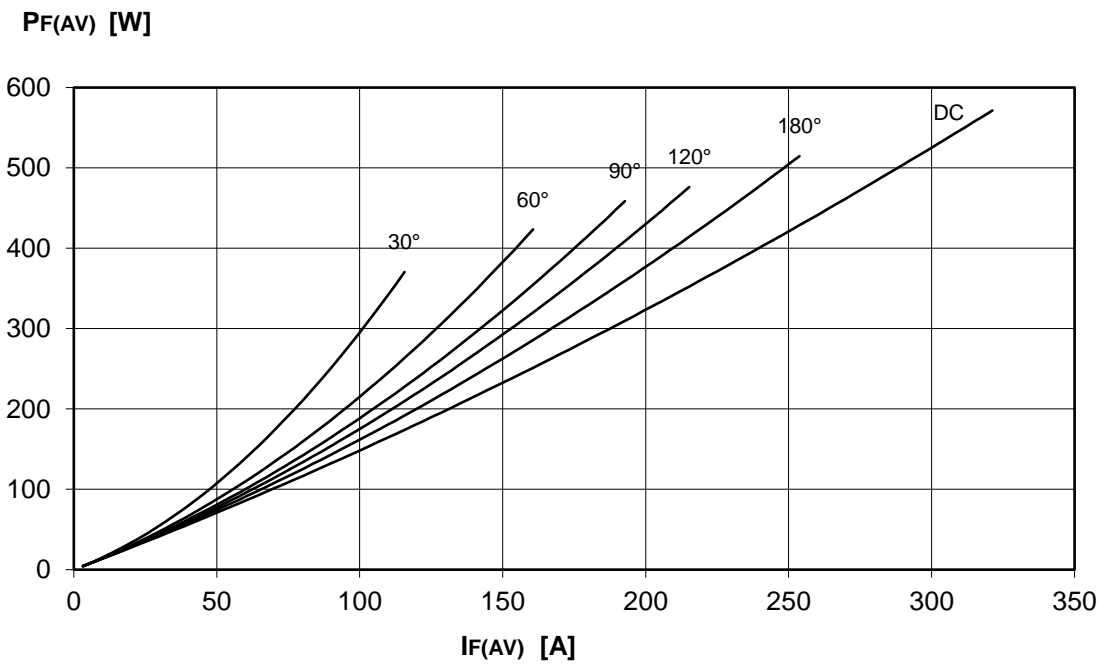
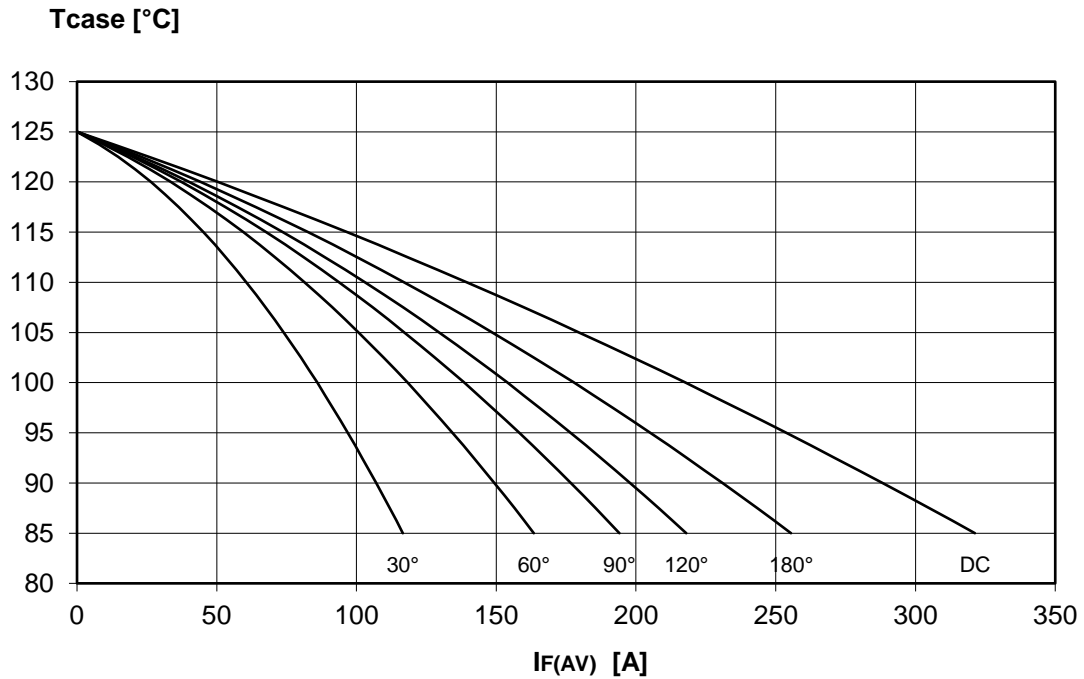
### ORDERING INFORMATION : ADT250HVI S 45

standard specification   VRRM/100

FINAL SPECIFICATION apr 17 - ISSUE : 02

**DISSIPATION CHARACTERISTICS**

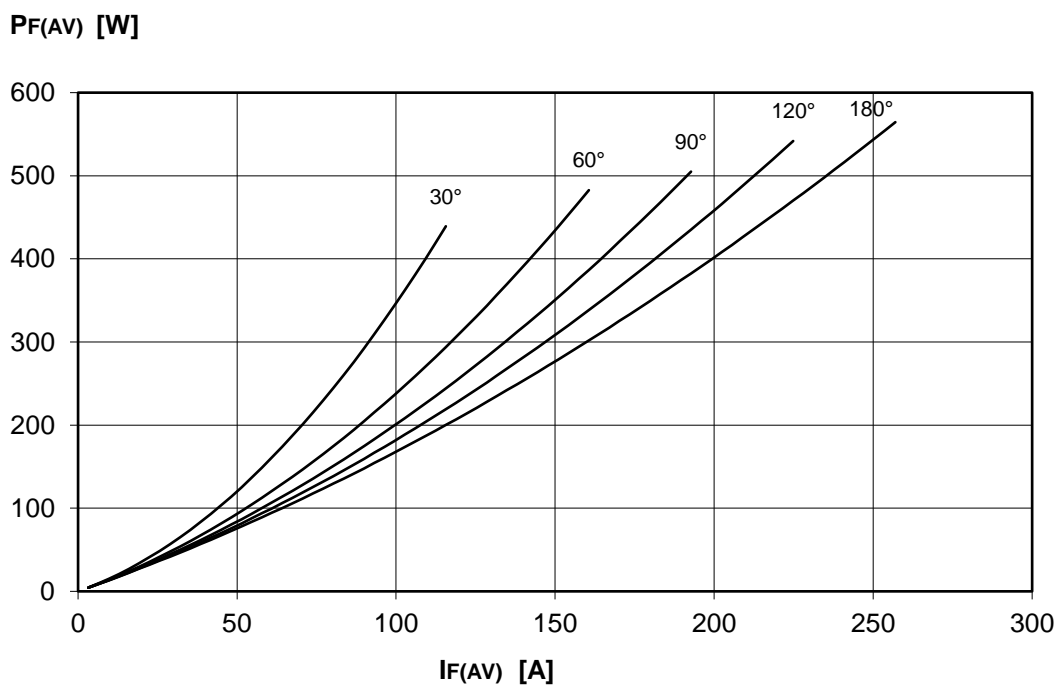
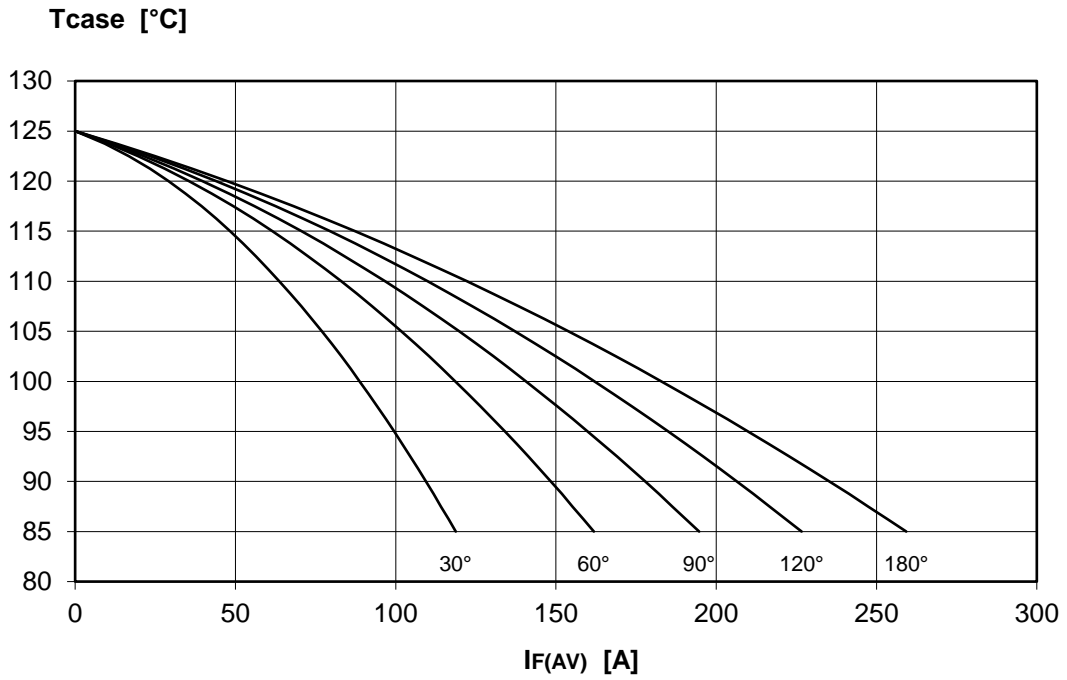
**SQUARE WAVE**



FINAL SPECIFICATION apr 17 - ISSUE : 02

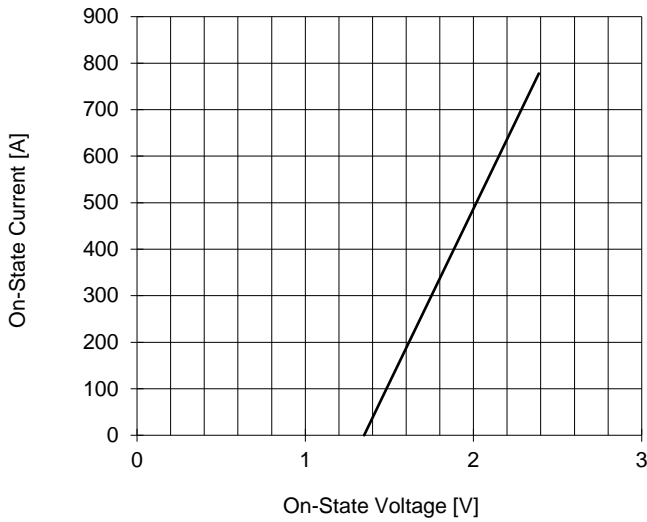
## DISSIPATION CHARACTERISTICS

SINE WAVE

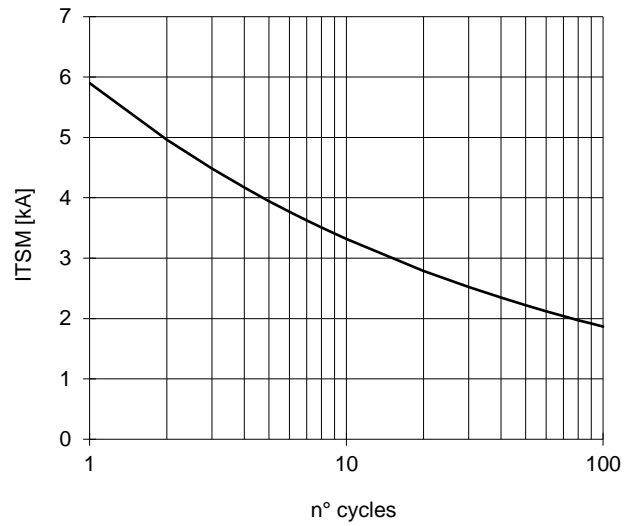


FINAL SPECIFICATION apr 17 - ISSUE : 02

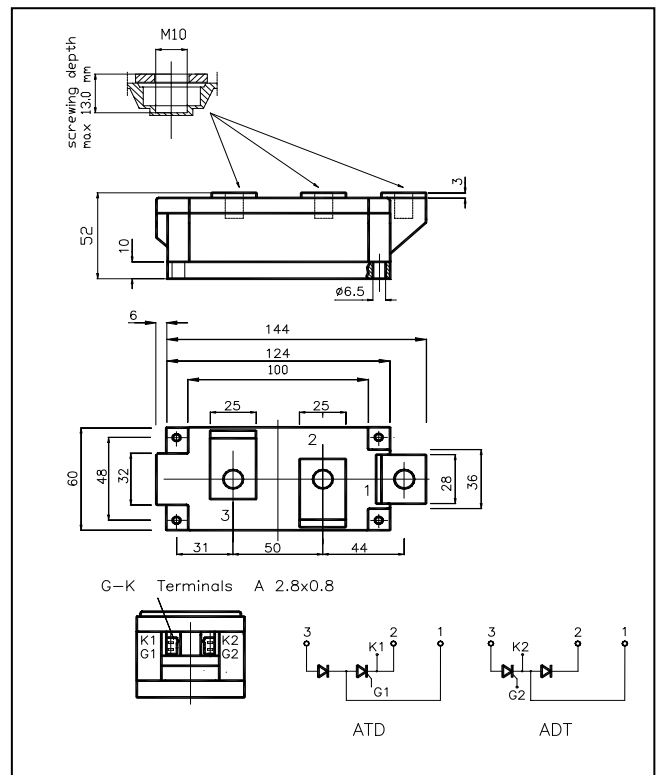
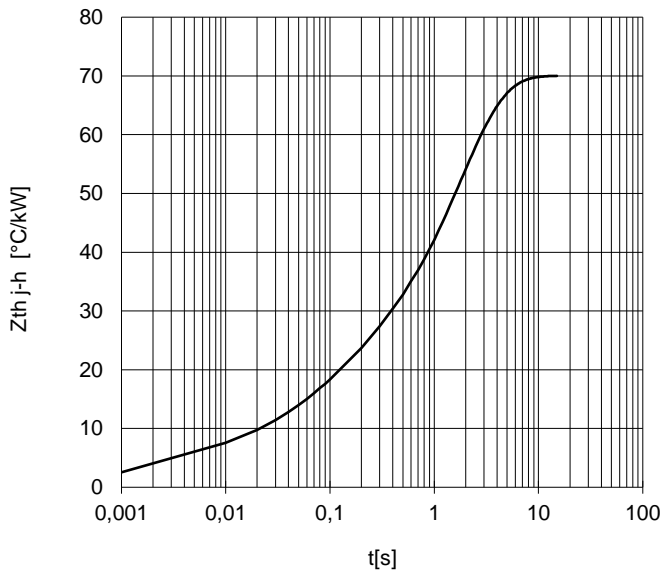
ON-STATE CHARACTERISTIC  
T<sub>j</sub> = 125 °C



SURGE CHARACTERISTIC  
T<sub>j</sub> = 125 °C



TRANSIENT THERMAL IMPEDANCE



All the characteristics given in this data sheet are guaranteed only with uniform clamping force, cleaned and lubricated heatsink, surfaces with flatness < .03 mm and roughness < 2 μm. In the interest of product improvement POSEICO SpA reserves the right to change any data given in this data sheet at any time without previous notice. If not stated otherwise the maximum value of ratings (symbols over shaded background) and characteristics is reported.

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