

# FRED Module

Fast Recovery Epitaxial Diode  
Common Cathode

Preliminary

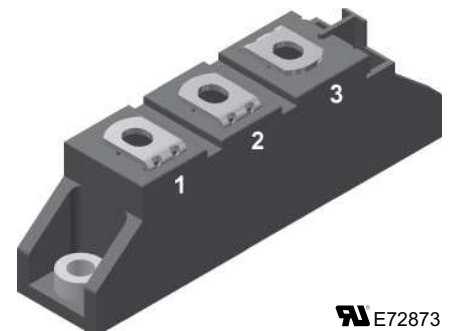
$$V_{RRM} = 400 \text{ V}$$

$$I_{FAV} = 150 \text{ A}$$

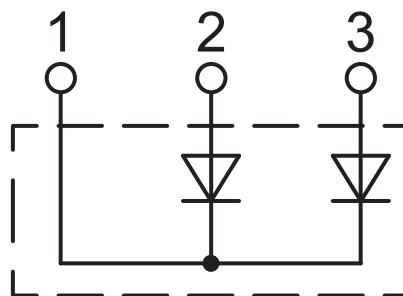
$$t_{rr} = 300 \text{ ns}$$

## Part number

MEK 150-04DA



 E72873



## Features / Advantages:

- Planar passivated chips
- Low switching losses
- Soft recovery behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Low losses

## Applications:

- Antiparallel diode for high frequency switching devices
- Free wheeling diode in converters and motor control circuits
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

## Package: TO-240AA

- Isolation voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Height: 30 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

## Disclaimer Notice

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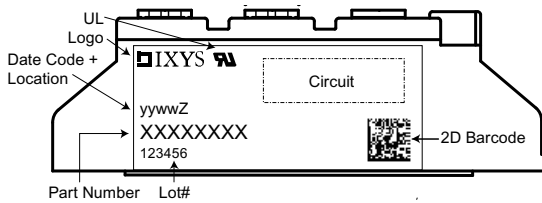
Preliminary

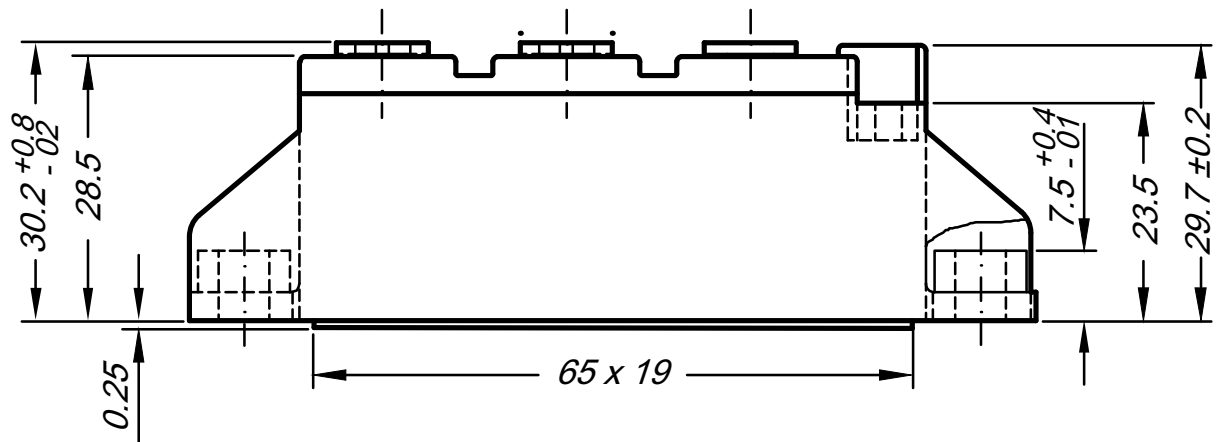
| Diode      |                                              |                                                                                                             |                                                                 | Ratings |      |            |            |
|------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------|------|------------|------------|
| Symbol     | Definitions                                  | Conditions                                                                                                  |                                                                 | min.    | typ. | max.       |            |
| $V_{RSM}$  | max. non-repetitive reverse blocking voltage |                                                                                                             | $T_{VJ} = 25^{\circ}\text{C}$                                   |         |      | 400        | V          |
| $V_{RRM}$  | max. repetitive reverse blocking voltage     |                                                                                                             | $T_{VJ} = 25^{\circ}\text{C}$                                   |         |      | 400        | V          |
| $I_{FRMS}$ | RMS forward current                          |                                                                                                             |                                                                 |         |      | 200        | A          |
| $I_{FAVM}$ | max. average forward current                 | rectangular, $d = 0.5$                                                                                      | $T_C = 100^{\circ}\text{C}$                                     |         |      | 150        | A          |
| $I_{FSM}$  | max. surge forward current                   | $t = 10 \text{ ms}$ (50 Hz), sine                                                                           | $T_{VJ} = 45^{\circ}\text{C}$                                   |         |      | 1200       | A          |
| $P_{tot}$  |                                              |                                                                                                             | $T_C = 75^{\circ}\text{C}$                                      |         |      | 360        | W          |
| $I_R$      | reverse current                              | $V_R = V_{RRM}$                                                                                             | $T_{VJ} = 25^{\circ}\text{C}$<br>$T_{VJ} = 150^{\circ}\text{C}$ |         |      | 2<br>8.5   | mA<br>mA   |
| $V_F$      | forward voltage                              | $I_F = 300 \text{ A}$                                                                                       | $T_{VJ} = 25^{\circ}\text{C}$<br>$T_{VJ} = 150^{\circ}\text{C}$ |         |      | 1.6<br>1.4 | V<br>V     |
| $R_{thJC}$ | thermal resistance junction to case          |                                                                                                             |                                                                 |         | 0.08 | 0.35       | K/W<br>K/W |
| $R_{thCH}$ | thermal resistance junction to heatsink      |                                                                                                             |                                                                 |         |      |            |            |
| $I_{RM}$   | reverse recovery time                        | $I_F = 200 \text{ A}; V_R = 100 \text{ V}$<br>$-di/dt = 100 \text{ A}/\mu\text{s}; L \leq 0.05 \mu\text{H}$ | $T_{VJ} = 100^{\circ}\text{C}$                                  |         | 11   | 14         | A          |



Preliminary

| Package TO-240AA |                                                              |                                  |                                     | Ratings      |      |      |        |
|------------------|--------------------------------------------------------------|----------------------------------|-------------------------------------|--------------|------|------|--------|
| Symbol           | Definitions                                                  | Conditions                       |                                     | min.         | typ. | max. |        |
| $I_{RMS}$        | RMS current                                                  | per terminal                     |                                     |              |      | 200  | A      |
| $T_{VJ}$         | virtual junction temperature                                 |                                  |                                     | -40          |      | 150  | °C     |
| $T_{op}$         | operation temperature                                        |                                  |                                     | -40          |      | 125  | °C     |
| $T_{stg}$        | storage temperature                                          |                                  |                                     | -40          |      | 125  | °C     |
| Weight           |                                                              |                                  |                                     |              | 76   |      | g      |
| $M_D$            | mounting torque                                              |                                  |                                     | 2.5          |      | 4    | Nm     |
| $M_T$            | terminal torque                                              |                                  |                                     | 2.5          |      | 4    | Nm     |
| $d_{Spp/App}$    | creepage distance on surface   striking distance through air | terminal to terminal             | 13.0                                | 9.7          |      |      | mm     |
| $d_{Spb/Apb}$    |                                                              | terminal to backside             | 16.0                                | 16.0         |      |      | mm     |
| $V_{ISOL}$       | isolation voltage                                            | $t = 1$ second<br>$t = 1$ minute | 50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA | 4800<br>4000 |      |      | V<br>V |





General tolerance: DIN ISO 2768 class „c“

