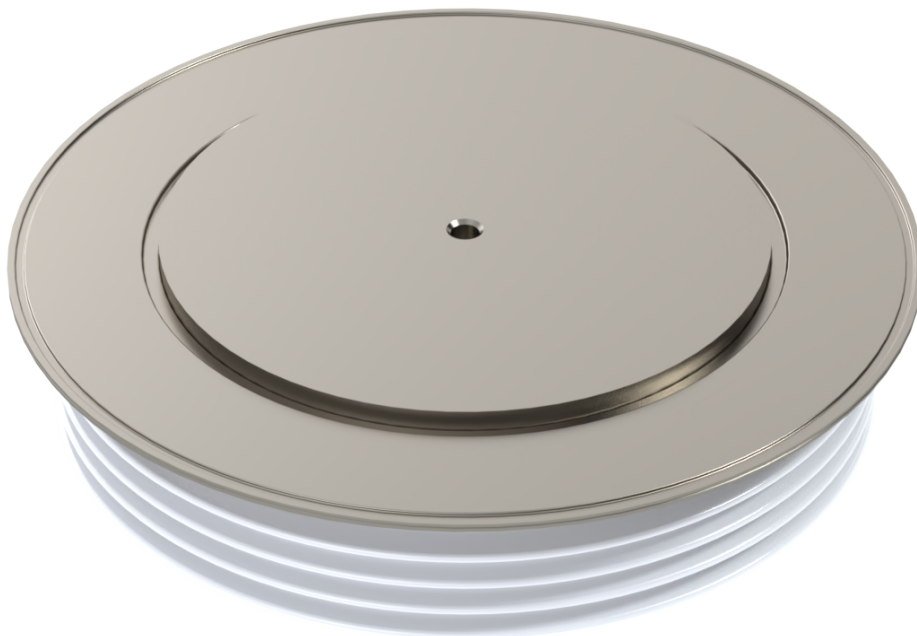


**Fast Recovery
Diode
Type SA42MQ2639Z0**

Contact us!

Date: March, 2020
Data Sheet Issue: 1



ORDERING INFORMATION

(Please quote 12 to 15 digit code as below)

| | | | | | | |
|----|--------------|--------------|--------------|-----------|--------------|---------------|
| SA | 42 | MQ | 2639 | Z | 0 | |
| - | Voltage Code | Outline Code | Current code | Type code | Special code | Optional code |

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Absolute Maximum Ratings

| VOLTAGE RATINGS | | MAXIMUM LIMITS | UNITS |
|-----------------|---|----------------|-------|
| V_{RRM} | Repetitive peak reverse voltage, (note 1) | 4200 | V |
| V_{RSM} | Non-repetitive peak reverse voltage, (note 1) | 4300 | V |
| V_{RDC} | Maximum reverse D.C. Voltage, (note 1) | 2040 | V |
| note 1) | De-Rating factor of 0.13% per °C is applicable for T_j below 25°C | | |

| OTHER RATINGS | | MAXIMUM LIMITS | UNITS |
|---------------|---|-------------------|----------------------|
| $I_{F(AV)M}$ | Maximum average forward current, $T_{sink} = 55^\circ\text{C}$, (note 1) | 2639 | A |
| $I_{F(AV)M}$ | Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 1) | 1732 | A |
| $I_{F(AV)M}$ | Maximum average forward current, $T_{sink} = 100^\circ\text{C}$, (note 2) | 1061 | A |
| $I_{F(RMS)}$ | Nominal RMS forward current, $T_{sink} = 25^\circ\text{C}$ (note 1) | 4922 | A |
| $I_{f(d.c.)}$ | D.C. forward current, $T_{sink} = 25^\circ\text{C}$ (note 3) | 4317 | A |
| I_{FSM} | Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4) | 27.52 | kA |
| I_{FSM2} | Peak non-repetitive surge current $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4) | 30.27 | kA |
| I^2t | I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} = 60\%V_{RRM}$, (note 4) | $3.79 \cdot 10^6$ | A^2s |
| I^2t | I^2t capacity for fusing $t_p = 10\text{ms}$, $V_{RM} \leq 10\text{V}$, (note 4) | $4.58 \cdot 10^6$ | A^2s |
| T_{jop} | Operating temperature range | -40 to +150 | °C |
| T_{stg} | Storage temperature range | -40 to +150 | °C |
| note 1) | Double-side cooled, single phase, 50Hz, 180° half-sinewave. | | |
| note 2) | Single-side cooled, single phase, 50Hz, 180° half-sinewave. | | |
| note 3) | Double-side cooled. | | |
| note 4) | Half-sinewave, 150°C T_j initial. | | |

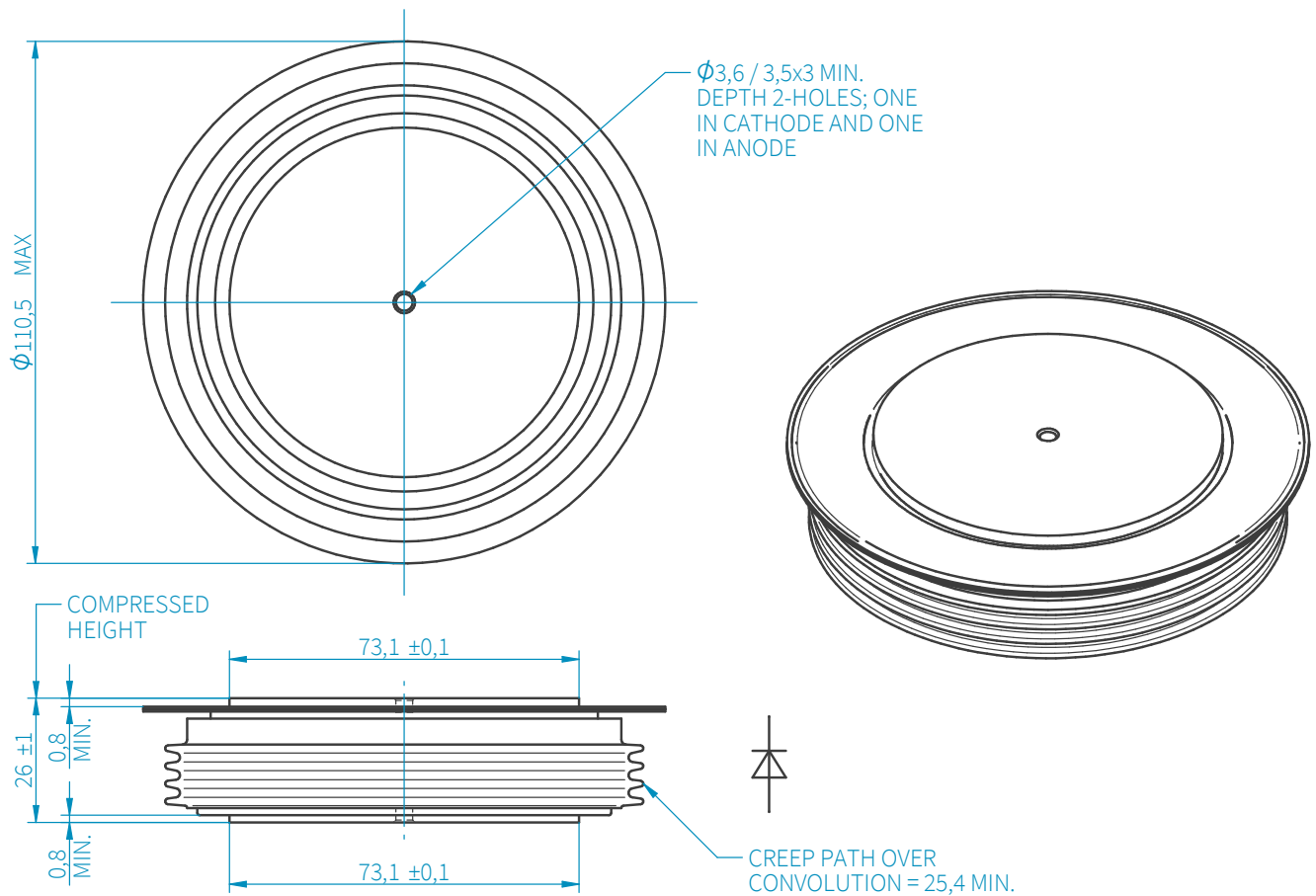
Characteristics

| PARAMETER | TEST CONDITIONS | MIN | TYP | MAX | UNITS | |
|-------------------|---|---|------|------|-------|-----|
| V _{FM} | Maximum peak forward voltage | | | 2.25 | V | |
| | | I _{FM} =3000A | - | - | | |
| | | I _{FM} =5278A | - | - | 2.9 V | |
| V _{T0} | Threshold Voltage | - | - | 1.38 | V | |
| r _T | Slope resistance | - | - | 0.29 | mΩ | |
| V _{FRM} | Maximum forward recovery voltage | di/dt = 1000A/μs, T _j = 25°C | - | - | 40 | V |
| | | di/dt = 1000A/μs | - | - | 80 | V |
| I _{RRM} | Peak reverse current | | | 150 | mA | |
| | | Rated V _{RRM} | - | - | | |
| Q _{rr} | Recovered charge | | 2300 | - | μC | |
| Q _{ra} | Recovered charge, 50% Chord | I _{FM} = 1000A, t _p = 1000μs, | - | 1200 | 1600 | μC |
| | | di/dt = 60A/μs, V _R = 50V, | | | | |
| I _{rm} | Reverse recovery current | 50% Chord. | - | 280 | - | A |
| t _{rr} | Reverse recovery time, 50% Chord | | - | 8.5 | - | μs |
| R _{thJK} | Thermal resistance, junction to heatsink | Double side cooled | - | - | 0.011 | K/W |
| | | Single side cooled | - | - | 0.022 | K/W |
| F | Mounting force | note 2) | 37 | - | 47 | kN |
| W _t | Weight | | - | 1200 | - | g |
| note 1) | Unless otherwise indicated T _j = 150°C | | | | | |
| note 2) | For other clamp forces consult factory | | | | | |

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