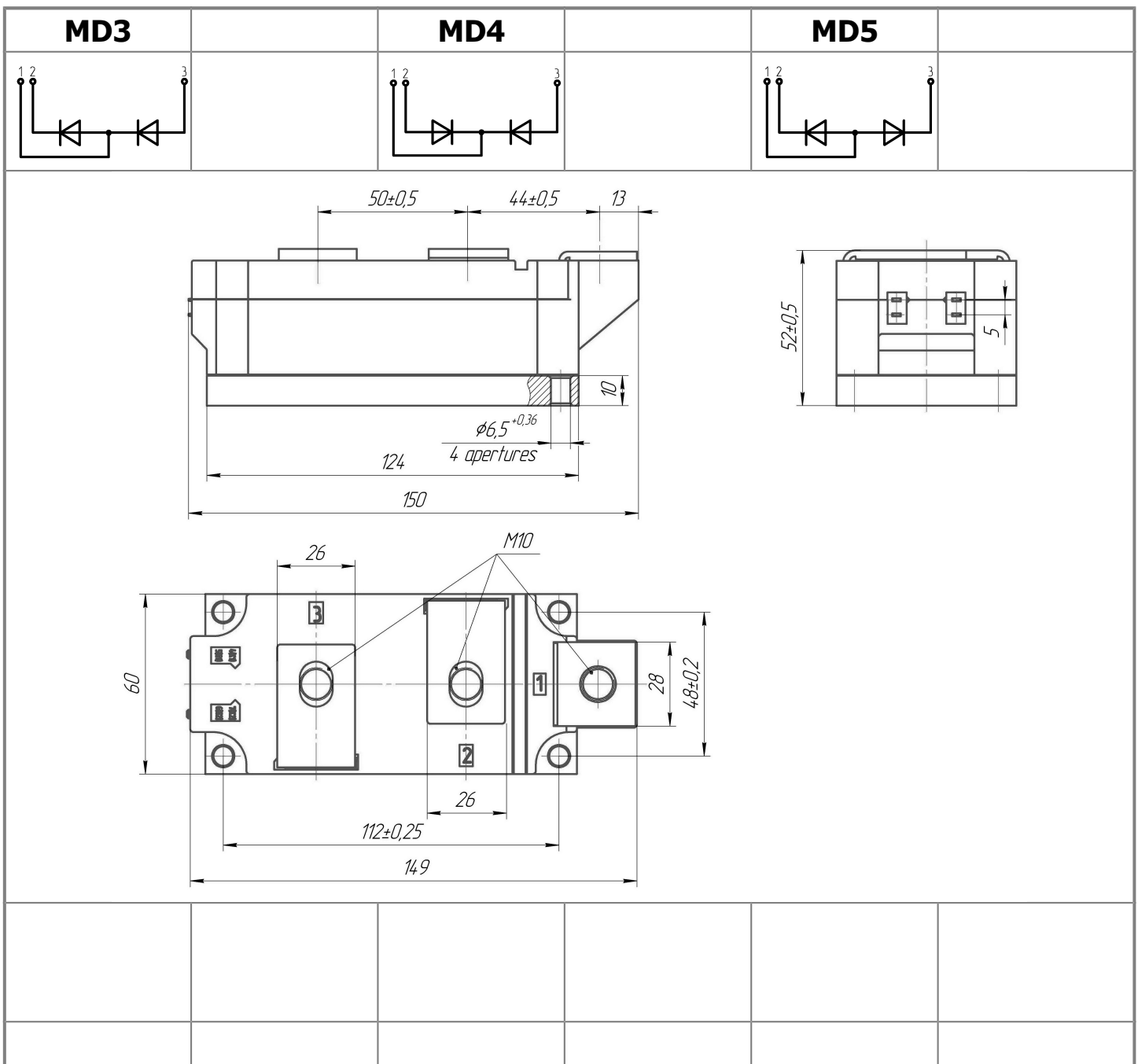




**Double Diode Module
For Phase Control
MDx-470-44-A2**

Electrically isolated base plate
Industrial standard package
Simplified mechanical design, rapid assembly
Pressure contact

| | | | | | |
|---------------------------------|------------|-----------|------|---------------|--|
| Average forward current | | I_{FAV} | | 470 A | |
| Repetitive peak reverse voltage | | V_{RRM} | | 3800 ÷ 4400 V | |
| V_{RRM}, V | 3800 | 4000 | 4200 | 4400 | |
| Voltage code | 38 | 40 | 42 | 44 | |
| $T_j, °C$ | - 40 ÷ 150 | | | | |



All dimensions in millimeters (inches)

MAXIMUM ALLOWABLE RATINGS

| Symbols and parameters | | Units | Values | Test conditions |
|------------------------|--------------------------------------|------------------|---------------------|--|
| ON-STATE | | | | |
| I_{FAV} | Average forward current | A | 470 | $T_c=100\text{ }^\circ\text{C}$; |
| I_{FRMS} | RMS forward current | A | 740 | 180° half-sine wave; 50 Hz |
| I_{FSM} | Surge forward current | kA | 12.0 14.0 | $T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| | | | 13.0 15.0 | $T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| I^2t | Safety factor | $A^2s\cdot 10^3$ | 720 980 | $T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| | | | 700 930 | $T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_R=0\text{ V}$; |
| BLOCKING | | | | |
| V_{RRM} | Repetitive peak reverse voltages | V | 3800÷4400 | $T_{j\text{ min}} < T_j < T_{j\text{ max}}$; 180° half-sine wave; 50 Hz; |
| V_{RSM} | Non-repetitive peak reverse voltages | V | 3900÷4500 | $T_{j\text{ min}} < T_j < T_{j\text{ max}}$; 180° half-sine wave; 50 Hz; single pulse; |
| V_R | Reverse continuous voltages | V | $0.75\cdot V_{RRM}$ | $T_j=T_{j\text{ max}}$; |
| THERMAL | | | | |
| T_{stg} | Storage temperature | $^\circ\text{C}$ | -40 ÷ 125 | |
| T_j | Operating junction temperature | $^\circ\text{C}$ | -40 ÷ 150 | |
| MECHANICAL | | | | |
| a | Acceleration under vibration | m/s^2 | 50 | |

CHARACTERISTICS

| Symbols and parameters | | Units | Values | Conditions |
|------------------------|--|--------------------|--------|---|
| ON-STATE | | | | |
| V_{FM} | Peak forward voltage, max | V | 1.70 | $T_j=25\text{ }^\circ\text{C}$; $I_{FM}=1256\text{ A}$ |
| | | | 1.57 | $T_j=T_{j\text{ max}}$; $I_{FM}=1200\text{ A}$ |
| $V_{F(TO)}$ | Forward threshold voltage, max | V | 0.85 | $T_j=T_{j\text{ max}}$; |
| r_T | Forward slope resistance, max | $m\Omega$ | 0.600 | $0.5\pi I_{FAV} < I_T < 1.5\pi I_{FAV}$ |
| BLOCKING | | | | |
| I_{RRM} | Repetitive peak reverse current, max | mA | 50 | $T_j=T_{j\text{ max}}$; $V_R=V_{RRM}$ |
| THERMAL | | | | |
| R_{thjc} | Thermal resistance, junction to case | | | |
| | per module | $^\circ\text{C/W}$ | 0.0340 | 180° half-sine wave, 50 Hz |
| | per arm | $^\circ\text{C/W}$ | 0.0680 | |
| | per module | $^\circ\text{C/W}$ | 0.0325 | DC |
| per arm | $^\circ\text{C/W}$ | 0.0650 | | |
| R_{thch} | Thermal resistance, case to heatsink | | | |
| | per module | $^\circ\text{C/W}$ | 0.0100 | |
| | per arm | $^\circ\text{C/W}$ | 0.0200 | |
| INSULATION | | | | |
| V_{ISOL} | Insulation test voltage | kV | 3.00 | Sine wave, 50 Hz; $t=1\text{ min}$ |
| | | | 3.60 | RMS $t=1\text{ sec}$ |
| MECHANICAL | | | | |
| M_1 | Mounting torque (M6) ¹⁾ | Nm | 6.00 | Tolerance $\pm 15\%$ |
| M_2 | Terminal connection torque (M10) ¹⁾ | Nm | 12.00 | Tolerance $\pm 15\%$ |
| w | Weight | g | 1500 | |

| PART NUMBERING GUIDE | | | | | | NOTES | | | | |
|---|---|---|-----|---|----|-------|----|---|---|----------------------------------|
| MD | 3 | - | 470 | - | 44 | - | A2 | - | N | |
| 1 | 2 | | 3 | | 4 | | 5 | | 6 | |
| 1. MD - Rectifier Diode 2. Circuit Schematic: 3 – serial connection 4 – common Cathode 5 – common Anode 3. Average Forward Current, A 4. Voltage Code 5. Package Type (M.A2) 6. Ambient Conditions: N – Normal | | | | | | | | | | |
| | | | | | | | | | | 1) The screws must be lubricated |

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