## Transistor / Transistor

### Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte / Maximum rated values

| | | | |
|---|---|---|---|
| $V_{CES}$ | | 600 | V |
| $I_C$ | | 50 | A |
| $I_{CRM}$ | $t_p = 1$ ms | 100 | A |
| $P_{tot}$ | $t_C = 25°C$ | 150 | W |
| $V_{GE}$ | | 20 | V |
| $V_{EG}$ | | 20 | V |

Charakteristische Werte / Characteristic values

| | | | | | | |
|---|---|---|---|---|---|---|
| $v_{CE\,sat}$ | $i_{CM} = 50$ A, | $v_{GE} = 15$ V, | $t_{vj} = 25°C$ | typ. | 3 | V |
| | $i_{CM} = 50$ A, | $v_{GE} = 15$ V, | $t_{vj} = 25°C$ | max. | 4 | V |
| $v_{GE\,(th)}$ | $v_{CE} = 5$ V, | $i_C = 50$ mA, | $t_{vj} = 25°C$ | min. | 3 | V |
| | $v_{CE} = 5$ V, | $i_C = 50$ mA, | $t_{vj} = 25°C$ | max. | 6 | V |
| $C_{GE}$ | $v_{CE} = 10$ V, | $v_{GE} = 0$ V | | | | |
| | $f_o = 1$ MHz, | $t_{vj} = 25°C$ | | typ. | 3,5 | nF |
| $i_{CES}$ | $v_{CE} = 600$ V, | $v_{GE} = 0$ V, | $t_{vj} = 25°C$ | typ. | 0,3 | mA |
| | $v_{CE} = 600$ V, | $v_{GE} = 0$ V, | $t_{vj} = 125°C$ | typ. | 2 | mA |
| $i_{GES}$ | $v_{GE} = 20$ V, | $t_{vj} = 25°C$ | | typ. | 50 | nA |
| | $v_{GE} = 20$ V, | $t_{vj} = 25°C$ | | max. | 500 | nA |
| $i_{EGS}$ | $v_{EG} = 20$ V, | $t_{vj} = 25°C$ | | typ. | 50 | nA |
| | $v_{EG} = 20$ V, | $t_{vj} = 25°C$ | | max. | 500 | nA |
| $t_{on}$ | $i_{CM} = 50$ A, | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $R_G = 51\,\Omega$, | $t_{vj} = 25°C$ | typ. | 0,4 | $\mu$s |
| | $i_{CM} = 50$ , | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $R_G = 51\,\Omega$, | $t_{vj} = 125°C$ | typ. | 0,5 | $\mu$s |
| $t_s$ | $i_{CM} = 50$ A, | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $v_{LR} = 15$ V, | | | | |
| | $R_G = 51\,\Omega$, | $t_{vj} = 25°C$ | | typ. | 0,4 | $\mu$s |
| | $i_{CM} = 50$ A, | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $v_{LR} = 15$ V, | | | | |
| | $R_G = 51\,\Omega$, | $t_{vj} = 125°C$ | | typ. | 0,5 | $\mu$s |
| $t_f$ | $i_{CM} = 50$ A, | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $v_{LR} = 15$ V, | | | | |
| | $R_G = 51\,\Omega$, | $t_{vj} = 25°C$ | | typ. | 0,15 | $\mu$s |
| | $i_{CM} = 50$ A, | $v_{CE} = 300$ V, | | | | |
| | $v_{LF} = 15$ V, | $v_{LR} = 15$ V, | | | | |
| | $R_G = 51\,\Omega$, | $t_{vj} = 125°C$ | | typ. | 0,25 | $\mu$s |

Bedingungen für den Kurzschlußschutz / Conditions for protection against short circuits

| | |
|---|---|
| $t_{fg} = 10\,\mu$s, | $V_{CC} = 350$ V, |
| $v_{LF} = v_{LR} = 15$ V, | $v_{CEM} = 500$ V, |
| $R_G = 51\,\Omega$, | $i_{CMK1} \approx 250$ A, |
| $t_{vj} = 125°C$, | $i_{CMK2} \approx 150$ A |

### Thermische Eigenschaften / Thermal properties

| | | | |
|---|---|---|---|
| $R_{thJC}$ | DC, pro Baustein / per module | 0,14 | °C/W |
| | DC, pro Zweig / per arm | 0,83 | °C/W |
| $t_{vjmax}$ | | 150 | °C |
| $t_{vjop}$ | | -40 / +150 | °C |
| $t_{stg}$ | | -40 / +125 | °C |

## Inversdiode / Inverse diode

### Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte / Maximum rated values

| | | | |
|---|---|---|---|
| $I_{F\,(max)}$ | | 50 | A |
| $I_{FRM}$ | $t_p = 1$ ms | 100 | A |

Charakteristische Werte / Characteristic values

| | | | | | |
|---|---|---|---|---|---|
| $v_F$ | $i_F = 50$ A, $v_{GE} = 0$ V, $t_{vj} = 25°C$ | typ. | 1,8 | V |
| | $i_F = 50$ A, $v_{GE} = 0$ V, $t_{vj} = 25°C$ | max. | 2,7 | V |
| $I_{RM}$ | $i_{FM} = 50$ A, $-di_F/dt = 100$ A/$\mu$s | | | |
| | $v_{EG} = 10$ V, $t_{vj} = 25°C$ | typ. | 10 | A |
| | $i_{FM} = 50$ A, $-di_F/dt = 100$ A/$\mu$s | | | |
| | $v_{EG} = 10$ V, $t_{vj} = 125°C$ | typ. | 18 | A |
| $Q_r$ | $i_{FM} = 50$ A, $-di_F/dt = 100$ A/$\mu$s | | | |
| | $v_{EG} = 10$ V, $t_{vj} = 25°C$ | typ. | 1,5 | $\mu$As |
| | $i_{FM} = 50$ A, $-di_F/dt = 100$ A/$\mu$s | | | |
| | $v_{EG} = 10$ V, $t_{vj} = 125°C$ | typ. | 4 | $\mu$As |

### Thermische Eigenschaften / Thermal properties

| | | | |
|---|---|---|---|
| $R_{thJC}$ | DC, pro Baustein / per module | 0,26 | °C/W |
| | DC, pro Zweig / per arm | 1,56 | °C/W |
| $t_{vjmax}$ | | 125 | °C |
| $t_{vjop}$ | | -40 / +125 | °C |
| $t_{stg}$ | | -40 / +125 | °C |

### Innere Isolation / Internal insulation

Isoliermaterial: AlN / Insulating material: AlN

| | | | |
|---|---|---|---|
| $V_{ISOL}$ | RMS | 2,5 | kV |

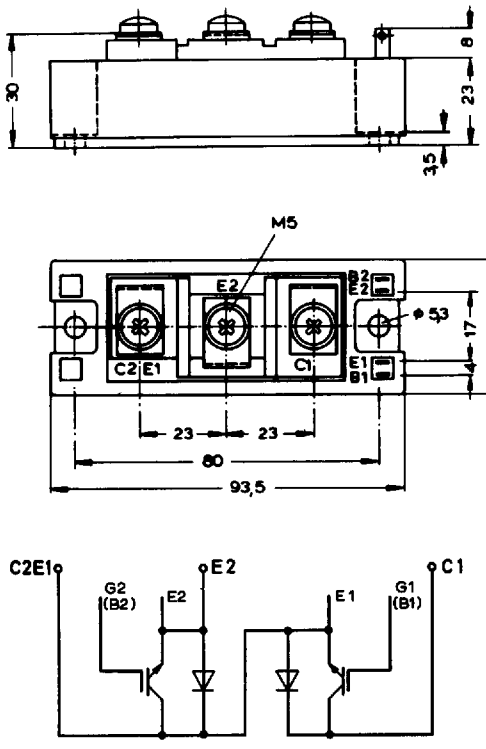
### Mechanische Eigenschaften / Mechanical properties

| | | |
|---|---|---|
| G | 500 | g |
| M1 | 3 | Nm |
| M2 | 3 | Nm |

Maßbild / outline
Seite 124, Nr. 10 / page 124, no. 10

# Maßbilder / Schaltbilder
# Outlines / Circuits



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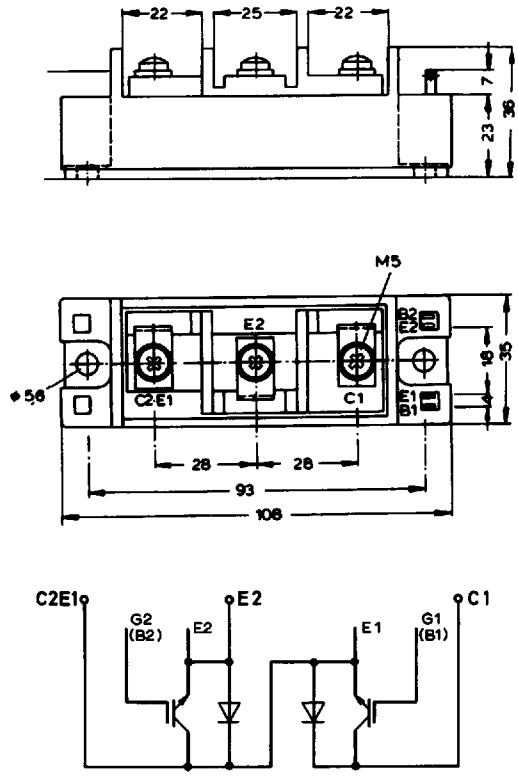


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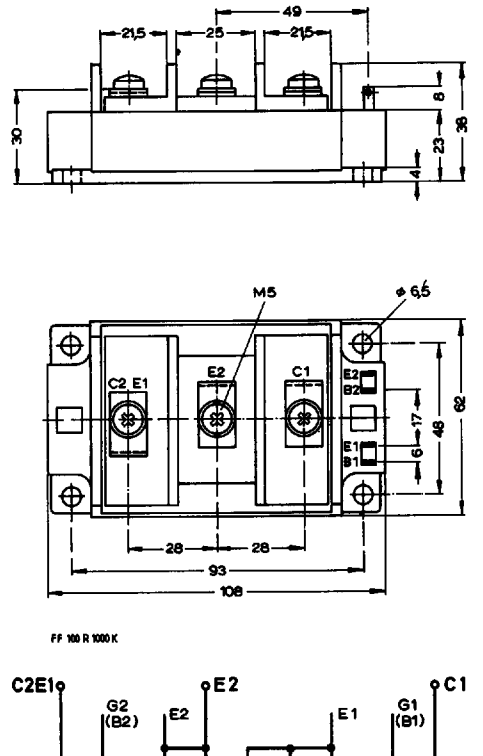


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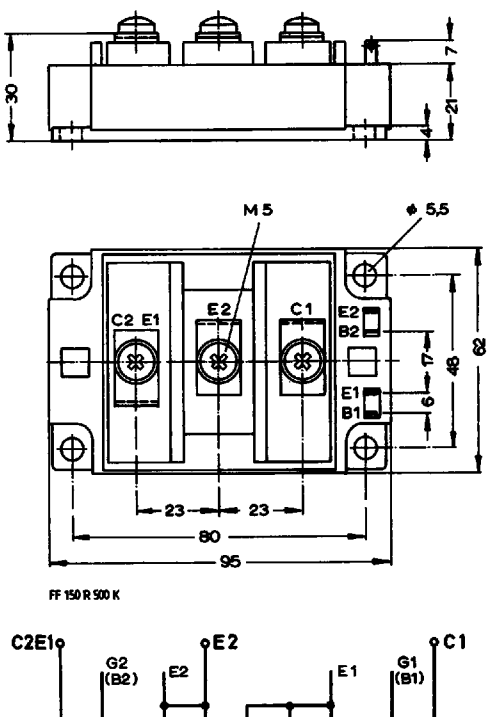


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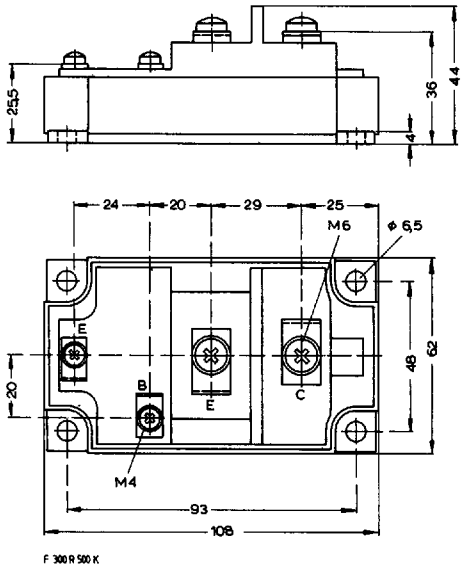
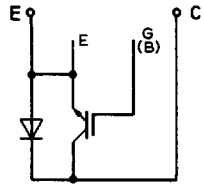
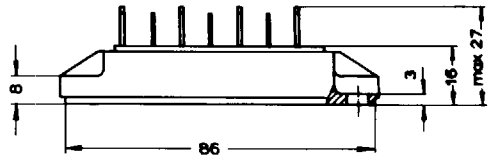


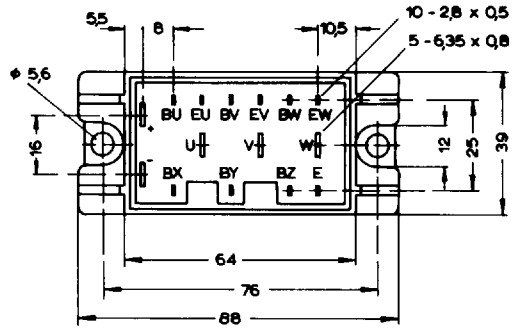

F 300 R 500 K



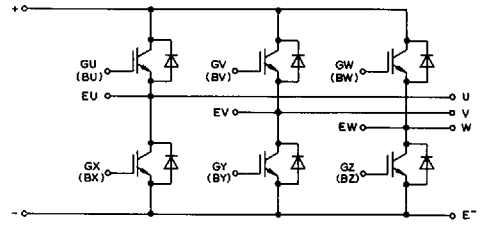

1)

5




F 6 - 8 R 600 KF

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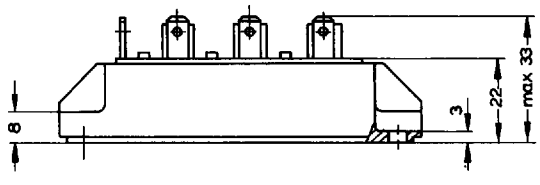
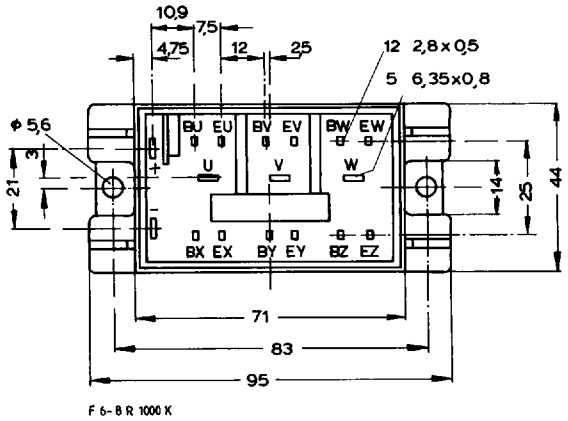
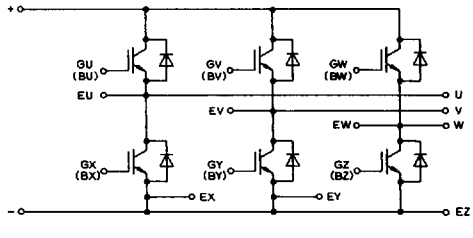



F 6-8 R 1000 K

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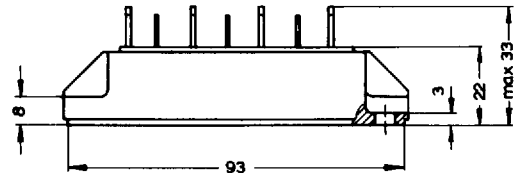
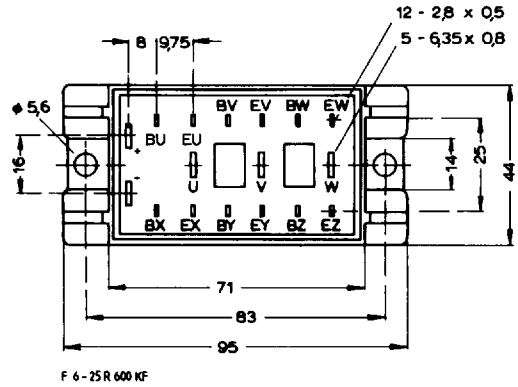
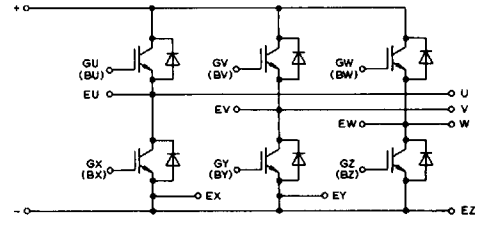
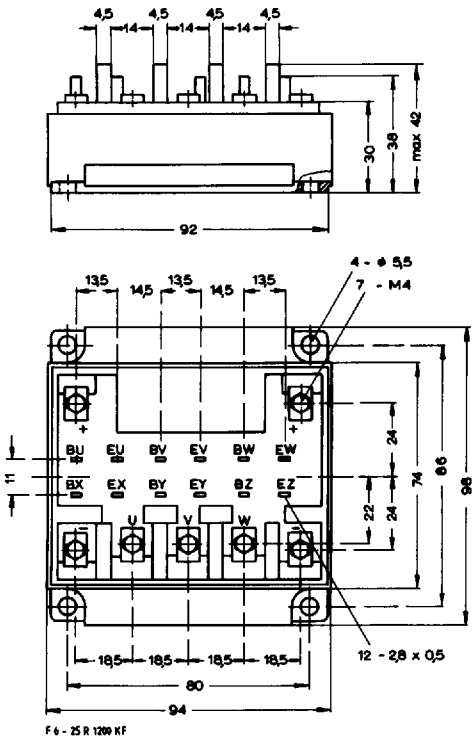


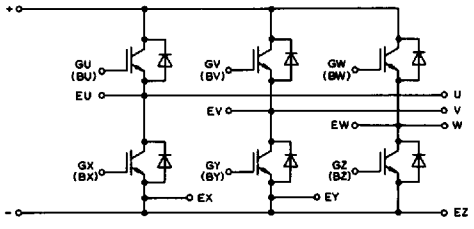




F 6-25 R 600 KF

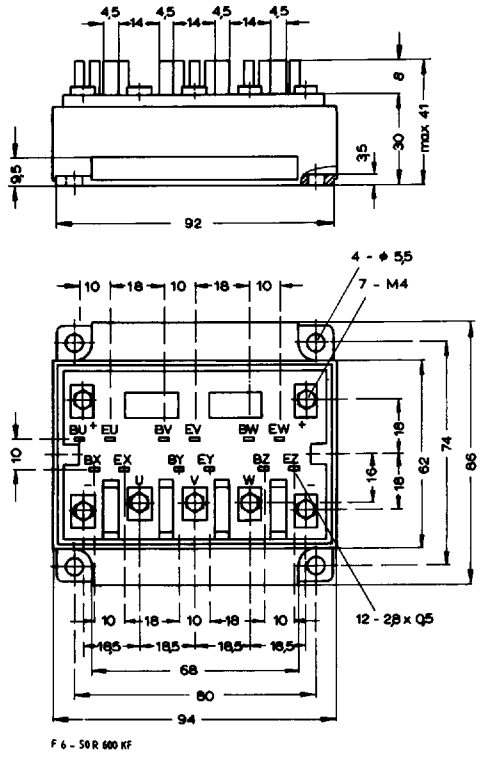


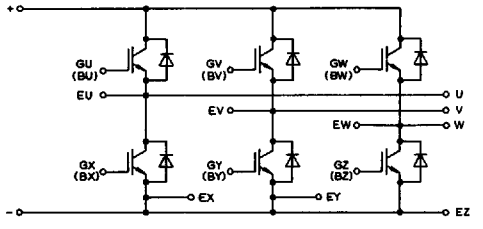

8


4,5 14 4,5 14 4,5 14 4,5
30
38
max 42
92
13,5 14,5 13,5 14,5 13,5
4 - ⌀ 5,5
7 - M4
BU EU BV EV BW EW
GX EX GY EY GZ EZ
U V W
11
24
22
24
74
86
98
18,5 18,5 18,5 18,5
80
94
12 - 2,8 x 0,5
F 6 - 25 R 1200 KF


GU (BU)
GV (BV)
GW (BW)
EU
EV
EW
U
V
W
GX (BX)
GY (BY)
GZ (BZ)
EX
EY
EZ

9


4,5 14 4,5 14 4,5 14 4,5
8
30
35
max 41
9,5
92
10 18 10 18 10
4 - ⌀ 5,5
7 - M4
BU EU BV EV BW EW
GX EX GY EY GZ EZ
U V W
10
16
18
62
74
86
10 18 10 18 10
18,5 18,5 18,5 18,5
68
80
94
12 - 2,8 x 0,5
F 6 - 50 R 600 KF


GU (BU)
GV (BV)
GW (BW)
EU
EV
EW
U
V
W
GX (BX)
GY (BY)
GZ (BZ)
EX
EY
EZ

10