

T-39-31

Transistor		Transistor	
Elektrische Eigenschaften		Electrical properties	
Höchstzulässige Werte		Maximum rated values	
V_{CES}		600	V
I_C		100	A
I_{CRM}	$t_p = 1 \text{ ms}$	200	A
P_{tot}	$t_C = 25^\circ\text{C}$	400	W
V_{GE}		20	V
V_{EG}		20	V

Charakteristische Werte		Characteristic values	
$V_{CE \text{ sat}}$	$i_{CM} = 100 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 3	V
	$i_{CM} = 100 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 4	V
$V_{GE (th)}$	$V_{CE} = 5 \text{ V}, i_C = 100 \text{ mA}, t_{vj} = 25^\circ\text{C}$	min. 3	V
	$V_{CE} = 5 \text{ V}, i_C = 100 \text{ mA}, t_{vj} = 25^\circ\text{C}$	max. 6	V
C_{GE}	$V_{CE} = 10 \text{ V}, V_{GE} = 0 \text{ V}, f_o = 1 \text{ MHz}, t_{vj} = 25^\circ\text{C}$	typ. 8,2	nF
i_{CES}	$V_{CE} = 600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 0,5	mA
	$V_{CE} = 600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 4	mA
i_{GES}	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
i_{EGS}	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 50	nA
	$V_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 500	nA
t_{on}	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,4	μs
	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,5	μs
t_s	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,4	μs
	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,5	μs
t_f	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 25^\circ\text{C}$	typ. 0,15	μs
	$i_{CM} = 100 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 125^\circ\text{C}$	typ. 0,25	μs

Bedingungen für den Kurzschlußschutz	Conditions for protection against short circuits
$t_{fg} = 10 \mu\text{s}, V_{LF} = V_{LR} = 15 \text{ V}, R_G = 24 \Omega, t_{vj} = 125^\circ\text{C}$	$V_{CC} = 350 \text{ V}, V_{CEM} = 500 \text{ V}, i_{CMK1} \approx 500 \text{ A}, i_{CMK2} \approx 350 \text{ A}$

Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,155	$^\circ\text{C/W}$
	DC, pro Zweig / per arm	0,31	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,06	$^\circ\text{C/W}$
	pro Zweig / per arm	0,12	$^\circ\text{C/W}$
t_{vjmax}		150	$^\circ\text{C}$
t_{vjop}		-40 / + 150	$^\circ\text{C}$
t_{stg}		-40 / + 125	$^\circ\text{C}$

Inversdiode		Inverse diode	
Elektrische Eigenschaften		Electrical properties	
Höchstzulässige Werte		Maximum rated values	
$I_{F (max)}$		100	A
I_{FRM}	$t_p = 1 \text{ ms}$	200	A

Charakteristische Werte		Characteristic values	
V_F	$i_F = 100 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 1,8	V
	$i_F = 100 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	max. 2,7	V
I_{RM}	$i_{FM} = 100 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$	typ. 13	A
	$V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$		
	$i_{FM} = 100 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$	typ. 22	A
	$V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$		
Q_r	$i_{FM} = 100 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$	typ. 2	μAs
	$V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$		
	$i_{FM} = 100 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}$	typ. 6	μAs
	$V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$		

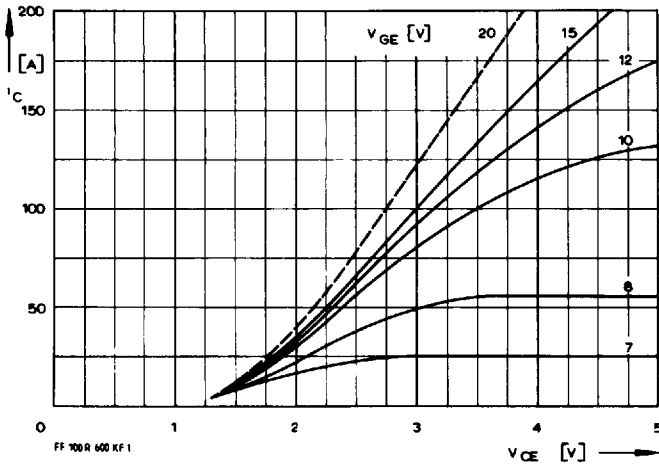
Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,415	$^\circ\text{C/W}$
	DC, pro Zweig / per arm	0,83	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,06	$^\circ\text{C/W}$
	pro Zweig / per arm	0,12	$^\circ\text{C/W}$
t_{vjmax}		125	$^\circ\text{C}$
t_{vjop}		-40 / + 125	$^\circ\text{C}$
t_{stg}		-40 / + 125	$^\circ\text{C}$

Innere Isolation	Internal insulation
Isoliermaterial: AlN	Insulating material: AlN
V_{ISOL} RMS	2,5 kV

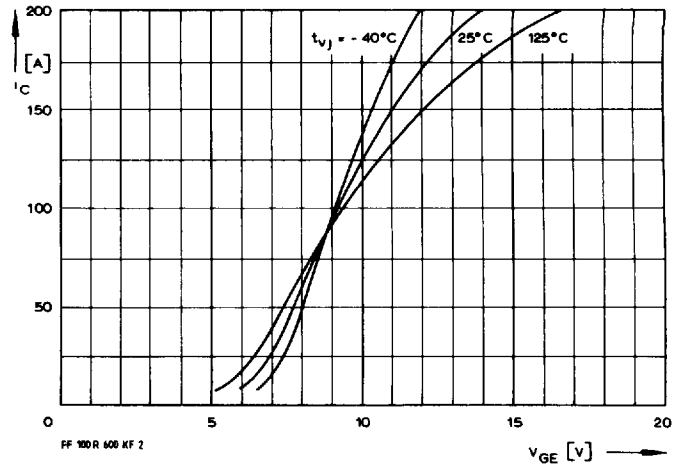
Mechanische Eigenschaften		Mechanical properties	
G		205	g
M1		3	Nm
M2		3	Nm

Maßbild
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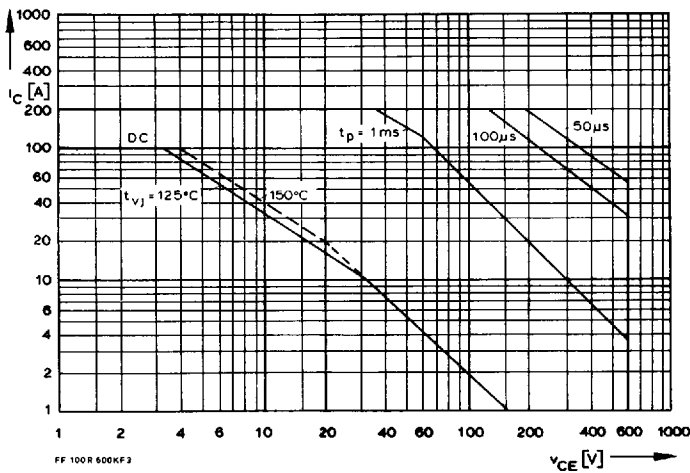
outline
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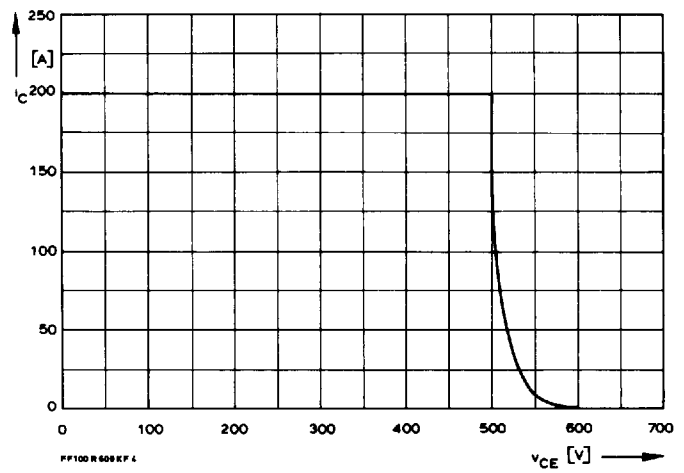
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).
Collector-emitter-voltage in saturation region (typical).
 $t_{vj} = 25^\circ\text{C}$



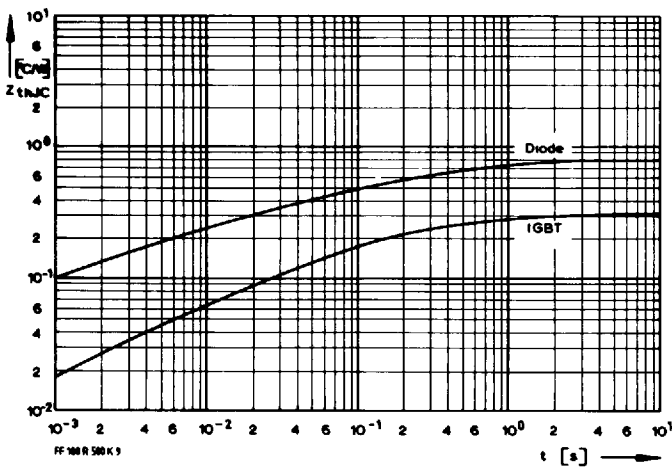
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
 $V_{CE} = 5\text{ V}$



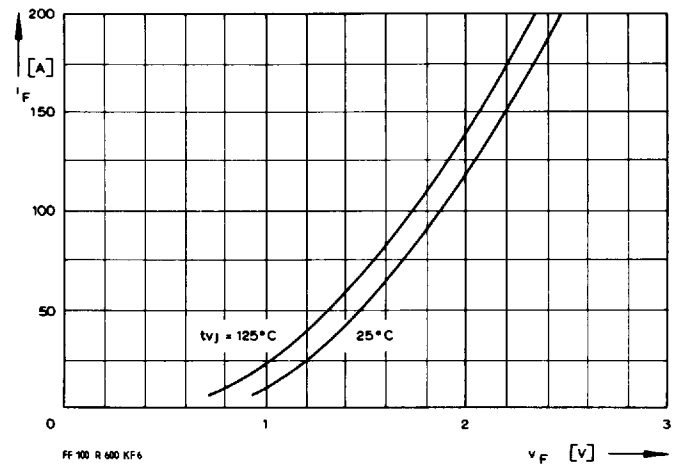
3 Erlaubter Arbeitsbereich in Vorwärtsrichtung (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
 $t_C = 25^\circ\text{C}$



4 Erlaubter Arbeitsbereich in Rückwärtsrichtung
Reverse biased safe operating area.
 $t_{vj} = 125^\circ\text{C}, V_{LF} = V_{LR} = 15\text{ V}, R_G = 24\ \Omega$



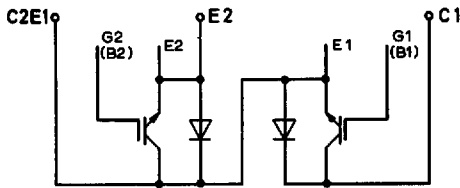
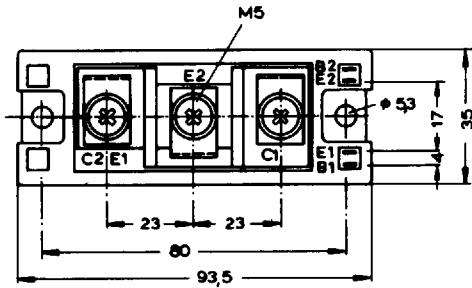
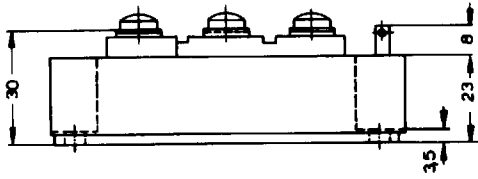
5 Transienter innerer Wärmewiderstand je Zweig (DC).
Transient thermal impedance per arm (DC).



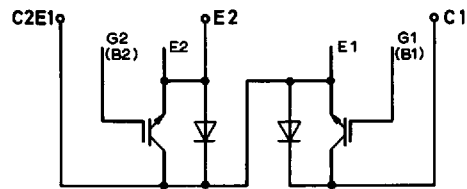
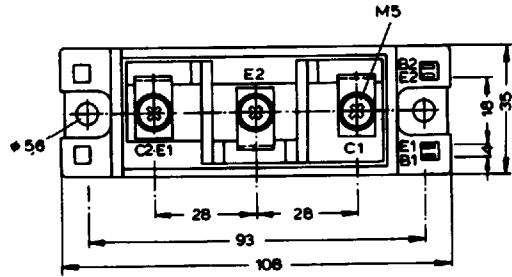
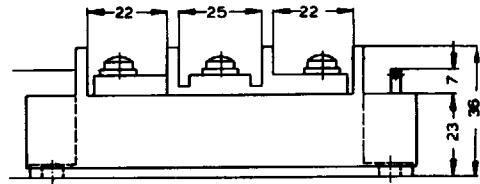
6 Durchlaßkennlinie der Inversdiode (typisch).
Forward characteristic of the inverse diode (typical).
 $V_{GE} = 0\text{ V}$

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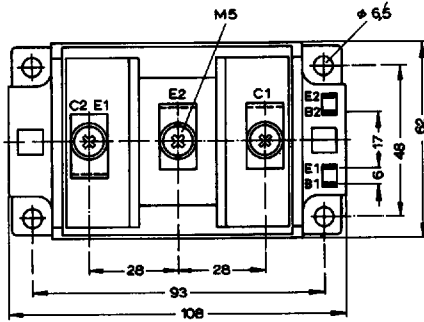
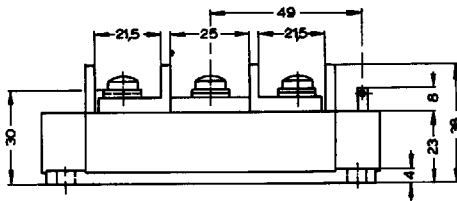
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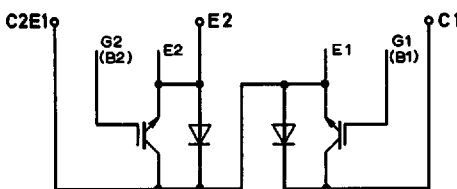
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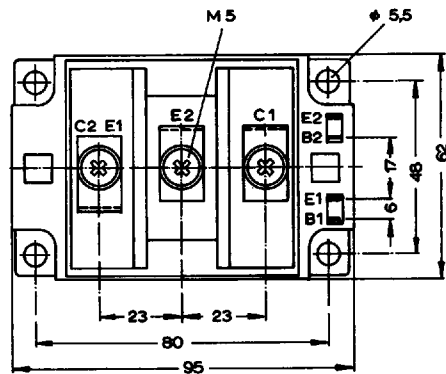
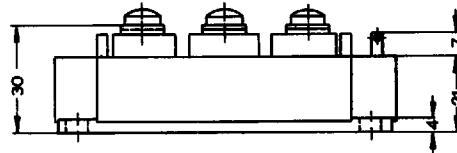
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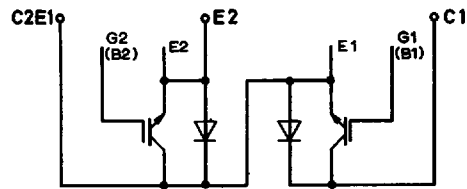
FF 100 R 1000 K



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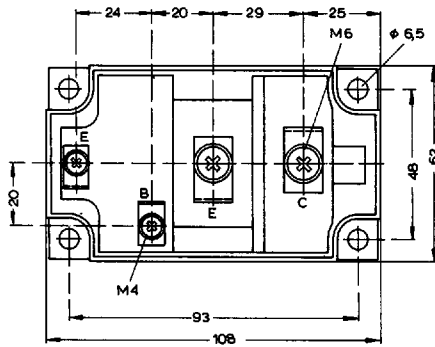
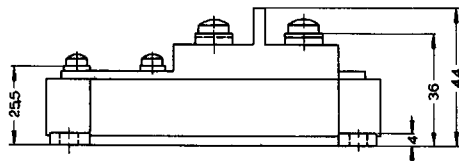


FF 150 R 500 K

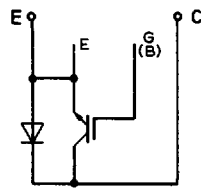


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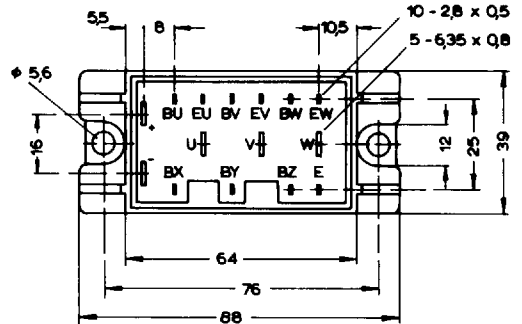
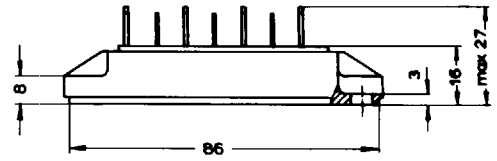


F 300R500 K

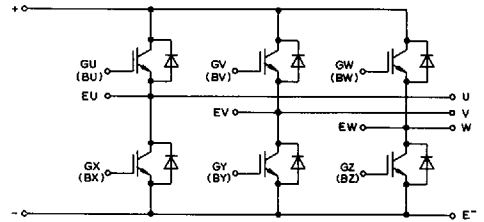


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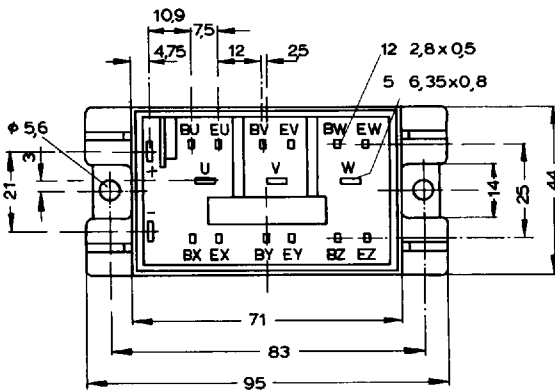
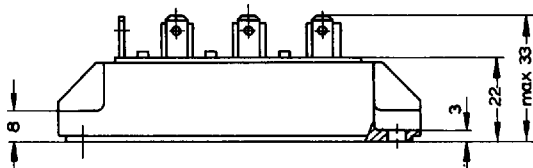
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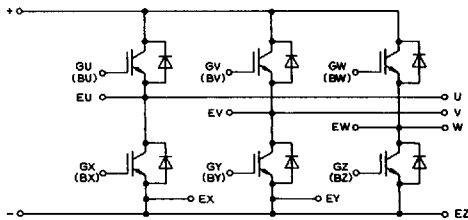
F 6 - 8R 600 KF



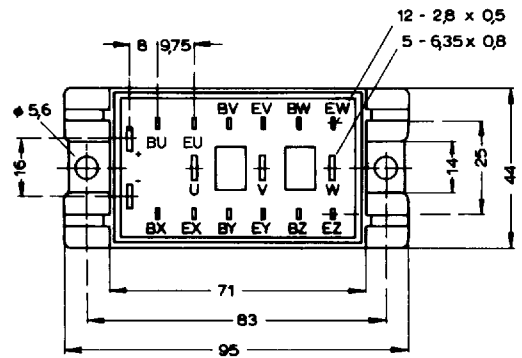
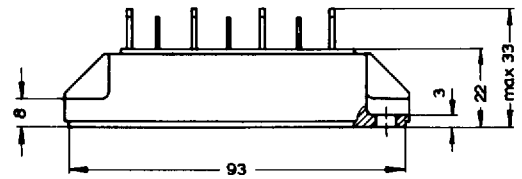
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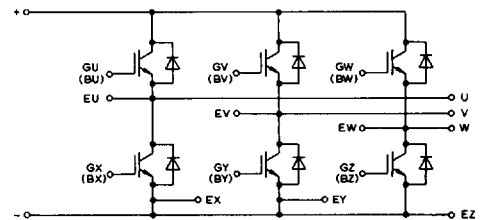
F 6 - 8R 1000 K



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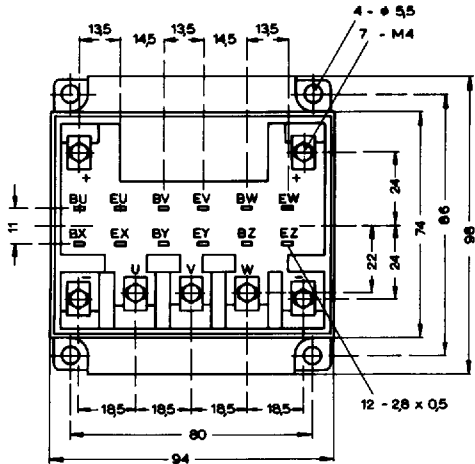
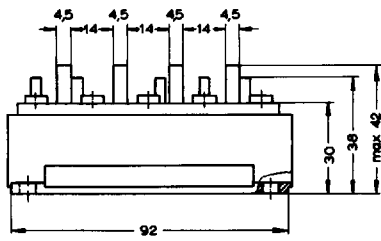
F 6 - 25R 600 KF



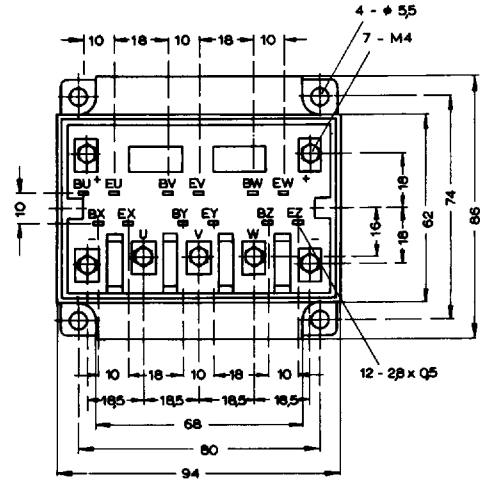
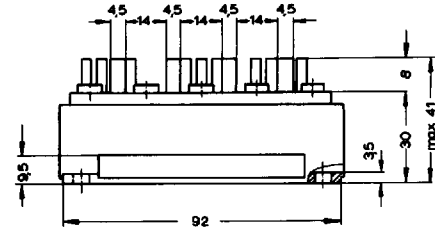
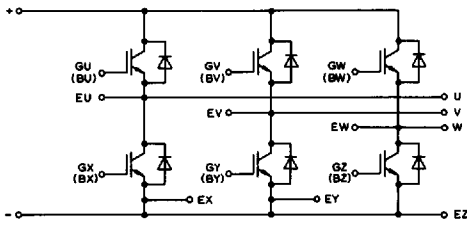
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F 6 - 25 R 1200 KF



F 6 - 50 R 600 KF

