

EUPEC

52E D ■ 3403297 0000242 840 ■ UPEC

Transistor		Transistor	
Elektrische Eigenschaften		Electrical properties	
Höchstzulässige Werte		Maximum rated values	
V_{CES}		600	V
I_C		300	A
I_{CRM}	$t_p = 1 \text{ ms}$	600	A
P_{tot}	$t_C = 25^\circ\text{C}$	1200	W
V_{GE}		20	V
V_{EG}		20	V

Charakteristische Werte		Characteristic values	
$V_{CE \text{ sat}}$	$i_{CM} = 300 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	2,2 V
	$i_{CM} = 300 \text{ A}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	max.	2,7 V
$V_{GE (th)}$	$V_{CE} = 5 \text{ V}, i_C = 300 \text{ mA}, t_{vj} = 25^\circ\text{C}$	min.	3 V
	$V_{CE} = 5 \text{ V}, i_C = 300 \text{ mA}, t_{vj} = 25^\circ\text{C}$	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.	24 nF
i_{CES}	$V_{CE} = 600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	1 mA
	$V_{CE} = 600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ.	6 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}	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,4 μs
	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	0,5 μs
t_s	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,5 μs
	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	0,6 μs
t_f	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,3 μs
	$i_{CM} = 300 \text{ A}, V_{CE} = 300 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	0,5 μs

Bedingungen für den Kurzschlußschutz	Conditions for protection against short circuits
$t_{fg} = 10 \mu\text{s}, V_{LF} = V_{LR} = 15 \text{ V}, R_G = 6,8 \Omega, t_{vj} = 125^\circ\text{C},$	$V_{CC} = 350 \text{ V}, V_{CEM} = 500 \text{ V}, i_{CMK1} \approx 1200 \text{ A}, i_{CMK2} \approx 900 \text{ A}$

Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,05	$^\circ\text{C/W}$
	DC, pro Zweig / per arm	0,1	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,03	$^\circ\text{C/W}$
	pro Zweig / per arm	0,06	$^\circ\text{C/W}$
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
$I_F (max)$	300 A
I_{FRM} $t_p = 1 \text{ ms}$	600 A

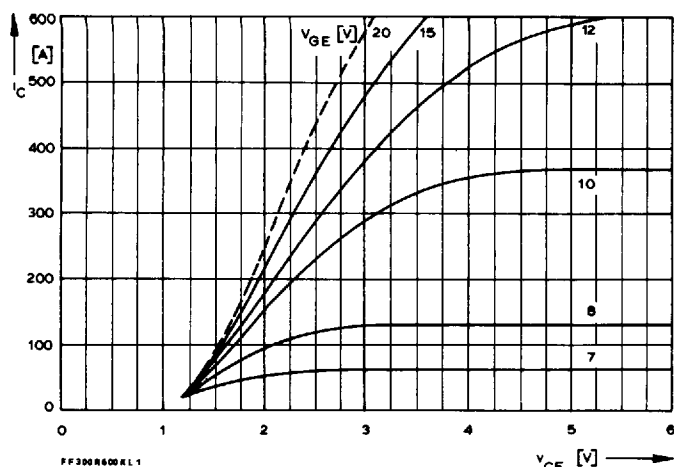
Charakteristische Werte	Characteristic values
V_F	$i_F = 300 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ. 1,8 V
	$i_F = 300 \text{ A}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$ max. 2,5 V
I_{RM}	$i_{FM} = 300 \text{ A}, -di_F/dt = 300 \text{ A}/\mu\text{s}$ typ. 30 A
	$V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$
	$i_{FM} = 300 \text{ A}, -di_F/dt = 300 \text{ A}/\mu\text{s}$ typ. 56 A
	$V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$
Q_r	$i_{FM} = 300 \text{ A}, -di_F/dt = 300 \text{ A}/\mu\text{s}$ typ. 8 μAs
	$V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$
	$i_{FM} = 300 \text{ A}, -di_F/dt = 300 \text{ A}/\mu\text{s}$ typ. 22 μAs
	$V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$

Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,125	$^\circ\text{C/W}$
	DC, pro Zweig / per arm	0,25	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,03	$^\circ\text{C/W}$
	pro Zweig / per arm	0,06	$^\circ\text{C/W}$
t_{vjmax}		125	$^\circ\text{C}$
t_{vjop}		-40 / +125	$^\circ\text{C}$
t_{stg}		-40 / +125	$^\circ\text{C}$

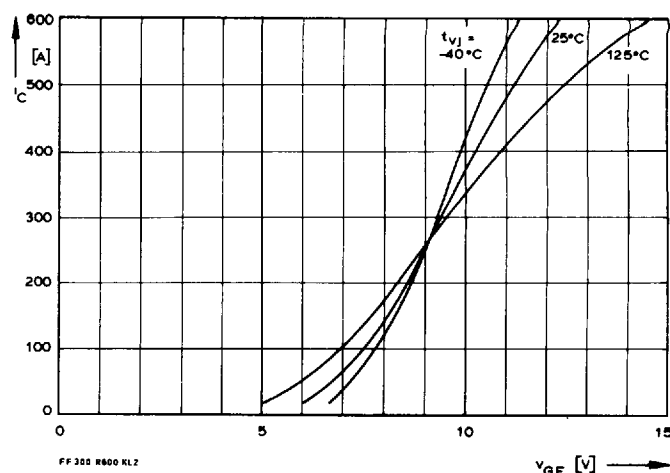
Innere Isolation	Internal insulation
Isoliermaterial: AlN	Insulating material: AlN
V_{ISOL} RMS	2,5 kV

Mechanische Eigenschaften	Mechanical properties
G	470 g
M1	3 Nm
M2	3 Nm

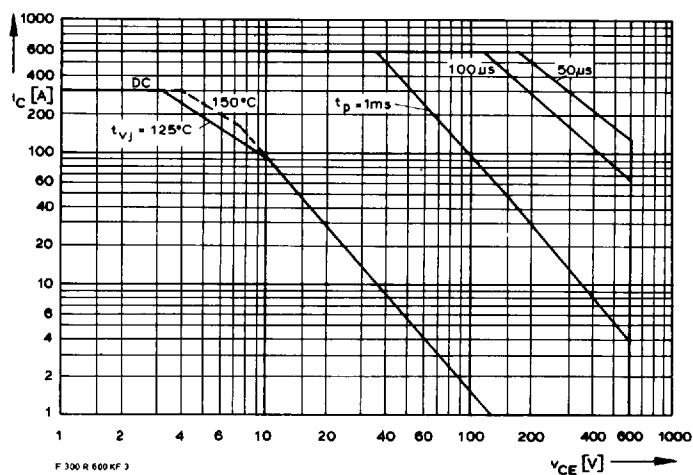
Maßbild
Seite 122, Nr. 3outline
page 122, no. 3



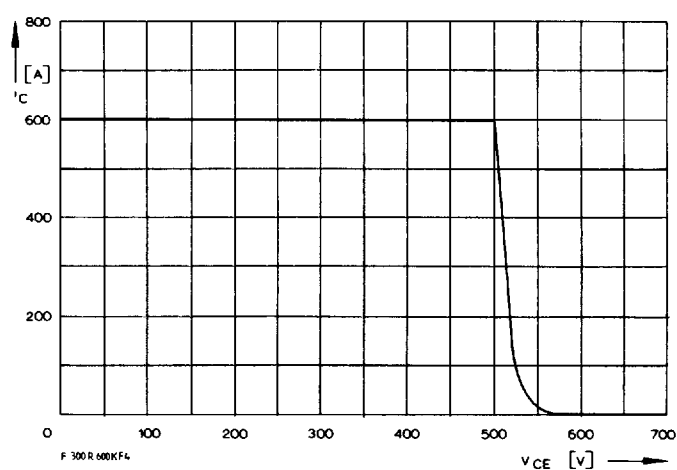
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).
Collector-emitter-voltage in saturation region (typical).
 $t_{vj} = 25^\circ\text{C}$



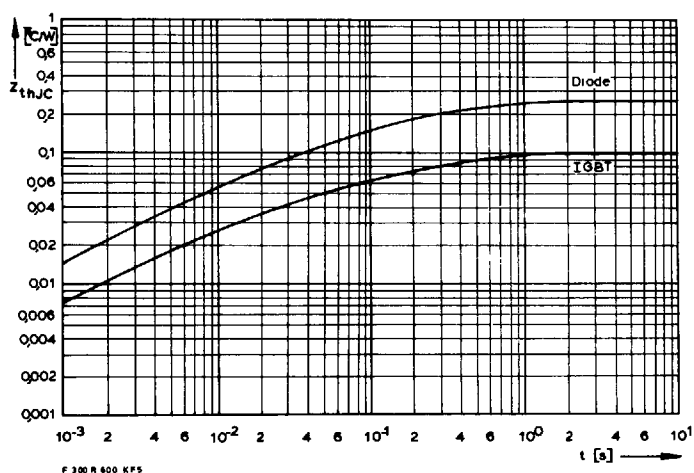
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
 $V_{CE} = 5\text{ V}$



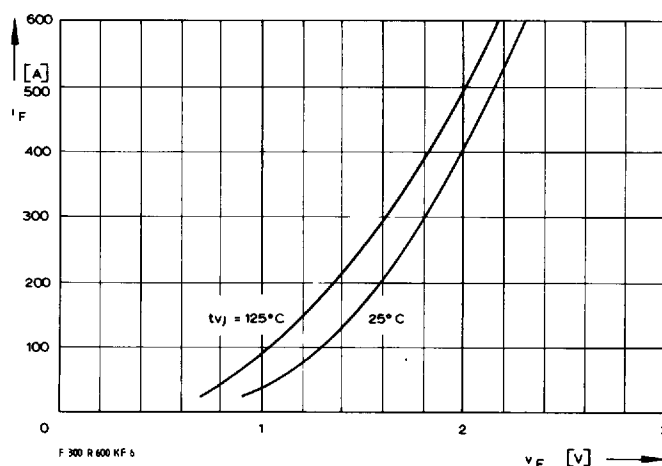
3 Erlaubter Arbeitsbereich in Vorwärtsrichtung (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
 $t_C = 25^\circ\text{C}$



4 Erlaubter Arbeitsbereich in Rückwärtsrichtung.
Reverse biased safe operating area.
 $t_{vj} = 125^\circ\text{C}$, $V_{LF} = V_{LR} = 15\text{ V}$, $R_G = 6,8\ \Omega$



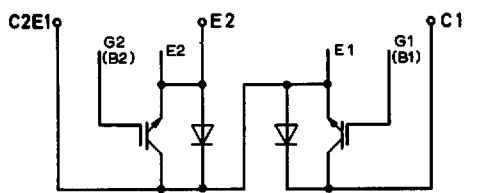
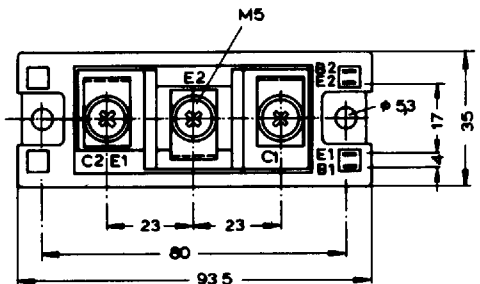
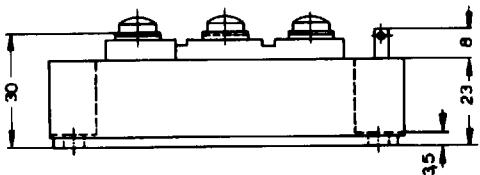
5 Transienter innerer Wärmewiderstand je Zweig (DC).
Transient thermal impedance per arm (DC).



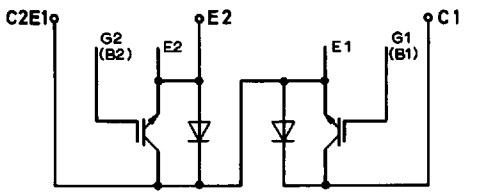
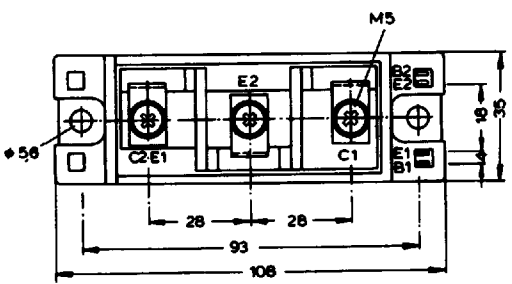
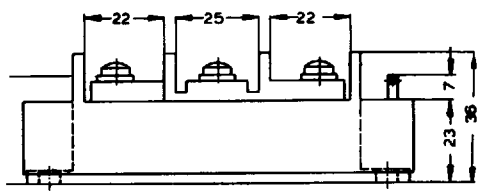
6 Durchlaßkennlinie der Inversdiode (typisch).
Forward characteristic of the inverse diode (typical).
 $V_{GE} = 0\text{ V}$

52E D ■ 3403297 0000298 894 ■ UPEC

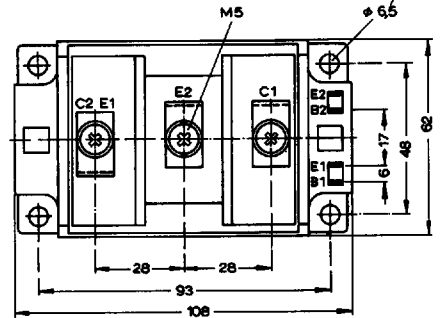
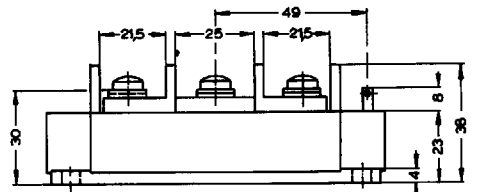
EUPEC



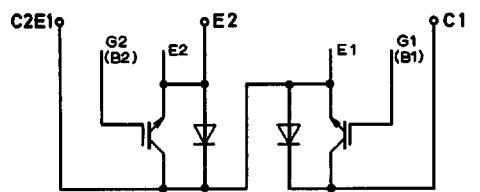
1



2

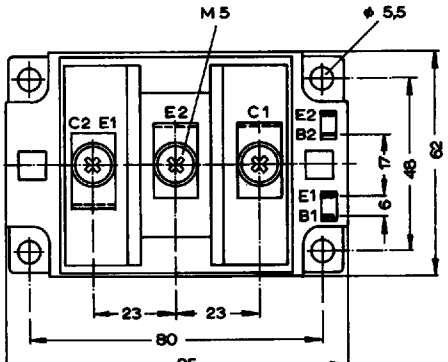
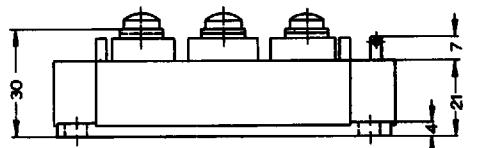


FF 100 R 1000 K

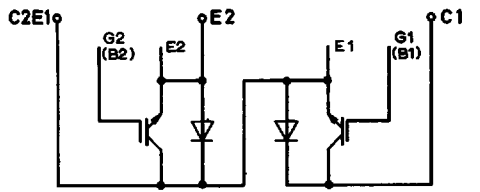


1)

3



FF 150 R 500 K

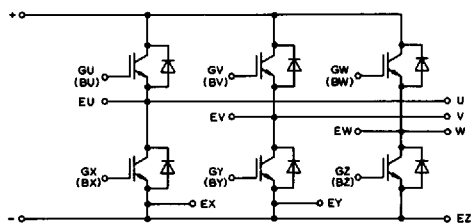
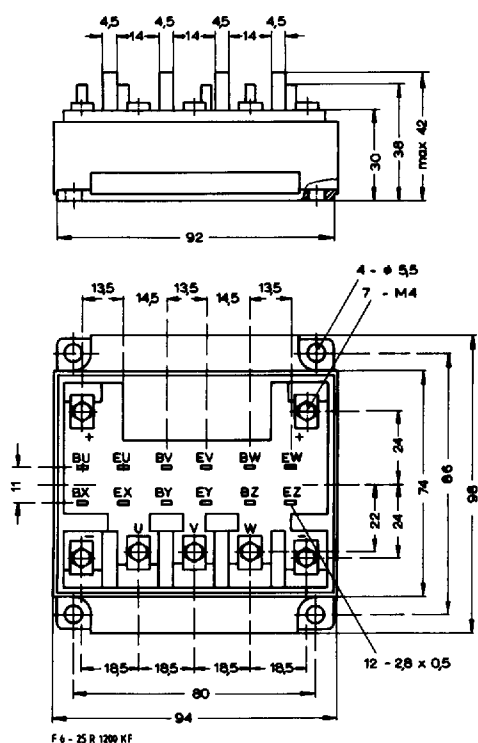


1)

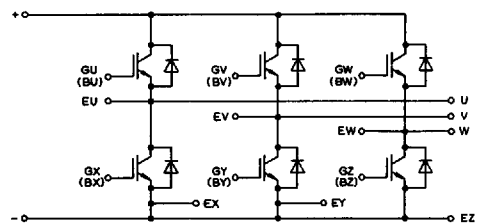
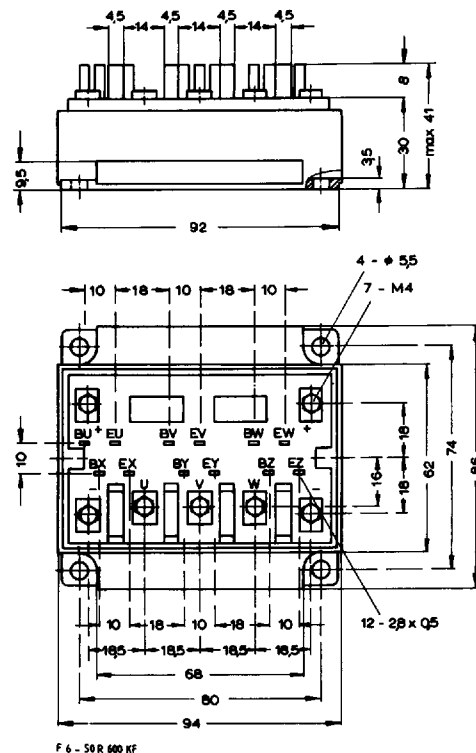
4

EUPEC

52E D ■ 3403297 0000300 272 ■ UPEC



9



10