

Transistor	Transistor
Elektrische Eigenschaften	Electrical properties
<u>Höchstzulässige Werte</u>	<u>Maximum rated values</u>
V_{CES}	600 V
I_C	400 A
I_{CRM} $t_p = 1$ ms	800 A
P_{tot} $t_C = 25^\circ\text{C}$	1800 W
V_{GE}	20 V
V_{EG}	20 V

<u>Charakteristische Werte</u>	<u>Characteristic values</u>
$V_{CE\ sat}$ $i_{CM} = 400$ A, $v_{GE} = 15$ V, $t_{vj} = 25^\circ\text{C}$	typ. 2,7 V
$i_{CM} = 400$ A, $v_{GE} = 15$ V, $t_{vj} = 25^\circ\text{C}$	max. 3,5 V
$V_{GE\ (th)}$ $V_{CE} = 5$ V, $i_C = 400$ mA, $t_{vj} = 25^\circ\text{C}$	min. 3 V
$V_{CE} = 5$ V, $i_C = 400$ mA, $t_{vj} = 25^\circ\text{C}$	max. 6 V
C_{ies} $V_{CE} = 10$ V, $v_{GE} = 0$ V, $f_o = 1$ MHz, $t_{vj} = 25^\circ\text{C}$	typ. 50 nF
i_{CES} $V_{CE} = 600$ V, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$	typ. 1 mA
$V_{CE} = 600$ V, $v_{GE} = 0$ V, $t_{vj} = 125^\circ\text{C}$	typ. 8 mA
i_{GES} $V_{GE} = 20$ V, $t_{vj} = 25^\circ\text{C}$	typ. 50 nA
$V_{GE} = 20$ V, $t_{vj} = 25^\circ\text{C}$	max. 500 nA
i_{EGS} $V_{EG} = 20$ V, $t_{vj} = 25^\circ\text{C}$	typ. 50 nA
$V_{EG} = 20$ V, $t_{vj} = 25^\circ\text{C}$	max. 500 nA
t_{on} $i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 25^\circ\text{C}$	typ. 0,4 μs
$i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 125^\circ\text{C}$	typ. 0,5 μs
t_s $i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 25^\circ\text{C}$	typ. 0,4 μs
$i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 125^\circ\text{C}$	typ. 0,5 μs
t_f $i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 25^\circ\text{C}$	typ. 0,15 μs
$i_{CM} = 400$ A, $V_{CE} = 300$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 125^\circ\text{C}$	typ. 0,25 μs

<u>Bedingungen für den Kurzschlußschutz</u>	<u>Conditions for protection against short circuits</u>
$t_{ig} = 10\ \mu\text{s}$, $v_{LF} = v_{LR} = 15$ V, $R_G = 4,7\ \Omega$, $t_{vj} = 125^\circ\text{C}$,	$V_{CC} = 350$ V, $V_{CEM} = 500$ V, $i_{CMK\ 1} \approx 1500$ A, $i_{CMK\ 2} \approx 1200$ A.

Thermische Eigenschaften	Thermal properties
R_{thJC} DC, pro Baustein / per module	0,0345 $^\circ\text{C/W}$
DC, pro Zweig / per arm	0,069 $^\circ\text{C/W}$
R_{thCK} pro Baustein / per module	0,02 $^\circ\text{C/W}$
pro Zweig / per arm	0,04 $^\circ\text{C/W}$

$t_{vj\ max}$	150 $^\circ\text{C}$
$t_{vj\ op}$	- 40 / + 150 $^\circ\text{C}$
t_{stg}	- 40 / + 125 $^\circ\text{C}$

Inversdiode Inverse diode

Elektrische Eigenschaften Electrical properties

<u>Höchstzulässige Werte</u>	<u>Maximum rated values</u>
$I_{F(max)}$	400 A
I_{FRM} $t_p = 1$ ms	800 A

<u>Charakteristische Werte</u>	<u>Characteristic values</u>
v_F $i_F = 400$ A, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$	typ. 1,9 V
$i_F = 400$ A, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$	max. 2,7 V
I_{RM} $i_{FM} = 400$ A, $-di_F/dt = 300$ A/ μs	typ. 21 A
$v_{EG} = 10$ V, $t_{vj} = 25^\circ\text{C}$	typ. 35 A
$i_{FM} = 400$ A, $-di_F/dt = 300$ A/ μs	typ. 3 μAs
$v_{EG} = 10$ V, $t_{vj} = 25^\circ\text{C}$	typ. 11 μAs
$i_{FM} = 400$ A, $-di_F/dt = 300$ A/ μs	
$v_{EG} = 10$ V, $t_{vj} = 125^\circ\text{C}$	

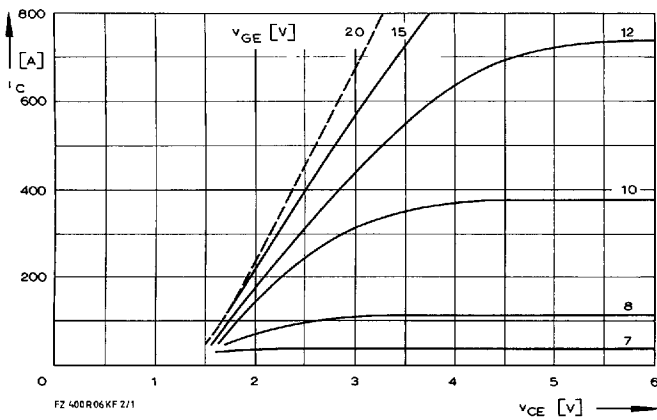
Thermische Eigenschaften	Thermal properties
R_{thJC} DC, pro Baustein / per module	0,085 $^\circ\text{C/W}$
DC, pro Zweig / per arm	0,17 $^\circ\text{C/W}$
R_{thCK} pro Baustein / per module	0,02 $^\circ\text{C/W}$
pro Zweig / per arm	0,04 $^\circ\text{C/W}$

$t_{vj\ max}$	125 $^\circ\text{C}$
$t_{vj\ op}$	- 40 / + 125 $^\circ\text{C}$
t_{stg}	- 40 / + 125 $^\circ\text{C}$

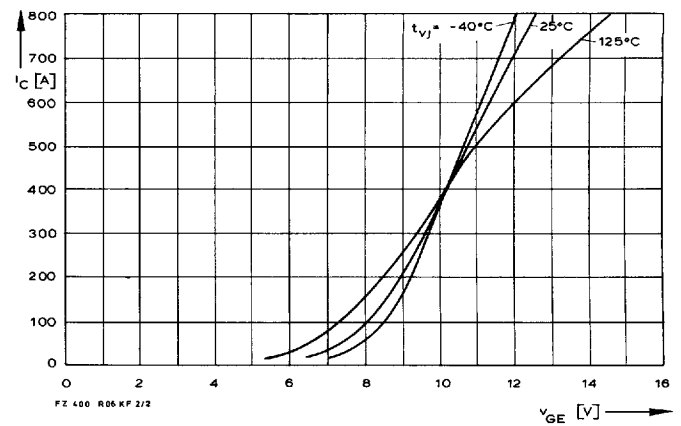
Innere Isolation	Internal insulation
Isoliermaterial: Al N	Insulating material: Al N
V_{ISOL} RMS ($f=50$ Hz, $t=1$ min)	2,5 kV

Mechanische Eigenschaften Mechanical properties

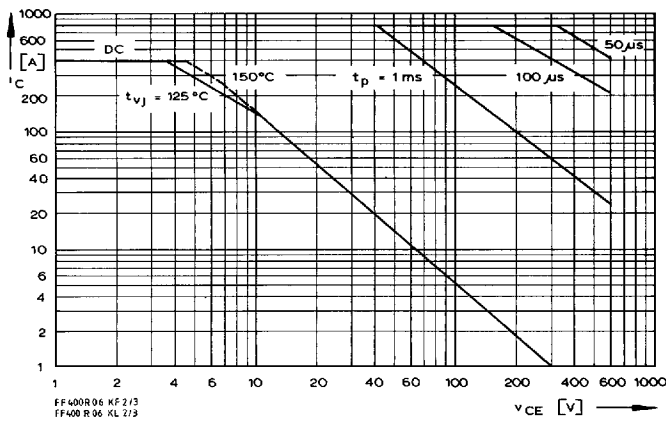
G	540 g
M 1	3 Nm
M 2	terminals M 6 3 Nm
Maßbild	outline
Seite 185, Nr. 14	page 185, no. 14



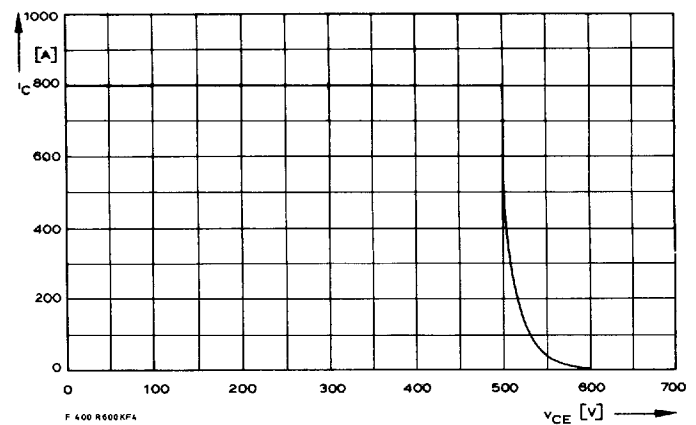
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).
Collector-emitter-voltage in saturation region (typical).
 $t_{vj} = 25^\circ\text{C}$



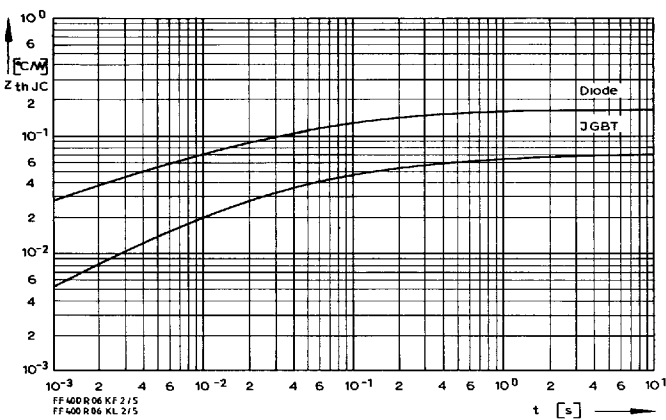
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
 $V_{CE} = 5\text{ V}$



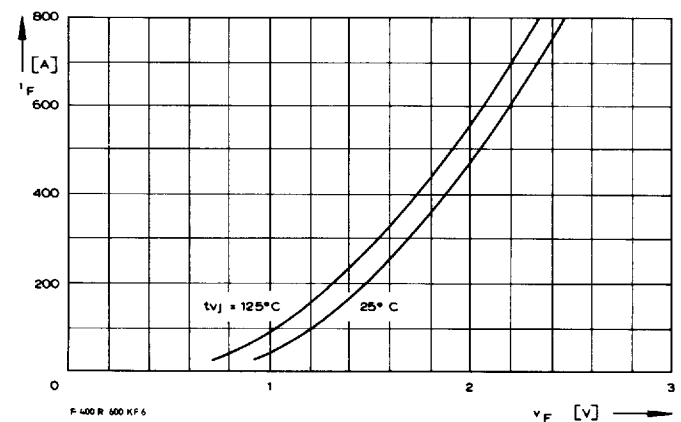
3 Vorwärts-Arbeitsbereich FBSOA (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
 $t_C = 25^\circ\text{C}$



4 Rückwärts-Arbeitsbereich RBSOA.
Reverse biased safe operating area.
 $t_{vj} = 125^\circ\text{C}$, $V_{LF} = V_{LR} = 15\text{ V}$, $R_G = 4,7\ \Omega$



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



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