

Transistor	Transistor
Elektrische Eigenschaften	Electrical properties
<u>Höchstzulässige Werte</u>	<u>Maximum rated values</u>
V_{CES}	1200 V
I_C	500 A
I_{CRM} $t_p = 1$ ms	1000 A
P_{tot} $t_C = 25^\circ\text{C}$	3000 W
V_{GE}	20 V
V_{EG}	20 V

Charakteristische Werte	Characteristic values
$V_{CE\ sat}$	$i_{CM} = 400$ A, $v_{GE} = 15$ V, $t_{vj} = 25^\circ\text{C}$ typ. 3 V
	$i_{CM} = 400$ A, $v_{GE} = 15$ V, $t_{vj} = 25^\circ\text{C}$ max. 2,7 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. 80 nF
i_{CES}	$v_{CE} = 1200$ V, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$ typ. 1 mA
	$v_{CE} = 1200$ 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}	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 25^\circ\text{C}$ typ. 0,4 μs
	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 125^\circ\text{C}$ typ. 0,8 μs
t_s	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 25^\circ\text{C}$ typ. 0,6 μs
	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 125^\circ\text{C}$ typ. 1,1 μs
t_f	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 25^\circ\text{C}$ typ. 0,2 μs
	$i_{CM} = 500$ A, $v_{CE} = 600$ V, $v_{LF} = 15$ V, $v_{LR} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 125^\circ\text{C}$ typ. 0,5 μs

Bedingungen für den Kurzschlußschutz	Conditions for protection against short circuits
$t_{fg} = 10\ \mu\text{s}$, $v_{LF} = v_{LR} = 15$ V, $R_G = 2,4\ \Omega$, $t_{vj} = 125^\circ\text{C}$,	$V_{CC} = 750$ V, $V_{CEM} = 1000$ V, $i_{CMK\ 1} \approx 4500$ A, $i_{CMK\ 2} \approx 3200$ A,

Thermische Eigenschaften	Thermal properties
R_{thJC} DC, pro Baustein / per module	0,042 $^\circ\text{C/W}$
R_{thCK} pro Baustein / per module	0,03 $^\circ\text{C/W}$

$t_{vj\ max}$	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

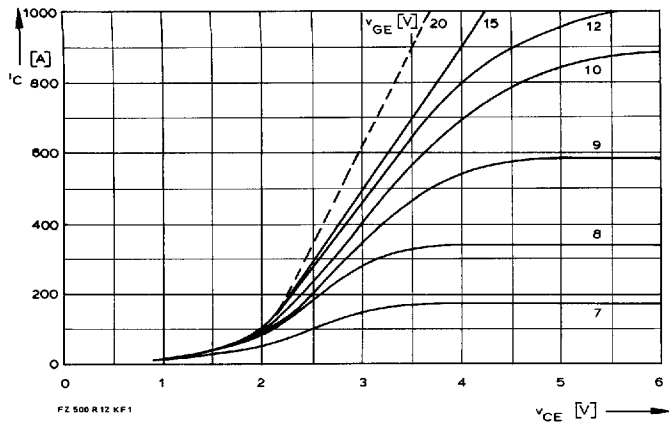
Charakteristische Werte	Characteristic values
v_F	$i_F = 500$ A, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$ typ. 2 V
	$i_F = 500$ A, $v_{GE} = 0$ V, $t_{vj} = 25^\circ\text{C}$ max. 3 V
I_{RM}	$i_{FM} = 500$ A, $-di_F/dt = 300$ A/ μs $v_{EG} = 10$ V, $t_{vj} = 25^\circ\text{C}$ typ. 28 A
	$i_{FM} = 500$ A, $-di_F/dt = 300$ A/ μs $v_{EG} = 10$ V, $t_{vj} = 125^\circ\text{C}$ typ. 52 A
Q_r	$i_{FM} = 500$ A, $-di_F/dt = 300$ A/ μs $v_{EG} = 10$ V, $t_{vj} = 25^\circ\text{C}$ typ. 4 μAs
	$i_{FM} = 500$ A, $-di_F/dt = 300$ A/ μs $v_{EG} = 10$ V, $t_{vj} = 125^\circ\text{C}$ typ. 17 μAs

Thermische Eigenschaften	Thermal properties
R_{thJC} DC, pro Baustein / per module	0,2 $^\circ\text{C/W}$
R_{thCK} DC, pro Zweig / per arm pro Baustein / per module pro Zweig / per arm	0,03 $^\circ\text{C/W}$

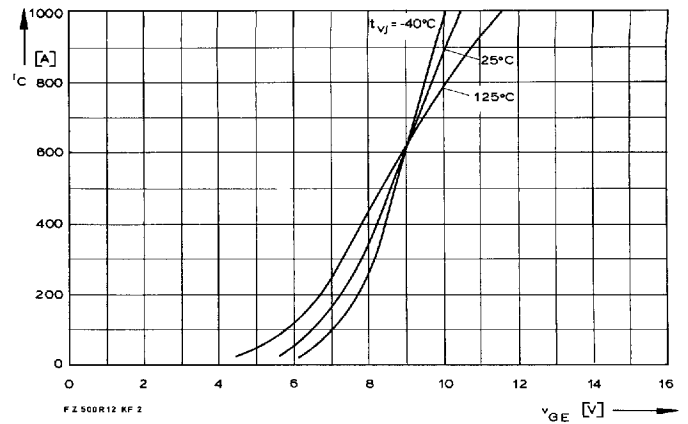
$t_{vj\ max}$	125 $^\circ\text{C}$
$t_{vj\ op}$	- 40 / + 125 $^\circ\text{C}$
t_{stg}	- 40 / + 125 $^\circ\text{C}$

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

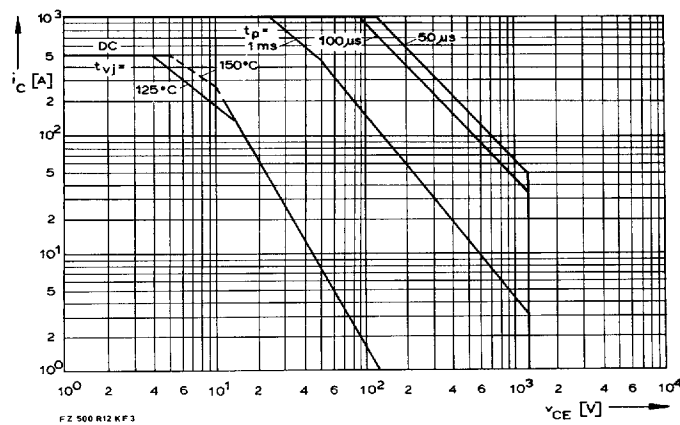
Mechanische Eigenschaften	Mechanical properties
G	465 g
M 1	3 Nm
M 2	terminals M 4 / M 6 2 Nm / 3 Nm
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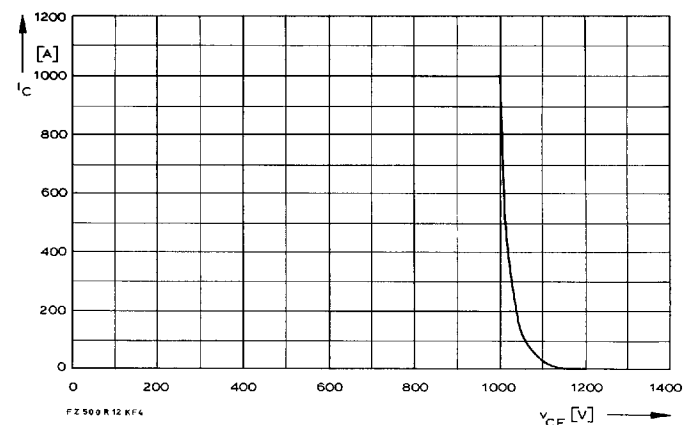
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch)
Collector-emitter-voltage in saturation region (typical).
 $t_{vj} = 25^\circ\text{C}$



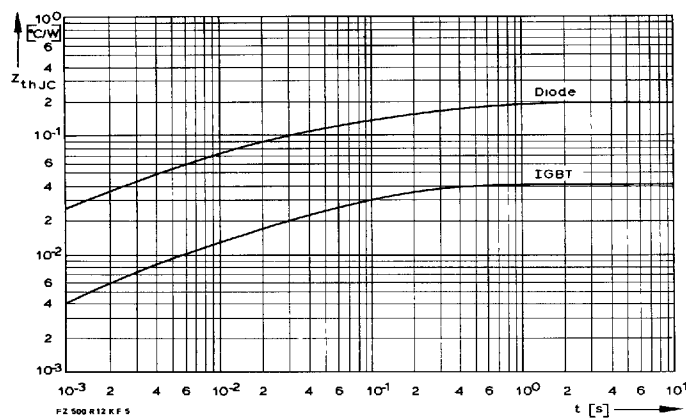
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
 $V_{CE} = 5\text{ V}$



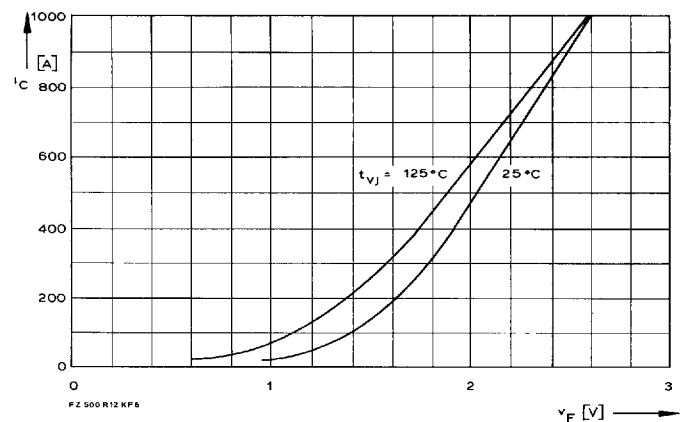
3 Vorwärts-Arbeitsbereich FBSOA (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
 $t_C = 25^\circ\text{C}$



4 Rückwärts-Arbeitsbereich RBSOA.
Reverse biased safe operating area.
 $t_{vj} = 125^\circ\text{C}$, $V_{LF} = V_{LR} = 15\text{ V}$, $R_G = 2,4\ \Omega$



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)
 $V_{GE} = 0\text{ V}$