

Transistor		Transistor	
Elektrische Eigenschaften		Electrical properties	
<u>Höchstzulässige Werte</u>		<u>Maximum rated values</u>	
V_{CES}		1200	V
I_C		800	A
I_{CRM}	$t_p = 1 \text{ ms}$	1600	A
P_{tot}	$t_C = 25^\circ\text{C}$	6250	W
V_{GE}		20	V
V_{EG}		20	V

Charakteristische Werte		Characteristic values	
$V_{CE \text{ sat}}$	$i_{CM} = 800 \text{ A}, v_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	3,0 V
	$i_{CM} = 800 \text{ A}, v_{GE} = 15 \text{ V}, t_{vj} = 125^\circ\text{C}$	max.	3,8 V
$V_{GE} \text{ (th)}$	$v_{CE} = 5 \text{ V}, i_C = 65 \text{ mA}, t_{vj} = 25^\circ\text{C}$	min.	4,5 V
	$v_{CE} = 5 \text{ V}, i_C = 65 \text{ mA}, t_{vj} = 25^\circ\text{C}$	max.	6,5 V
C_{ies}	$v_{CE} = 25 \text{ V}, v_{GE} = 0 \text{ V}, f_o = 1 \text{ MHz}, t_{vj} = 25^\circ\text{C}$	typ.	130 nF
i_{CES}	$v_{CE} = 1200 \text{ V}, v_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	5 mA
	$v_{CE} = 1200 \text{ V}, v_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ.	20 mA
i_{GES}	$v_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	40 nA
	$v_{GE} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max.	400 nA
i_{EGS}	$v_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ.	40 nA
	$v_{EG} = 20 \text{ V}, t_{vj} = 25^\circ\text{C}$	max.	400 nA
t_{on}	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,7 μs
	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	0,8 μs
t_s	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, v_{LR} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,9 μs
	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, v_{LR} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	1,0 μs
t_f	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, v_{LR} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 25^\circ\text{C}$	typ.	0,25 μs
	$i_{CM} = 800 \text{ A}, v_{CE} = 600 \text{ V}, v_{LF} = 15 \text{ V}, v_{LR} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 125^\circ\text{C}$	typ.	0,30 μs

<u>Bedingungen für den Kurzschlußschutz</u>	<u>Conditions for protection against short circuits</u>
$t_{ig} = 10 \mu\text{s}, v_{LF} = v_{LR} = 15 \text{ V}, R_G = 2,4 \Omega, t_{vj} = 125^\circ\text{C},$	$V_{CC} = 750 \text{ V}, v_{CEM} = 900 \text{ V}, i_{CMK1} \approx 8000 \text{ A}, i_{CMK2} \approx 6000 \text{ A},$

Unabhängig davon gilt bei abweichenden Bedingungen
with regard to other conditions
 $v_{CEM} = V_{CES} - 15nH \times |di_C/dt|$

Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,02	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,01	$^\circ\text{C/W}$

$t_{vj \text{ max}}$	150 $^\circ\text{C}$
$t_{vj \text{ op}}$	- 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>
$I_{F(max)}$	800 A
I_{FRM}	1600 A

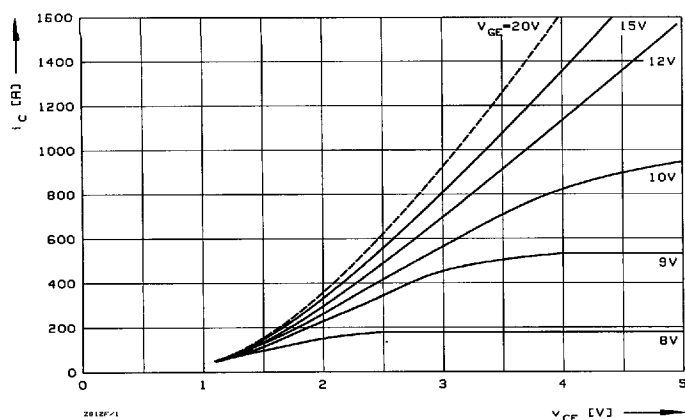
Charakteristische Werte	Characteristic values
v_F	$i_F = 800 \text{ A}, v_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ. 2,5 V
	$i_F = 800 \text{ A}, v_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$ max. 2,1 V
I_{FRM}	$i_{FM} = 800 \text{ A}, -di_F/dt = 800 \text{ A}/\mu\text{s}$ typ. 80 A
	$v_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ. 190 A
Q_r	$i_{FM} = 800 \text{ A}, -di_F/dt = 800 \text{ A}/\mu\text{s}$ typ. 12 μAs
	$v_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ. 52 μAs
	$i_{FM} = 800 \text{ A}, -di_F/dt = 800 \text{ A}/\mu\text{s}$ typ. 52 μAs
	$v_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$

Thermische Eigenschaften		Thermal properties	
R_{thJC}	DC, pro Baustein / per module	0,05	$^\circ\text{C/W}$
R_{thCK}	pro Baustein / per module	0,01	$^\circ\text{C/W}$

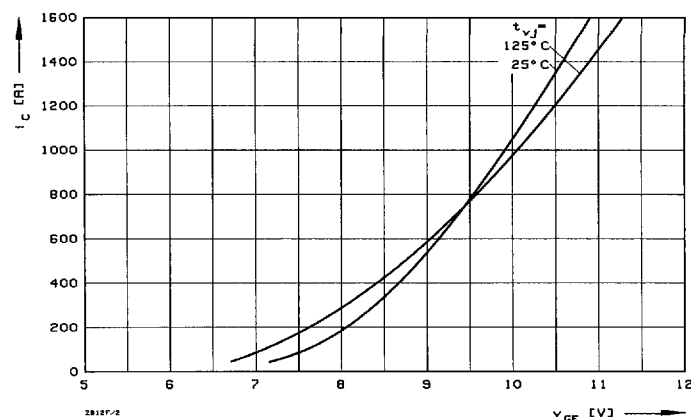
$t_{vj \text{ max}}$	150 $^\circ\text{C}$
$t_{vj \text{ op}}$	- 40 / + 125 $^\circ\text{C}$
t_{stg}	- 40 / + 125 $^\circ\text{C}$

Innere Isolation	Internal insulation
Isoliermaterial: Al_2O_3	Insulating material: Al_2O_3
V_{ISOL} RMS ($f=50 \text{ Hz}, t=1 \text{ min}$)	3,4 kV

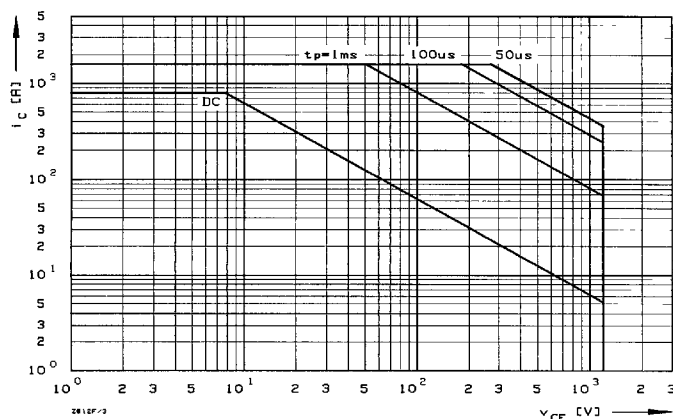
Mechanische Eigenschaften		Mechanical properties	
G		1500 g	
M 1		3 Nm	
M 2	terminals M 4 / M 8	2 Nm / 8 ... 10 Nm	
Maßbild	Seite 185, Nr. 13	outline	page 185, no. 13



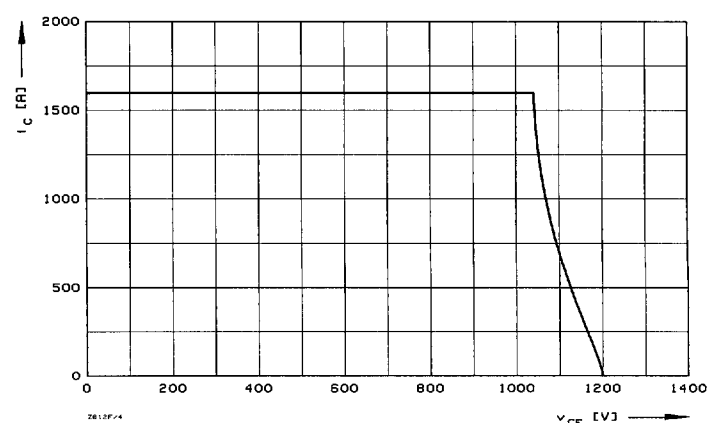
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).
Collector-emitter-voltage in saturation region (typical).
 $t_{vj} = 25^\circ\text{C}$



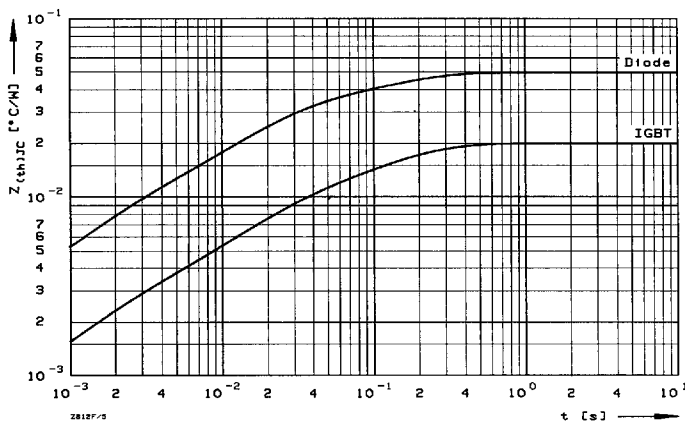
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
 $V_{CE} = 20\text{ V}$



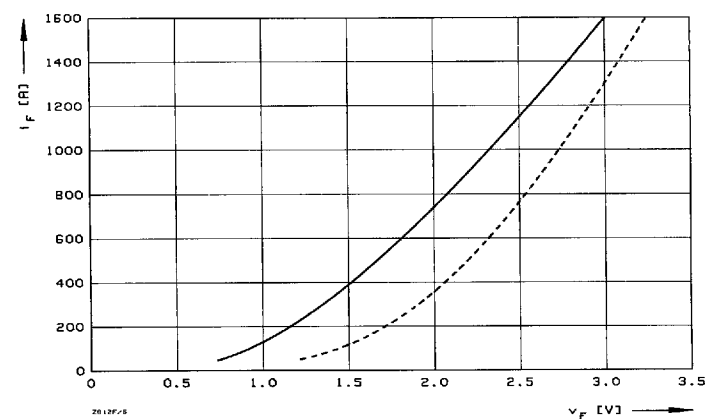
3 Vorwärts-Arbeitsbereich FBSOA (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
 $t_C = 25^\circ\text{C}$



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



6 Durchlaßkennlinie der Inversdiode (typisch).
Forward characteristic of the inverse diode (typical).
--- $t_{vj} = 25^\circ\text{C}$, — $t_{vj} = 125^\circ\text{C}$, $V_{GE} = 0\text{ V}$