

Transistor		Transistor	
Elektrische Eigenschaften		Electrical properties	
Höchstzulässige Werte		Maximum rated values	
$V_{CES}$		1600	V
$I_C$		1200	A
$I_{CRM}$	$t_p = 1 \text{ ms}$	2400	A
$P_{tot}$	$t_C = 25^\circ\text{C}$	7800	W
$V_{GE}$		20	V
$V_{EG}$		20	V

Charakteristische Werte		Characteristic values	
$V_{CE \text{ sat}}$	$i_{CM} = 1,2 \text{ kA}, V_{GE} = 15 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ.	3,5	V
	$i_{CM} = 1,2 \text{ kA}, V_{GE} = 15 \text{ V}, t_{vj} = 125^\circ\text{C}$ typ.	4,6	V
$V_{GE} \text{ (th)}$	$V_{CE} = 5 \text{ V}, i_C = 80 \text{ mA}, t_{vj} = 25^\circ\text{C}$ typ.	5,5	V
	$V_{CE} = V_{GE}, i_C = 80 \text{ mA}, t_{vj} = 25^\circ\text{C}$ max.	6,5	V
$C_{ies}$	$V_{CE} = 10 \text{ V}, V_{GE} = 0 \text{ V}, f_o = 1 \text{ MHz}, t_{vj} = 25^\circ\text{C}$	typ. 180	nF
$i_{CES}$	$V_{CE} = 1600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ.	8	mA
	$V_{CE} = 1600 \text{ V}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$ typ.	25	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
$t_{on}$	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 4,7 \Omega, t_{vj} = 25^\circ\text{C}$ typ.	1,1	$\mu\text{s}$
	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, R_G = 4,7 \Omega, t_{vj} = 125^\circ\text{C}$ typ.	1,2	$\mu\text{s}$
$t_s$	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 1,8 \Omega, t_{vj} = 25^\circ\text{C}$ typ.	1,1	$\mu\text{s}$
	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 1,8 \Omega, t_{vj} = 125^\circ\text{C}$ typ.	1,3	$\mu\text{s}$
$t_f$	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 1,8 \Omega, t_{vj} = 25^\circ\text{C}$ typ.	0,25	$\mu\text{s}$
	$i_{CM} = 1,2 \text{ kA}, V_{CE} = 800 \text{ V}, V_{LF} = 15 \text{ V}, V_{LR} = 15 \text{ V}, R_G = 1,8 \Omega, t_{vj} = 125^\circ\text{C}$ typ.	0,30	$\mu\text{s}$

Bedingungen für den Kurzschlußschutz	Conditions for protection against short circuits
$t_{fg} = 10 \mu\text{s}, V_{LF} = V_{LR} = 15 \text{ V}, R_{GF} = 4,7 \Omega, R_{GR} = 1,8 \Omega, t_{vj} = 125^\circ\text{C}$	$V_{CC} = 1000 \text{ V}, V_{CEM} = 1300 \text{ V}, i_{CMK1} \approx 12000 \text{ A}, i_{CMK2} \approx 9000 \text{ A}$

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	0,016	$^\circ\text{C/W}$
$R_{thCK}$	pro Baustein / per module	0,008	$^\circ\text{C/W}$
$t_{vj \text{ max}}$		150	$^\circ\text{C}$
$t_{vj \text{ op}}$		- 40 / + 150	$^\circ\text{C}$
$t_{stg}$		- 40 / + 125	$^\circ\text{C}$

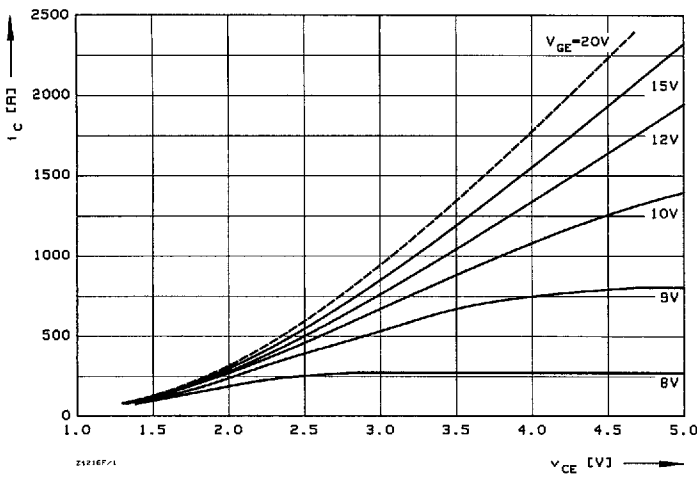
Inversdiode		Inverse diode	
Elektrische Eigenschaften		Electrical properties	
Höchstzulässige Werte		Maximum rated values	
$I_{F(max)}$		1200	A
$I_{FRM}$	$t_p = 1 \text{ ms}$	2400	A

Charakteristische Werte		Characteristic values	
$V_F$	$i_F = 1,2 \text{ kA}, V_{GE} = 0 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ.	4,2	V
	$i_F = 1,2 \text{ kA}, V_{GE} = 0 \text{ V}, t_{vj} = 125^\circ\text{C}$ typ.	3,8	V
$I_{RM}$	$i_{FM} = 1,2 \text{ kA}, -di_F/dt = 1,2 \text{ kA}/\mu\text{s}, V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$	typ. 220	A
	$i_{FM} = 1,2 \text{ kA}, -di_F/dt = 1,2 \text{ kA}/\mu\text{s}, V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$	typ. 340	A
$Q_r$	$i_{FM} = 1,2 \text{ kA}, -di_F/dt = 1,2 \text{ kA}/\mu\text{s}, V_{EG} = 10 \text{ V}, t_{vj} = 25^\circ\text{C}$ typ.	70	$\mu\text{As}$
	$i_{FM} = 1,2 \text{ kA}, -di_F/dt = 1,2 \text{ kA}/\mu\text{s}, V_{EG} = 10 \text{ V}, t_{vj} = 125^\circ\text{C}$ typ.	220	$\mu\text{As}$

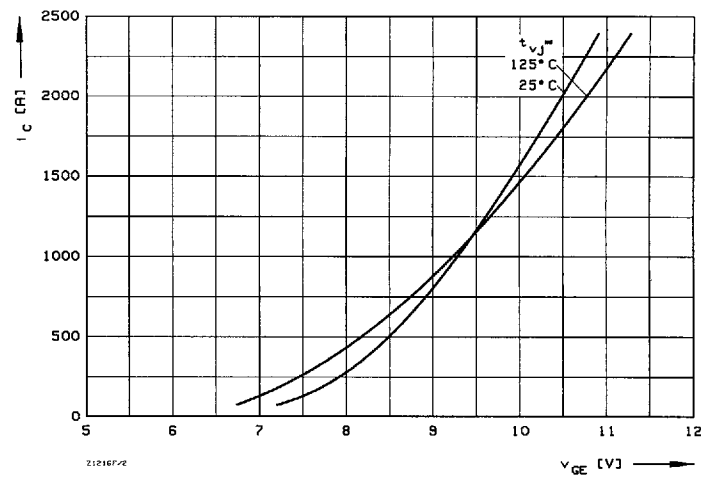
Thermische Eigenschaften		Thermal properties	
$R_{thJC}$	DC, pro Baustein / per module	0,04	$^\circ\text{C/W}$
$R_{thCK}$	pro Baustein / per module	0,008	$^\circ\text{C/W}$
$t_{vj \text{ max}}$		150	$^\circ\text{C}$
$t_{vj \text{ op}}$		- 40 / + 125	$^\circ\text{C}$
$t_{stg}$		- 40 / + 125	$^\circ\text{C}$

Innere Isolation		Internal insulation	
Isoliermaterial: $Al_2 O_3$		Insulating material: $Al_2 O_3$	
$V_{ISOL}$	RMS (f=50 Hz, t=1 min)	3,4	kV

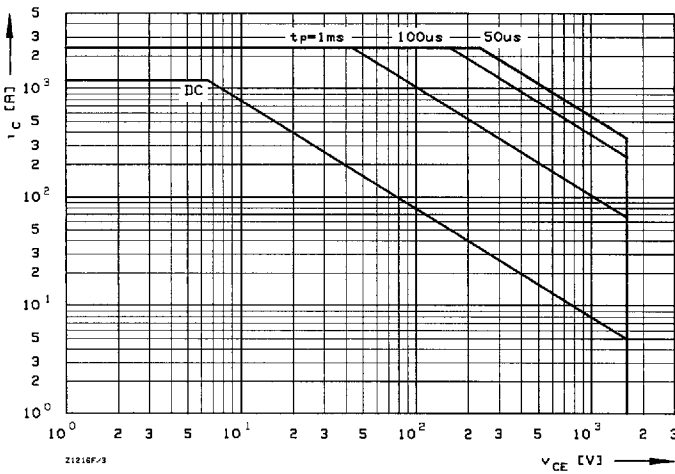
Mechanische Eigenschaften		Mechanical properties	
G		ca. 1500	g
M 1		3	Nm
M 2	M 4 / M 8	2 Nm / 8 ... 10	Nm
	Maßbild Seite 185, Nr. 13	outline page 185, no. 13	



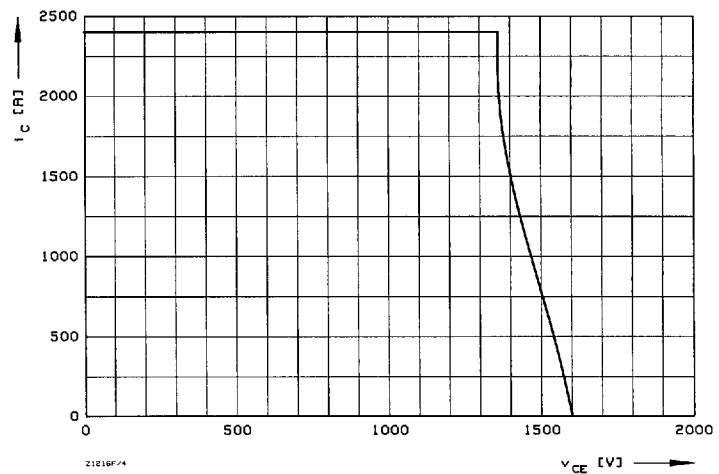
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).  
Collector-emitter-voltage in saturation region (typical).  
 $t_{vj} = 25^\circ\text{C}$



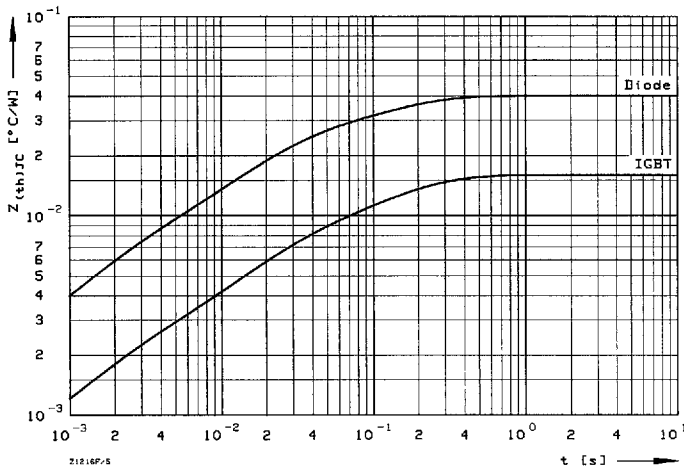
2 Übertragungscharakteristik (typisch).  
Transfer characteristic (typical).  
 $V_{CE} = 20\text{ V}$



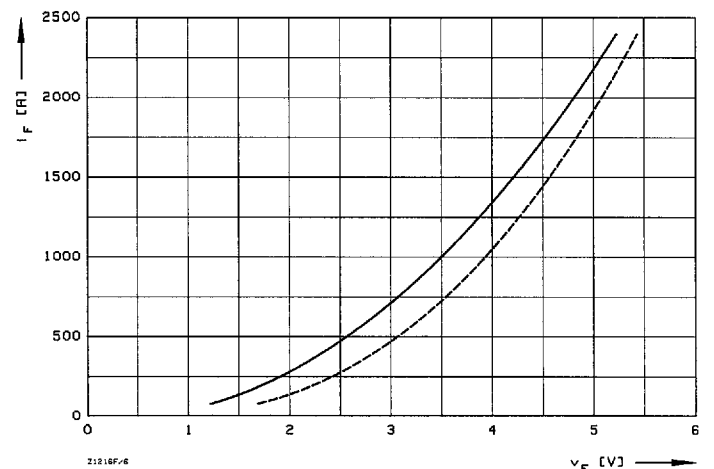
3 Vorwärts-Arbeitsbereich FBSOA (Einzelpuls, nicht periodisch).  
Forward biased safe operating area (single pulse, non repetitive)  
 $t_{vj} = 150^\circ\text{C}$ ,  $t_C = 25^\circ\text{C}$



4 Rückwärts-Arbeitsbereich RBSOA.  
Reverse biased safe operating area.  
 $t_{vj} = 125^\circ\text{C}$ ,  $V_{LF} = V_{LR} = 15\text{ V}$ ,  $R_{GF} = 4,7\ \Omega$ ,  $R_{GR} = 1,8\ \Omega$



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).  
---  $t_{vj} = 25^\circ\text{C}$ , —  $t_{vj} = 125^\circ\text{C}$ ,  $V_{GE} = 0\text{ V}$