Transistor

Elektrische Eigenschaften

Höchstzulässige Werte			
V_{CES}		1200	V
I_C		25	A
I_{CRM}	$t_p = 1$ ms	50	A
P_{tot}	$t_C = 25°C$	250	W
V_{GE}		20	V
V_{EG}		20	V

Charakteristische Werte						
$v_{CE\ sat}$	$i_{CM} = 25$ A,	$v_{GE} = 15$ V,	$t_{vj} = 25°C$	typ.	3	V
	$i_{CM} = 25$ A,	$v_{GE} = 15$ V,	$t_{vj} = 25°C$	max.	4	V
$v_{GE\ (th)}$	$v_{CE} = 5$ V,	$i_C = 25$ mA,	$t_{vj} = 25°C$	min.	3	V
	$v_{CE} = 5$ V,	$i_C = 25$ mA,	$t_{vj} = 25°C$	max.	6	V
C_{ies}	$v_{CE} = 10$ V,	$v_{GE} = 0$ V,				
	$f_o = 1$ MHz,	$t_{vj} = 25°C$,		typ.	2,8	nF
i_{CES}	$v_{CE} = 1200$ V,	$v_{GE} = 0$ V,	$t_{vj} = 25°C$	typ.	0,2	mA
	$v_{CE} = 1200$ V,	$v_{GE} = 0$ V,	$t_{vj} = 125°C$	typ.	1	mA
i_{GES}	$v_{GE} = 20$ V,	$t_{vj} = 25°C$,		typ.	50	nA
	$v_{GE} = 20$ V,	$t_{vj} = 25°C$,		max.	500	nA
i_{EGS}	$v_{EG} = 20$ V,	$t_{vj} = 25°C$,		typ.	50	nA
	$v_{EG} = 20$ V,	$t_{vj} = 25°C$,		max.	500	nA
t_{on}	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$R_G = 51\ \Omega$,	$t_{vj} = 25°C$	typ.	0,4	μs
	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$R_G = 51\ \Omega$,	$t_{vj} = 125°C$	typ.	0,5	μs
t_s	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$v_{LR} = 15$ V,				
	$R_G = 51\ \Omega$,	$t_{vj} = 25°C$		typ.	0,5	μs
	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$v_{LR} = 15$ V,				
	$R_G = 51\ \Omega$,	$t_{vj} = 125°C$		typ.	0,6	μs
t_f	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$v_{LR} = 15$ V,				
	$R_G = 51\ \Omega$,	$t_{vj} = 25°C$		typ.	0,2	μs
	$i_{CM} = 25$ A,	$v_{CE} = 600$ V,				
	$v_{LF} = 15$ V,	$v_{LR} = 15$ V,				
	$R_G = 51\ \Omega$,	$t_{vj} = 125°C$		typ.	0,25	μs

Bedingungen für den Kurzschlußschutz	Conditions for protection against short circuits
$t_{fg} = 10\ \mu$s,	$V_{CC} = 750$ V,
$v_{LF} = v_{LR} = 15$ V,	$v_{CEM} = 1000$ V,
$R_G = 51\ \Omega$,	$i_{CMK\ 1} \approx 250$ A,
$t_{vj} = 125°C$,	$i_{CMK\ 2} \approx 200$ A,

Thermische Eigenschaften / Thermal properties

R_{thJC}	DC, pro Baustein / per module	0,25	°C/W
	DC, pro Zweig / per arm	0,5	°C/W
R_{thCK}	pro Baustein / per module	0,06	°C/W
	pro Zweig / per arm	0,12	°C/W
$t_{vj\ max}$		150	°C
$t_{vj\ op}$		- 40 / + 150	°C
t_{stg}		- 40 / + 125	°C

Inversdiode / Inverse diode

Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte			
$I_{F(max)}$		25	A
I_{FRM}	$t_p = 1$ ms	50	A

Charakteristische Werte				
v_F	$i_F = 25$ A, $v_{GE} = 0$ V, $t_{vj} = 25°C$	typ.	1,6	V
	$i_F = 25$ A, $v_{GE} = 0$ V, $t_{vj} = 25°C$	max.	2,5	V
I_{RM}	$i_{FM} = 25$ A, $-di_F/dt = 100$ A/μs			
	$v_{EG} = 10$ V, $t_{vj} = 25°C$	typ.	7	A
	$i_{FM} = 25$ A, $-di_F/dt = 100$ A/μs			
	$v_{EG} = 10$ V, $t_{vj} = 125°C$	typ.	14	A
Q_r	$i_{FM} = 25$ A, $-di_F/dt = 100$ A/μs			
	$v_{EG} = 10$ V, $t_{vj} = 25°C$	typ.	0,9	μAs
	$i_{FM} = 25$ A, $-di_F/dt = 100$ A/μs			
	$v_{EG} = 10$ V, $t_{vj} = 125°C$	typ.	3,2	μAs

Thermische Eigenschaften / Thermal properties

R_{thJC}	DC, pro Baustein / per module	0,5	°C/W
	DC, pro Zweig / per arm	1,0	°C/W
R_{thCK}	pro Baustein / per module	0,06	°C/W
	pro Zweig / per arm	0,12	°C/W
$t_{vj\ max}$		125	°C
$t_{vj\ op}$		- 40 / + 125	°C
t_{stg}		- 40 / + 125	°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		205 g
M 1		3 Nm
M 2		3 Nm

Maßbild / outline
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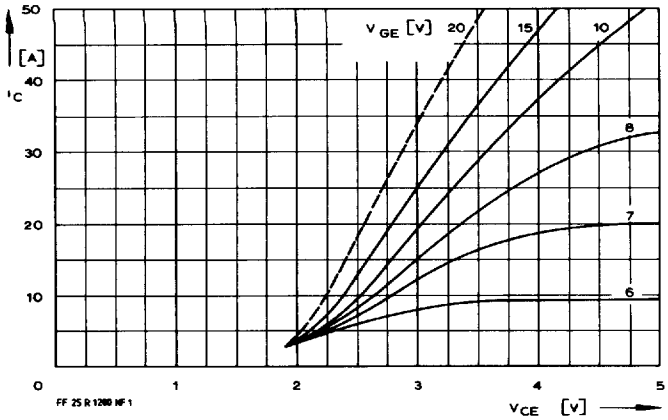
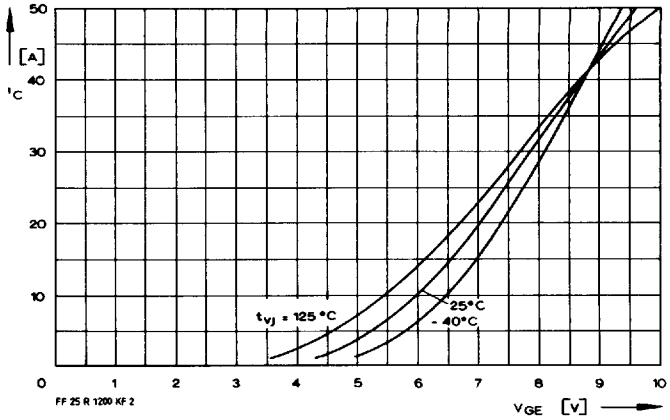
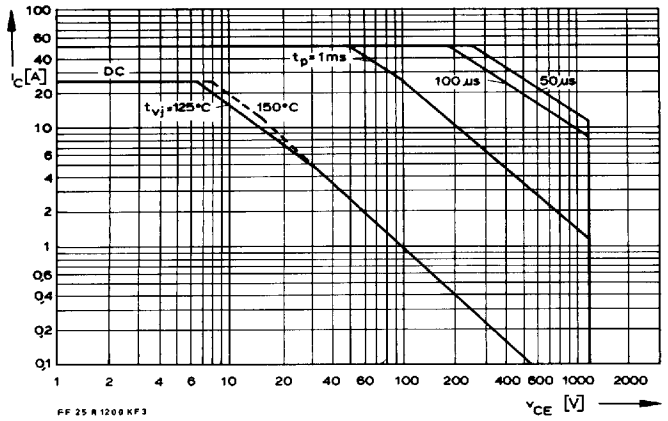


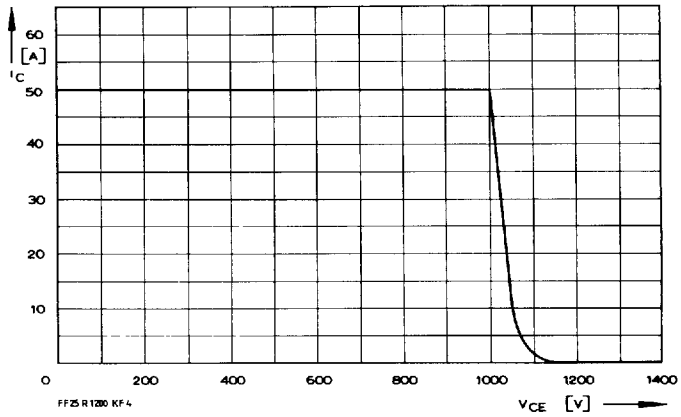
1 Kollektor-Emitter-Spannung im Sättigungsbereich (typisch).
Collector-emitter-voltage in saturation region (typical).
$t_{vj} = 25°C$



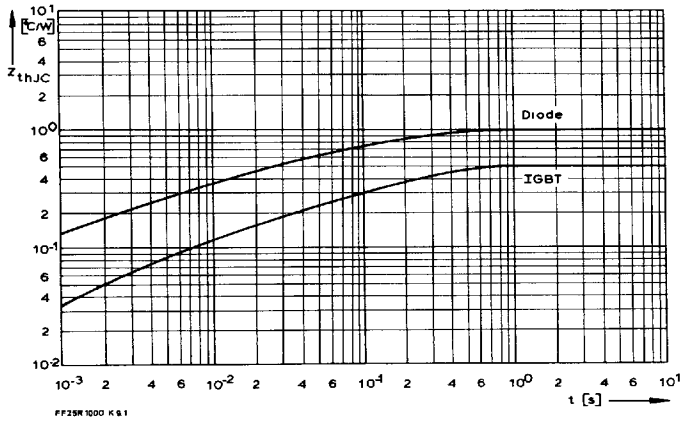
2 Übertragungscharakteristik (typisch).
Transfer characteristic (typical).
$V_{CE} = 5\ V$



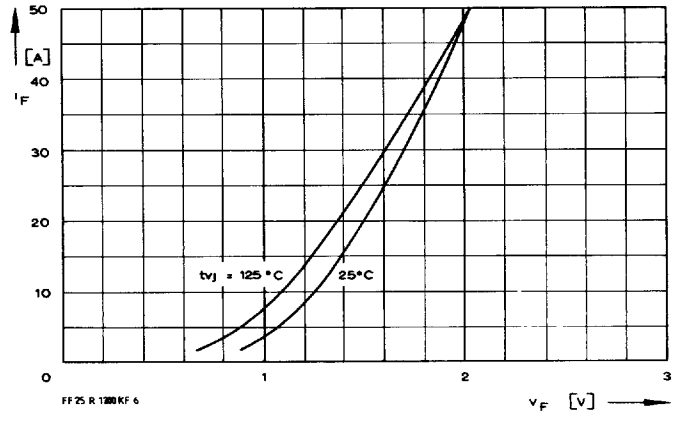
3 Vorwärts-Arbeitsbereich FBSOA (Einzelimpuls, nicht periodisch).
Forward biased safe operating area (single pulse, non repetitive).
$t_C = 25°C$



4 Rückwärts-Arbeitsbereich RBSOA.
Reverse biased safe operating area.
$t_{vj} = 125°C$, $V_{LF} = V_{LR} = 15\ V$, $R_G = 51\ \Omega$



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

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