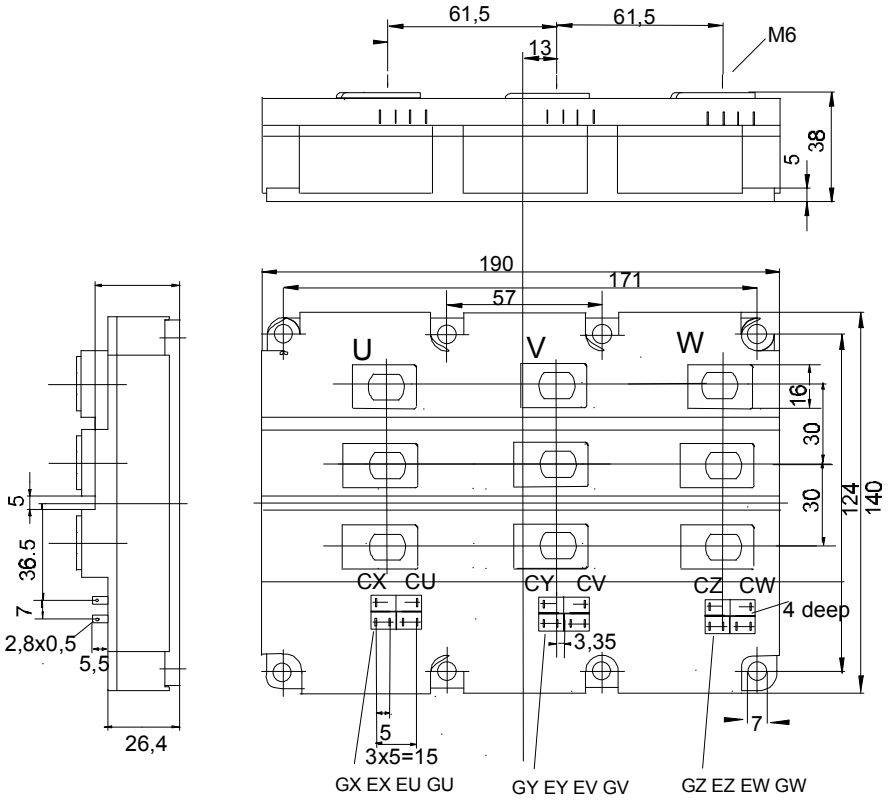
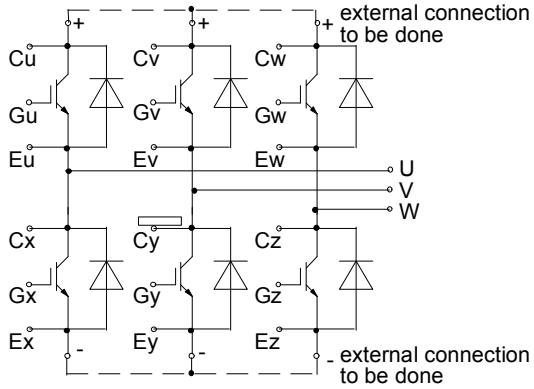
European Power-
Semiconductor and
Electronics Company
GmbH + Co. KG

Marketing Information
FS 300 R 16 KF4





VWK, March 1996

FS 300 R 16 KF4

Höchstzulässige Werte / Maximum rated values
Elektrische Eigenschaften / Electrical properties

Kollektor-Emitter-Sperrspannung	collector-emitter voltage		V_{CES}			1600 V
Kollektor-Dauergleichstrom	DC-collector current		I_C			300 A
Periodischer Kollektor Spitzenstrom	repetitive peak collector current	t_p=1 ms	I_{CRM}			600 A
Gesamt-Verlustleistung	total power dissipation	t_C=25°C, Transistor /transistor	P_{tot}			2000 W
Gate-Emitter-Spitzenspannung	gate-emitter peak voltage		V_{GE}			+/- 20 V
Dauergleichstrom	DC forward current		I_F			300 A
Periodischer Spitzenstrom	repetitive peak forw. current	t_p=1ms	I_{FRM}			600 A
Isolations-Prüfspannung	insulating test voltage	RMS, f=50 Hz, t= 1 min.	V_{ISOL}			3,4 kV

Charakteristische Werte / Characteristic values: Transistor

				min.	typ.	max	
Kollektor-Emitter Sättigungsspannung	collector-emitter saturation voltage	i_C=300A,v_{GE}=15V, t_{vj}=25°C	$v_{CE\,sat}$	-	3,5	3,9	V
		i_C=300A,v_{GE}=15V, t_{vj}=125°C		-	4,6	5,0	V
Gate-Schwellspannung	gate threshold voltage	i_C=20mA, v_{CE}=v_{GE}, t_{vj}=25°C	$v_{GE(th)}$	4,5	5,5	6,5	V
Eingangskapazität	input capacity	f_O=1MHz,t_{vj}=25°C,v_{CE}=25V,v_{GE}=0	C_{ies}	-	45	-	nF
Kollektor-Emitter Reststrom	collector-emitter cut-off current	v_{CE}=1600V, v_{GE}=0V, t_{vj}=25°C	i_{CES}	-	2	-	mA
		v_{CE}=1600V, v_{GE}=0V, t_{vj}=125°C		-	20	-	mA
Gate-Emitter Reststrom	gate leakage current	v_{CE}=0V, v_{GE}=20V, t_{vj}=25°C	i_{GES}	-	40	400	nA
Emitter-Gate Reststrom	gate leakage current	v_{CE}=0V, v_{GE}=20V, t_{vj}=25°C	i_{GES}	-	40	400	nA
Einschaltzeit (ohmsche Last)	turn-on time (resistive load)	i_C=300A,v_{CE}=900V,v_{LF}=15V	t_{on}				
		v_{LR}=15V,R_G=6,8Ω, t_{vj}=25°C		-	0,8	-	µs
		t_{vj}=125°C		-	1,0	-	µs
Speicherzeit (induktive Last)	storage time (inductive load)	i_C=300A,v_{CE}=900V,v_{LF}=15V	t_s				
		v_{LR}=15V,R_G=6,8Ω, t_{vj}=25°C		-	1,1	-	µs
		t_{vj}=125°C		-	1,3	-	µs
Fallzeit (induktive Last)	fall time (inductive load)	i_C=300A,v_{CE}=900V,v_{LF}=15V	t_f				
		v_{LR}=15V,R_G=6,8Ω, t_{vj}=25°C		-	0,25	-	µs
		t_{vj}=125°C		-	0,30	-	µs

Charakteristische Werte / Characteristic values: Invers-Diode

Durchlaßspannung	forward voltage	i_F=300A, v_{GE}=0V, t_{vj}=25°C	V_F	-	2,4	2,8	V
		i_F=300A, v_{GE}=0V, t_{vj}=125°C		-	2,2	-	V
Rückstromspitze	peak reverse recovery current	i_F=300A, -di$_F$/dt=300A/µs	I_{RM}				
		v_{RM}=900V, v_{EG}=10V, t_{vj}=25°C		-	25	-	A
		v_{RM}=900V, v_{EG}=10V, t_{vj}=125°C		-	50	-	A
Sperrverzögerungsladung	recovered charge	i_F=300A, -di$_F$/dt=300A/µs	Q_r				
		v_{RM}=900V, v_{EG}=10V, t_{vj}=25°C		-	8	-	µAs
		v_{RM}=900V, v_{EG}=10V, t_{vj}=125°C		-	30	-	µAs

Thermische Eigenschaften / Thermal properties

Innerer Wärmewiderstand	thermal resistance, junction to case	Transistor, DC, pro Modul/per module	R_{thJC}	0,011	°C/W
		Transistor, DC, pro Zweig/per arm		0,064	°C/W
		Diode, DC, pro Modul/per module		0,027	°C/W
		Diode, DC, pro Zweig/per arm		0,160	°C/W
Übergangs-Wärmewiderstand	thermal resistance, case to heatsink	pro Module / per Module	R_{thCK}	typ. 0,008	°C/W
		pro Zweig / per arm		typ. 0,048	°C/W
Höchstzul. Sperrschichttemperatur	max. junction temperature	pro Module / per Module	$t_{vj\,max}$	150	°C
Betriebstemperatur	operating temperature	Transistor / transistor	$t_{c\,op}$	-40...+150	°C
		Diode / diode	$t_{c\,op}$	-40...+125	°C
Lagertemperatur	storage temperature		t_{stg}	-40...+125	°C

Mechanische Eigenschaften / Mechanical properties

Gehäuse, siehe Anlage	case, see appendix			Seite 1	
Innere Isolation	internal insulation			Al_2O_3	
Anzugsdrehmoment f. mech. Befestigung	mounting torque		M1	3	Nm
Anzugsdrehmoment f. elektr. Anschlüsse	terminal connection torque	terminals M6	M2	5...6	Nm
Gewicht	weight		G	ca.2300	g

Bedingungen für den Kurzschlußschutz

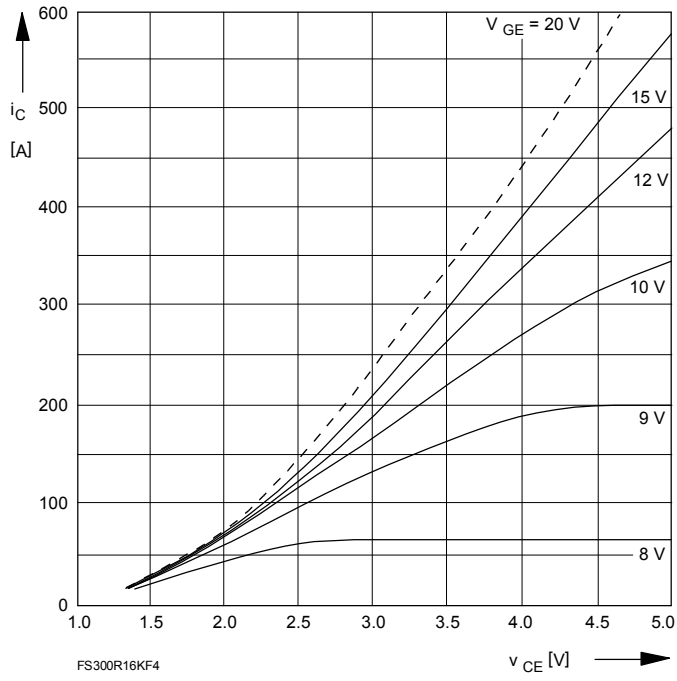
t_{fg}=10µs, v_{LF}=v_{LR} = 15V,
R_{GF}=R_{GR} = 6,8Ω
t_{vj}=125°C

V_{CC} =1000V
V_{CEM} =1300V
i_{CMK1} » 3000A
i_{CMK2} » 2300A

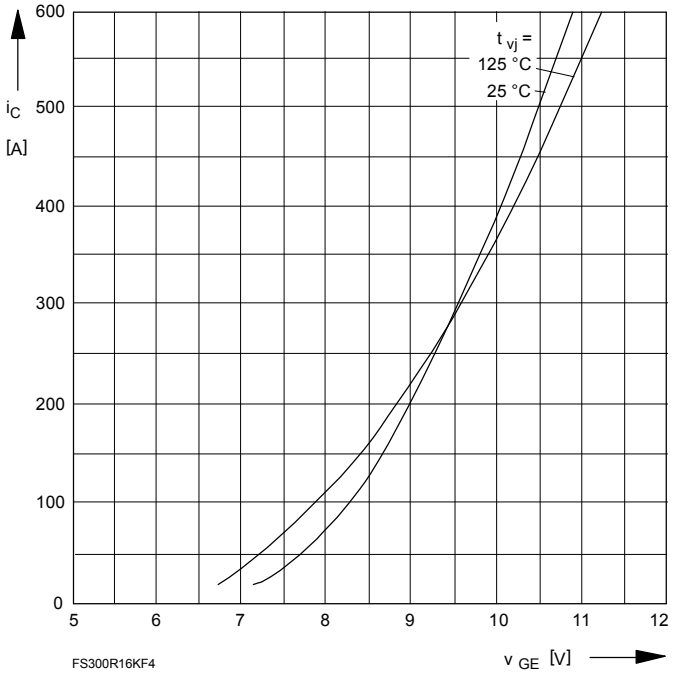
Conditions for short-circuit protection

Unabhängig davon gilt bei abweich. Bedingungen / with regard to other conditions
v_{CEM} = V_{CES} -50 nH x Idic/dtI

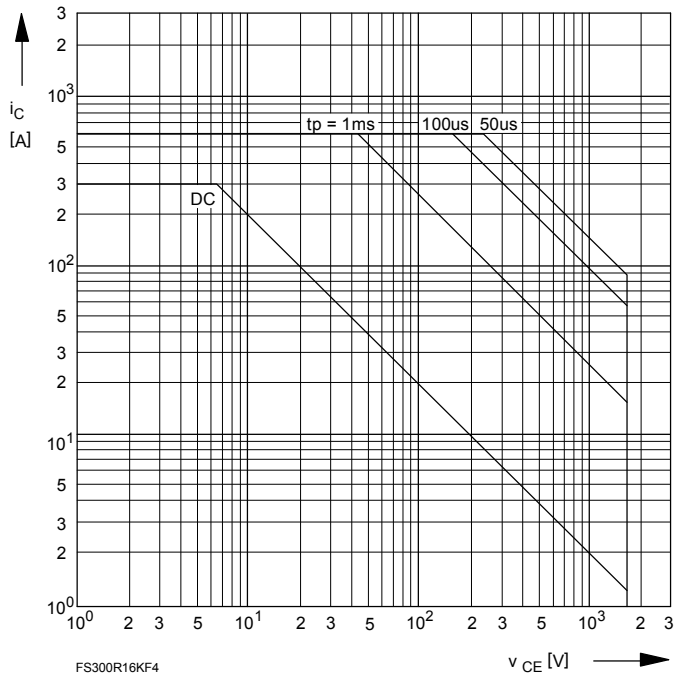
Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert. Sie gilt in Verbindung mit den zugehörigen Technischen Erläuterungen. This technical information specifies semiconductor devices but promises no characteristics. It is valid in combination with the relevant technical notes.



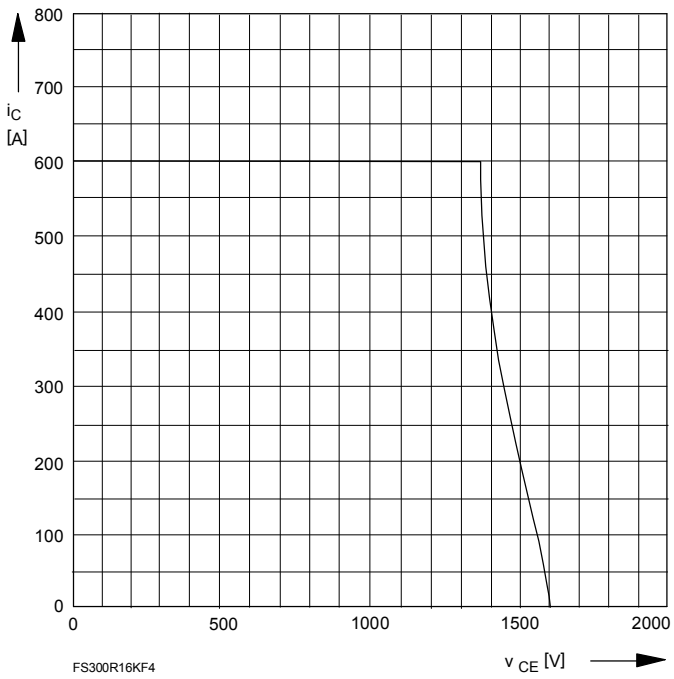
Bild/Fig. 1
Kollektor-Emitter-Spannung im Sättigungsbereich (typisch)
Collector-emitter-voltage in saturation region (typical)
t_{vj} = 25 °C



Bild/Fig. 2
Übertragungscharakteristik (typisch)
Transfer characteristic (typical)
V_{CE} = 20 V



Bild/Fig. 3
Vorwärts-Arbeitsbereich (nicht periodisch)
Forward biased safe operating area (non repetitive)
t_{vj} = 150 °C, t_C = 25 °C



Bild/Fig. 4
Rückwärts-Arbeitsbereich
Reverse biased safe operating area
t_{vj} = 125 °C, v_{LF} = v_{LR} = 15 V, R_G = 6,8 Ω

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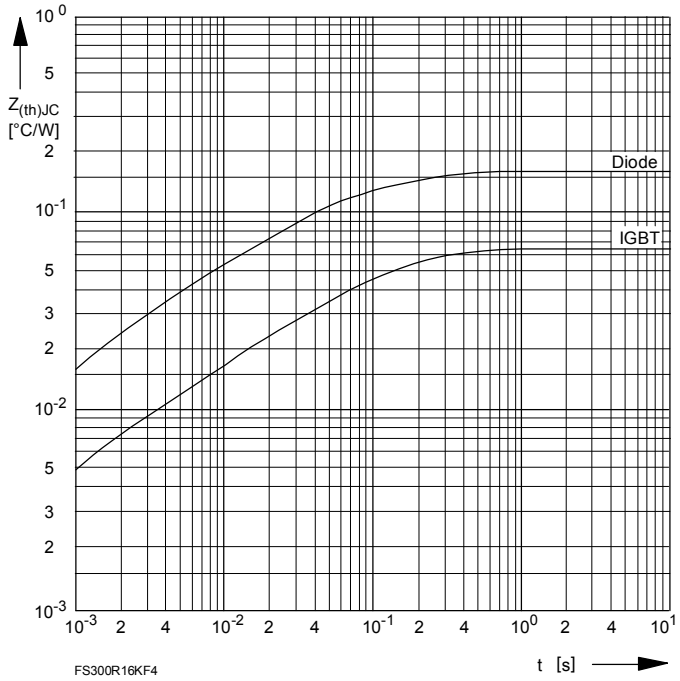
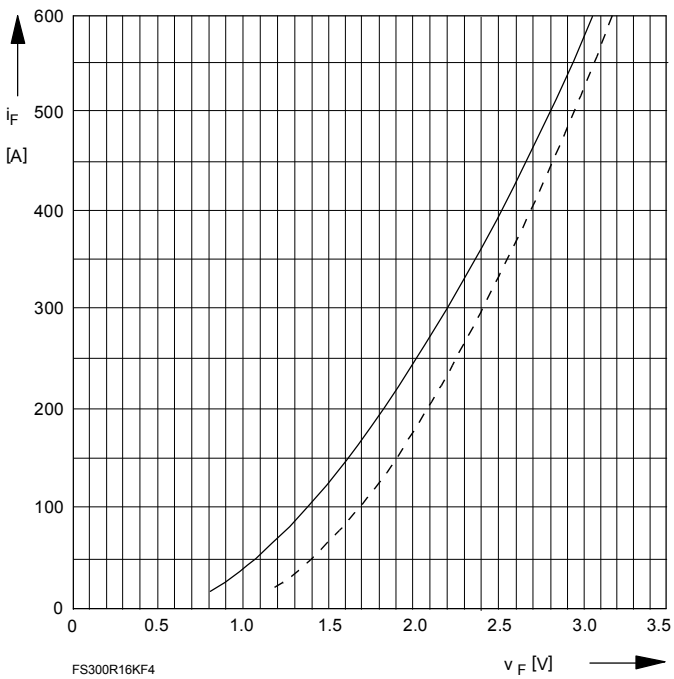


Bild/Fig. 5
Transienter innerer Wärmewiderstand je Zweig (DC)
Transient thermal impedance per arm (DC)



Bild/Fig. 6
Durchlaßkennlinie der Inversdiode (typisch)
Forward characteristic of the inverse diode (typical)
····· t_{vj} = 25 °C
—— t_{vj} = 125 °C

Terms & Conditions of Usage

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