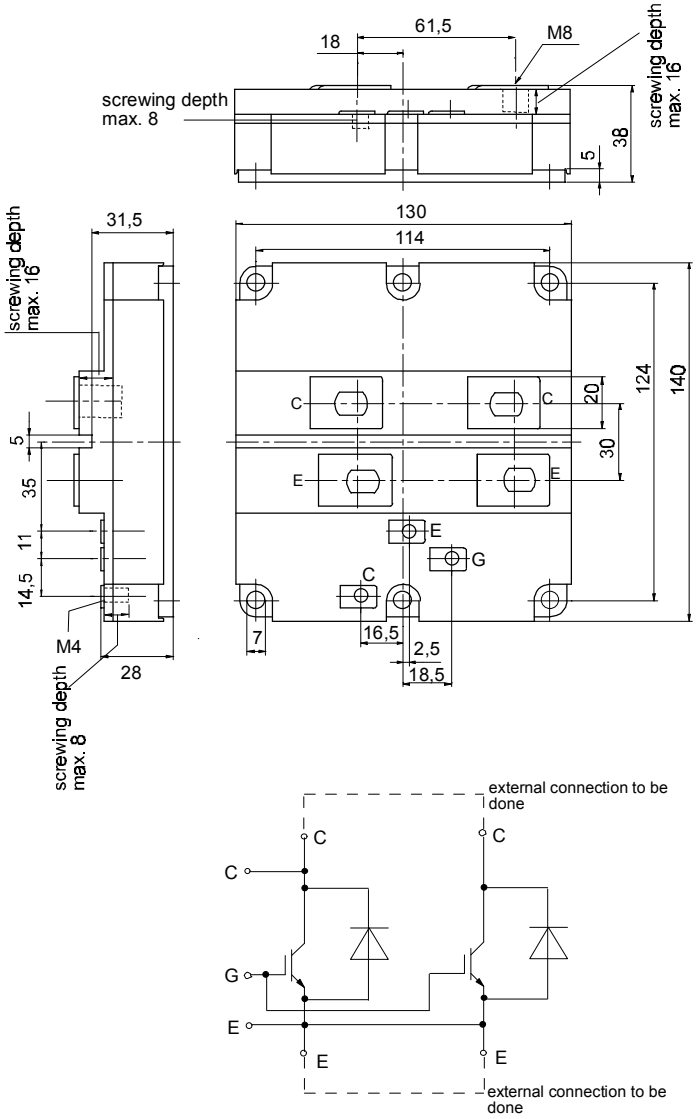
European Power-
Semiconductor and
Electronics Company
GmbH + Co. KG

Marketing Information
FZ 1200 R 12 KF 4



FZ 1200 R 12 KF4

Höchstzulässige Werte / Maximum rated values

Elektrische Eigenschaften / Electrical properties

Kollektor-Emitter-Sperrspannung	collector-emitter voltage		V_{CES}		1200 V
Kollektor-Dauergleichstrom	DC-collector current		I_C		1200 A
Periodischer Kollektor Spitzenstrom	repetitive peak collctor current	t_p=1 ms	I_{CRM}		2400 A
Gesamt-Verlustleistung	total power dissipation	t_C=25°C, Transistor /transistor	P_{tot}		7800 W
Gate-Emitter-Spitzenspannung	gate-emitter peak voltage		V_{GE}		± 20 V
Dauergleichstrom	DC forward current		I_F		1200 A
Periodischer Spitzenstrom	repetitive peak forw. current	t_p=1ms	I_{FRM}		2400 A
Isolations-Prüfspannung	insulation test voltage	RMS, f=50 Hz, t= 1 min.	V_{ISOL}		2,5 kV

Charakteristische Werte / Characteristic values: Transistor

				min.	typ.	max.
Kollektor-Emitter Sättigungsspannung	collector-emitter saturation voltage	i_C=1,2kA, v_{GE}=15V, t_{vj}=25°C	$v_{CE\ sat}$	-	2,7	3,2 V
		i_C=1,2kA, v_{GE}=15V, t_{vj}=125°C		-	3,3	3,9 V
Gate-Schwellenspannung	gate threshold voltage	i_C=48mA, 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}=0V	C_{ies}	-	90	- nF
Kollektor-Emitter Reststrom	collector-emitter cut-off current	v_{CE}=1200V, v_{GE}=0V, t_{vj}=25°C	i_{CES}	-	16	- mA
		v_{CE}=1200V, v_{GE}=0V, t_{vj}=125°C		-	100	200 mA
Gate-Emitter Reststrom	gate leakage current	v_{CE}=0V, v_{GE}=20V, t_{vj}=25°C	i_{GES}	-	-	400 nA
Emitter-Gate Reststrom	gate leakage current	v_{CE}=0V, v_{EG}=20V, t_{vj}=25°C	i_{EGS}	-	-	400 nA
Einschaltzeit (induktive Last)	turn-on time (inductive load)	i_C=1,2kA,v_{CE}=600V	t_{on}			
		vL = ±15V, R_G= 0,82Ω , t_{vj}=25°			0,7	- µs
		vL = ±15V, R_G= 0,82Ω , t_{vj}=125°		-	0,8	- µs
Speicherzeit (induktive Last)	storage time (inductive load)	i_C=1,2kA,v_{CE}=600V	t_s			
		vL = ±15V, R_G= 0,82Ω , t_{vj}=25°		-	0,9	- µs
		vL = ±15V, R_G= 0,82Ω , t_{vj}=125°		-	1,0	- µs
Fallzeit (induktive Last)	fall time (inductive load)	i_C=1,2kA,v_{CE}=600V	t_f			
		vL = ±15V, R_G= 0,82Ω , t_{vj}=25°		-	0,10	- µs
		vL = ±15V, R_G= 0,82Ω , t_{vj}=125°		-	0,15	- µs
Einschaltverlustenergie pro Puls	turn-on energy loss per puls	i_C=1,2kA, v_{CE}=600V, L_s=70nH				
		v_L=±15V,R_G=0,82Ω ,T_{vj}=125°C	E_{on}	-	170	- mWs
Abschaltverlustleistung pro Puls	turn-off energy loss per puls	i_C=1,2kA, v_{CE}=600V, L_s=70nH				
		v_L=±15V,R_G=0,82Ω ,T_{vj}=125°C	E_{off}	-	190	- mWs

Charakteristische Werte / Characteristic values

Inversdiode / Inverse diode						
Durchlaßspannung	forward voltage	i_F=1,2kA, v_{GE}=0V, t_{vj}=25°C	v_F	-	2,2	2,7 V
		i_F=1,2kA, v_{GE}=0V, t_{vj}=125°C		-	2,0	2,5 V
Rückstromspitze	peak reverse recovery current	i_F=1,2kA, v_{RM}=600V, v_{EG} = 10V	I_{RM}			
		-di_F/dt = 6 kA/µs, t_{vj} = 25°C		-	400	- A
		t_{vj} = 125°C		-	700	- A
Sperrverzögerungsladung	recovered charge	i_F=1,2kA, v_{RM}=600V, v_{EG} = 10V	Q_r			
		-di_F/dt = 6 kA/µs, t_{vj} = 25°C		-	50	- µAs
		t_{vj} = 125°C		-	150	- µAs

Thermische Eigenschaften / Thermal properties

Innerer Wärmewiderstand	thermal resistance, junction to case	Transistor / transistor, DC	R_{thJC}		0,016 °C/W
		Transistor,DC,pro Zweig/per arm			0,032 °C/W
Übergangs-Wärmewiderstand	thermal resistance, case to heatsink	pro Modul / per Module	R_{thCK}		0,008 °C/W
Höchstzul. Sperrschichttemperatur	max. junction temperature	pro Modul / per Module	$t_{vj\ max}$		150 °C
Betriebstemperatur	operating temperature	Transistor / transistor	$t_{c\ op}$		-40...+125 °C
Lagertemperatur	storage temperature		t_{stg}		-40...+125 °C

Mechanische Eigenschaften / Mechanical properties

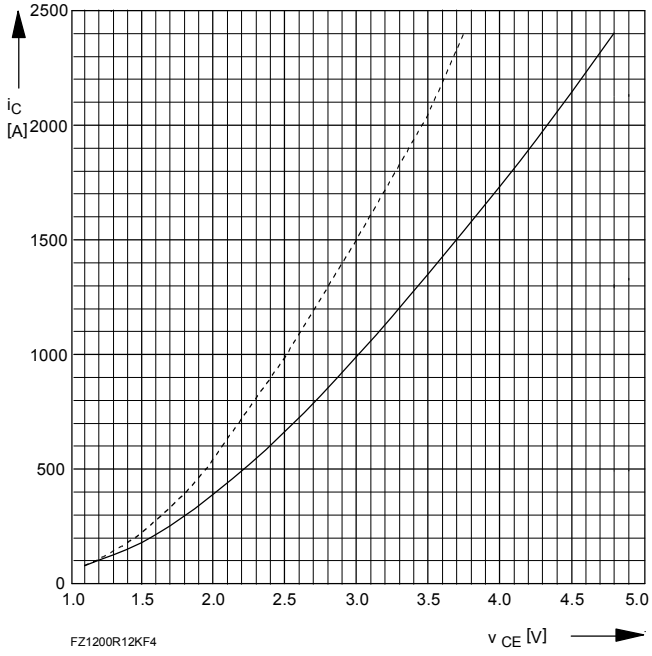
Innere Isolation	internal insulation				Al_2O_3
Anzugsdrehmoment f. mech. Befestigung	mounting torque	terminals M6 / tolerance +/-15%	M1		5 Nm
Anzugsdrehmoment f. elektr. Anschlüsse	terminal connection torque	terminals M4 / tolerance +/-15%	M2		2 Nm
		terminals M8			8...10 Nm
Gewicht	weight		G		ca. 1500 g

Bedingung für den Kurzschlußschutz / Conditions for short-circuit protection

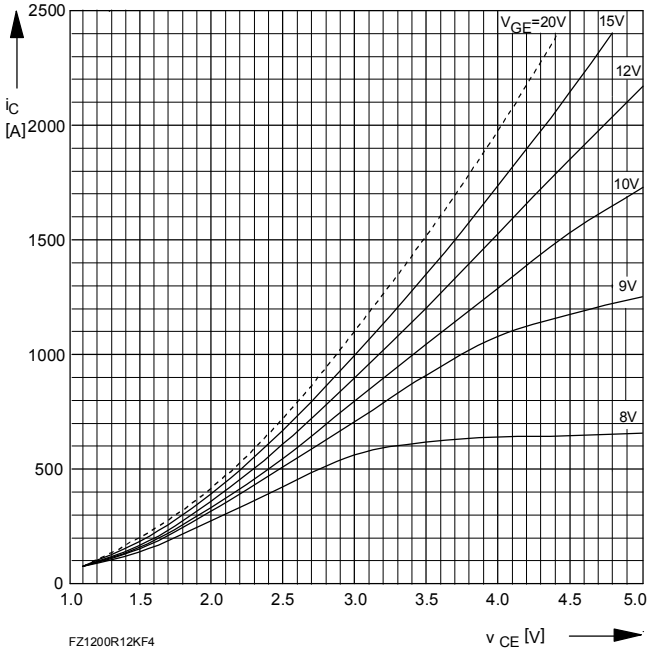
t_{fg} = 10 µs	V_{CC} = 750 V
v_L = ±15 V	v_{CEM} = 900 V
R_{GF} = R_{GR} = 0,82 Ω	i_{CMK1} » 10000 A
t_{vj} = 125°C	i_{CMK2} » 8000 A

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

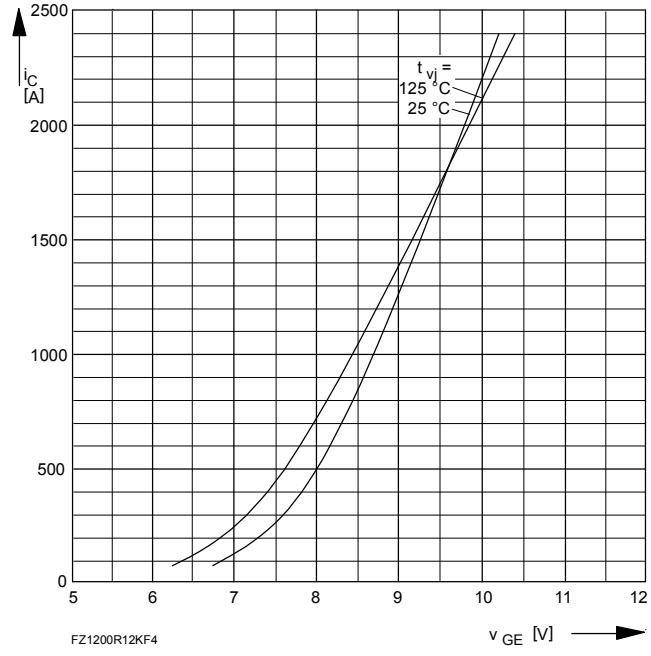
Mit dieser technischen Information werden Halbleiterbauelemente spezifiziert, jedoch keine Eigenschaften zugesichert. Sie gilt in Verbindung mit den zugehörigen Technischen Erläuterungen. This technical information specifies semiconductor devices but promises no characteristics. It is valid in combination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



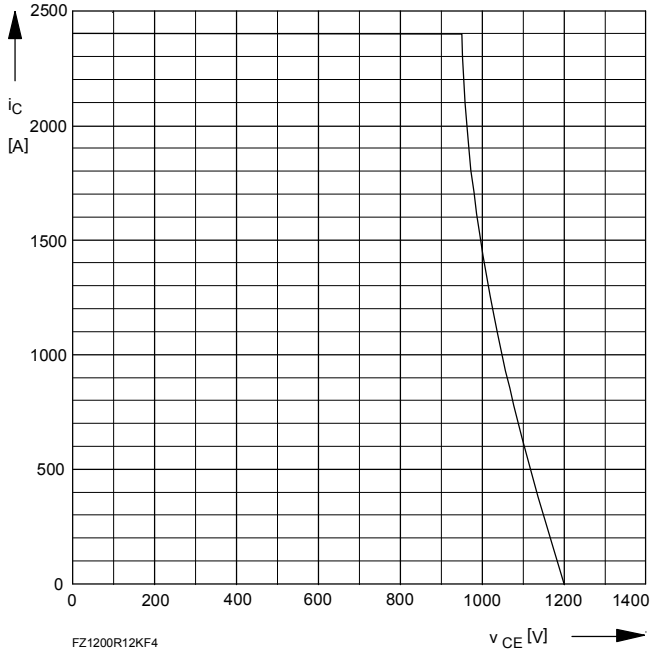
Bild/Fig. 1
Kollektor-Emitter-Spannung im Sättigungsbereich (typisch)
Collector-emitter-voltage in saturation region (typical)
V_{GE} = 15V
----- T_{vj} = 25 °C
—— Tvj = 125 °C



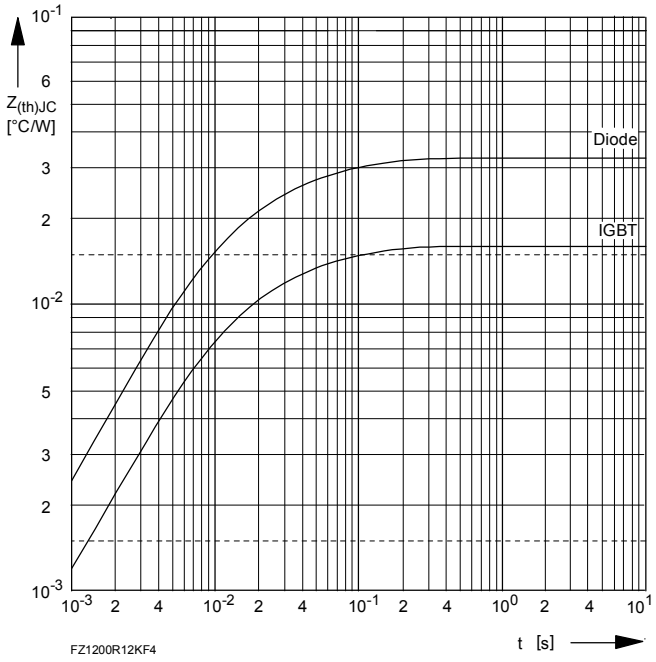
Bild/Fig. 2
Kollektor-Emitter-Spannung im Sättigungsbereich (typisch)
Collector-emitter-voltage in saturation region (typical)
Tvj = 125 °C



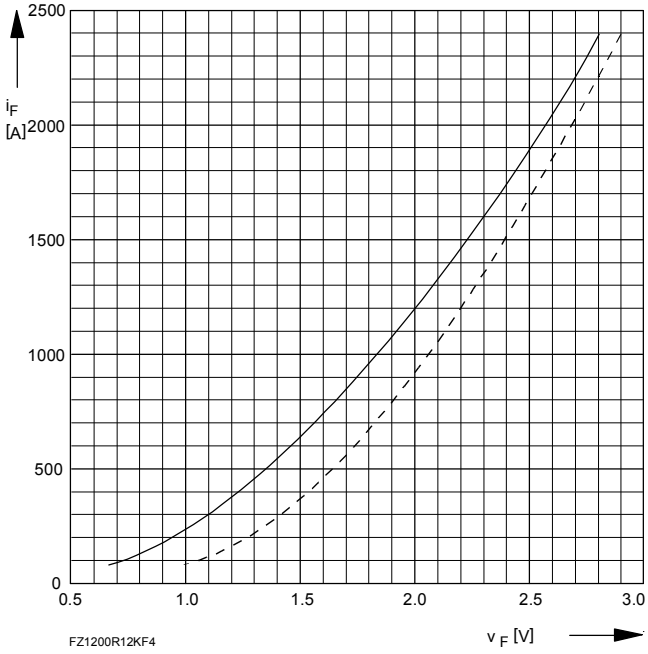
Bild/Fig. 3
Übertragungscharakteristik (typisch)
Transfer characteristic (typical)
V_{CE} = 20 V



Bild/Fig. 4
Rückwärts-Arbeitsbereich
Reverse biased safe operating area
t_{vj} = 125 °C, v_{LF} = v_{LR} = 15 V, R_G = 0,82Ω



Bild/Fig. 5
Transienter innerer Wärmewiderstand (DC)
Transient thermal impedance (DC)



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

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