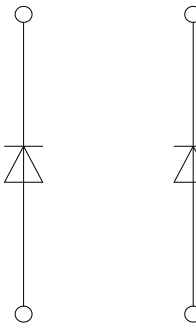


IHM-B Modul
IHM-B module



$V_{CES} = 3300V$
 $I_{C\ nom} = 1000A / I_{CRM} = 2000A$

Typische Anwendungen

- Mittelspannungsantriebe
- Motorantriebe
- Traktionsumrichter
- USV-Systeme
- Windgeneratoren

Elektrische Eigenschaften

- Große DC-Festigkeit
- Niedrige Schaltverluste

Mechanische Eigenschaften

- AISiC Bodenplatte für erhöhte thermische Lastwechselfestigkeit
- Gehäuse mit CTI > 600
- IHM B Gehäuse
- Isolierte Bodenplatte

Typical Applications

- Medium voltage converters
- Motor drives
- Traction drives
- UPS systems
- Wind turbines

Electrical Features

- High DC stability
- Low switching losses

Mechanical Features

- AISiC base plate for increased thermal cycling capability
- Package with CTI > 600
- IHM B housing
- Isolated base plate

Module Label Code

Barcode Code 128



DMX - Code



Content of the Code

Content of the Code	Digit
Module Serial Number	1 - 5
Module Material Number	6 - 11
Production Order Number	12 - 19
Datecode (Production Year)	20 - 21
Datecode (Production Week)	22 - 23

Diode, Wechselrichter / Diode, Inverter

Höchstzulässige Werte / Maximum Rated Values

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = -40^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_{RRM}	3300 3300	V
Dauergleichstrom Continuous DC forward current		I_F	1000	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	2000	A
Grenzlastintegral I^2t - value	$V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 125^{\circ}\text{C}$ $V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$	I^2t	260 245	kA^2s kA^2s
Spitzenverlustleistung Maximum power dissipation	$T_{vj} = 125^{\circ}\text{C}$	P_{RQM}	1600	kW
Mindesteinschaltdauer Minimum turn-on time		$t_{on\ min}$	10,0	μs

Charakteristische Werte / Characteristic Values

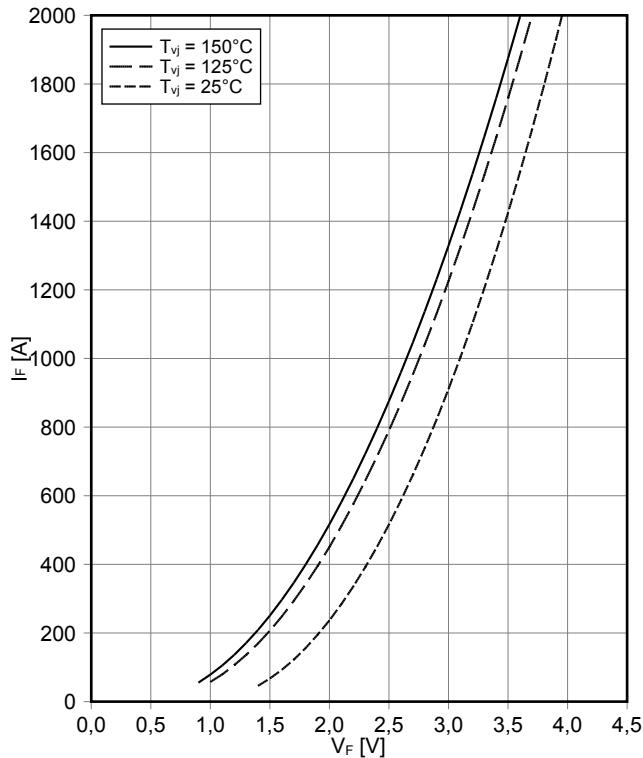
				min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 1000\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$	V_F		3,10	3,85	V
	$I_F = 1000\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$			2,75	3,25	V
	$I_F = 1000\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$			2,65		V
Rückstromspitze Peak reverse recovery current	$I_F = 1000\text{ A}, -di_F/dt = 3000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$	$T_{vj} = 25^{\circ}\text{C}$	I_{RM}		1000		A
	$V_R = 1800\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$			1200		A
	$V_{GE} = -15\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$			1250		A
Sperrverzögerungsladung Recovered charge	$I_F = 1000\text{ A}, -di_F/dt = 3000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$	$T_{vj} = 25^{\circ}\text{C}$	Q_r		450		μC
	$V_R = 1800\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$			900		μC
	$V_{GE} = -15\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$			1050		μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 1000\text{ A}, -di_F/dt = 3000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$	$T_{vj} = 25^{\circ}\text{C}$	E_{rec}		450		mJ
	$V_R = 1800\text{ V}$	$T_{vj} = 125^{\circ}\text{C}$			1100		mJ
	$V_{GE} = -15\text{ V}$	$T_{vj} = 150^{\circ}\text{C}$			1300		mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}			21,6	K/kW
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{\text{Paste}} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{\text{grease}} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}		16,5		K/kW
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\ op}$	-40		150	$^{\circ}\text{C}$

Modul / Module

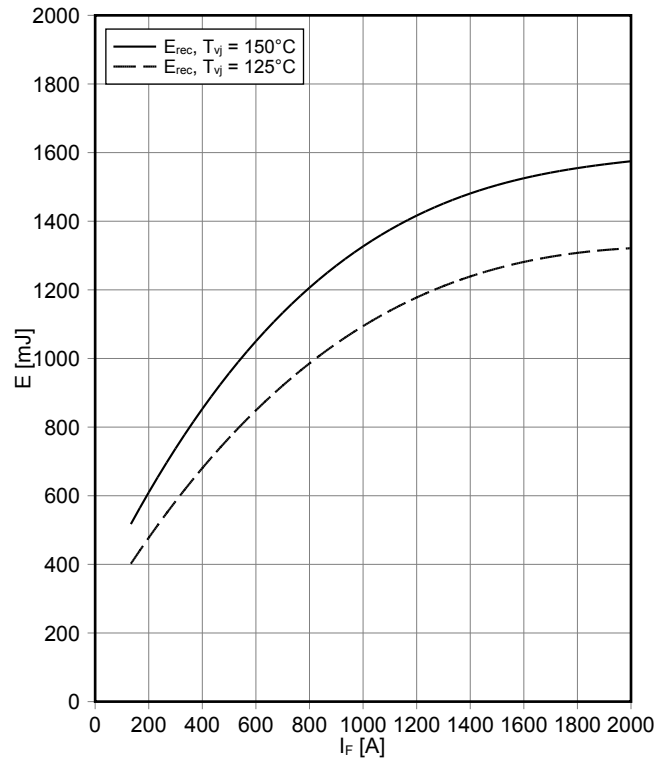
Isolations-Prüfspannung Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	6,0			kV
Teilentladungs-Aussetzspannung Partial discharge extinction voltage	RMS, f = 50 Hz, Q _{PD} ≤ 10 pC	V _{ISOL}	2,6			kV
Kollektor-Emitter-Gleichsperrspannung DC stability	T _{vj} = 25°C, 100 fit	V _{CE D}	2100			V
Material Modulgrundplatte Material of module baseplate			AlSiC			
Kriechstrecke Creepage distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		32,2			mm
Luftstrecke Clearance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		19,1			mm
Vergleichszahl der Kriechwegbildung Comperative tracking index		CTI	> 600			
			min.	typ.	max.	
Modulstreuinduktivität Stray inductance module		L _{sCE}		18		nH
Modulleitungswiderstand, Anschlüsse - Chip Module lead resistance, terminals - chip	T _c = 25°C, pro Schalter / per switch	R _{AA'+CC'}		0,28		mΩ
Lagertemperatur Storage temperature		T _{stg}	-40		150	°C
Anzugsdrehmoment f. Modulmontage Mounting torque for modul mounting	Schraube M6 - Montage gem. gültiger Applikationsschrift Screw M6 - Mounting according to valid application note	M	4,25		5,75	Nm
Anzugsdrehmoment f. elektr. Anschlüsse Terminal connection torque	Schraube M4 - Montage gem. gültiger Applikationsschrift Screw M4 - Mounting according to valid application note Schraube M8 - Montage gem. gültiger Applikationsschrift Screw M8 - Mounting according to valid application note	M	1,8 8,0	- -	2,1 10	Nm Nm
Gewicht Weight		G		800		g

Dynamische Daten gelten in Verbindung mit FZ1000R33HE3 Modul.
Dynamic Data valid in conjunction with FZ1000R33HE3 module.

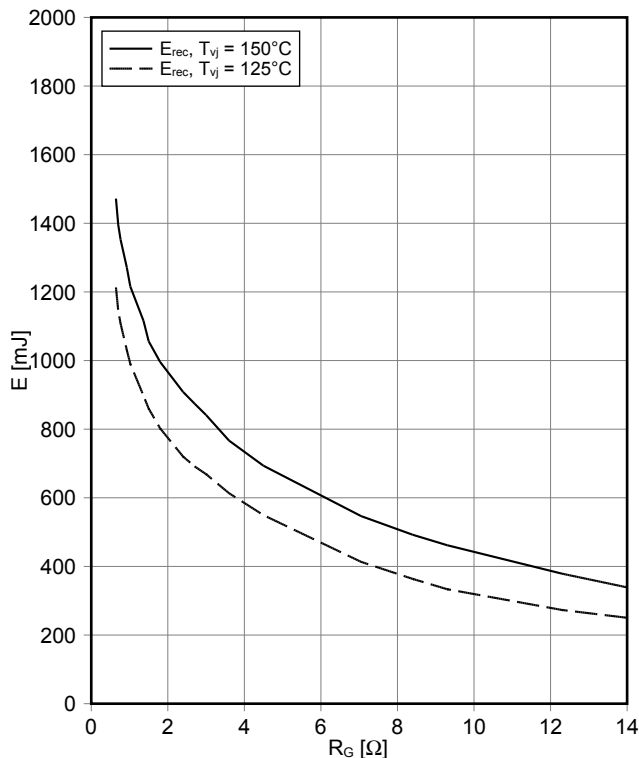
Durchlasskennlinie der Diode, Wechselrichter (typisch)
forward characteristic of Diode, Inverter (typical)
 $I_F = f(V_F)$



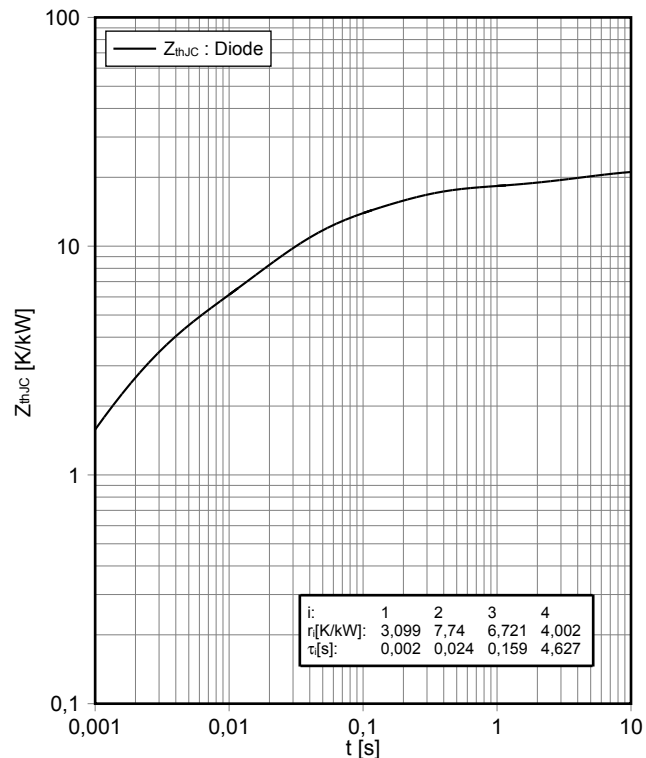
Schaltverluste Diode, Wechselrichter (typisch)
switching losses Diode, Inverter (typical)
 $E_{rec} = f(I_F)$
 $R_{Gon} = \Omega, V_{CE} = 1800\text{ V}$



Schaltverluste Diode, Wechselrichter (typisch)
switching losses Diode, Inverter (typical)
 $E_{rec} = f(R_G)$
 $I_F = 1000\text{ A}, V_{CE} = 1800\text{ V}$

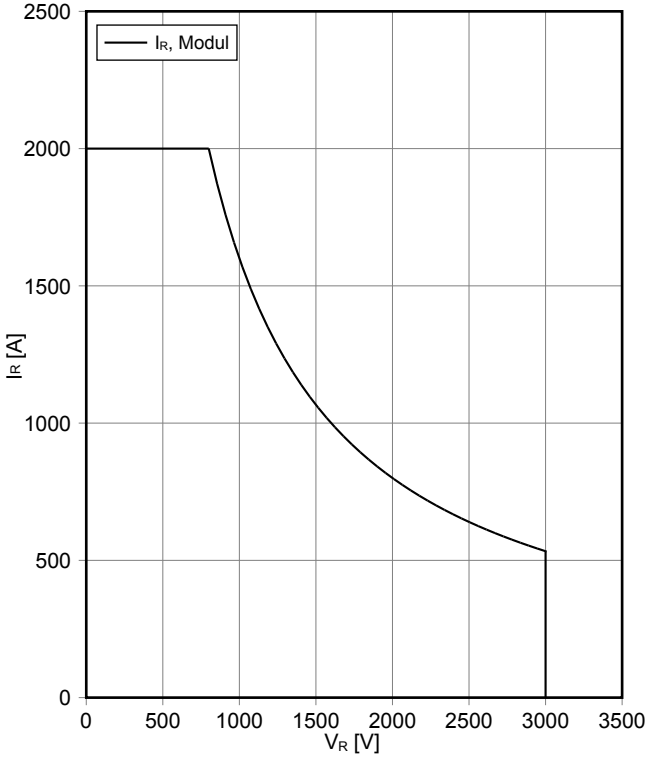


Transienter Wärmewiderstand Diode, Wechselrichter
transient thermal impedance Diode, Inverter
 $Z_{thJC} = f(t)$



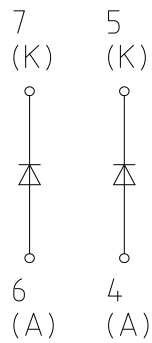
Sicherer Arbeitsbereich Diode, Wechselrichter (SOA)
safe operation area Diode, Inverter (SOA)

$I_R = f(V_R)$
 $T_{vj} = 150^\circ\text{C}$



Schaltplan / Circuit diagram

DD...



Gehäuseabmessungen / Package outlines

