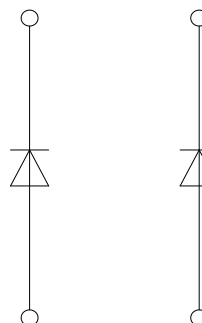




IHM-B Modul
IHM-B module



$V_{CES} = 1700V$
 $I_{C\ nom} = 1200A / I_{CRM} = 2400A$

Typische Anwendungen

- 3-Level-Applikationen
- Aktiver Eingang (Rückspeisung)
- Hochleistungsumrichter
- Multi-Level Umrichter
- Traktionsumrichter
- Windgeneratoren

Typical Applications

- 3-level-applications
- Active frontend (energy recovery)
- High power converters
- Multi level inverter
- Traction drives
- Wind turbines

Elektrische Eigenschaften

- Erweiterte Sperrschichttemperatur $T_{vj\ op}$
- Hohe Stromdichte
- $T_{vj\ op} = 150^{\circ}C$

Electrical Features

- Extended operating temperature $T_{vj\ op}$
- High current density
- $T_{vj\ op} = 150^{\circ}C$

Mechanische Eigenschaften

- 4 kV AC 1min Isolationsfestigkeit
- AlSiC Bodenplatte für erhöhte thermische Lastwechselfestigkeit
- Gehäuse mit CTI > 400
- Große Luft- und Kriechstrecken
- Hohe Last- und thermische Wechselfestigkeit
- Hohe Leistungsdichte
- IHM B Gehäuse

Mechanical Features

- 4 kV AC 1min insulation
- AlSiC base plate for increased thermal cycling capability
- Package with CTI > 400
- High creepage and clearance distances
- High power and thermal cycling capability
- High power density
- IHM B housing

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

prepared by: WB	date of publication: 2016-01-21	
approved by: IB	revision: V3.1	UL approved (E83335)



Diode, Wechselrichter / Diode, Inverter

Höchstzulässige Werte / Maximum Rated Values

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = -40^{\circ}\text{C}$ $T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_{RRM}	1570 1700 1700	V
Dauergleichstrom Continuous DC forward current		I_F	1200	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1 \text{ ms}$	I_{FRM}	2400	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	140 130	kA^2s kA^2s
Spitzenverlustleistung Maximum power dissipation	$T_{vj} = 125^{\circ}\text{C}$	P_{RQM}	1200	kW
Mindesteinschaltdauer Minimum turn-on time		$t_{on \text{ min}}$	10,0	μs

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 1200 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 1200 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 1200 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,80 1,90 1,95	2,10 2,10	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 1200 \text{ A}, -di_F/dt = 7900 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 900 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	1250 1350 1400		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 1200 \text{ A}, -di_F/dt = 7900 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 900 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	280 460 510		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 1200 \text{ A}, -di_F/dt = 7900 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 900 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	180 310 350		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		31,9	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}	32,5		K/kW
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj \text{ op}}$	-40	150	$^{\circ}\text{C}$

prepared by: WB	date of publication: 2016-01-21
approved by: IB	revision: V3.1



Modul / Module

Isolations-Prüfspannung Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	4,0		kV
Material Modulgrundplatte Material of module baseplate			AlSiC		
Kriechstrecke Creepage distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		32,2 32,2		mm
Luftstrecke Clearance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		19,1 19,1		mm
Vergleichszahl der Kriechwegbildung Comperative tracking index		CTI	> 400		
			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'}		0,24	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	M	1,8	-	2,1 Nm
	Schraube M8 - Montage gem. gültiger Applikationsschrift Screw M8 - Mounting according to valid application note		8,0	-	10 Nm
Gewicht Weight		G		800	g

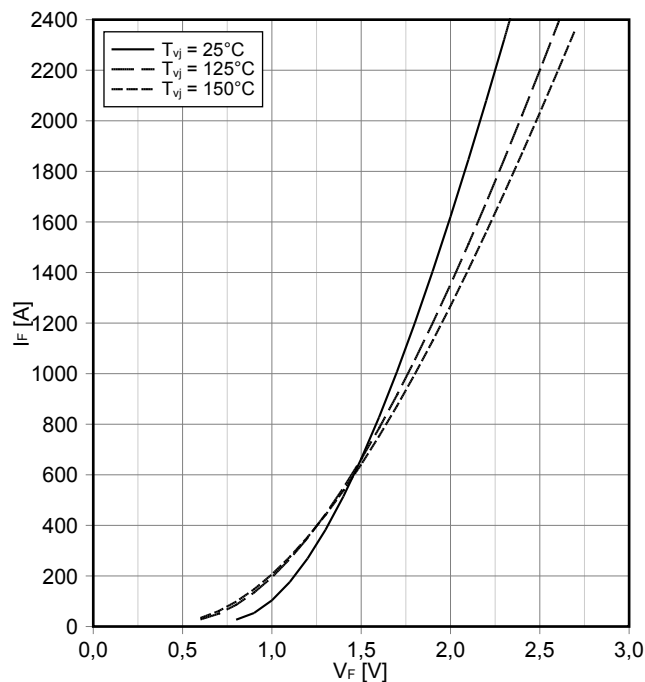
Dynamische Daten gehen in Verbindung mit FD1200R17HP4-K_B2 Modul
Dynamic data valid in conjunction with FD1200R17HP4-K_B2 module

prepared by: WB	date of publication: 2016-01-21
approved by: IB	revision: V3.1



Durchlasskennlinie der Diode, Wechselrichter (typisch)
forward characteristic of Diode, Inverter (typical)

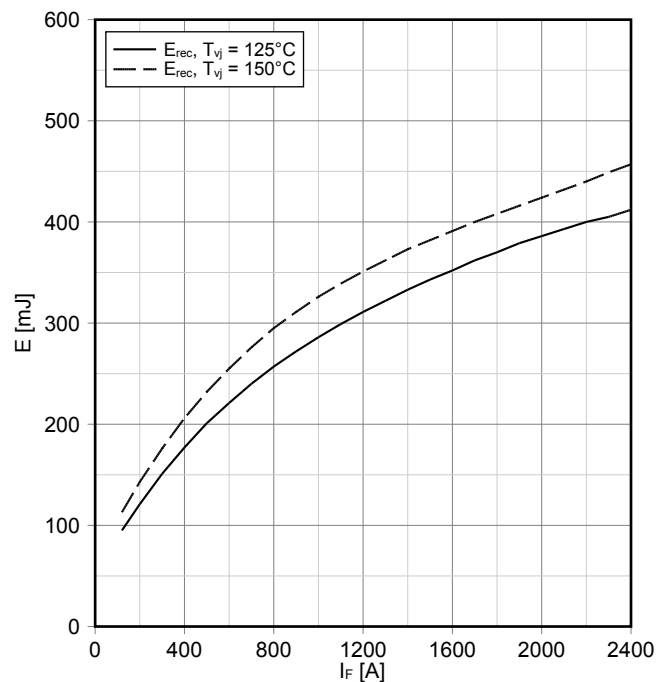
$I_F = f(V_F)$



Schaltverluste Diode, Wechselrichter (typisch)
switching losses Diode, Inverter (typical)

$E_{rec} = f(I_F)$

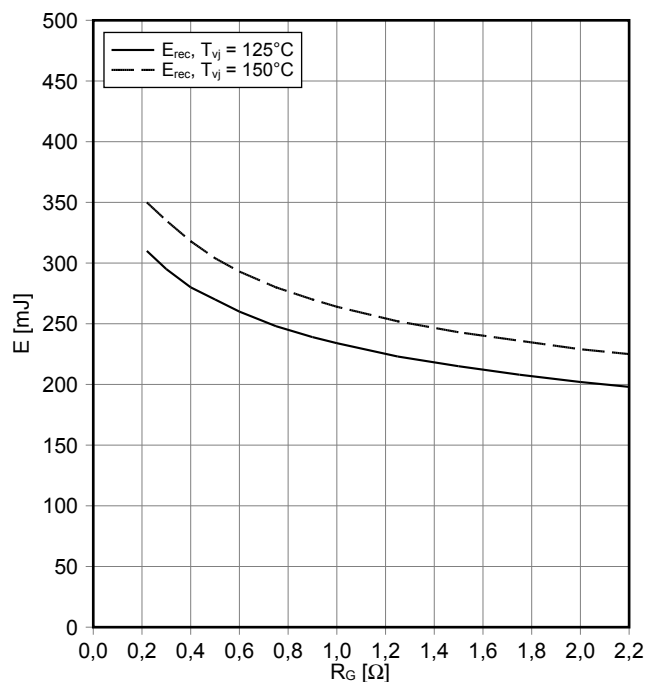
$R_{Gon} = \Omega, V_{CE} = 900 \text{ V}$



Schaltverluste Diode, Wechselrichter (typisch)
switching losses Diode, Inverter (typical)

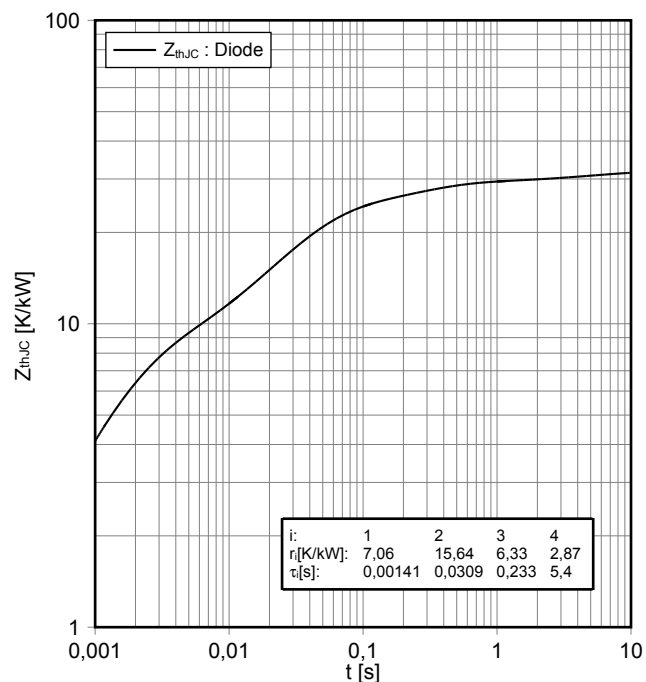
$E_{rec} = f(R_G)$

$I_F = 1200 \text{ A}, V_{CE} = 900 \text{ V}$



Transienter Wärmewiderstand Diode, Wechselrichter
transient thermal impedance Diode, Inverter

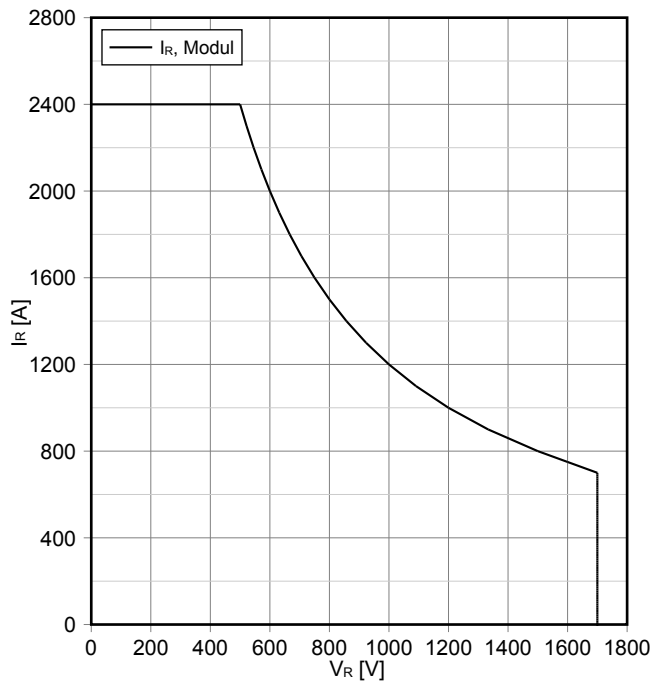
$Z_{thJC} = f(t)$



prepared by: WB	date of publication: 2016-01-21
approved by: IB	revision: V3.1

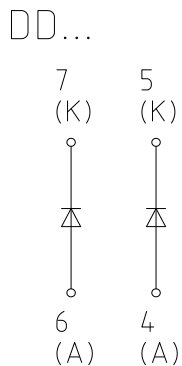
Sicherer Arbeitsbereich Diode, Wechselrichter (SOA)
safe operation area Diode, Inverter (SOA)

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

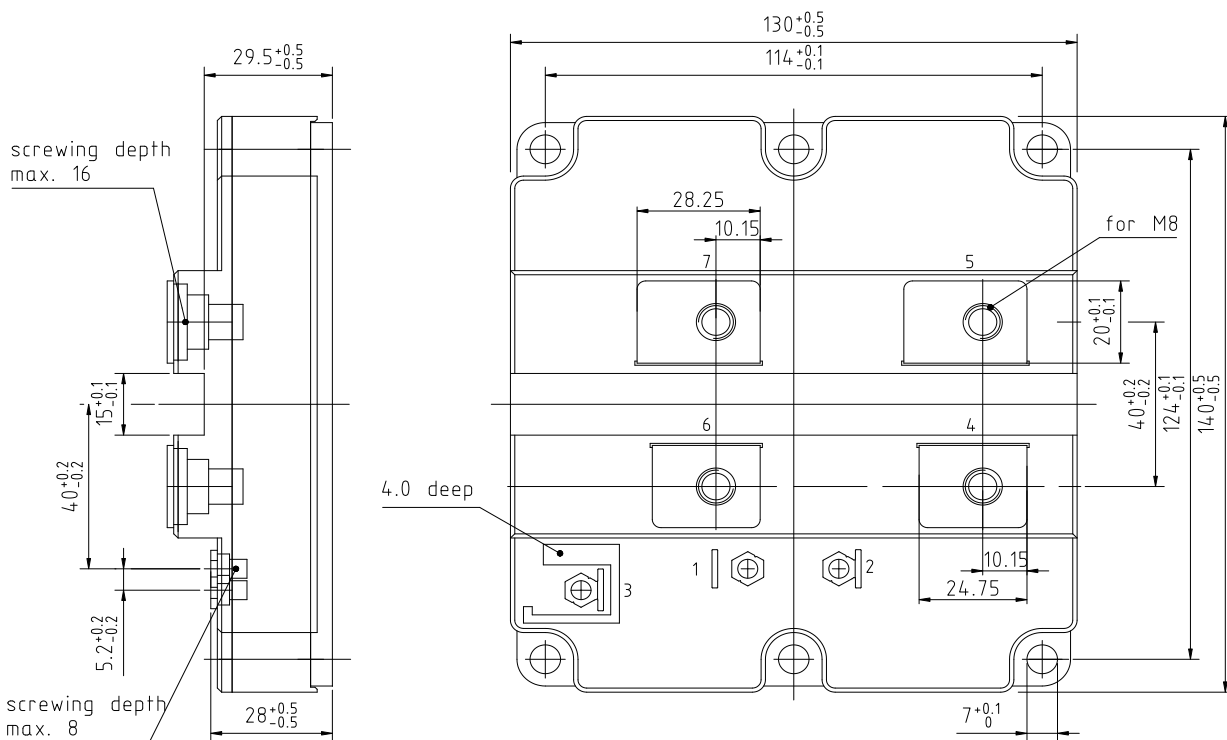
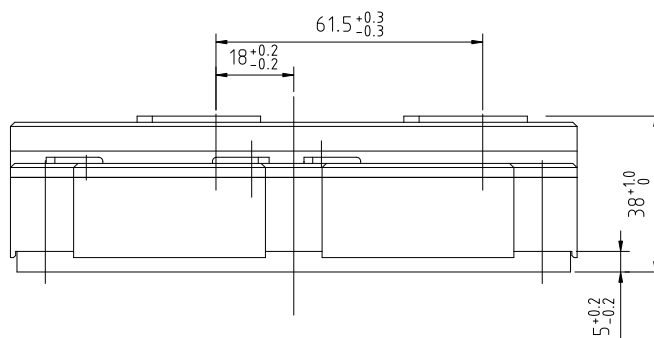


prepared by: WB	date of publication: 2016-01-21
approved by: IB	revision: V3.1

Schaltplan / Circuit diagram



Gehäuseabmessungen / Package outlines



prepared by: WB	date of publication: 2016-01-21
approved by: IB	revision: V3.1