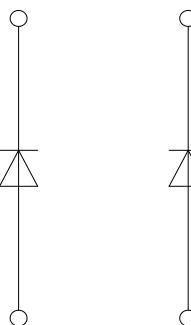


初步数据 / Preliminary Data



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

典型应用

- 三电平应用
- 有源前级 (能量回馈)
- 大功率变流器
- 多电平逆变器
- 牵引变流器
- 风力发电机

Typical Applications

- 3-Level-Applications
- Active Frontend (energy recovery)
- High Power Converters
- Multi level inverter
- Traction Drives
- Wind Turbines

电气特性

- 提高工作结温 $T_{vj\ op}$
- 高电流密度
- $T_{vj\ op} = 150^{\circ}C$

Electrical Features

- Extended Operation Temperature $T_{vj\ op}$
- High Current Density
- $T_{vj\ op} = 150^{\circ}C$

机械特性

- 4 kV 交流 1分钟 绝缘
- 碳化硅铝 (AISiC) 基板提供更高的温度循环能力
- 封装的 CTI > 400
- 高爬电距离和电气间隙
- 高功率循环和温度循环能力
- 高功率密度
- IHM B 封装

Mechanical Features

- 4 kV AC 1min Insulation
- AISiC 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

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初步数据
Preliminary Data

二极管, 逆变器 / Diode, Inverter
最大额定值 / Maximum Rated Values

反向重复峰值电压 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
连续正向直流电流 Continuous DC forward current		I_F	1200	A
正向重复峰值电流 Repetitive peak forward current	$t_P = 1 \text{ ms}$	I_{FRM}	2400	A
I^2t -值 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
最大损耗功率 Maximum power dissipation	$T_{vj} = 125^{\circ}\text{C}$	P_{RQM}	1200	kW
最小开通时间 Minimum turn-on time		$t_{on \text{ min}}$	10,0	μs

特征值 / Characteristic Values

			min.	typ.	max.	
正向电压 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
反向恢复峰值电流 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
恢复电荷 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
反向恢复损耗 (每脉冲) 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
结 - 外壳热阻 Thermal resistance, junction to case	每个二极管 / per diode		R_{thJC}		37,5	K/kW
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个二极管 / 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
在开关状态下温度 Temperature under switching conditions			$T_{vj \text{ op}}$	-40	150	$^{\circ}\text{C}$

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初步数据
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模块 / Module

绝缘测试电压 Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	4,0		kV
模块基板材料 Material of module baseplate			AlSiC		
爬电距离 Creepage distance	端子- 散热片 / terminal to heatsink 端子- 端子 / terminal to terminal		32,2 32,2		mm
电气间隙 Clearance	端子- 散热片 / terminal to heatsink 端子- 端子 / terminal to terminal		19,1 19,1		mm
相对电痕指数 Comperative tracking index		CTI	> 400		
			min.	typ.	max.
杂散电感,模块 Stray inductance module		L _{sCE}		18	nH
模块引线电阻,端子-芯片 Module lead resistance, terminals - chip	T _c = 25°C, 每个开关 / per switch	R _{AA'+CC'}		0,24	mΩ
储存温度 Storage temperature		T _{stg}	-40		150 °C
模块安装的安装扭矩 Mounting torque for modul mounting	螺丝 M6 根据相应的应用手册进行安装 Screw M6 - Mounting according to valid application note	M	4,25	-	5,75 Nm
端子联接扭矩 Terminal connection torque	螺丝 M4 根据相应的应用手册进行安装 Screw M4 - Mounting according to valid application note 螺丝 M8 根据相应的应用手册进行安装 Screw M8 - Mounting according to valid application note	M	1,8 8,0	-	2,1 10 Nm
重量 Weight		G		800	g

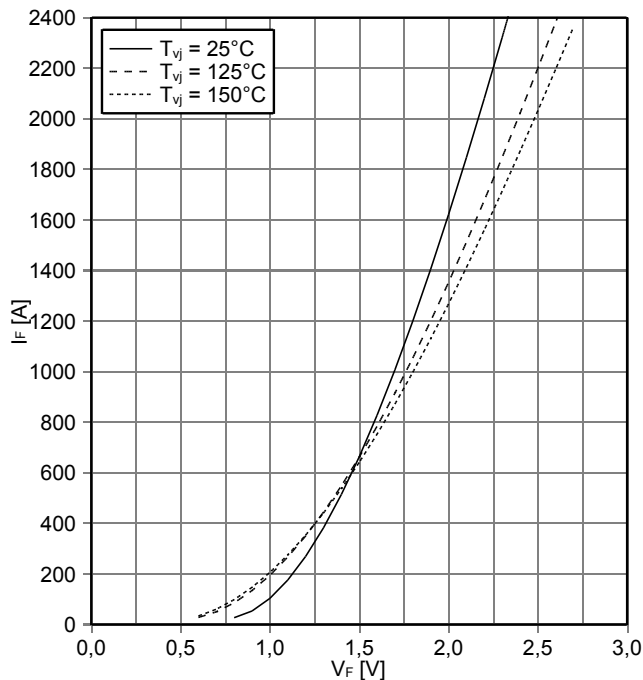
Dynamische Daten gehen in Verbindung mit FD1200R17HP4-K_B2 Modul
Dynamic data valid in conjunction with FD1200R17HP4-K_B2 module

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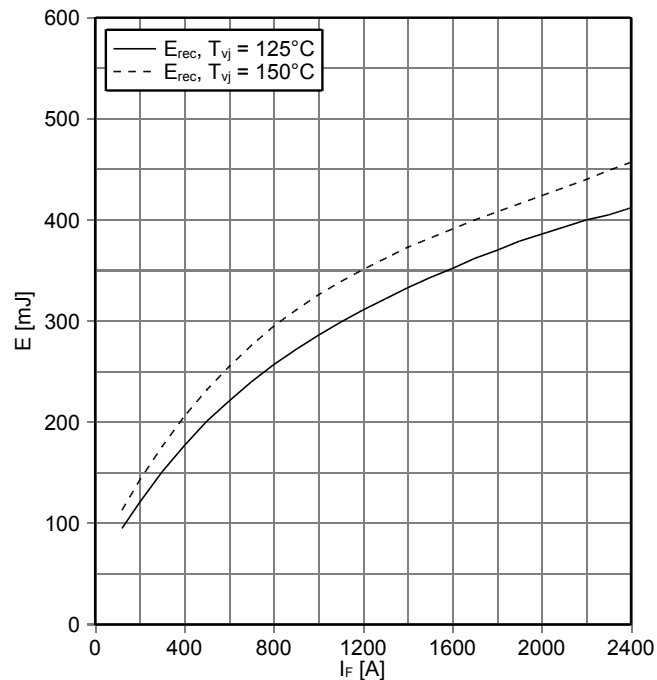


初步数据
Preliminary Data

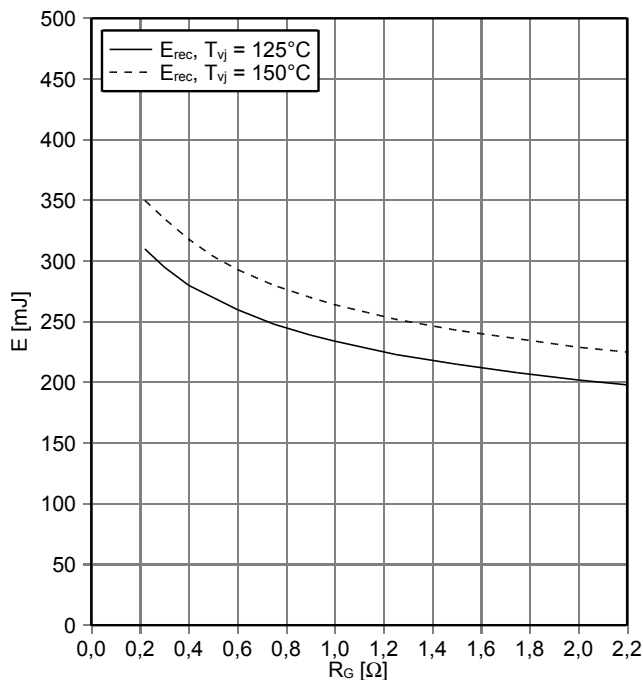
正向偏压特性 二极管,逆变器 (典型)
forward characteristic of Diode, Inverter (typical)
 $I_F = f(V_F)$



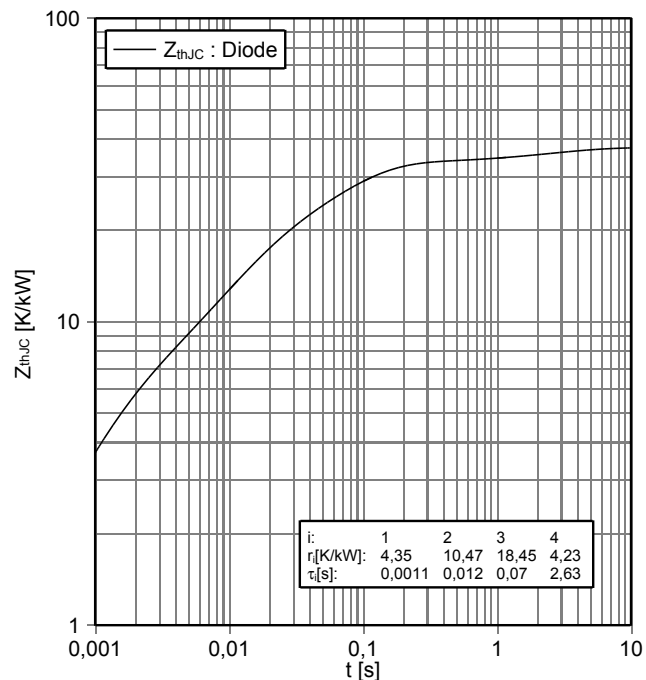
开关损耗 二极管,逆变器 (典型)
switching losses Diode, Inverter (typical)
 $E_{rec} = f(I_F)$
 $R_{Gon} = \Omega, V_{CE} = 900 V$



开关损耗 二极管,逆变器 (典型)
switching losses Diode, Inverter (typical)
 $E_{rec} = f(R_G)$
 $I_F = 1200 A, V_{CE} = 900 V$



瞬态热阻抗 二极管,逆变器
transient thermal impedance Diode, Inverter
 $Z_{thJC} = f(t)$

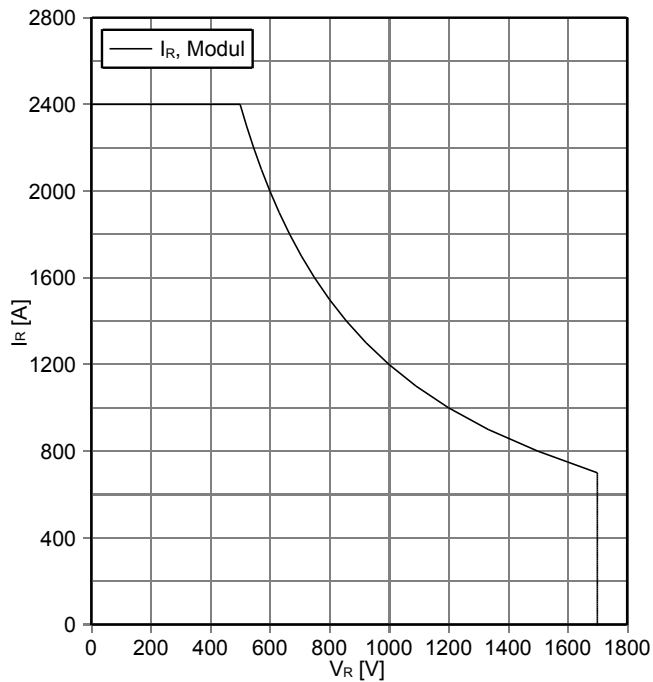


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初步数据
Preliminary Data

安全工作区 二极管, 逆变器 (SOA)
safe operation area Diode, Inverter (SOA)

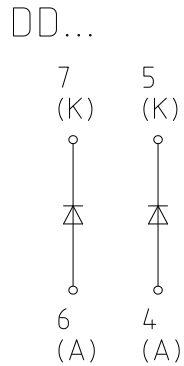
$I_R = f(V_R)$
 $T_{vj} = 150^\circ\text{C}$



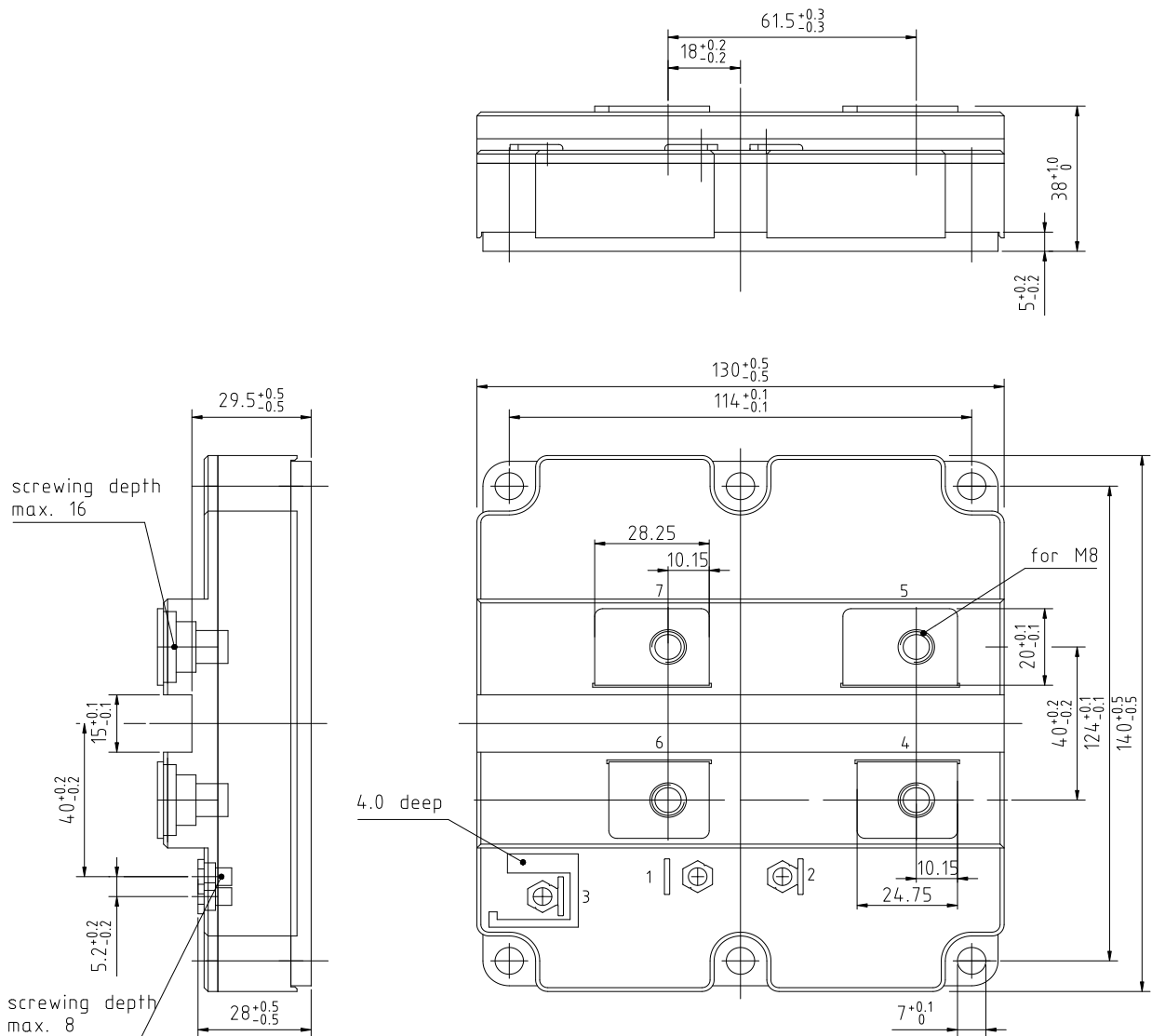
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接线图 / circuit_diagram_headline



封装尺寸 / package outlines



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**初步数据
Preliminary Data**

使用条件和条款

使用条件和条款

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-得到质量协议的结论

-建立联合的测试和出厂产品检查，我们可以根据测试的实际情况供货

如果有必要，请根据实际需要将类似的说明给你的客户

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The data contained in this product data sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application.

This product data sheet is describing the characteristics of this product for which a warranty is granted. Any such warranty is granted exclusively pursuant the terms and conditions of the supply agreement. There will be no guarantee of any kind for the product and its characteristics. The information in the valid application- and assembly notes of the module must be considered.

Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of our product, please contact the sales office, which is responsible for you (see www.infineon.com). For those that are specifically interested we may provide application notes.

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- to perform joint Risk and Quality Assessments;

- the conclusion of Quality Agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery depended on the realization of any such measures.

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