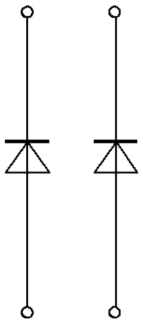
高绝缘等级模块
high insulated module



V_{CES} = 4500V
$I_{C\ nom}$ = 800A / I_{CRM} = 1600A

潜在应用
- 中压变流器
- 多电平逆变器
- 大功率变流器
- 牵引变流器
- 电机传动
- 风力发电机

Potential Applications
- Medium voltage converters
- Multi level inverter
- High power converters
- Traction drives
- Motor drives
- Wind turbines

电气特性
- 高冲击电流能力
- 高动态坚固性
- 高直流电压稳定性

Electrical Features
- High surge current capability
- High dynamic robustness
- High DC stability

机械特性
- 加强绝缘封装，10.4kV 交流 10第二
- 封装的 CTI > 600
- 碳化硅铝 (AlSiC) 基板提供更高的温度循环能力
- 高爬电距离和电气间隙

Mechanical Features
- Package with enhanced insulation of 10.4kV AC 10s
- Package with CTI > 600
- AlSiC base plate for increased thermal cycling capability
- High creepage and clearance distances

Module Label Code

Barcode Code 128

Sample
000001234560000000000000

DMX - 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

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} = 125°C T_{vj} = 25°C T_{vj} = -40°C	V_{RRM}	4500 4500 4500	V
连续正向直流电流 Continuous DC forward current		I_F	800	A
正向重复峰值电流 Repetitive peak forward current	t_P = 1 ms	I_{FRM}	1600	A
I2t-值 I²t - value	V_R = 0 V, t_P = 10 ms, T_{vj} = 125°C	I²t	255	kA²s
最大损耗功率 Maximum power dissipation	T_{vj} = 125°C	P_{RQM}	1600	kW
最小开通时间 Minimum turn-on time		$t_{on\ min}$	10,0	µs

特征值 / Characteristic Values

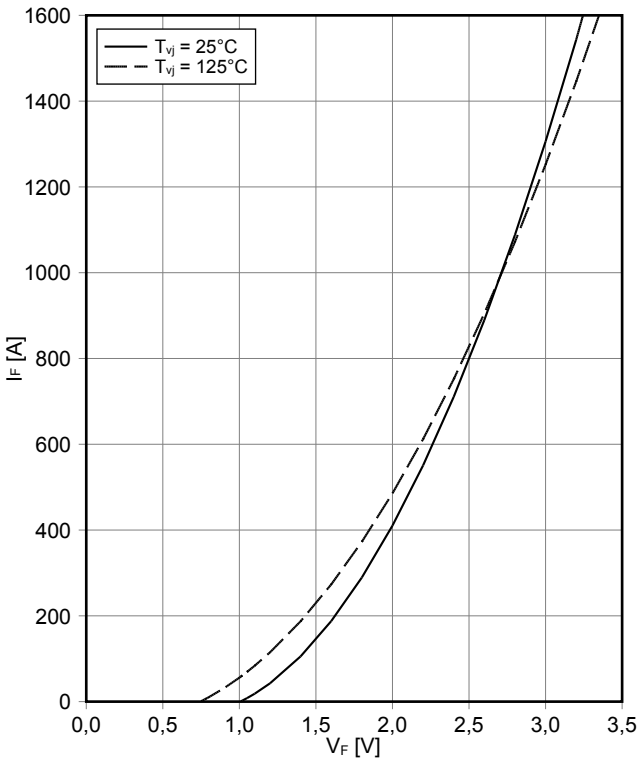
			min.	typ.	max.	
正向电压 Forward voltage	I_F = 800 A, V_{GE} = 0 V I_F = 800 A, V_{GE} = 0 V	V_F		2,50 2,50	3,10 3,00	V V
反向恢复峰值电流 Peak reverse recovery current	I_F = 800 A, - di_F/dt = 3300 A/µs (T_{vj}=125°C) V_R = 2800 V V_{GE} = -15 V	I_{RM}		1000 1150		A A
恢复电荷 Recovered charge	I_F = 800 A, - di_F/dt = 3300 A/µs (T_{vj}=125°C) V_R = 2800 V V_{GE} = -15 V	Q_r		770 1400		µC µC
反向恢复损耗（每脉冲） Reverse recovery energy	I_F = 800 A, - di_F/dt = 3300 A/µs (T_{vj}=125°C) V_R = 2800 V V_{GE} = -15 V	E_{rec}		1200 2400		mJ mJ
结 - 外壳热阻 Thermal resistance, junction to case	每个二极管 / per diode	R_{thJC}			25,5	K/kW
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个二极管 / per diode λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)	R_{thCH}		21,0		K/kW
在开关状态下温度 Temperature under switching conditions		$T_{vj\ op}$	-50		125	°C

模块 / Module

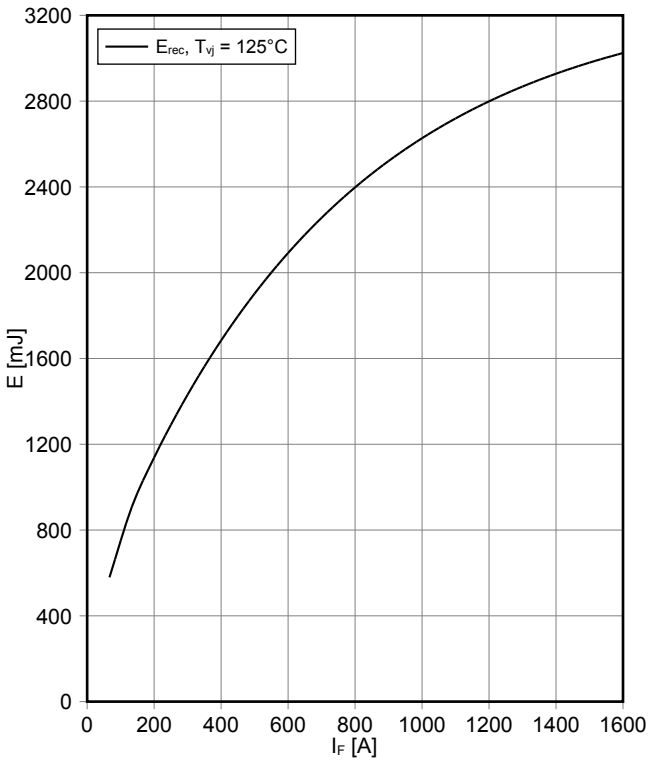
绝缘测试电压 Isolation test voltage	RMS, f = 50 Hz, t = 10 s	V_{ISOL}		10,4		kV
局部放电停止电压 Partial discharge extinction voltage	RMS, f = 50 Hz, Q_{PD} typ 10 pC	V_{ISOL}		3,5		kV
DC 稳定性 DC stability	T_{vj} = 25°C, 100 fit	$V_{CE\ D}$		3000		V
模块基板材料 Material of module baseplate				AlSiC		
内部绝缘 Internal isolation	基本绝缘 (class 1, IEC 61140) basic insulation (class 1, IEC 61140)			AlN		
爬电距离 Creepage distance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal			56,0 56,0		mm
电气间隙 Clearance	端子至散热器 / terminal to heatsink 端子至端子 / terminal to terminal			26,0 26,0		mm
相对电痕指数 Comperative tracking index		CTI		> 600		
			min.	typ.	max.	
杂散电感,模块 Stray inductance module		L_{sCE}		25		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	$R_{AA'+CC'}$		0,51		mΩ
储存温度 Storage temperature		T_{stg}	-55		125	°C
模块安装的安装扭距 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
端子联接扭距 Terminal connection torque	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	8,0	-	10	Nm
重量 Weight		G		1000		g

Dynamische Daten gelten in Verbindung mit FZ800R45KL3_B5 Modul
Dynamic Data valid in conjunction with FZ800R45KL3_B5 module

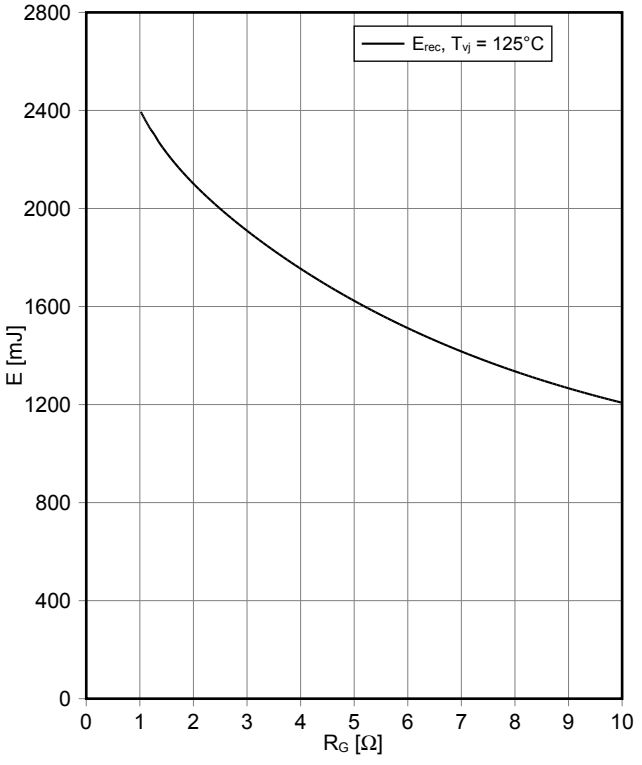
正向偏压特性 二极管,逆变器 （典型)
forward characteristic of Diode, Inverter (typical)
$I_F = f(V_F)$



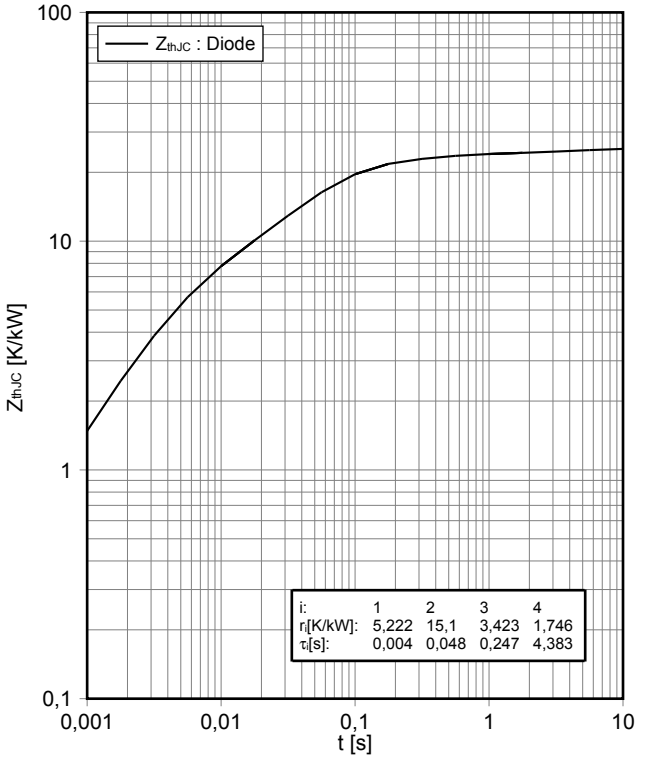
开关损耗 二极管,逆变器 （典型)
switching losses Diode, Inverter (typical)
$E_{rec} = f(I_F)$
- di_F/dt = 3300A/µs, V_{CE} = 2800 V



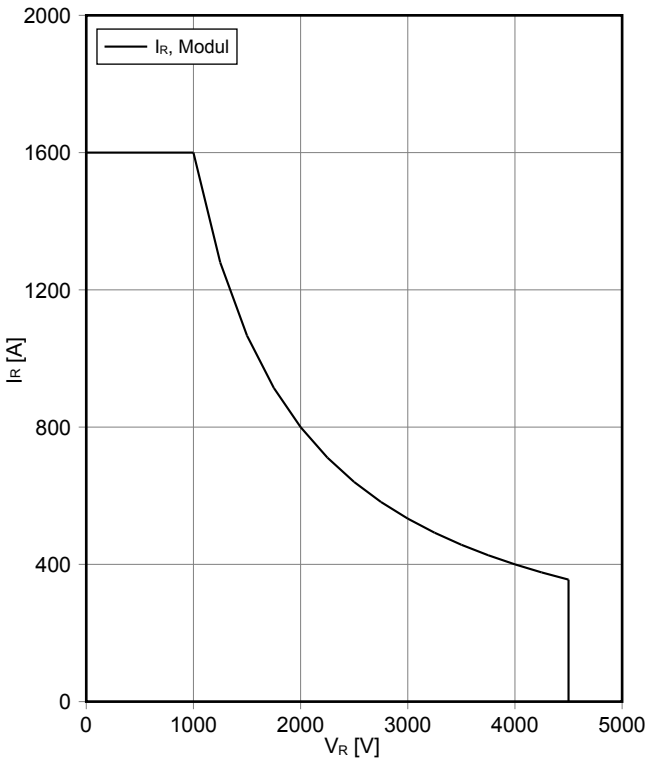
开关损耗 二极管,逆变器 （典型)
switching losses Diode, Inverter (typical)
$E_{rec} = f(R_G)$
I_F = 800 A, V_{CE} = 2800 V



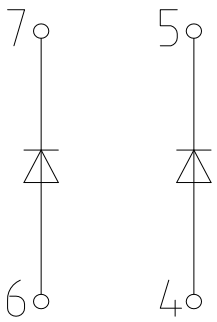
瞬态热阻抗 二极管,逆变器
transient thermal impedance Diode, Inverter
$Z_{thJC} = f(t)$



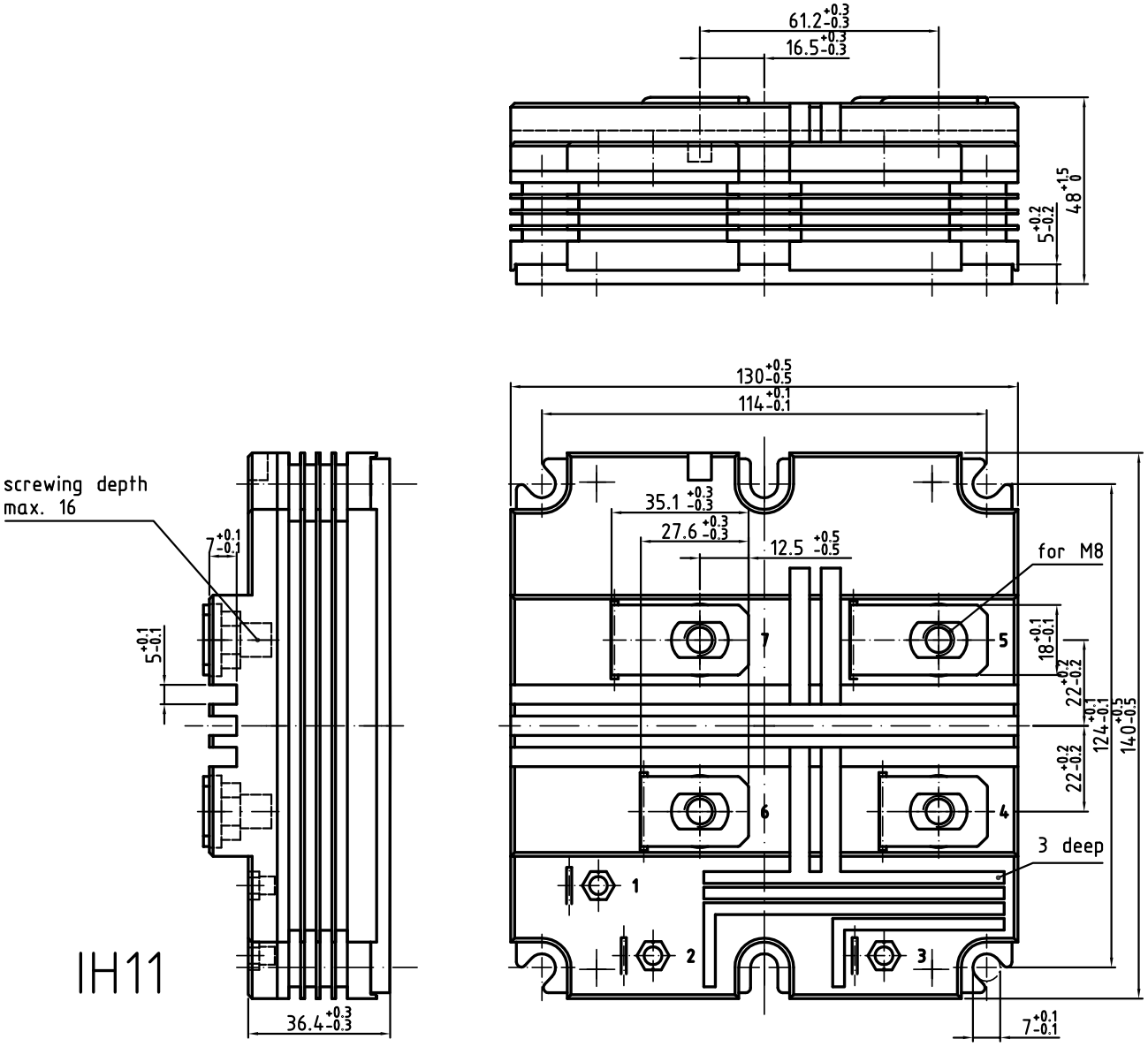
安全工作区 二极管,逆变器 (SOA)
safe operation area Diode, Inverter (SOA)
$I_R = f(V_R)$
$T_{vj} = 125°C$



接线图 / Circuit diagram



封装尺寸 / Package outlines



Trademarks
All referenced product or service names and trademarks are the property of their respective owners.

Edition 2018-01-15

Published by
Infineon Technologies AG
81726 München, Germany

Do you have a question about this document?
Email: erratum@infineon.com

重要提示

本文档所提供的任何信息绝不应当被视为针对任何条件或者品质而做出的保证（质量保证）。英飞凌对于本文档中所提及的任何事例、提示或者任何特定数值及/或任何关于产品应用方面的信息均在此明确声明其不承担任何保证或者责任，包括但不限于其不侵犯任何第三方知识产权的保证均在此排除。
此外，本文档所提供的任何信息均取决于客户履行本文档所载明的义务和客户遵守适用于客户产品以及与客户对于英飞凌产品的应用所相关的任何法律要求、规范和标准。
本文档所含的数据仅供经过专业技术培训的人员使用。客户自身的技术部门有义务对于产品是否适宜于其预期的应用和针对该等应用而言本文档中所提供的信息是否充分自行予以评估。
如需产品、技术、交付条款和条件以及价格等进一步信息，请向离您最近的英飞凌科技办公室接洽（www.infineon.com）。

警告事项

由于技术所需产品可能含有危险物质。如需了解该等物质的类型，请向离您最近的英飞凌科技办公室接洽。
除非由经英飞凌科技授权代表签署的书面文件中做出另行明确批准的情况外，英飞凌科技的产品不应当被用于任何一项一旦产品失效或者产品使用的后果可被合理地预料到可能导致人身伤害的任何应用领域。

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer’s compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer’s products and any use of the product of Infineon Technologies in customer’s applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer’s technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies’ products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.