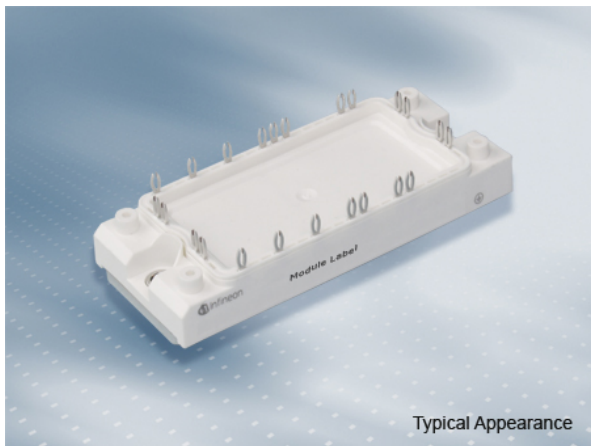


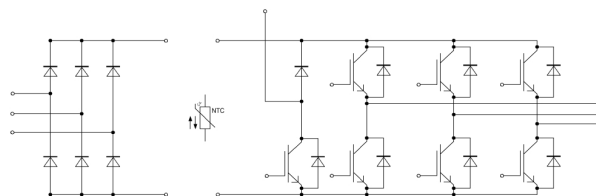
EconoPIM™2 模块 采用第四代沟槽栅/场终止IGBT4和第四代发射极控制二极管
带有pressfit压接管脚和温度检测NTC

EconoPIM™2 module with Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode and PressFIT / NTC

初步数据 / Preliminary Data



Typical Appearance



$V_{CES} = 650V$
 $I_{C\ nom} = 75A / I_{CRM} = 150A$

典型应用

- 电机传动

Typical Applications

- Motor Drives

电气特性

- 增加阻断电压至650V
- 高短路能力，自限制短路电流
- 沟槽栅IGBT4
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} 带正温度系数

Electrical Features

- Increased blocking voltage capability to 650V
- High Short Circuit Capability, Self Limiting Short Circuit Current
- Trench IGBT 4
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} with positive Temperature Coefficient

机械特性

- 集成NTC温度传感器
- 绝缘的基板
- 铜基板
- PressFIT 压接技术

Mechanical Features

- Integrated NTC temperature sensor
- Isolated Base Plate
- Copper Base Plate
- PressFIT Contact Technology

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: AS	date of publication: 2013-11-05	
approved by: RS	revision: 2.0	UL approved (E83335)



初步数据
Preliminary Data

IGBT, 逆变器 / IGBT, Inverter

最大额定值 / Maximum Rated Values

集电极 - 发射极电压 Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	650	V
连续集电极直流电流 Continuous DC collector current	$T_C = 70^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{C\text{nom}}$	75	A
集电极重复峰值电流 Repetitive peak collector current	$t_P = 1\text{ms}$	I_{CRM}	150	A
总功率损耗 Total power dissipation	$T_C = 25^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	P_{tot}	250	W
栅极 - 发射极峰值电压 Gate-emitter peak voltage		V_{GES}	+/-20	V

特征值 / Characteristic Values

			min.	typ.	max.		
集电极 - 发射极饱和电压 Collector-emitter saturation voltage	$I_C = 75\text{A}, V_{GE} = 15\text{V}$ $I_C = 75\text{A}, V_{GE} = 15\text{V}$ $I_C = 75\text{A}, V_{GE} = 15\text{V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{sat}}$	1,55 1,70 1,75	1,95	V V V	
栅极阈值电压 Gate threshold voltage	$I_C = 1,20\text{mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,0	5,8	6,5	V
栅极电荷 Gate charge	$V_{GE} = -15\text{V} \dots +15\text{V}$		Q_G	0,75			μC
内部栅极电阻 Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	0,0			Ω
输入电容 Input capacitance	$f = 1\text{MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{V}, V_{GE} = 0\text{V}$		C_{ies}	4,60			nF
反向传输电容 Reverse transfer capacitance	$f = 1\text{MHz}, T_{vj} = 25^{\circ}\text{C}, V_{CE} = 25\text{V}, V_{GE} = 0\text{V}$		C_{res}	0,145			nF
集电极-发射极截止电流 Collector-emitter cut-off current	$V_{CE} = 650\text{V}, V_{GE} = 0\text{V}, T_{vj} = 25^{\circ}\text{C}$		I_{CES}			1,0	mA
栅极-发射极漏电流 Gate-emitter leakage current	$V_{CE} = 0\text{V}, V_{GE} = 20\text{V}, T_{vj} = 25^{\circ}\text{C}$		I_{GES}			400	nA
开通延迟时间(电感负载) Turn-on delay time, inductive load	$I_C = 75\text{A}, V_{CE} = 300\text{V}$ $V_{GE} = \pm 15\text{V}$ $R_{Gon} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}	0,025 0,025 0,025			μs μs μs
上升时间(电感负载) Rise time, inductive load	$I_C = 75\text{A}, V_{CE} = 300\text{V}$ $V_{GE} = \pm 15\text{V}$ $R_{Gon} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,02 0,02 0,02			μs μs μs
关断延迟时间(电感负载) Turn-off delay time, inductive load	$I_C = 75\text{A}, V_{CE} = 300\text{V}$ $V_{GE} = \pm 15\text{V}$ $R_{Goff} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}	0,21 0,24 0,25			μs μs μs
下降时间(电感负载) Fall time, inductive load	$I_C = 75\text{A}, V_{CE} = 300\text{V}$ $V_{GE} = \pm 15\text{V}$ $R_{Goff} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,06 0,07 0,07			μs μs μs
开通损耗能量(每脉冲) Turn-on energy loss per pulse	$I_C = 75\text{A}, V_{CE} = 300\text{V}, L_S = 30\text{nH}$ $V_{GE} = \pm 15\text{V}, di/dt = 4000\text{A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Gon} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	0,385 0,55 0,66			mJ mJ mJ
关断损耗能量(每脉冲) Turn-off energy loss per pulse	$I_C = 75\text{A}, V_{CE} = 300\text{V}, L_S = 30\text{nH}$ $V_{GE} = \pm 15\text{V}, du/dt = 4000\text{V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Goff} = 5,1\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	3,35 3,90 4,20			mJ mJ mJ
短路数据 SC data	$V_{GE} \leq 15\text{V}, V_{CC} = 360\text{V}$ $V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$	$t_P \leq 10\mu\text{s}, T_{vj} = 25^{\circ}\text{C}$ $t_P \leq 10\mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	360 290			A A
结 - 外壳热阻 Thermal resistance, junction to case	每个 IGBT / per IGBT		R_{thJC}			0,60	K/W
外壳 - 散热器热阻 Thermal resistance, case to heatsink	每个 IGBT / per IGBT $\lambda_{\text{Paste}} = 1\text{W}/(\text{m}\cdot\text{K}) / \lambda_{\text{grease}} = 1\text{W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,325			K/W
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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