



Vincotech

80-M3126PB100M703-K817F70

target datasheet

MiniSKiiP® PACK 3

1200 V / 100 A

Topology features

- Inverter
- Kelvin Emitter for improved switching performance
- Temperature sensor

Component features

- Easy paralleling
- Low turn-off losses
- Low collector emitter saturation voltage
- Positive temperature coefficient
- Short tail current
- Switching optimized for EMC

Housing features

- Base isolation: Al_2O_3
- Easy assembly in one mounting step
- Flexible PCB design w/o pin holes
- Rugged solderless spring contacts

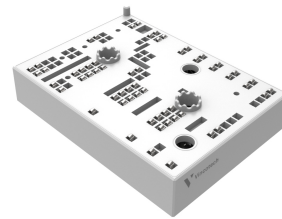
Target applications

- Servo Drives

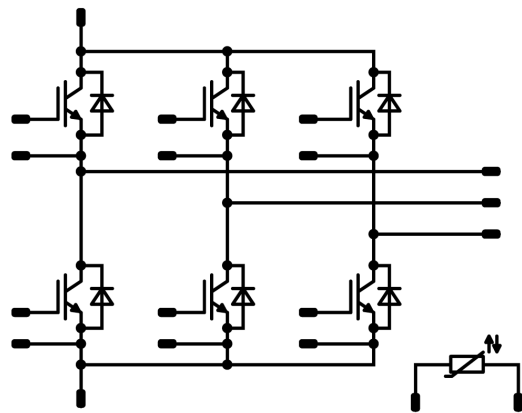
Types

- 80-M3126PB100M703-K817F70

MiniSKiiP® 3 16 mm housing



Schematic





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Maximum Ratings

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Inverter Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	121	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	240	W
Gate-emitter voltage	V_{GES}		± 20	V
Short circuit ratings	t_{SC}	$V_{GE} = 15\text{ V}$, $V_{CC} = 800\text{ V}$ $T_j = 150\text{ °C}$	9,5	μs
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Inverter Diode

Peak repetitive reverse voltage	V_{RRM}		1200	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	81	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	149	W
Maximum junction temperature	T_{jmax}		175	$^{\circ}\text{C}$

Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	$^{\circ}\text{C}$
Operation temperature under switching condition	T_{jop}		-40...+($T_{jmax} - 25$)	$^{\circ}\text{C}$

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage $t_p = 2\text{ s}$	5500	V
Creepage distance		With std lid For more informations see handling instructions	6,3	mm
Clearance		With std lid For more informations see handling instructions	6,3	mm
Comparative Tracking Index	CTI		≥ 600	



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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Inverter Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$			10	0,01	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		100	25 150		1,55 1,8	1,85	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			100	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							None		Ω
Input capacitance	C_{ies}	0	10		25			21000		pF
Output capacitance	C_{oes}							700		pF
Reverse transfer capacitance	C_{res}							280		pF
Gate charge	Q_g	$V_{CC} = 600$ V	0/15		100	25		700		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,4		K/W
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Inverter Diode

Static

Forward voltage	V_F				100	25 125 150		1,65 1,65 1,65	2,1	V
Reverse leakage current	I_R	$V_r = 1200$ V				25			40	µA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,64		K/W
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Characteristic Values

Parameter	Symbol	Conditions					Values			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Thermistor

Static

Rated resistance	R					25		1		kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 1670 \Omega$				100	-2		2	%
Maximum Current	I_{max}							3		mA
Power dissipation constant	d					25		0,76		mW/K
A-value	A							$7,635 \times 10^{-3}$		1/K
B-value	B							$1,73 \times 10^{-5}$		1/K ²
Vincotech Thermistor Reference									E	



target datasheet

Ordering Code	
Version	Ordering Code
With std lid (6.5mm height) + no thermal grease	80-M3126PB100M703-K817F70-/0A/
With thin lid (2.8mm height) + no thermal grease	80-M3126PB100M703-K817F70-/0B/
With std lid (6.5mm height) + thermal grease (0,8 W/mK, P12, silicone-based)	80-M3126PB100M703-K817F70-/1A/
With thin lid (2.8mm height) + thermal grease (0,8 W/mK, P12, silicone-based)	80-M3126PB100M703-K817F70-/1B/
With std lid (6.5mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)	80-M3126PB100M703-K817F70-/4A/
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)	80-M3126PB100M703-K817F70-/4B/
With std lid (6.5mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)	80-M3126PB100M703-K817F70-/5A/
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)	80-M3126PB100M703-K817F70-/5B/

Marking						

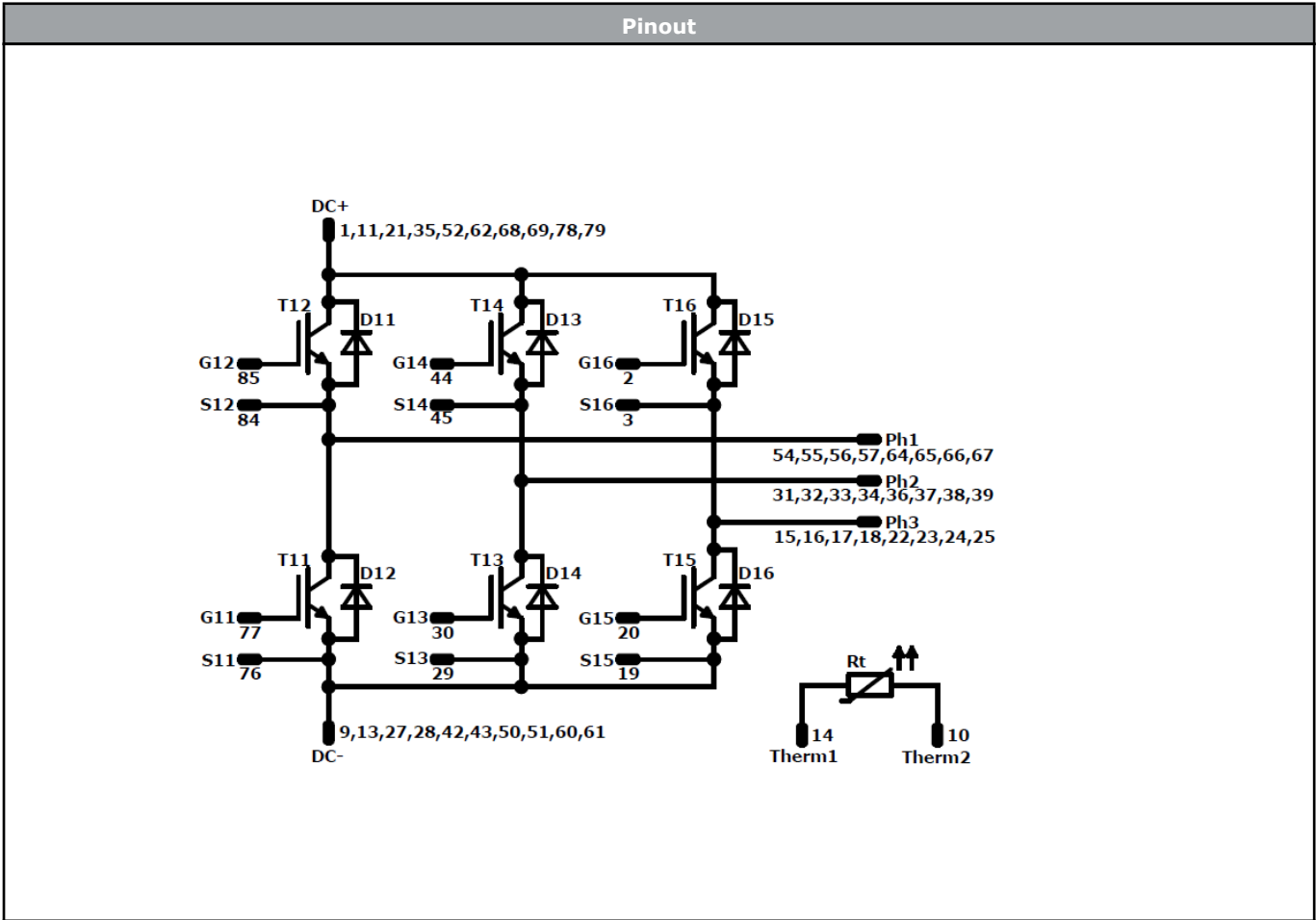
Outline							
Pin table [mm]							
Pin	X	Y	Function	45	-25,9	2,2	S14
1	15,83	-25,3	DC+	46	not assembled		
2	15,83	-6,4	G16	47	not assembled		
3	15,83	-3,2	S16	48	not assembled		
4	not assembled			49	not assembled		
5	not assembled			50	-35,68	22,1	DC-
6	not assembled			51	-35,68	25,3	DC-
7	not assembled			52	-36,58	-25,3	DC+
8	not assembled			53	not assembled		
9	15,83	22,1	DC-	54	-36,58	-15,7	Ph1
10	15,83	25,3	Therm2	55	-36,58	-12,5	Ph1
11	8,13	-25,3	DC+	56	-36,58	-9,3	Ph1
12	not assembled			57	-36,58	-6,1	Ph1
13	8,13	22,1	DC-	58	not assembled		
14	8,13	25,3	Therm1	59	not assembled		
15	1,82	-15,38	Ph3	60	-39,32	22,1	DC-
16	1,82	-12,18	Ph3	61	-39,32	25,3	DC-
17	1,82	-8,98	Ph3	62	-40,22	-25,3	DC+
18	1,82	-5,79	Ph3	63	not assembled		
19	0,43	22,1	S15	64	-40,22	-15,7	Ph1
20	0,43	25,3	G15	65	-40,22	-12,5	Ph1
21	-1,07	-25,3	DC+	66	-40,22	-9,3	Ph1
22	-1,82	-15,38	Ph3	67	-40,22	-6,09	Ph1
23	-1,82	-12,18	Ph3	68	-50,18	-25,3	DC+
24	-1,82	-8,98	Ph3	69	-50,18	-22,1	DC+
25	-1,82	-5,79	Ph3	70	not assembled		
26	not assembled			71	not assembled		
27	-7,27	22,1	DC-	72	not assembled		
28	-7,27	25,3	DC-	73	not assembled		
29	-14,97	22,1	S13	74	not assembled		
30	-14,97	25,3	G13	75	not assembled		
31	-16,05	-15,02	Ph2	76	-50,18	22,1	S11
32	-16,05	-11,82	Ph2	77	-50,18	25,3	G11
33	-16,05	-8,63	Ph2	78	-53,82	-25,3	DC+
34	-16,05	-5,42	Ph2	79	-53,82	-22,1	DC+
35	-19,22	-25,3	DC+	80	not assembled		
36	-19,7	-15,02	Ph2	81	not assembled		
37	-19,7	-11,82	Ph2	82	not assembled		
38	-19,7	-8,62	Ph2	83	not assembled		
39	-19,7	-5,42	Ph2	84	-53,82	3,1	S12
40	not assembled			85	-53,82	6,3	G12
41	not assembled			86	not assembled		
42	-22,67	22,1	DC-	87	not assembled		
43	-22,67	25,3	DC-	88	not assembled		
44	-25,9	-1	G14				

Pad positions refers to center point. For more informations on pad design please see package data



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Identification					
ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14, T15, T16	IGBT	1200 V	100 A	Inverter Switch	
D11, D12, D13, D14, D15, D16	FWD	1200 V	100 A	Inverter Diode	
Rt	Thermistor			Thermistor	



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Packaging instruction				
Standard packaging quantity (SPQ) 48	>SPQ	Standard	<SPQ	Sample
Handling instruction				
Handling instructions for MiniSKiiP® 3 packages see vincotech.com website.				
Package data				
Package data for MiniSKiiP® 3 packages see vincotech.com website.				
Vincotech thermistor reference				
See Vincotech thermistor reference table at vincotech.com website.				
UL recognition and file number				
This device is UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}=150^{\circ}\text{C}$ and up to 2500VAC/1min isolation voltage. For more information see vincotech.com website.				

Document No.:	Date:	Modification:	Pages
80-M3126PB100M703-K817F70-T1-14	21 May. 2025		

Product status definition		
Datasheet Status	Product Status	Definition
Target	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. The data contained is exclusively intended for technically trained staff.

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