Vincotech

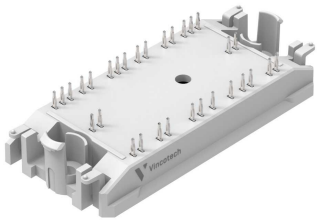
10-PH126PA010MR-L820F86T
target datasheet

***flow*PACK 1 SiC** **1200 V / 10 mΩ**

Features

- Silicon Carbide Power MOSFET Trench Technology
- Sixpack with integrated capacitors
- Si_3N_4 based DCB for better thermal performance
- Integrated NTC

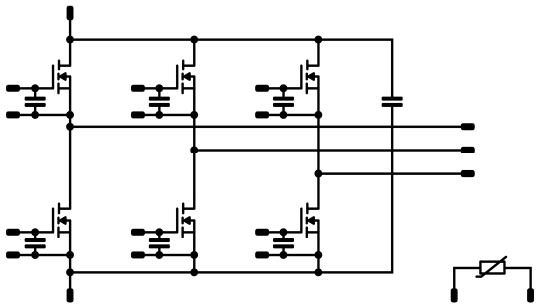
flow 1 12 mm housing



Target applications

- Charging Stations
- Power Supply

Schematic



Types

- 10-PH126PA010MR-L820F86T

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
Inverter Switch				
Drain-source voltage	V_{DSS}		1200	V
Drain current	I_D	$T_j = T_{jmax}$ T_s = 80 °C	134	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	548	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	352	W
Gate-source voltage	V_{GSS}		-4/+22	V
Maximum Junction Temperature	T_{jmax}		175	°C
Capacitor (GS)				
Maximum DC voltage	V_{MAX}		25	V
Operation Temperature	T_{op}		-55…+125	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition	Value	Unit
Capacitor (DC)				
Maximum DC voltage	V_{MAX}		1000	V
Operation Temperature	T_{op}		-55…+125	°C
Module Properties				
Thermal Properties				
Storage temperature	T_{stg}		-40…+125	°C
Operation temperature under switching condition	T_{jop}		-40…(T_{jmax} - 25)	°C
Isolation Properties				
Isolation voltage	V_{isol}	DC Test Voltage* t_p = 2 s	6000	V
		AC Voltage t_p = 1 min	2500	V
Creepage distance			min. 12,7	mm
Clearance			8,24	mm
Comparative Tracking Index	CTI		> 200	

*100 % tested in production

Characteristic Values

Parameter	Symbol	Conditions					Value			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										
Drain-source on-state resistance	$r_{DS(on)}$		10		80	25 125		9 14	12,5	mΩ
Gate-source threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}$			0,04	25	2,7	4,5	5,6	V
Gate to Source Leakage Current	I_{GSS}		-4/+22	0		25			±400	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	1200		25			40	µA
Internal gate resistance	r_g							1,75		Ω
Gate charge	Q_g							428		
Gate to source charge	Q_{GS}		18	600	80	25		88		nC
Gate to drain charge	Q_{GD}							164		
Short-circuit input capacitance	C_{iss}							5348		
Short-circuit output capacitance	C_{oss}	f= 1 MHz	0	800		25		304		pF
Reverse transfer capacitance	C_{rss}							108		
Reverse Diode Static										
Diode forward voltage	VSD		0		80	25		3,2		V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,27		K/W
Capacitor (GS)										
Capacitance	C							10		nF
Tolerance							-10		+10	%
Dissipation factor		f= 1 kHz				25			0,1	%
Capacitor (DC)										
Capacitance	C							94		nF
Tolerance							-20		+20	%
Climatic category							55/125/56			

Characteristic Values

Parameter	Symbol	Conditions					Value			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										
Rated resistance	R					25		22		kΩ
Deviation of R_{100}	$\Delta_{R/R}$	R_{100} = 1484 Ω				100	-5		5	%
Power dissipation	P					25		5		mW
Power dissipation constant						25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %				25		3962		K
B-value	$B_{(25/100)}$	Tol. ±1 %				25		4000		K
Vincotech NTC Reference									I	

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Ordering Code & Marking

Version	Ordering Code
without thermal paste 12 mm housing with press-fit pins	10-PH126PA010MR-L820F86T

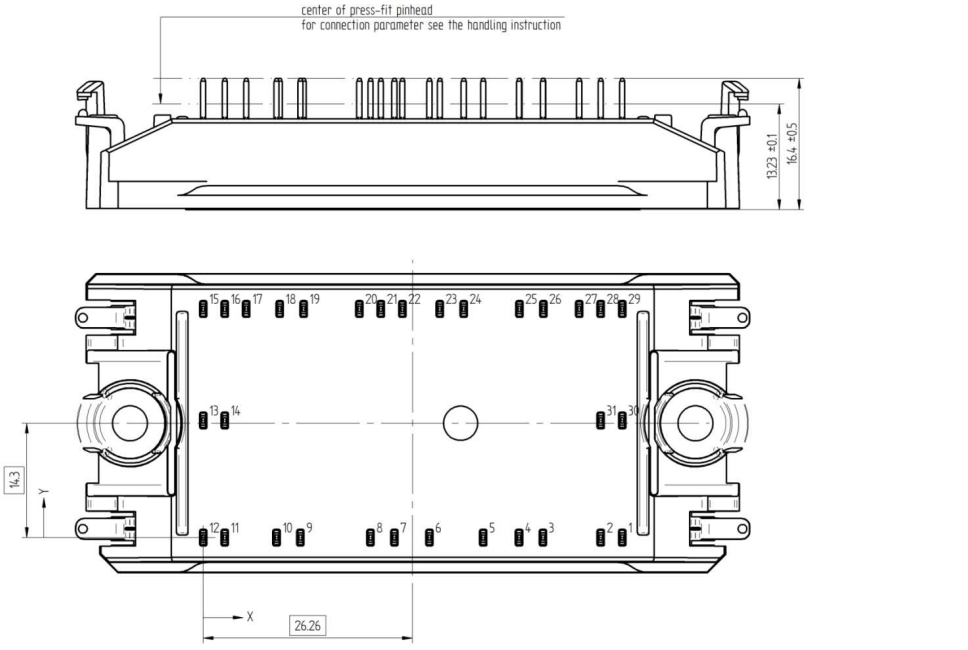
NN-NNNNNNNNNNNNNN
TTTTTTVV WWYY UL
VIN LLLLL SSSS

		Name		Date code	UL & VIN	Lot	Serial
Text		NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix		Type&Ver	Lot number	Serial	Date code		
		TTTTTTVV	LLLLL	SSSS	WWYY		

Outline

Pin table

Pin	X	Y	Functions
1	52,6	0	DC-123
2	49,9	0	DC-123
3	42,65	0	G15
4	39,65	0	S15
5	35,15	0	Therm1
6	28,4	0	Therm2
7	24	0	G13
8	21	0	S13
9	12,2	0	G11
10	9,2	0	S11
11	2,7	0	DC-123
12	0	0	DC-123
13	0	14,65	DC+123
14	2,7	14,65	DC+123
15	0	28,6	Ph1
16	2,7	28,6	Ph1
17	5,4	28,6	Ph1
18	9,6	28,6	S12
19	12,6	28,6	G12
20	19,6	28,6	Ph2
21	22,3	28,6	Ph2
22	25	28,6	Ph2
23	29,7	28,6	S14
24	32,7	28,6	G14
25	39,7	28,6	S16
26	42,7	28,6	G16
27	47,2	28,6	Ph3
28	49,9	28,6	Ph3
29	52,6	28,6	Ph3
30	52,6	14,65	DC+123
31	49,9	14,65	DC+123



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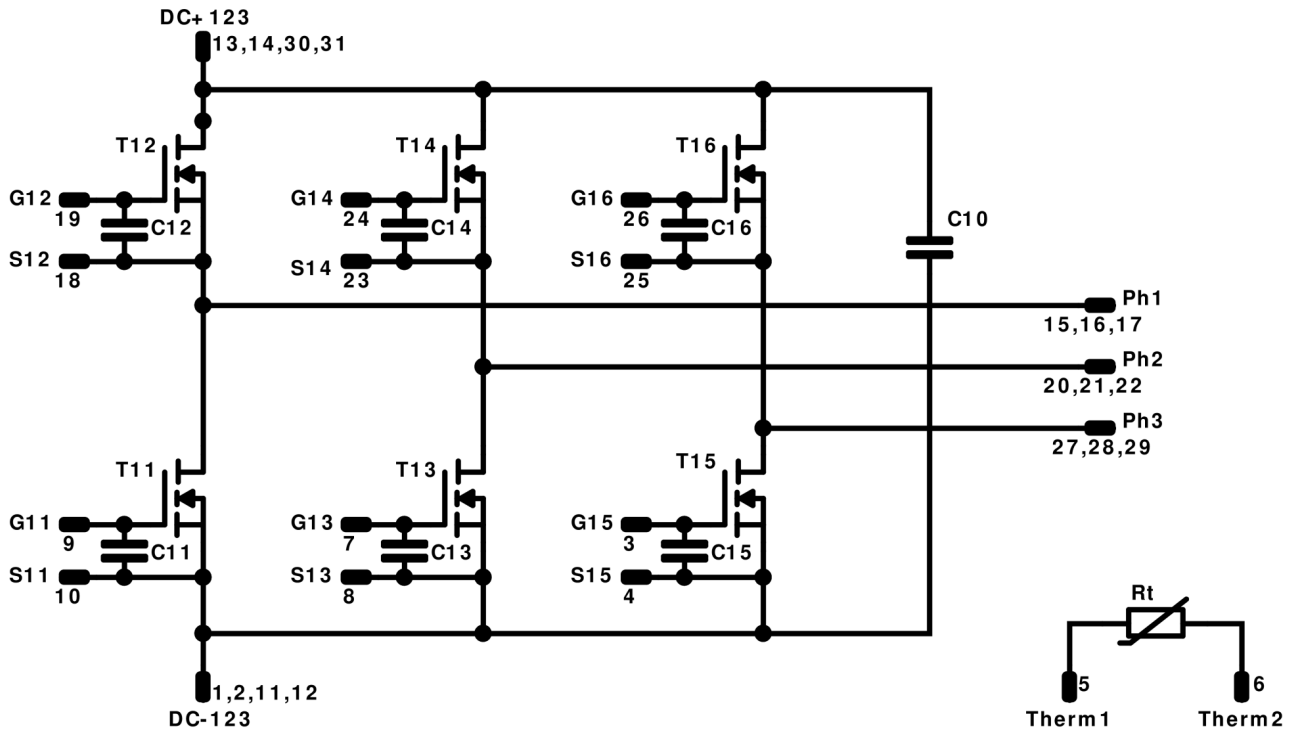
Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14, T15, T16	MOSFET	1200 V	10 mΩ	Inverter Switch	
C11, C12, C13, C14, C15, C16	Capacitor	25 V		Capacitor (GS)	
C10	Capacitor	1000 V		Capacitor (DC)	
Rt	NTC			Thermistor	

Packaging instruction				
Standard packaging quantity (SPQ) 100	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for *flow* 1 packages see vincotech.com website.

Package data
Package data for *flow* 1 packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
10-PH126PA010MR-L820F86T-T1-14	28 Mar. 2018		

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.