Vincotech

10-PG07ANA150F401-LH24L58T

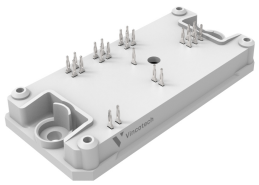
target datasheet

***flow*ANPFC 1** **650 V / 150 A**

Features

- Ultra fast IGBT and SiC boost diodes
- Topology requires only one gate driver
- Integrated capacitor
- Temperature sensor

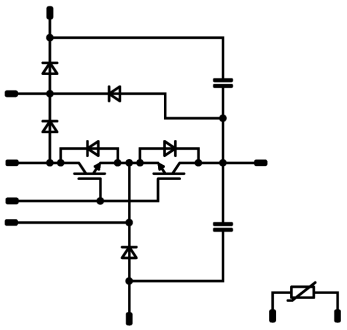
flow 1 12 mm housing



Target applications

- Charging Stations

Schematic



Types

- 10-PG07ANA150F401-LH24L58T

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Neutral Point Switch				
Collector-emitter voltage	V_{CES}		650	V
Collector current	I_C	T_s = 80 °C	75	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	153,13	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C
Negative Boost Diode,Positive Boost Diode				
Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	T_s = 80 °C	10	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	74,39	W
Maximum junction temperature	T_{jmax}		175	°C
Positive Boost Blocking Diode,Neutral Point Diode				
Peak repetitive reverse voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F	T_s = 80 °C	50	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	90,83	W
Maximum junction temperature	T_{jmax}		150	°C
Positive Boost Diode Protection Diode				
Peak repetitive reverse voltage	V_{RRM}		650	V
Continuous (direct) forward current	I_F	T_s = 80 °C	20	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	47,13	W
Maximum junction temperature	T_{jmax}		175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Neutral Point Diode				
Peak repetitive reverse voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F	T_s = 80 °C	60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	102,59	W
Maximum junction temperature	T_{jmax}		150	°C
Capacitor				
Maximum DC voltage	V_{MAX}		630	V

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Module Properties				
Thermal Properties				
Storage temperature	T_{stg}		-40…+125	°C
Operation Junction Temperature	T_{jop}		-40…+(T_{jmax} - 25)	°C
Isolation Properties				
Isolation voltage	V_{isol}	DC voltage t_p = 2 s	6000	V
Creepage distance			>12,7	mm
Clearance			8	mm
Comparative Tracking Index	CTI		600	

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	
Neutral Point Switch										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$				0.075	25	2,6	4,5	6,4	V
Collector-emitter saturation voltage	V_{CEsat}		15		75	25 175		1,6 1,92	2,1	V
Collector-emitter cut-off current	I_{CES}		0	650		25			250	µA
Input capacitance	C_{ies}		0	30		25		4845		pF
Output capacitance	C_{oes}							155		pF
Reverse transfer capacitance	C_{res}							14		pF
Gate charge	Q_g		15	400	75	25		128		nC
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,62		K/W
Negative Boost Diode,Positive Boost Diode										
Static										
Forward voltage	V_F					25 150 175		1,35 1,55 1,63	1,55	V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						1,28		K/W
Positive Boost Blocking Diode,Neutral Point Diode										
Static										
Forward voltage	V_F					25 125		1 0,9	1,21 1,1	V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,77		K/W

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	
Positive Boost Diode Protection Diode										
Static										
Forward voltage	V_F					25	1,23	1,55	1,87	V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						2,02		K/W
Neutral Point Diode										
Static										
Forward voltage	V_F					25 125		1 0,9	1,21 1,1	V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 3,4 W/mK (PSX)						0,68		K/W
Capacitor										
Static										
Capacitance	C							100		nF

Characteristic Values

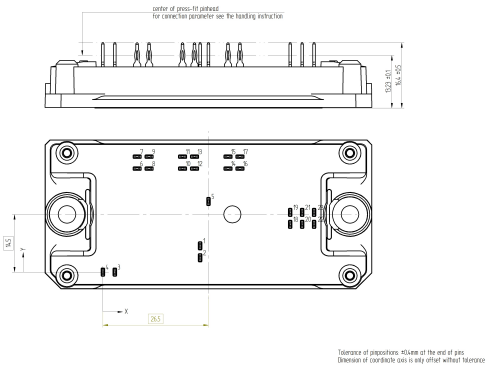
Parameter	Symbol	Conditions					Values			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	
Thermistor										
Static										
Deviation of R_{100}	ΔR/R	R_{100} = 1484 Ω				100	-5		5	%
Power dissipation	P							5		mW
Power dissipation constant	d					25		1,5		mW/K
B-value	$B_{(25/50)}$					25		3962		K
B-value	$B_{(25/100)}$					25		4000		K

Ordering Code & Marking

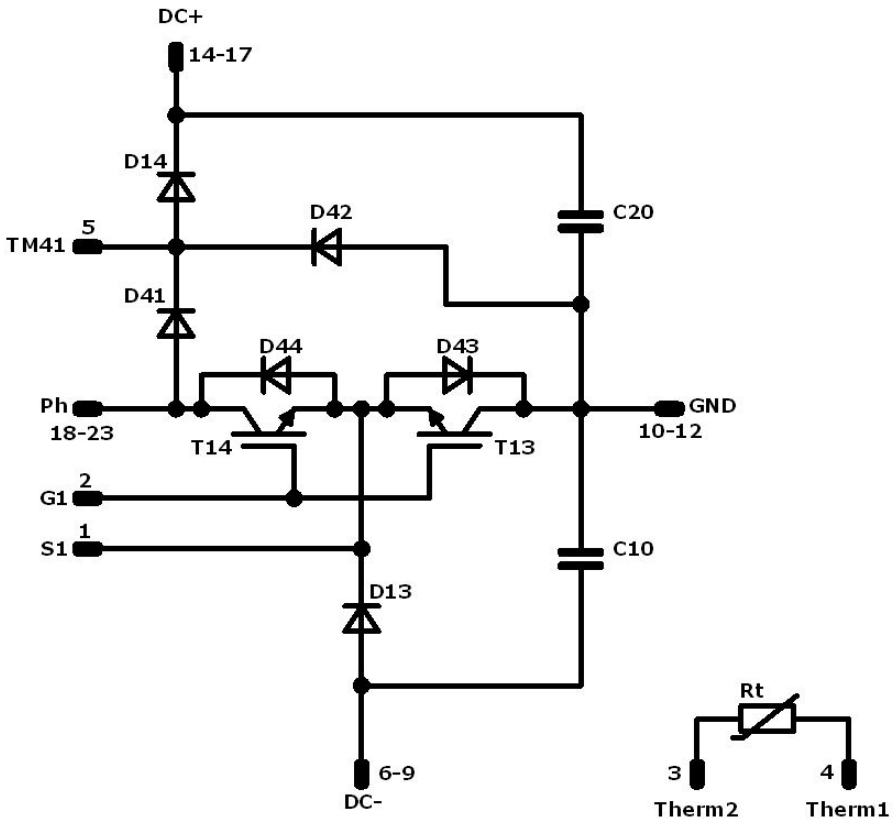
Version				Ordering Code			
				10-PG07ANA150F401-LH24L58T			
NN-NNNNNNNNNNNNNN TTTTTTVV WWYY UL VIN LLLLL SSSS	Text	Name		Date code	UL & VIN	Lot	Serial
		NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
	Datamatrix	Type&Ver	Lot number	Serial	Date code		
		TTTTTTVV	LLLLL	SSSS	WWYY		

Outline

Pin table [mm]			
Pin	X	Y	Function
1	24,4	6,6	S1
2	24,4	3,6	G1
3	3	0	Therm2
4	0	0	Therm1
5	26,5	17,75	TM41
6	8,6	26	DC-
7	8,6	29	DC-
8	11,6	26	DC-
9	11,6	29	DC-
10	20	26	GND
11	20	29	GND
12	23	26	GND
13	23	29	GND
14	31,4	26	DC+
15	31,4	29	DC+
16	34,4	26	DC+
17	34,4	29	DC+
18	47	12	Ph
19	47	15	Ph
20	50	12	Ph
21	50	15	Ph
22	53	12	Ph
23	53	15	Ph



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T13, T14	IGBT	650 V	75 A	Neutral Point Switch	
D13	FWD	650 V	10 A	Negative Boost Diode	
D14	FWD	650 V	10 A	Positive Boost Diode	
D41	Rectifier	1600 V	65 A	Positive Boost Blocking Diode	
D42	FWD	650 V	20 A	Positive Boost Diode Protection Diode	
D43, D44	Rectifier	1600 V	65 A	Neutral Point Diode	
C10, C20	Capacitor	630 V	100 nF	Capacitor	
Rt	Thermistor		22 kΩ	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
Packaging 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-PG07ANA150F401-LH24L58T-T1-14	16 Jul. 2018	Initial Release	

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.