



fastPACK 1 H

650 V / 20 mΩ

Features

- High speed H-Bridge
- High efficiency MOS Technology
- Enhanced body diode
- Integrated capacitors
- Thermistor
- Flexible open emitter topology

Target applications

- Power Supply
- Solar
- UPS

Types

- 10-FY074PA020CR-L582F78
- 10-PY074PA020CR-L582F78Y

flow 1 12mm housing

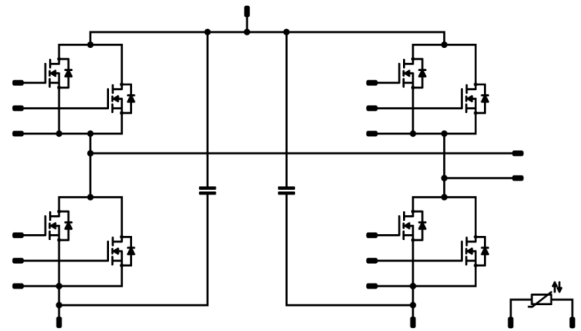


Press-fit pins



Solder pins

Schematic





Vincotech

10-FY074PA020CR-L582F78
10-PY074PA020CR-L582F78Y
 target datasheet

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
H-Bridge Switch				
Drain-source voltage	V_{DSS}		650	V
Drain current	I_D	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	86	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	510	A
Avalanche energy, single pulse	E_{AS}	$I_D = 27,4$ $V_{DD} = 50$	4370	mJ
Avalanche energy, repetitive	E_{AR}	$I_D = 27,4$ $V_{DD} = 50$	6,62	mJ
Avalanche current, repetitive	I_{AR}	t_p limited by T_{jmax} $P_{AV} = E_{AR} * f$	13,7	A
MOSFET dv/dt ruggedness	dv/dt	$V_{DS} = 400$	50	V/ns
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	167	W
Gate-source voltage	V_{GSS}		±20	V
Reverse diode dv/dt	dv/dt		50	V/ns
Maximum Junction Temperature	T_{jmax}		150	°C

DC Link Capacitance

Maximum DC voltage	V_{MAX}		630	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 Voltage $t_p = 2s$	4000	V
Creepage distance			min. 12,7	mm
Clearance			min. 12,7	mm
Comparative Tracking Index	CTI		> 200	



Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V]	V_{CE} [V]	I_C [A]	T_i [°C]	Min	Typ	Max		

H-Bridge Switch

Static

Parameter	Symbol	$V_{GS} = V_{DS}$	V_{GE} [V]	V_{GS} [V]	V_{CE} [V]	I_C [A]	I_D [A]	I_F [A]	T_i [°C]	Min	Typ	Max	Unit
Drain-source on-state resistance	$r_{DS(on)}$		10			66	25 125 150				19 48 21		mΩ
Gate-source threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}$				0,0066	25 125			3,5	4	4,5	V
Gate to Source Leakage Current	I_{GSS}		20	0			25 125					200	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	650			25 125					7	μA
Internal gate resistance	r_g										0,35		Ω
Gate charge	Q_g										600		nC
Gate to source charge	Q_{GS}		0/10	480	99,2	25					108		
Gate to drain charge	Q_{GD}										330		
Short-circuit input capacitance	C_{iss}	f=1MHz	0	100			25				16800		pF
Short-circuit output capacitance	C_{oss}										800		

Reverse Diode Static

Diode forward voltage	V_{SD}					137	25				1,0		V
-----------------------	----------	--	--	--	--	-----	----	--	--	--	-----	--	---

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ=3,4 W/mK									0,42		K/W
-------------------------------------	---------------	-------------------------------------	--	--	--	--	--	--	--	--	------	--	-----

NOTE: Driver pins for parallel devices are not connected inside the module!
 Gx-a to Gx-b shall be connected on customer PCB!
 Where x = 11 to 14



Vincotech

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V]	V_{CE} [V]	I_C [A]	T_i [°C]	Min	Typ	Max		
		V_{GS} [V]	V_{GS} [V]	I_D [A]	I_F [A]					
DC Link Capacitance										
Capacitance	C							200		nF
Tolerance							-10		+10	%
Thermistor										
Rated resistance	R					25		22		kΩ
Deviation of R100	$\Delta_{R/R}$	R100=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	

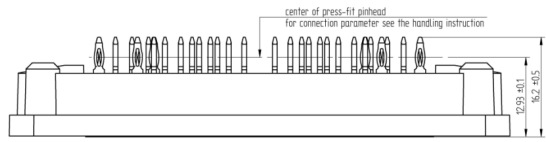
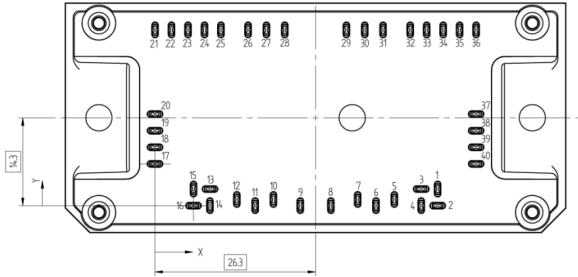


Vincotech

10-FY074PA020CR-L582F78
10-PY074PA020CR-L582F78Y
 target datasheet

Ordering Code & Marking																																				
Version				Ordering Code																																
without thermal paste with Solder pins 12mm housing				10-FY074PA020CR-L582F78																																
without thermal paste with Press-fit pins 12mm housing				10-PY074PA020CR-L582F78Y																																
<table border="1"> <tr> <td rowspan="2"> NN-NNNNNNNNNNNNNN TTTTIV WWYY UL Vinco LLLL SSSS </td> <td rowspan="2"> </td> <th colspan="2">Name</th> <th>Date code</th> <th>UL & Vinco</th> <th>Lot</th> <th>Serial</th> </tr> <tr> <td colspan="2">NN-NNNNNNNNNNNNNN-TTTTIV</td> <td>WWYY</td> <td>UL Vinco</td> <td>LLLL</td> <td>SSSS</td> </tr> <tr> <th colspan="2">Datamatrix</th> <th>Type&Ver</th> <th>Lot number</th> <th>Serial</th> <th>Date code</th> <td></td> <td></td> </tr> <tr> <td colspan="2"></td> <td>TTTTIV</td> <td>LLLL</td> <td>SSSS</td> <td>WWYY</td> <td></td> <td></td> </tr> </table>							NN-NNNNNNNNNNNNNN TTTTIV WWYY UL Vinco LLLL SSSS		Name		Date code	UL & Vinco	Lot	Serial	NN-NNNNNNNNNNNNNN-TTTTIV		WWYY	UL Vinco	LLLL	SSSS	Datamatrix		Type&Ver	Lot number	Serial	Date code					TTTTIV	LLLL	SSSS	WWYY		
NN-NNNNNNNNNNNNNN TTTTIV WWYY UL Vinco LLLL SSSS		Name		Date code	UL & Vinco	Lot			Serial																											
		NN-NNNNNNNNNNNNNN-TTTTIV		WWYY	UL Vinco	LLLL	SSSS																													
Datamatrix		Type&Ver	Lot number	Serial	Date code																															
		TTTTIV	LLLL	SSSS	WWYY																															

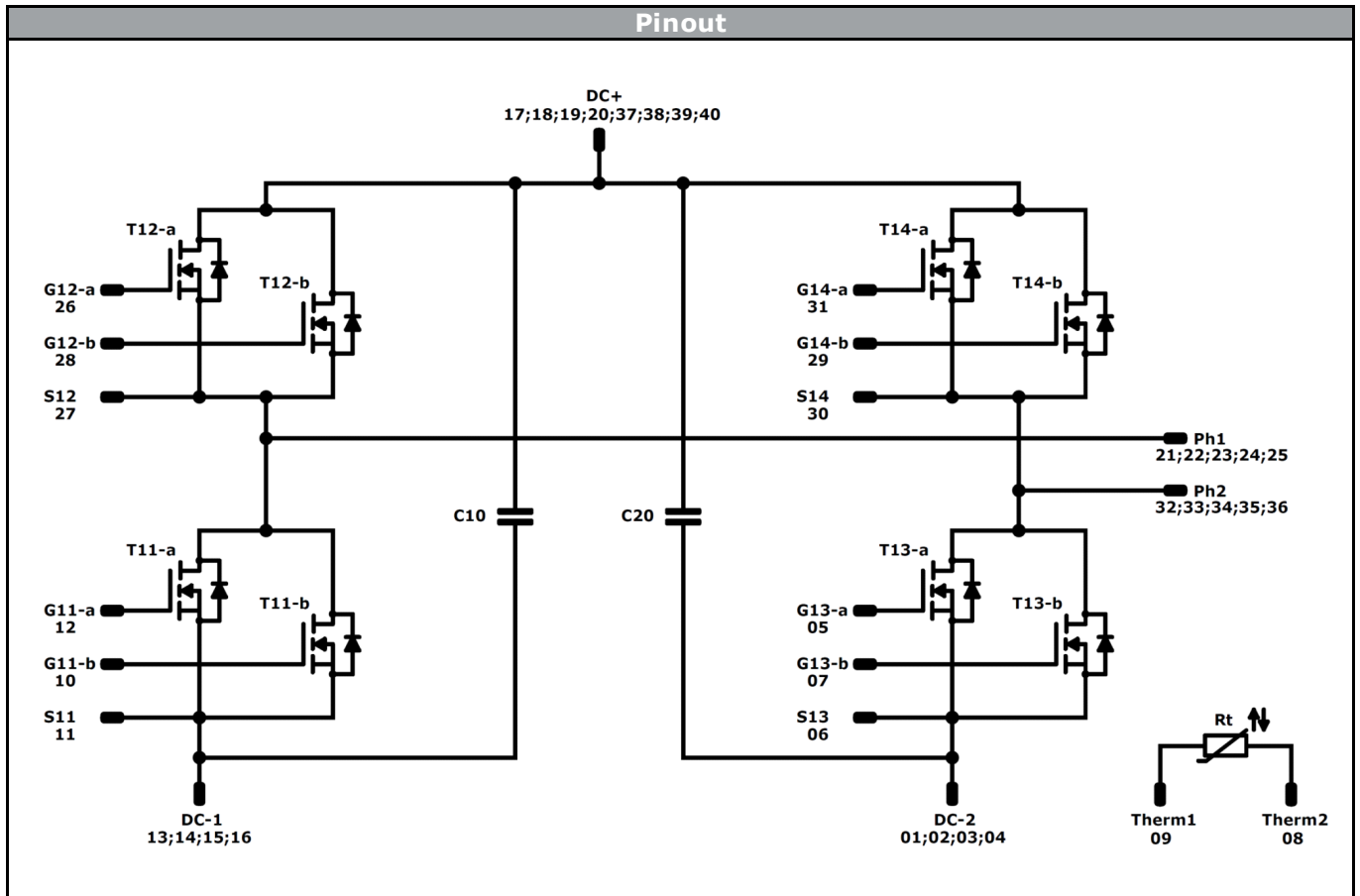
Outline							
Pin table [mm]				Pin table [mm]			
Pin	X	Y	Function	Pin	X	Y	Function
1	46,3	2,7	DC-2	28	21,25	28,6	G12-b
2	46,3	0	DC-2	29	31,35	28,6	G14-b
3	43,6	2,7	DC-2	30	34,35	28,6	S14
4	43,6	0	DC-2	31	37,35	28,6	G14-a
5	39,2	1	G13-a	32	41,8	28,6	Ph2
6	36,2	0	S13	33	44,5	28,6	Ph2
7	33,2	1	G13-b	34	47,2	28,6	Ph2
8	28,8	0	Therm2	35	49,9	28,6	Ph2
9	23,8	0	Therm1	36	52,6	28,6	Ph2
10	19,4	1	G11-b	37	52,6	14,9	DC+
11	16,4	0	S11	38	52,6	12,2	DC+
12	13,4	1	G11-a	39	52,6	9,5	DC+
13	9	2,7	DC-1	40	52,6	6,8	DC+
14	9	0	DC-1				
15	6,3	2,7	DC-1				
16	6,3	0	DC-1				
17	0	6,8	DC+				
18	0	9,5	DC+				
19	0	12,2	DC+				
20	0	14,9	DC+				
21	0	28,6	Ph1				
22	2,7	28,6	Ph1				
23	5,4	28,6	Ph1				
24	8,1	28,6	Ph1				
25	10,8	28,6	Ph1				
26	15,25	28,6	G12-a				
27	18,25	28,6	S12				

Tolerance of positions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



Vincotech



Identification					
ID	Component	Voltage	Current	Function	Comment
T11-T14	MOSFET	650 V	20 mΩ	H-Bridge Switch	
C10, C20	Capacitor	630 V	-	DC Link Capacitance	
Rt	NTC	-	-	Thermistor	



Vincotech

10-FY074PA020CR-L582F78
10-PY074PA020CR-L582F78Y
target datasheet

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

Handling instruction
Handling instructions for <i>flow</i> 1 packages see vincotech.com website.

Package data
Package data for <i>flow</i> 1 packages see vincotech.com website.

Document No.:	Date:	Modification:	Pages
10-xY074PA020CR-L582F78x-T1-14	19 Jan. 2016		

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.

DISCLAIMER

The information, specifications, procedures, methods and recommendations herein (together "information") are presented by Vincotech to reader in good faith, are believed to be accurate and reliable, but may well be incomplete and/or not applicable to all conditions or situations that may exist or occur. Vincotech reserves the right to make any changes without further notice to any products to improve reliability, function or design. No representation, guarantee or warranty is made to reader as to the accuracy, reliability or completeness of said information or that the application or use of any of the same will avoid hazards, accidents, losses, damages or injury of any kind to persons or property or that the same will not infringe third parties rights or give desired results. It is reader's sole responsibility to test and determine the suitability of the information and the product for reader's intended use.

LIFE SUPPORT POLICY

Vincotech products are not authorised for use as critical components in life support devices or systems without the express written approval of Vincotech.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in labelling can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.