Vincotech

10-FY074PA040CR-L581F78
10-PY074PA040CR-L581F78Y
target datasheet

fastPACK 1 H **650 V / 40 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

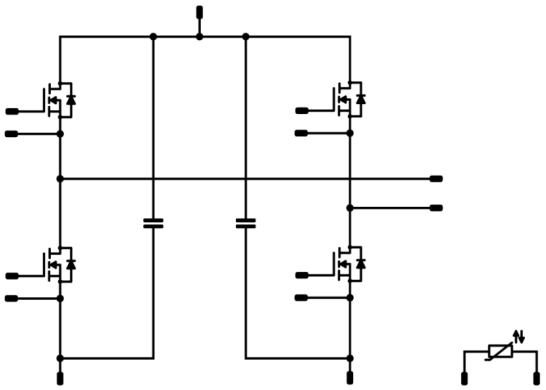
- 10-FY074PA040CR-L581F78
- 10-PY074PA040CR-L581F78Y

flow 1 12mm housing

Press-fit pins

Solder pins

Schematic



Maximum Ratings

T_j = 25 °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 °C	37	A
Peak drain current	I_{DM}	t_p limited by T_{jmax}	255	A
Avalanche energy, single pulse	E_{AS}	I_D = 13,7 A V_{DD} = 50 V	2185	mJ
Avalanche energy, repetitive	E_{AR}	I_D = 13,7 A V_{DD} = 50 V	3,31	mJ
Avalanche current, repetitive	I_{AR}	t_p limited by T_{jmax} PAV=EAR*f	13,7	A
MOSFET dv/dt ruggedness	dv/dt	V_{DS} = 0/400 V	50	V/ns
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	132	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_{GS} [V]	V_{CE} [V] V_{GS} [V] V_r [V]	I_C [A] I_D [A] I_F [A]	T_j[°C]	Min	Typ	Max	
H-Bridge Switch										
Static										
Drain-source on-state resistance	$r_{DS(on)}$		10		33,1	25 125 150		41 80	44	mΩ
Gate-source threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}$			0,0033	25 125	3,5	4	4,5	V
Gate to Source Leakage Current	I_{GSS}		20	0		25 125			100	nA
Zero Gate Voltage Drain Current	I_{DSS}		0	650		25 125			3,5	µA
Internal gate resistance	r_g							0,7		Ω
Gate charge	Q_g		0/10	480	49,6	25		300		nC
Gate to source charge	Q_{GS}							54		
Gate to drain charge	Q_{GD}							165		
Short-circuit input capacitance	C_{iss}	f=1MHz	0	100		25		8400		pF
Short-circuit output capacitance	C_{oss}							400		
Reverse transfer capacitance	C_{rss}							20		
Reverse Diode Static										
Reverse Diode forward voltage	V_{SD}		0		68,5	25		1		V
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ=3,4 W/mK						0,53		K/W

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{GS} [V] V_r [V]	I_C [A] I_D [A] I_F [A]	T_j[°C]	Min	Typ	Max	
DC Link Capacitance										
Capacitance	C							100		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

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target datasheet

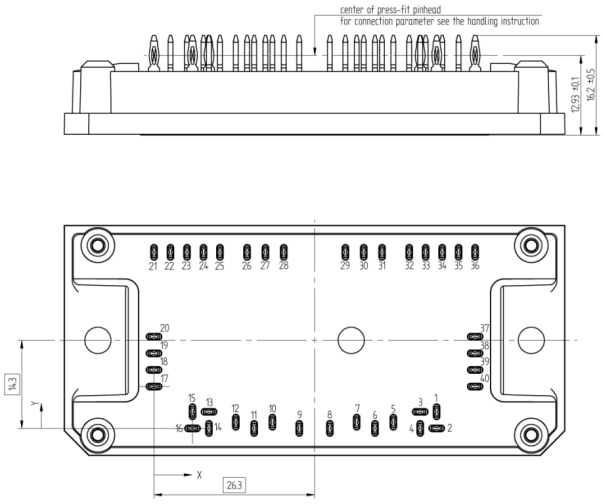
Ordering Code & Marking

Version	Ordering Code
without thermal paste with Solder pins 12mm housing	10-FY074PA040CR-L581F78
without thermal paste with Press-fit pins 12mm housing	10-PY074PA040CR-L581F78Y

		Name		Date code	UL & Vinco	Lot	Serial
Text		NN-NNNNNNNNNNNNN-TTTTTTW		WWYY	UL Vinco	LLLLL	SSSS
		Type&Ver	**Lot number**	**Serial**	**Date code**		
Datamatrix		TTTTTTTVV	LLLLL	SSSS	WWYY		

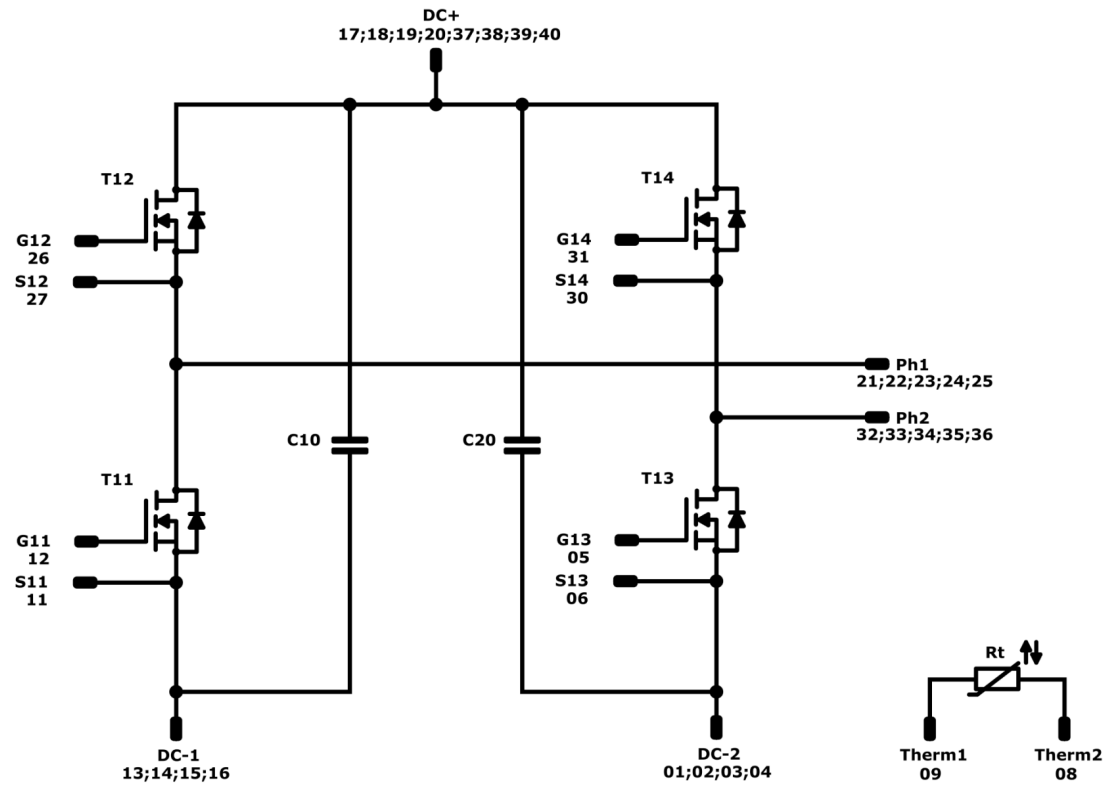
Outline

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	NC
2	46,3	0	DC-2	29	31,35	28,6	NC
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
5	39,2	1	G13	32	41,8	28,6	Ph2
6	36,2	0	S13	33	44,5	28,6	Ph2
7	33,2	1	NC	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	NC	37	52,6	14,9	DC+
11	16,4	0	S11	38	52,6	12,2	DC+
12	13,4	1	G11	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				
27	18,25	28,6	S12				



Tolerance of pinpositions ±0,5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance

Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11-T14	MOSFET	650 V	40 mΩ	H-Bridge Switch	
C10, C20	Capacitor	630 V	-	DC Link Capacitance	
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.

Document No.:	Date:	Modification:	Pages
10-xY074PA040CR-L581F78x-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.