



**flowPACK 1 SiC**

**650 V / 70 A**

**Topology features**

- Temperature sensor
- Three-phase Rectifier

**Component features**

- Designed for high switching frequency
- Low forward voltage drop
- Low reverse recovery time and recovery charge

**Housing features**

- Base isolation: Al<sub>2</sub>O<sub>3</sub>
- Convex shaped substrate for superior thermal contact
- Thermo-mechanical push-and-pull force relief
- Solder pin

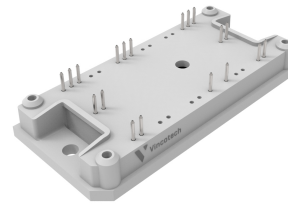
**Target applications**

- Elevator Drives
- Servo Drives
- Special Application

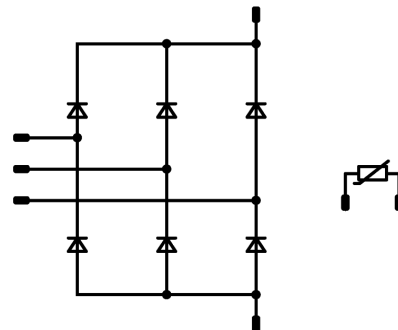
**Types**

- 10-FY076RA070VH-L824J58

**flow 1 12 mm housing**



**Schematic**





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10-FY076RA070VH-L824J58  
datasheet

## Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
<b>Rectifier Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		650	V
Forward current (DC current)	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	63	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	86	W
Maximum junction temperature	$T_{jmax}$		175	°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* $t_p = 2\text{ s}$	6000	V
Isolation voltage	$V_{isol}$	AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance			>12,7	mm
Clearance			7,81	mm
Comparative Tracking Index	CTI		≥ 600	

\*100 % tested in production



### Characteristic Values

Parameter	Symbol	Conditions						Values			Unit
		$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max			

#### Rectifier Diode

##### Static

Parameter	Symbol	Conditions	$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Forward voltage	$V_F$				70	25 125 150		1,79 1,52 1,48	2,5 <sup>(1)</sup>	V
Reverse leakage current	$I_R$	$V_T = 650$ V				25			15	μA

##### Thermal

Parameter	Symbol	Conditions	$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Thermal resistance junction to sink <sup>(2)</sup>	$R_{th(j-s)}$	$\lambda_{paste} = 3,4$ W/mK (PSX)						1,11		K/W

#### Thermistor

##### Static

Parameter	Symbol	Conditions	$V_{GE}$ [V]	$V_{CE}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Rated resistance	$R$					25		22		kΩ
Deviation of R100	$\Delta_{R/R}$	$R_{100} = 1484$ Ω				100	-5		5	%
Power dissipation	$P$					25		130		mW
Power dissipation constant	$d$					25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %						3962		K
B-value	$B_{(25/100)}$	Tol. ±1 %						4000		K
Vincotech Thermistor Reference									I	

<sup>(1)</sup> Value at chip level

<sup>(2)</sup> Only valid with pre-applied Vincotech thermal interface material.



## Rectifier Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

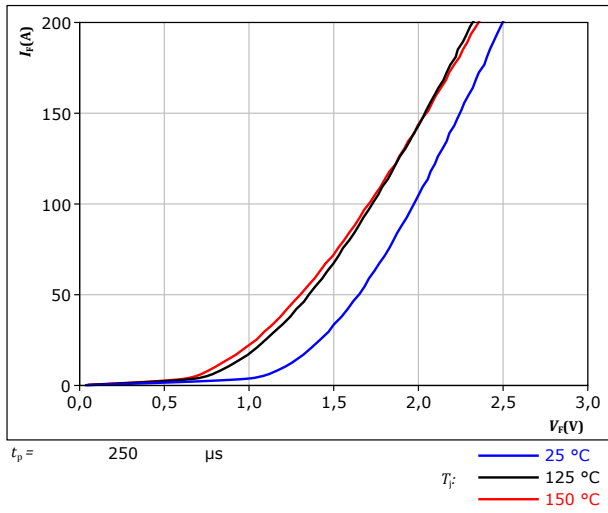
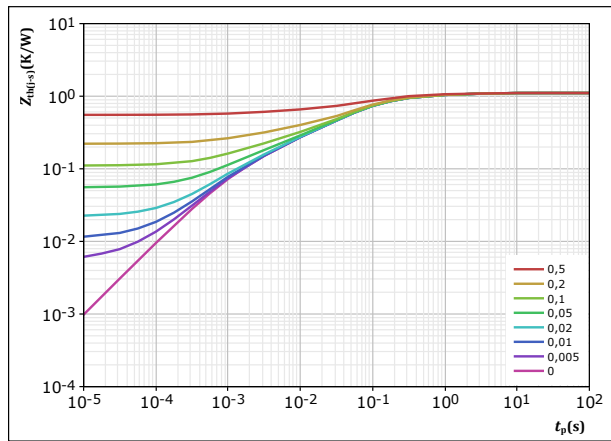


figure 2. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = \frac{t_p}{T}$   
 $R_{th(j-s)} = 1,107 \text{ K/W}$   
 FWD thermal model values

$R$ (K/W)	$\tau$ (s)
8,97E-02	2,23E+00
2,36E-01	2,84E-01
5,62E-01	6,41E-02
1,48E-01	6,95E-03
6,99E-02	1,04E-03

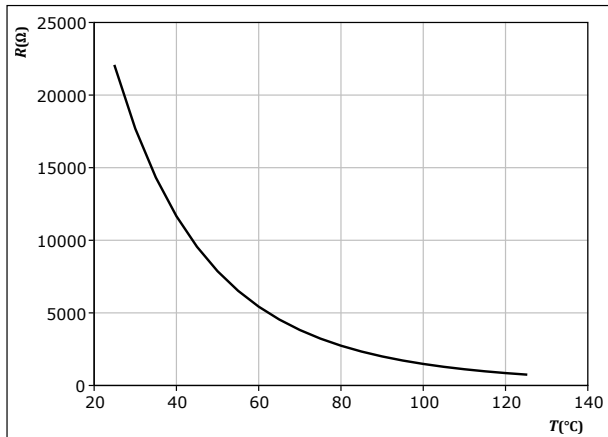


## Thermistor Characteristics

figure 3. Thermistor

Typical NTC characteristic as function of temperature

$$R_T = f(T)$$





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**10-FY076RA070VH-L824J58**  
datasheet

Ordering Code	
<b>Version</b>	<b>Ordering Code</b>
Without thermal paste	10-FY076RA070VH-L824J58
With thermal paste (5,2 W/mK, PTM6000HV)	10-FY076RA070VH-L824J58-/-7/
With thermal paste (3,4 W/mK, PSX-P7)	10-FY076RA070VH-L824J58-/-3/

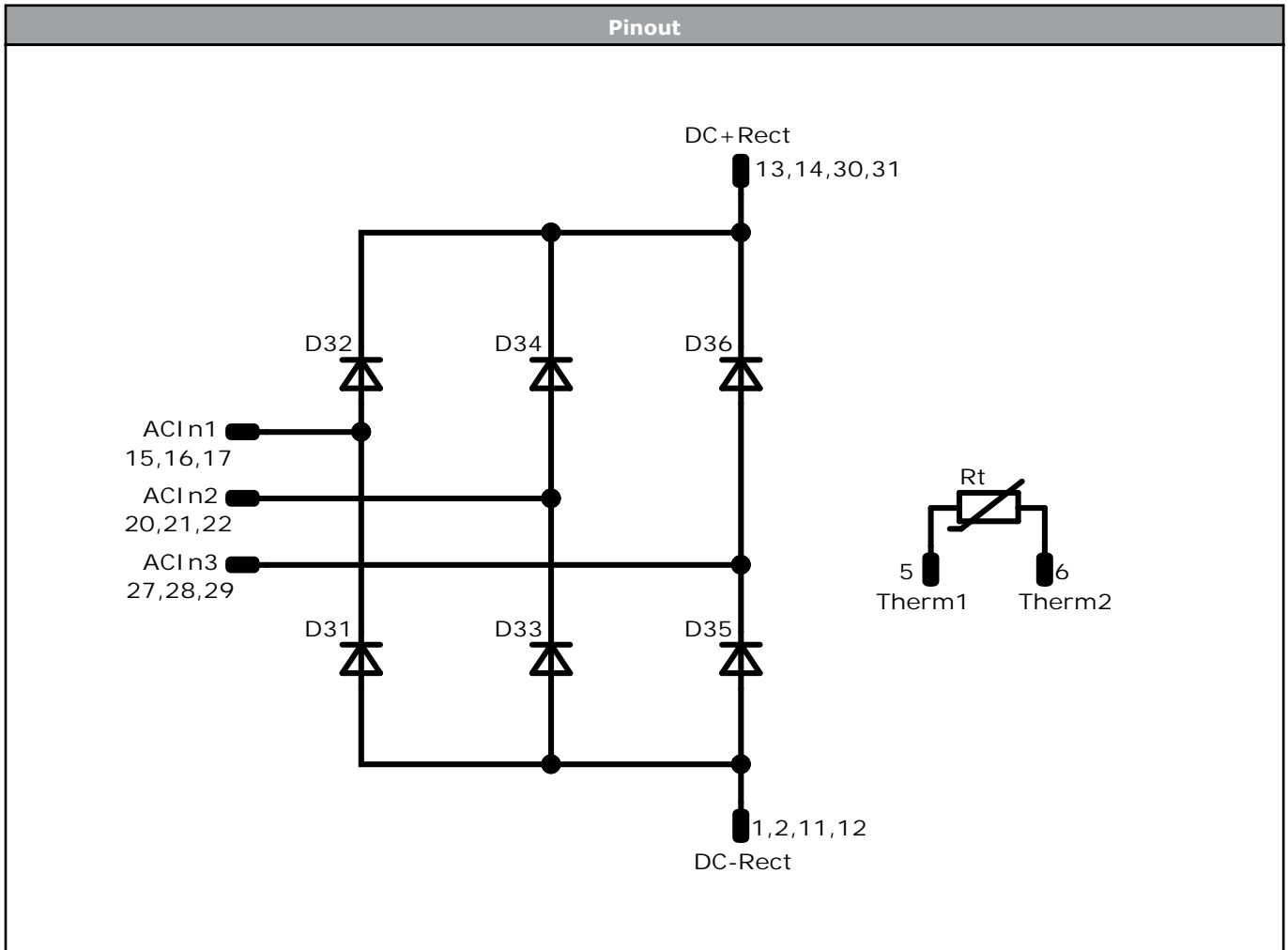
Marking						
	<b>Text</b>	<b>Name</b>	<b>Date code</b>	<b>UL &amp; VIN</b>	<b>Lot</b>	<b>Serial</b>
		NN-NNNNNNNNNNNNNNNN- TTTTIVV	WWYY	UL VIN	LLLLL	SSSS
	<b>Datamatrix</b>	<b>Type&amp;Ver</b>	<b>Lot number</b>	<b>Serial</b>	<b>Date code</b>	
	TTTTTIVV	LLLLL	SSSS	WWYY		

Outline			
Pin table [mm]			
Pin	X	Y	Function
1	52,6	0	DC-Rect
2	49,9	0	DC-Rect
3	not assembled		
4	not assembled		
5	35,15	0	Therm1
6	28,4	0	Therm2
7	not assembled		
8	not assembled		
9	not assembled		
10	not assembled		
11	2,7	0	DC-Rect
12	0	0	DC-Rect
13	0	14,65	DC+Rect
14	2,7	14,65	DC+Rect
15	0	28,6	ACIn1
16	2,7	28,6	ACIn1
17	5,4	28,6	ACIn1
18	not assembled		
19	not assembled		
20	19,6	28,6	ACIn2
21	22,3	28,6	ACIn2
22	25	28,6	ACIn2
23	not assembled		
24	not assembled		
25	not assembled		
26	not assembled		
27	47,2	28,6	ACIn3
28	49,9	28,6	ACIn3
29	52,6	28,6	ACIn3
30	52,6	14,65	DC+Rect
31	49,9	14,65	DC+Rect

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



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Identification					
ID	Component	Voltage	Current	Function	Comment
D31, D32, D33, D34, D35, D36	FWD	650 V	70 A	Rectifier Diode	
Rt	Thermistor			Thermistor	




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

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

Package data
Package data for <i>flow 1</i> 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 certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
10-FY076RA070VH-L824J58-D1-14	3 Jul. 2023		

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