Vincotech

V23990-P719-G51-PM

target datasheet

flow90CON 1 — **1200V/100A**

Features

- 3~ phase input rectifier with BRC
- Compatible with flow 90PACK 1
- Support designs with 90° mounting angle between heatsink and PCB
- Clip-in PCB mounting

flow 90 housing

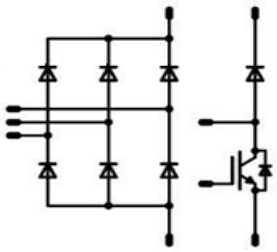
Target Applications

- Motor drives
- Servo drives

Types

- V23990-P719-G51-PM

Schematic



Maximum Ratings

T_j=25℃, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Input Rectifier Diode					
Repetitive peak reverse voltage	V_{RRM}			1600	V
DC forward current	I_{FAV}	T_j=$T_j$max	T_h=80℃ T_c=80℃	66 90	A
Surge forward current	I_{FSM}	t_p=10ms	T_j=25℃	900	A
I2t-value	I^2t			4050	A^2s
Power dissipation per Diode	P_{tot}	T_j=$T_j$max	T_h=80℃ T_c=80℃	72 110	W
Maximum Junction Temperature	$T_j$max			150	℃
Brake Transistor					
Collector-emitter break down voltage	V_{CE}			1200	V
DC collector current	I_C	T_j=$T_j$max	T_h=80℃ T_c=80℃	53 67	A
Repetitive peak collector current	I_{Cpuls}	t_p limited by $T_j$max		150	A
Turn off safe operating area		VCE ≤ 1200V, Tj ≤ Top max		100	A
Power dissipation per IGBT	P_{tot}	T_j=$T_j$max	T_h=80℃ T_c=80℃	132 200	W
Gate-emitter peak voltage	V_{GE}			±20	V
Short circuit ratings	t_{SC} V_{CC}	T_j≤150℃ V_{GE}=15V		10 800	µs V
Maximum Junction Temperature	$T_j$max			175	℃

Maximum Ratings

T_j=25℃, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Brake Inverse Diode					
Peak Repetitive Reverse Voltage	V_{RRM}	T_c=25℃		1200	V
DC forward current	I_F	T_j=$T_j$max	T_h=80℃ T_c=80℃	7 10	A
Repetitive peak forward current	I_{FRM}	t_p limited by $T_j$max		6	A
Brake Inverse Diode	P_{tot}	T_j=$T_j$max	T_h=80℃ T_c=80℃	18 28	W
Maximum Junction Temperature	$T_j$max			150	℃
Brake Diode					
Peak Repetitive Reverse Voltage	V_{RRM}	T_j=25℃		1200	V
DC forward current	I_F	T_j=$T_j$max	T_h=80℃ T_c=80℃	18 24	A
Repetitive peak forward current	I_{FRM}	t_p limited by $T_j$max		30	A
Power dissipation per Diode	P_{tot}	T_j=$T_j$max	T_h=80℃ T_c=80℃	35 50	W
Maximum Junction Temperature	$T_j$max			150	℃
Thermal Properties					
Storage temperature	T_{stg}			-40…+125	℃
Operation temperature under switching condition	T_{op}			-40…+(Tjmax - 25)	℃
Insulation Properties					
Insulation voltage	V_{is}	t=2s	DC voltage	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] or V_{GS} [V]	V_r [V] or V_{CE} [V] or V_{DS} [V]	I_C [A] or I_F [A] or I_D [A]	T_j	Min	Typ	Max	
Input Rectifier Diode										
Forward voltage	V_F				76	Tj=25℃ Tj=125℃	0,8	1,19 1,16	1,7	V
Threshold voltage (for power loss calc. only)	V_{to}				76	Tj=25℃ Tj=125℃		0,91 0,78		V
Slope resistance (for power loss calc. only)	r_t				76	Tj=25℃ Tj=125℃		0,00 0,01		mΩ
Reverse current	I_r			1500		Tj=25℃ Tj=125℃			0,05	mA
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						0,97		K/W
Thermal resistance chip to heatsink per chip	R_{thJC}							0,64		
Brake Transistor										
Gate emitter threshold voltage	$V_{GE(th)}$	$V_{CE}=V_{GE}$			0,0017	Tj=25℃ Tj=150℃	5	5,8	6,5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		15		50	Tj=25℃ Tj=150℃	1,6	1,94 2,40	2,1	V
Collector-emitter cut-off incl diode	I_{CES}		0	1200		Tj=25℃ Tj=150℃			0,0048	mA
Gate-emitter leakage current	I_{GES}		20	0		Tj=25℃ Tj=150℃			240	nA
Integrated Gate resistor	R_{gint}							none		Ω
Turn-on delay time	$t_{d(on)}$	Rgoff=X Ω Rgon=X Ω	±15	600	100	Tj=25℃ Tj=150℃		tbd. tbd.		ns
Rise time	t_r					Tj=25℃ Tj=150℃		tbd. tbd.		
Turn-off delay time	$t_{d(off)}$					Tj=25℃ Tj=150℃		tbd. tbd.		
Fall time	t_f					Tj=25℃ Tj=150℃		tbd. tbd.		
Turn-on energy loss per pulse	E_{on}					Tj=25℃ Tj=150℃		tbd. tbd.		mWs
Turn-off energy loss per pulse	E_{off}					Tj=25℃ Tj=150℃		tbd. tbd.		
Input capacitance	C_{ies}	f=1MHz	0	25		Tj=25℃		2860		pF
Output capacitance	C_{oss}							230		
Reverse transfer capacitance	C_{rss}							170		
Gate charge	Q_{Gate}					Tj=25℃		400		nC
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						0,72		K/W
Thermal resistance chip to case per chip	R_{thJC}							0,48		
Brake Inverse Diode										
Diode forward voltage	V_F				10	Tj=25℃ Tj=125℃	1	1,88 1,79	2,35	V
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						3,86		K/W
Thermal resistance chip to case per chip	R_{thJC}							2,54		
Brake Diode										
Diode forward voltage	V_F				15	Tj=25℃ Tj=125℃	1	1,75 1,69	2,4	V
Reverse leakage current	I_r	Rgon=X Ω		1200		Tj=25℃ Tj=125℃			250	µA
Peak reverse recovery current	I_{RRM}	Rgon=X Ω Rgon=X Ω	±15	300	100	Tj=25℃ Tj=125℃		tbd. tbd.		A
Reverse recovery time	t_{rr}					Tj=25℃ Tj=125℃		tbd. tbd.		ns
Reverse recovered charge	Q_{rr}					Tj=25℃ Tj=125℃		tbd. tbd.		µC
Peak rate of fall of recovery current	di(rec)max /dt					Tj=25℃ Tj=125℃		tbd. tbd.		A/µs
Reverse recovery energy	E_{rec}					Tj=25℃ Tj=125℃		tbd. tbd.		mWs
Thermal resistance chip to heatsink per chip	R_{thJH}	Thermal grease thickness≤50um λ = 1 W/mK						2,11		K/W
Thermal resistance chip to case per chip	R_{thJC}							1,39		

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] or V_{GS} [V]	V_r [V] or V_{CE} [V] or V_{DS} [V]	I_C [A] or I_F [A] or I_D [A]	T_j	Min	Typ	Max	
Thermistor										
Rated resistance	R					T=25℃		21511		Ω
Deviation of R100	ΔR/R	R100=1486 Ω				T=100℃	-4,5		+4,5	%
Power dissipation	P					T=25℃		210		mW
Power dissipation constant						T=25℃		3,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1%				T=25℃		3884		K
B-value	$B_{(25/100)}$	Tol. ±1%				T=25℃		3964		K
Vincotech NTC Reference									F	

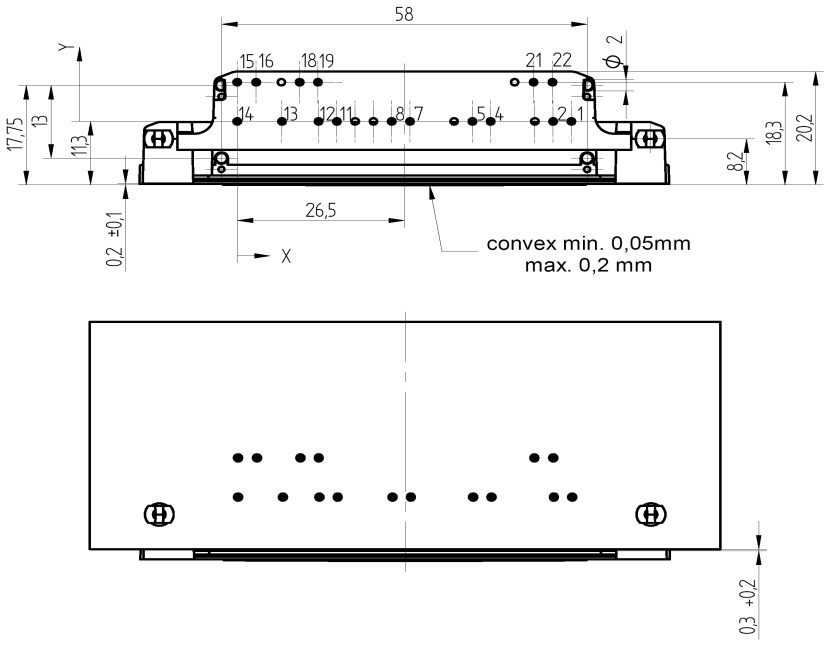
Ordering Code and Marking - Outline - Pinout

Ordering Code & Marking

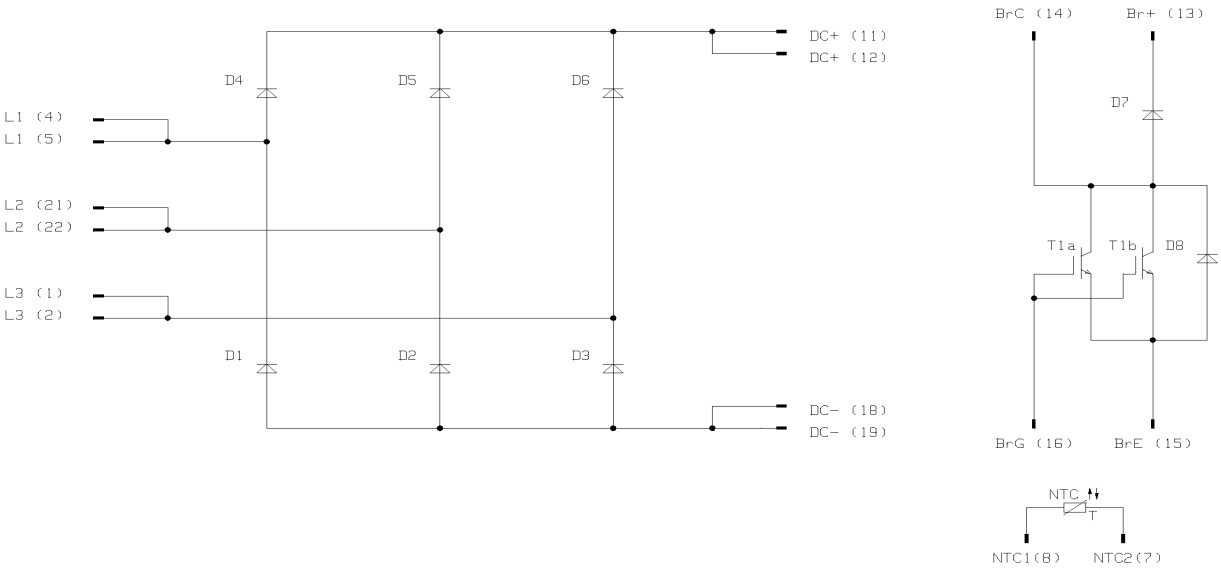
Version	Ordering Code	in DataMatrix as	in packaging barcode as
without thermal paste flow 90 housing	V23990-P719-G51-PM	P719-G51	P719-G51

Outline

Pin Table		
Pin	X	Y
1	53	0
2	50,1	0
4	40,2	0
5	37,3	0
7	27,4	0
8	24,5	0
11	15,8	0
12	12,9	0
13	7,1	0
14	0	0
15	0	7
16	3	7
18	9,9	7
19	12,8	7
21	47	7
22	50	7



Pinout



PRODUCT STATUS DEFINITIONS

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.

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