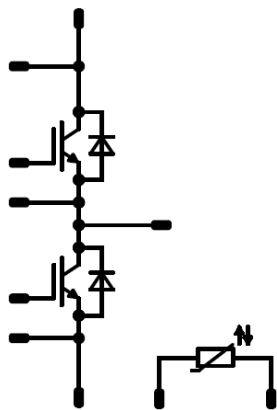




Vincotech

A0-VS122PA450M7-L758F70
A0-VP122PA450M7-L758F70T
target datasheet

VINcoDUAL E3		1200 V / 450 A
Features	VINco E3 	
• Low V_{CEsat} with the new 7th gen Mitsubishi chip generation • Max Junction Temperature T_{vjmax} 175°C • Solid cover technology for higher reliability • Industry standard housing • Press-fit pin and pre-applied Phase Change Thermal Interface Material available	Schematic 	
Target applications		
• Industrial Drives • Power Supply • UPS		
Types		
• A0-VS122PA450M7-L758F70 • A0-VP122PA450M7-L758F70T		

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Half Bridge Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	477	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	900	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	913	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C



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Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Half Bridge Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	408	A
Repetitive peak forward current	I_{FRM}		900	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	633	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 $t_p = 2\text{ s}$	4000	V
Creepage distance			18,1	mm
Clearance			16,2	mm
Comparative Tracking Index	CTI		> 200	



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Characteristic Values

Parameter	Symbol	Conditions					Value			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	

Half Bridge Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,045	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		450	25 125 150		1,55 1,75 1,80	2,05	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			480	μA
Gate-emitter leakage current	I_{GES}		10	0		25			1500	nA
Internal gate resistance	r_g							1		Ω
Input capacitance	C_{ies}	0	10		25			9000		pF
Output capacitance	C_{oes}							2640		
Reverse transfer capacitance	C_{res}							960		
Gate charge	Q_g		15	600	450	25		3000		nC

Thermal

Thermal resistance junction to case	$R_{th(j-c)}$							0,064		K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,040		K/W

Half Bridge Diode

Static

Forward voltage	V_F				450	25 125		1,60 1,65	2,1	V
Reverse leakage current	I_R			1200		25			270	μA

Thermal

Thermal resistance junction to case	$R_{th(j-c)}$							0,103		K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material $\lambda = 3,4$ W/mK						0,047		K/W



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Characteristic Values

Parameter	Symbol	Conditions					Value			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

Rated resistance	R					25		5		kΩ
Deviation of R_{100}	$\Delta_{R/R}$	$R_{100} = 493 \Omega$				100	-5		+5	%
Power dissipation	P					25		245		mW
Power dissipation constant						25		1,4		mW/K
B-value	$B_{(25/50)}$	Tol. ± 2 %				25		3375		K
B-value	$B_{(25/100)}$	Tol. ± 2 %				25		3437		K
Vincotech NTC Reference									K	



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Ordering Code & Marking									
Version			Ordering Code						
without thermal paste with solder pins			A0-VS122PA450M7-L758F70						
with thermal paste with solder pins			A0-VS122PA450M7-L758F70-/3/						
without thermal paste with Press-fit pins			A0-VP122PA450M7-L758F70T						
with thermal paste with Press-fit pins			A0-VP122PA450M7-L758F70T-/3/						
NN-NNNNNNNNNN-TTTTTTW VIN WWYY LLLL SSSS 			Text		Name	ViIN	Date code	Lot	Serial
					NN-NNNNNNNNNN-TTTTTTW	VIN	WWYY	LLLL	SSSS
			Datamatrix	Type&Ver	Lot number	Serial	Date code		
				TTTTTTTW	LLLL	SSSS	WWYY		

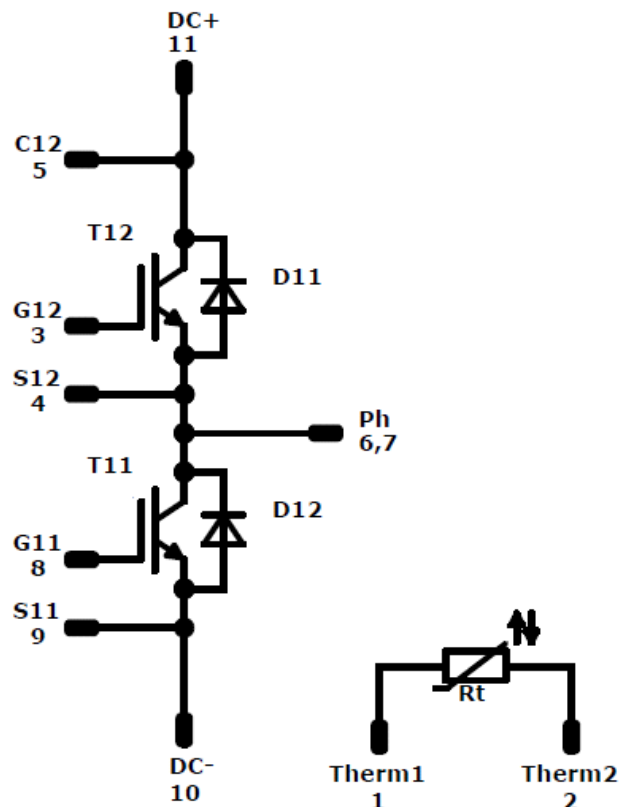
Outline																																																			
Pin table [mm] <table> <tr> <th>Pin</th><th>X</th><th>Y</th><th>Function</th></tr> <tr> <td>1</td><td>7,24</td><td>-0,45</td><td>Therm1</td></tr> <tr> <td>2</td><td>11,06</td><td>-0,45</td><td>Therm2</td></tr> <tr> <td>3</td><td>60,58</td><td>-0,45</td><td>G12</td></tr> <tr> <td>4</td><td>64,4</td><td>-0,45</td><td>S12</td></tr> <tr> <td>5</td><td>87,26</td><td>-0,45</td><td>C12</td></tr> <tr> <td>6</td><td>-</td><td>-</td><td>Ph</td></tr> <tr> <td>7</td><td>-</td><td>-</td><td>Ph</td></tr> <tr> <td>8</td><td>37,72</td><td>57,95</td><td>G11</td></tr> <tr> <td>9</td><td>33,92</td><td>57,95</td><td>S11</td></tr> <tr> <td>10</td><td>-</td><td>-</td><td>DC-</td></tr> <tr> <td>11</td><td>-</td><td>-</td><td>DC+</td></tr> </table>				Pin	X	Y	Function	1	7,24	-0,45	Therm1	2	11,06	-0,45	Therm2	3	60,58	-0,45	G12	4	64,4	-0,45	S12	5	87,26	-0,45	C12	6	-	-	Ph	7	-	-	Ph	8	37,72	57,95	G11	9	33,92	57,95	S11	10	-	-	DC-	11	-	-	DC+
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 target datasheet

Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11,T12	IGBT	1200 V	450 A	Half Bridge Switch	
D11,D12	FWD	1200 V	450 A	Half Bridge Diode	
Rt	NTC			Thermistor	



Vincotech

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Packaging instruction			
Standard packaging quantity (SPQ)	24	>SPQ Standard	<SPQ Sample

Document No.:	Date:	Modification:	Pages
A0-Vx122PA450M7-L758F70x-T1-14	27 Apr. 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.

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