
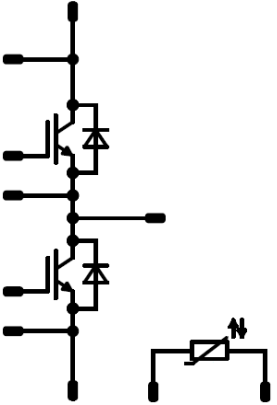




Vincotech

**A0-VS122PA300M7-L757F70**  
**A0-VP122PA300M7-L757F70T**  
 target datasheet

VINcoDUAL E3	1200 V / 300 A
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><b>Features</b></p> <ul style="list-style-type: none"> <li>Low <math>V_{CEsat}</math> with the new 7<sup>th</sup> gen Mitsubishi chip generation</li> <li>Max Junction Temperature <math>T_{vjmax}</math> 175°C</li> <li>Solid cover technology for higher reliability</li> <li>Industry standard housing</li> <li>Press-fit pin and pre-applied Phase Change Thermal Interface Material available</li> </ul> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><b>Target applications</b></p> <ul style="list-style-type: none"> <li>Industrial Drives</li> <li>Power Supply</li> <li>UPS</li> </ul> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><b>Types</b></p> <ul style="list-style-type: none"> <li>A0-VS122PA300M7-L757F70</li> <li>A0-VP122PA300M7-L757F70T</li> </ul> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; margin: 0;"><b>VINco E3</b></p>  </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><b>Schematic</b></p>  </div>

## Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>Half Bridge Switch</b>				
Collector-emitter voltage	$V_{CES}$		1200	V
Collector current	$I_c$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	323	A
Repetitive peak collector current	$I_{CRM}$	$t_p$ limited by $T_{jmax}$	600	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	621	W
Gate-emitter voltage	$V_{GES}$		±20	V
Maximum junction temperature	$T_{jmax}$		175	°C



### Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
<b>Half Bridge Diode</b>				
Peak repetitive reverse voltage	$V_{RRM}$		1200	V
Continuous (direct) forward current	$I_F$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	274	A
Repetitive peak forward current	$I_{FRM}$		600	A
Total power dissipation	$P_{tot}$	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	432	W
Maximum junction temperature	$T_{jmax}$		175	°C

### Module Properties

#### Thermal Properties

Storage temperature	$T_{stg}$		-40...+125	°C
Operation temperature under switching condition	$T_{top}$		-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
		$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	

### Half Bridge Switch

#### Static

Parameter	Symbol	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$		$V_{GE} = V_{CE}$			25	5,4	6	6,6	V
Collector-emitter saturation voltage	$V_{CEsat}$	15			300	25 125 150		1,55 1,75 1,80	2,05	V
Collector-emitter cut-off current	$I_{CES}$	0		1200		25			320	μA
Gate-emitter leakage current	$I_{GES}$	10		0		25			1000	nA
Internal gate resistance	$r_g$							1,5		Ω
Input capacitance	$C_{ies}$							6000		pF
Output capacitance	$C_{oes}$	0		10		25		1760		
Reverse transfer capacitance	$C_{res}$							640		
Gate charge	$Q_g$	15		600	300	25		2000		nC

#### Thermal

Parameter	Symbol	Material	λ [W/mK]	Unit
Thermal resistance junction to case	$R_{th(j-c)}$			0,094 K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material	λ = 3,4 W/mK	0,059 K/W

### Half Bridge Diode

#### Static

Parameter	Symbol	$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_C$ [A]	$T_j$ [°C]	Min	Typ	Max	Unit
Forward voltage	$V_F$				300	25 125		1,60 1,65	2,1	V
Reverse leakage current	$I_R$			1200		25			180	μA

#### Thermal

Parameter	Symbol	Material	λ [W/mK]	Unit
Thermal resistance junction to case	$R_{th(j-c)}$			0,151 K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material	λ = 3,4 W/mK	0,069 K/W



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## Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
		$V_{GS}$ [V]	$V_{GE}$ [V]	$V_{DS}$ [V]	$I_D$ [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. $\pm 2 \%$				25		3375		K
B-value	$B_{(25/100)}$	Tol. $\pm 2 \%$				25		3437		K
Vincotech NTC Reference									K	



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Ordering Code & Marking								
Version			Ordering Code					
without thermal paste with solder pins			A0-VS122PA300M7-L757F70					
with thermal paste with solder pins			A0-VS122PA300M7-L757F70- /3/					
without thermal paste with Press-fit pins			A0-VP122PA300M7-L757F70T					
with thermal paste with Press-fit pins			A0-VP122PA300M7-L757F70T- /3/					
NN-NNNNNNNNNN-TTTTTTVV VIN WWYY LLLLL SSSS			<b>Text</b>	<b>Name</b>	<b>VIN</b>	<b>Date code</b>	<b>Lot</b>	<b>Serial</b>
			<b>Datamatrix</b>	<b>Type&amp;Ver</b>	<b>Lot number</b>	<b>Serial</b>	<b>Date code</b>	
				NN-NNNNNNNNNN-TTTTTTVV	VIN	WWYY	LLLLL	SSSS
				TTTTTTTVV	LLLLL	SSSS	WWYY	

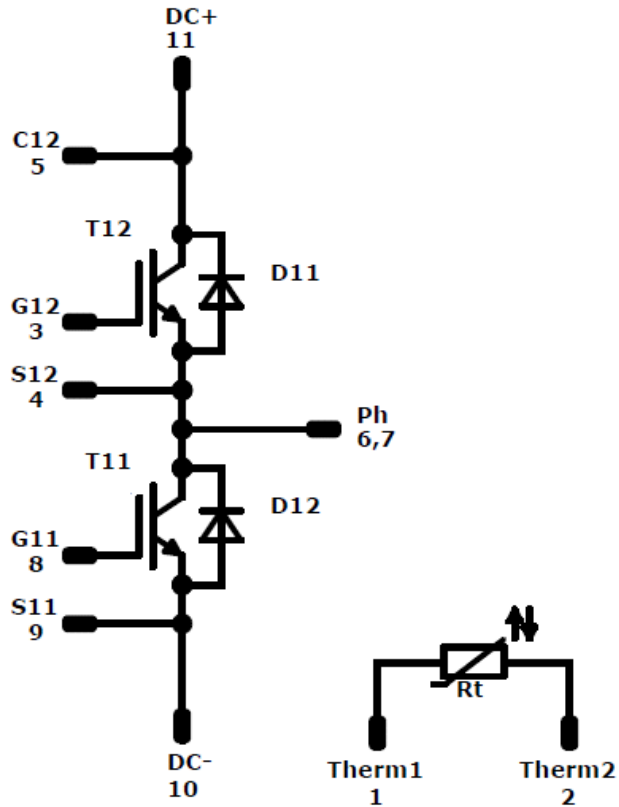
Pin table [mm]			
Pin	X	Y	Function
1	7,24	-0,45	Therm1
2	11,06	-0,45	Therm2
3	60,58	-0,45	G12
4	64,4	-0,45	S12
5	87,26	-0,45	C12
6	-	-	Ph
7	-	-	Ph
8	37,72	57,95	G11
9	33,92	57,95	S11
10	-	-	DC-
11	-	-	DC+



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**Pinout**



**Identification**

ID	Component	Voltage	Current	Function	Comment
T11,T12	IGBT	1200 V	300 A	Half Bridge Switch	
D11,D12	FWD	1200 V	300 A	Half Bridge Diode	
Rt	NTC			Thermistor	



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

Document No.:	Date:	Modification:	Pages
A0-Vx122PA300M7-L757F70x-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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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.