
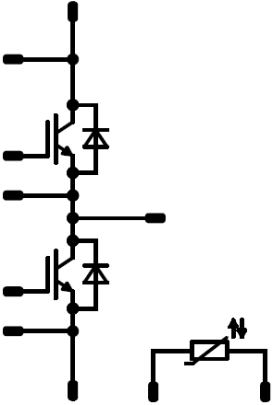




Vincotech

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; background-color: #cccccc; margin: 0;">Features</p> <ul style="list-style-type: none"> 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 </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Target applications</p> <ul style="list-style-type: none"> Industrial Drives Power Supply UPS </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Types</p> <ul style="list-style-type: none"> A0-VS122PA300M7-L757F70 A0-VP122PA300M7-L757F70T </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">VINco E3</p>  </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; background-color: #cccccc; margin: 0;">Schematic</p>  </div>

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Half Bridge Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_c	$T_j = T_{jmax}$ $T_s = 80\text{ }^\circ\text{C}$	323	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	600	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ }^\circ\text{C}$	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
Half Bridge Diode				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	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] I_D [A]	T_j [°C]	Min	Typ	Max	

Half Bridge Switch

Static

Parameter	Symbol	Conditions	V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	I_C [A] I_D [A]	T_j [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$				0,03	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	Conditions	V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	I_C [A] I_D [A]	T_j [°C]	Min	Typ	Max	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 $\lambda = 3,4$ W/mK							0,059		K/W

Half Bridge Diode

Static

Parameter	Symbol	Conditions	V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	I_C [A] I_D [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	Conditions	V_{GS} [V]	V_{GE} [V]	V_{DS} [V]	I_C [A] I_D [A]	T_j [°C]	Min	Typ	Max	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 $\lambda = 3,4$ 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			Text	Name	VIN	Date code	Lot	Serial
				NN-NNNNNNNNNN-TTTTTTVV	VIN	WWYY	LLLLL	SSSS
			Datamatrix	Type&Ver	Lot number	Serial	Date code	
				TTTTTTVV	LLLLL	SSSS	WWYY	

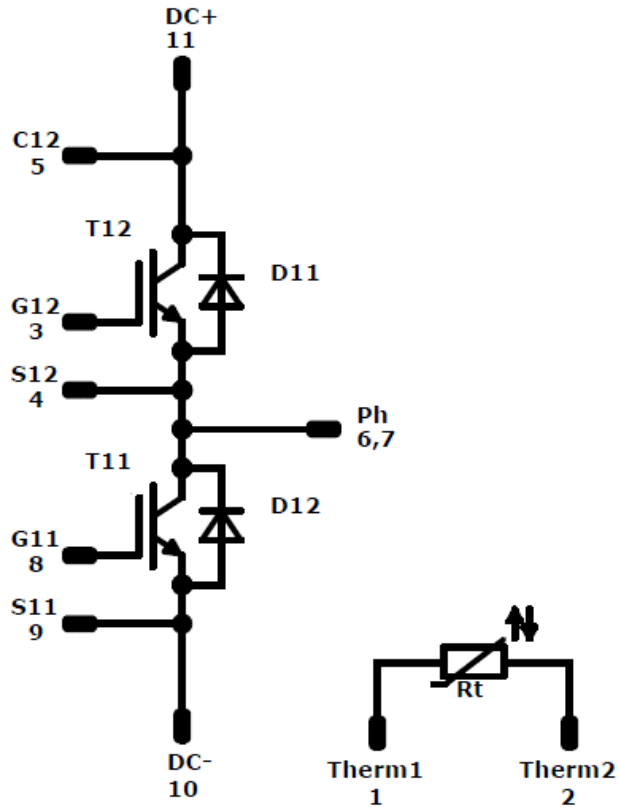
Pin table [mm]			
Pin	X	Y	Function
1	7,24	-0,45	Therm1
2	11,06	-0,45	Therm2
3	60,58	-0,45	G12
4	64,4	-0,45	S12
5	87,26	-0,45	C12
6	-	-	Ph
7	-	-	Ph
8	37,72	57,95	G11
9	33,92	57,95	S11
10	-	-	DC-
11	-	-	DC+



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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)	24	>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.