Vincotech

A0-VS122PA600M7-L759F70
A0-VP122PA600M7-L759T
target datasheet

VINcoDUAL E3 **1200 V / 600 A**

Features

- 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

Target applications

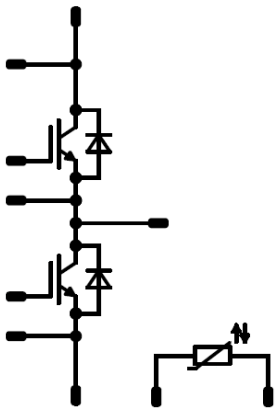
- Industrial Drives
- Power Supply
- UPS

Types

- A0-VS122PA600M7-L759F70
- A0-VP122PA600M7-L759F70T

VINco E3

Schematic



Maximum Ratings

T_j = 25 °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 °C	559	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	1092	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		175	°C

Maximum Ratings

T_j = 25 °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 °C	486	A
Repetitive peak forward current	I_{FRM}		1200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ T_s = 80 °C	742	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 s	4000	V
Creepage distance			18,1	mm
Clearance			16,2	mm
Comparative Tracking Index	CTI		> 200	

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	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,06	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		600	25 125 150		1,70 1,95 2,00	2,15	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			600	µA
Gate-emitter leakage current	I_{GES}		20	0		25			1500	nA
Internal gate resistance	r_g							0,67		Ω
Input capacitance	C_{ies}		0	10		25		111000		pF
Output capacitance	C_{oes}							3300		
Reverse transfer capacitance	C_{res}							1260		
Gate charge	Q_g		15	600	600	25		3600		nC
Thermal										
Thermal resistance junction to case	$R_{th(j-c)}$							0,052		K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material λ = 3,4 W/mK						0,035		K/W
Half Bridge Diode										
Static										
Forward voltage	V_F				600	25 125 150		1,70 1,70 1,70	2,2	V
Reverse leakage current	I_R			1200		25			360	µA
Thermal										
Thermal resistance junction to case	$R_{th(j-c)}$							0,084		K/W
Thermal resistance case to sink	$R_{th(c-s)}$	phase-change material λ = 3,4 W/mK						0,044		K/W

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 Ω				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	

Vincotech

A0-VS122PA600M7-L759F70
A0-VP122PA600M7-L759T
target datasheet

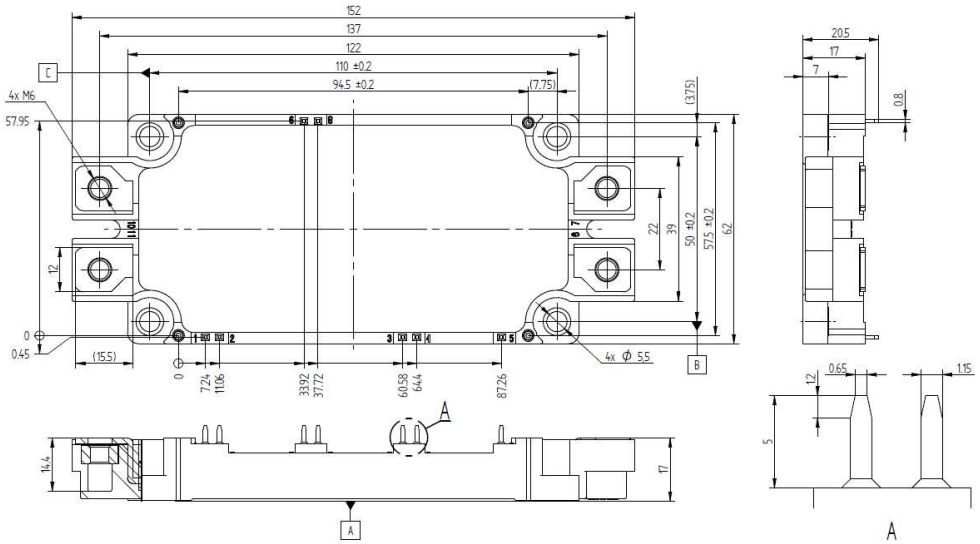
Ordering Code & Marking

Version	Ordering Code
without thermal paste with solder pins	A0-VS122PA600M7-L759F70
with thermal paste with solder pins	A0-VS122PA600M7-L759F70-/3/
without thermal paste with Press-fit pins	A0-VP122PA600M7-L759F70T
with thermal paste with Press-fit pins	A0-VP122PA600M7-L759F70T-/3/

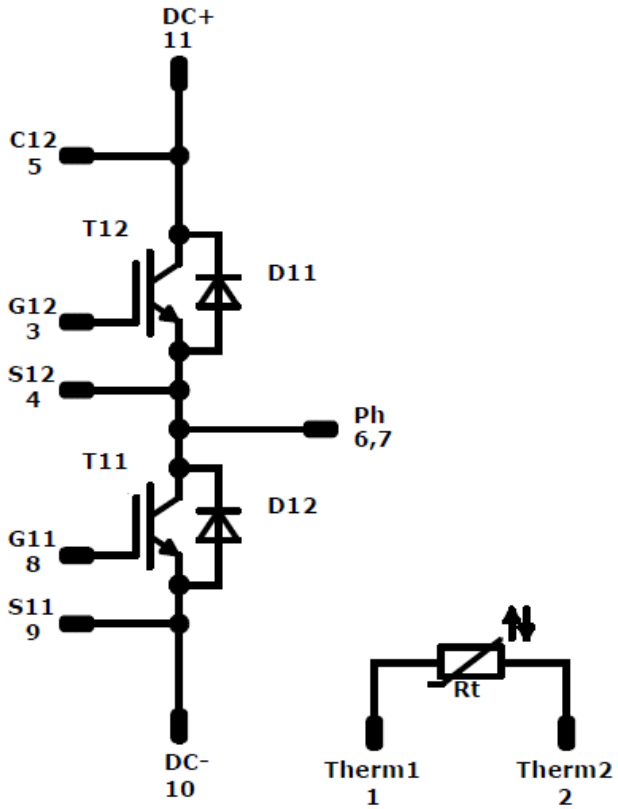
Text	**Name**		**VIN**	**Date code**	**Lot**	**Serial**
	NN-NNNNNNNNNNN-TTTTTTTVV		VIN	WWYY	LLLLL	SSSS
Datamatrix	**Type&Ver**	**Lot number**	**Serial**	**Date code**		
	TTTTTTTVV	LLLLL	SSSS	WWYY		

Outline

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+



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11,T12	IGBT	1200 V	600 A	Half Bridge Switch	
D11,D12	FWD	1200 V	600 A	Half Bridge Diode	
Rt	NTC			Thermistor	

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

Document No.:	Date:	Modification:	Pages
A0-Vx122PA600M7-L759F70x-T1-14	28 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.