Vincotech

80-M212WPA010M701-K756F77
target datasheet

MiniSKiiP® Twin 2 **1200 V / 10 A**

Topology features

- Open Emitter configuration
- Temperature sensor
- 2xInverter

Component features

- Easy paralleling
- Low turn-off losses
- Low collector emitter saturation voltage
- Positive temperature coefficient
- Short tail current
- Switching optimized for EMC

Housing features

- Base isolation: Al_2O_3
- Easy assembly in one mounting step
- Flexible PCB design w/o pin holes
- Rugged solderless spring contacts

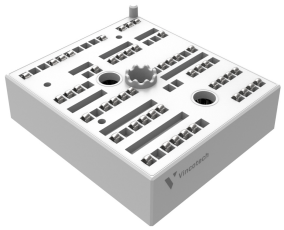
Target applications

- Industrial Drives

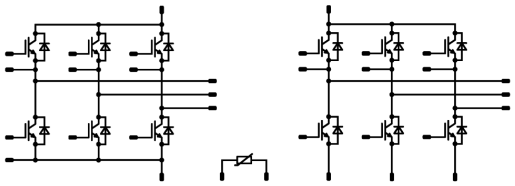
Types

- 80-M212WPA010M701-K756F77

MiniSKiiP® 2 16 mm housing



Schematic



Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions		Value	Unit
Inverter Switch					
Collector-emitter voltage	V_{CES}			1200	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$	T_s = 80 °C	20	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		20	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	67	W
Gate-emitter voltage	V_{GES}			±20	V
Short circuit ratings	t_{SC}	V_{GE} = 15 V, V_{CC} = 800 V	T_j = 150 °C	9,5	µs
Maximum junction temperature	T_{jmax}			175	°C
Inverter Diode					
Peak repetitive reverse voltage	V_{RRM}			1600	V
Forward current (DC current)	I_F	$T_j = T_{jmax}$	T_s = 80 °C	50	A
Surge (non-repetitive) forward current	I_{FSM}	Single Half Sine Wave, t_p = 10 ms	T_j = 150 °C	200	A
Surge current capability	I^2t			200	A^2s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	79	W
Maximum junction temperature	T_{jmax}			175	°C
Inverter Switch 2					
Collector-emitter voltage	V_{CES}			1200	V
Collector current (DC current)	I_C	$T_j = T_{jmax}$	T_s = 80 °C	20	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		20	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	67	W
Gate-emitter voltage	V_{GES}			±20	V
Short circuit ratings	t_{SC}	V_{GE} = 15 V, V_{CC} = 800 V	T_j = 150 °C	9,5	µs
Maximum junction temperature	T_{jmax}			175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value	Unit
Inverter Diode 2				
Peak repetitive reverse voltage	V_{RRM}		1200	V
Forward current (DC current)	I_F	T_j = T_{jmax} T_s = 80 °C	22	A
Repetitive peak forward current	I_{FRM}	t_p limited by T_{jmax}	20	A
Total power dissipation	P_{tot}	T_j = T_{jmax} T_s = 80 °C	52	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	5500	V
Creepage distance		With std lid For more informations see handling instructions	6,3	mm
Clearance		With std lid For more informations see handling instructions	6,3	mm
Comparative Tracking Index	CTI		≥ 600	

Characteristic Values

Parameter	Symbol	Conditions					Values			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	
Inverter Switch										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$			10	0,001	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		10	25 150		1,65 1,95	2,1	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			35	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							None		Ω
Input capacitance	C_{ies}		0	10		25		2000		pF
Output capacitance	C_{oes}							86		pF
Reverse transfer capacitance	C_{res}							23		pF
Gate charge	Q_g	V_{CC} = 600 V	0/15		10	25		80		nC
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 2,5 W/mK (HPTP)						1,41		K/W
Inverter Diode										
Static										
Forward voltage	V_F				18	25		1	1,5	V
Reverse leakage current	I_R	V_r = 1600 V				25 150			50 1000	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 2,5 W/mK (HPTP)						1,2		K/W

Characteristic Values

Parameter	Symbol	Conditions					Values			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	
Inverter Switch 2										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$			10	0,001	25	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		10	25 150		1,65 1,95	2,1	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			35	µA
Gate-emitter leakage current	I_{GES}		20	0		25			200	nA
Internal gate resistance	r_g							None		Ω
Input capacitance	C_{ies}		0	10		25		2000		pF
Output capacitance	C_{oes}							86		pF
Reverse transfer capacitance	C_{res}							23		pF
Gate charge	Q_g	V_{CC} = 600 V	0/15		10	25		80		nC
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 2,5 W/mK (HPTP)						1,41		K/W
Inverter Diode 2										
Static										
Forward voltage	V_F				10	25 150		1,6 1,65	1,9	V
Reverse leakage current	I_R	V_r = 1200 V				25			25	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	λ_{paste} = 2,5 W/mK (HPTP)						1,81		K/W

Characteristic Values

Parameter	Symbol	Conditions					Values			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										
Static										
Rated resistance	R					25		1		kΩ
Deviation of R100	$\Delta_{R/R}$	R_{100} = 1670 Ω				100	-2		2	%
Maximum Current	I_{max}							3		mA
Power dissipation constant	d					25		0,76		mW/K
A-value	A							$7{,}635 \times 10^{-3}$		1/K
B-value	B							$1{,}73 \times 10^{-5}$		$1/K^2$
Vincotech Thermistor Reference									E	

Ordering Code

Version	Ordering Code
With std lid (6.5mm height) + no thermal grease	80-M212WPA010M701-K756F77-/0A/
With thin lid (2.8mm height) + no thermal grease	80-M212WPA010M701-K756F77-/0B/
With std lid (6.5mm height) + thermal grease (0,8 W/mK, P12, silicone-based)	80-M212WPA010M701-K756F77-/1A/
With thin lid (2.8mm height) + thermal grease (0,8 W/mK, P12, silicone-based)	80-M212WPA010M701-K756F77-/1B/
With std lid (6.5mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)	80-M212WPA010M701-K756F77-/4A/
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)	80-M212WPA010M701-K756F77-/4B/
With std lid (6.5mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)	80-M212WPA010M701-K756F77-/5A/
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)	80-M212WPA010M701-K756F77-/5B/

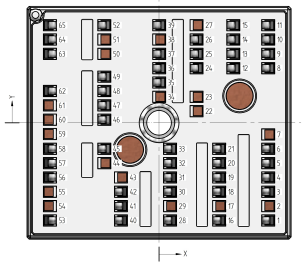
Marking

	Name		Date code	UL & VIN	Lot	Serial
Text	NN-NNNNNNNNNNNNNN-TTTTTTVV		WWYY	UL VIN	LLLLL	SSSS
Datamatrix	**Type&Ver**	**Lot number**	**Serial**	**Date code**		
	TTTTTTVV	LLLLL	SSSS	WWYY		

Outline

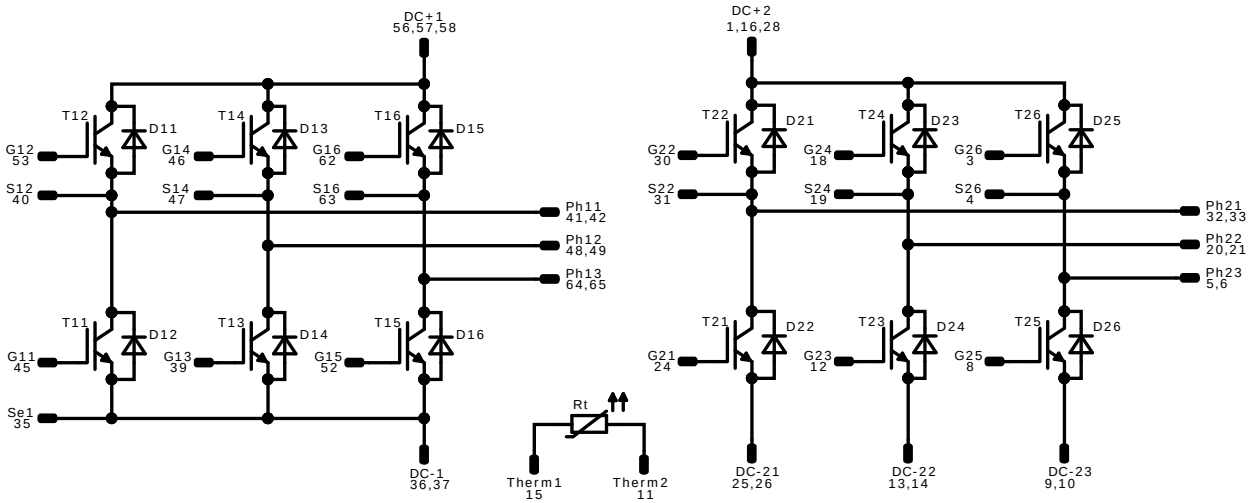
Pin table [mm]

Pin	X	Y	Function	Pin	X	Y	Function
1	24,38	-21,8	DC+2	35	0,03	9	Se1
2	not assembled			36	0,03	12,2	DC-1
3	24,38	-15,4	G26	37	0,03	15,4	DC-1
4	24,38	-12,2	S26	38	not assembled		
5	24,38	-9	Ph23	39	0,03	21,8	G13
6	24,38	-5,8	Ph23	40	-8,5	-21,8	S12
7	not assembled			41	-8,5	-18,6	Ph11
8	24,38	12,2	G25	42	-8,5	-15,4	Ph11
9	24,38	15,4	DC-23	43	not assembled		
10	24,38	18,6	DC-23	44	not assembled		
11	24,38	21,8	Therm2	45	-12,22	-5,8	G11
12	16,58	12,2	G23	46	-12,22	0,7	G14
13	16,58	15,4	DC-22	47	-12,22	3,9	S14
14	16,58	18,6	DC-22	48	-12,22	7,1	Ph12
15	16,58	21,8	Therm1	49	-12,22	10,3	Ph12
16	13,42	-21,8	DC+2	50	not assembled		
17	not assembled			51	not assembled		
18	13,42	-15,4	G24	52	-12,22	21,8	G15
19	13,42	-12,2	S24	53	-24,38	-21,8	G12
20	13,42	-9	Ph22	54	not assembled		
21	13,42	-5,8	Ph22	55	not assembled		
22	not assembled			56	-24,38	-12,2	DC+1
23	not assembled			57	-24,38	-9	DC+1
24	8,38	12,2	G21	58	-24,38	-5,8	DC+1
25	8,38	15,4	DC-21	59	not assembled		
26	8,38	18,6	DC-21	60	not assembled		
27	not assembled			61	not assembled		
28	2,46	-21,8	DC+2	62	-24,38	7,1	G16
29	not assembled			63	-24,38	15,4	S16
30	2,46	-15,4	G22	64	-24,38	18,6	Ph13
31	2,46	-12,2	S22	65	-24,38	21,8	Ph13
32	2,46	-9	Ph21				
33	2,46	-5,8	Ph21				



Pad positions refers to center point. For more informations on pad design please see package data

Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T12, T13, T14, T15, T16	IGBT	1200 V	10 A	Inverter Switch	
D11, D12, D13, D14, D15, D16	Rectifier	1600 V	18 A	Inverter Diode	
T21, T22, T23, T24, T25, T26	IGBT	1200 V	10 A	Inverter Switch 2	
D21, D22, D23, D24, D25, D26	FWD	1200 V	10 A	Inverter Diode 2	
Rt	Thermistor			Thermistor	

Packaging instruction				
Standard packaging quantity (SPQ) 72	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for MiniSKiiP® 2 packages see vincotech.com website.

Package data
Package data for MiniSKiiP® 2 packages see vincotech.com website.

Vincotech thermistor reference
See Vincotech thermistor reference table at vincotech.com website.

UL recognition and file number
This device is UL 1557 recognized under E192116 up to a junction temperature under switching condition $T_{j,op}$=150°C and up to 2500VAC/1min isolation voltage. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
80-M212WPA010M701-K756F77-T1-14	25 Sep. 2025	Initial Release	

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.