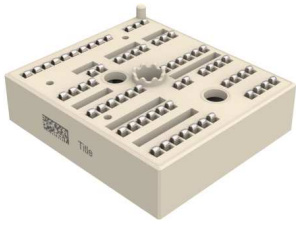
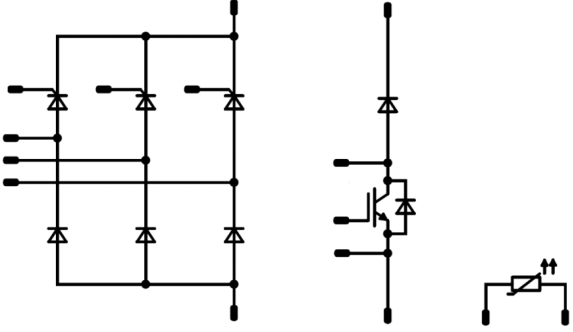




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MiniSkiiP [®] CON 2	1600 V / 60 A
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Features</div> <ul style="list-style-type: none"> 3-phase half controlled rectifier Brake chopper 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">MiniSkiiP[®] 2 housing</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Target applications</div> <ul style="list-style-type: none"> Industrial Drives 	<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Schematic</div> 
<div style="background-color: #eee; padding: 2px; margin-bottom: 5px;">Types</div> <ul style="list-style-type: none"> 80-M0166BA060RW02-K369G 	

Maximum Ratings

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

Parameter	Symbol	Conditions	Value	Unit
Rectifier Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_S = 80^{\circ}\text{C}$	79	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $T_j = 150^{\circ}\text{C}$	890	A
Surge current capability	I^2t	$t_p = 10\text{ ms}$ 50 Hz sine	3960	A^2s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_S = 80^{\circ}\text{C}$	101	W
Maximum Junction Temperature	T_{jmax}		150	$^{\circ}\text{C}$



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Parameter	Symbol	Conditions	Value	Unit
Rectifier Thyristor				
Repetitive peak reverse voltage	V_{RRM}		1600	V
Mean on-state current	$I_{T(AV)}$	sine, $d=0,5$ $T_j=T_{jmax}$ $T_s=80^\circ\text{C}$	90	A
Surge forward current	I_{FSM}	$t_p=10\text{ ms}$ $T_j=25^\circ\text{C}$	1100	A
I^2t value	I^2t		6050	A^2s
Mean total power loss	$P_{tot(AV)}$	$T_j=T_{jmax}$ $T_s=80^\circ\text{C}$	91	W
Maximum Junction Temperature	T_{jmax}		125	$^\circ\text{C}$

Parameter	Symbol	Condition	Value	Unit
Brake Switch				
Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_C	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	68	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	200	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	125	W
Gate-emitter voltage	V_{GES}		± 20	V
Short circuit ratings	t_{SC} V_{CC}	$T_j \leq 150^\circ\text{C}$ $V_{GE} = 15\text{V}$	10 850	μs V
Maximum Junction Temperature	T_{jmax}		175	$^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
Brake Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	49	A
Repetitive peak forward current	I_{FRM}		100	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	102	W
Maximum Junction Temperature	T_{jmax}		175	$^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
Brake Switch Protection Diode				
Peak Repetitive Reverse Voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	14	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80^\circ\text{C}$	29	W
Maximum Junction Temperature	T_{jmax}		150	$^\circ\text{C}$



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Parameter	Symbol	Conditions	Value	Unit
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Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation Junction Temperature	T_{jop}		-40...+(T_{jmax} - 25)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC voltage	$t_p=2s$	4000	V
Creepage distance				min 12,7	mm
Clearance				min 12,7	mm
Comparative Tracking Index	CTI			>200	



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Characteristic Values

Rectifier Diode

Parameter	Symbol	Conditions					Value			Unit
				V_r [V]	I_F [A]	T_j [°C]	Min	Typ	Max	
Static										
Forward voltage	V_F				60	25 150		1,17 1,15	1,5	V
Reverse leakage current	I_r			1600		25 150			100 2000	μA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease thickness ≤ 50 μm $\lambda = 1$ W/mK						0,69		K/W

Rectifier Thyristor

Parameter	Symbol	Conditions					Value			Unit
				V_D [V]	I_F [A]	T_j [°C]	Min	Typ	Max	
Static										
Forward voltage	V_T	$I_T = 150A$ $t_n = 380\mu s$				25 125			1,8	V
Critical rate of rise of off-state voltage	$(dv/dt)_{cr}$			$2/3 V_{DRM}$		25 125	1000			V/μs
Holding current	I_H	$I_T = 1A$		6V		25 125			150	mA
Latching current	I_L	$I_G = 1,2 I_{cr}$				25 125			200	mA
Gate trigger voltage	V_{GT}	$V_D = 12V$		12V		25			1,5	V
Gate trigger current	I_{GT}	$R_L = 30\Omega$					25	10		80
Gate non-trigger voltage	V_{GD}			$2/3 V_{DRM}$		25 125	0,25			V
Thermal										
Thermal resistance chip to sink	$R_{th(j-s)}$	Thermal grease thickness ≤ 50 μm $\lambda = 1$ W/mK						0,49		K/W



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Brake Switch

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max		

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}$			0,01	25 125	5,4	6	6,6	V
Collector-emitter saturation voltage	V_{CEsat}		15		100	25 125 150	1,2	1,77 2,05 2,11	2,2	V
Collector-emitter cut-off current	I_{CES}		0	1200		25 125			300	μA
Gate-emitter leakage current	I_{GES}		20	0		25 125			1000	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}							6200		pF
Output capacitance	C_{oes}	f=100 KHz	0	10		25		680		
Reverse transfer capacitance	C_{res}							74		
Gate charge	Q_g		15	600	100	25		210		nC

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease thickness ≤ 50 μm $\lambda = 1$ W/mK						0,76		K/W
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Brake Diode

Parameter	Symbol	Conditions					Value			Unit
		V_r [V]	I_F [A]	T_j [°C]	Min	Typ	Max			

Static

Forward voltage	V_F				50	25 125		2,73 2,19	3,3	V
Reverse leakage current	I_r			1200		25 150			50	μA

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease thickness ≤ 50 μm $\lambda = 1$ W/mK						0,93		K/W
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Brake Switch Protection Diode

Parameter	Symbol	Conditions					Value			Unit
		V_r [V]	I_F [A]	T_j [°C]	Min	Typ	Max			
Static										
Forward voltage	V_F		8	25 125		1,65 1,61				V
Reverse leakage current	I_r	1200		25 150				250 -		μ A
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	Thermal grease thickness $\leq 50\mu$ m $\lambda = 1$ W/mK						2,38		K/W

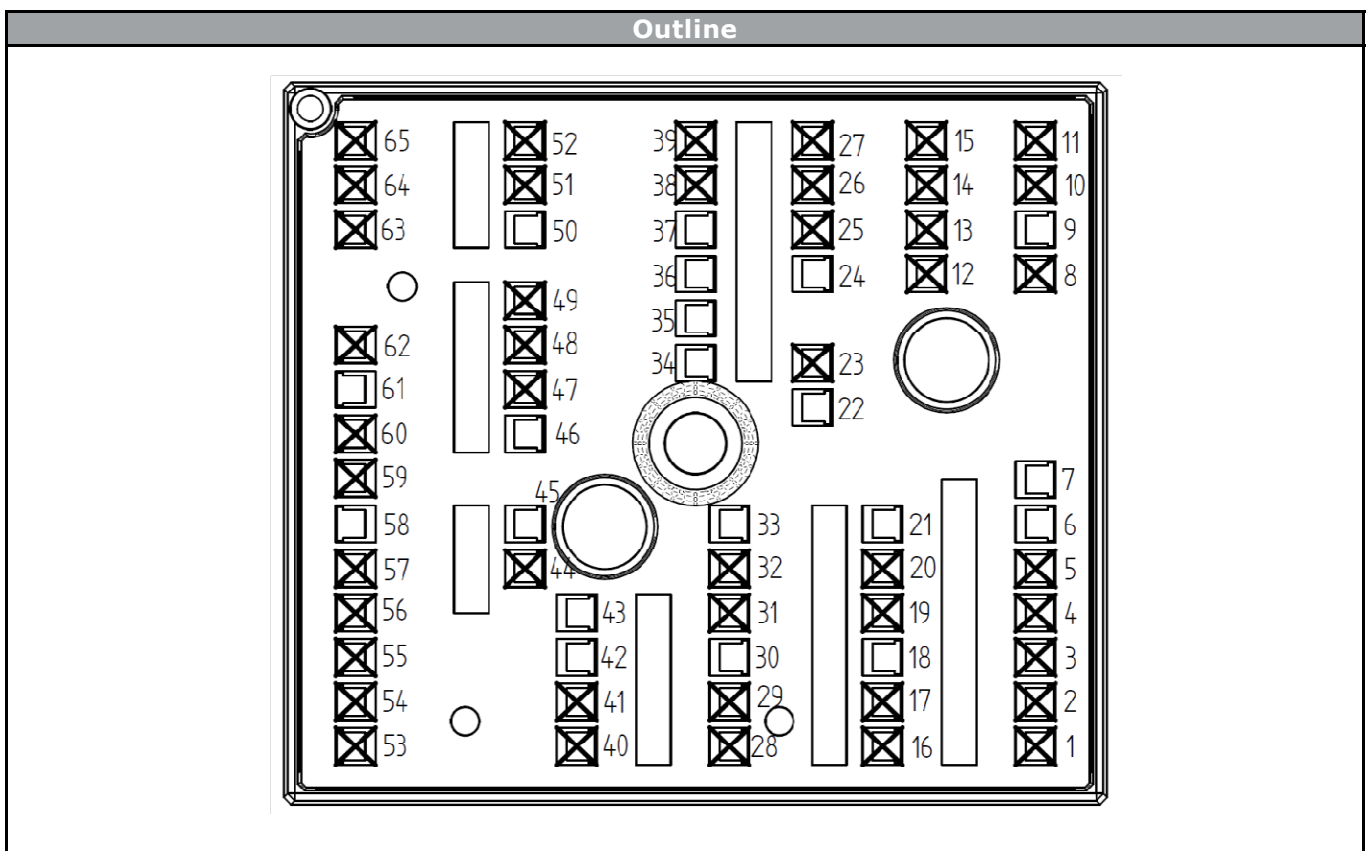
Thermistor

Parameter	Symbol	Conditions					Value			Unit
		V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max		
Rated resistance	R				25		1			k Ω
Deviation of R100	$\Delta_{R/R}$	R100=1670 Ω			100	-2		+2		%
R100	R				100		1670			Ω
Power dissipation constant					25		0,76			mW/K
A-value	$A_{(25/50)}$				25		$7,635 \cdot 10^{-3}$			1/K
B-value	$B_{(25/100)}$				25		$1,731 \cdot 10^{-5}$			1/K ²
Vincotech PTC Reference									E	



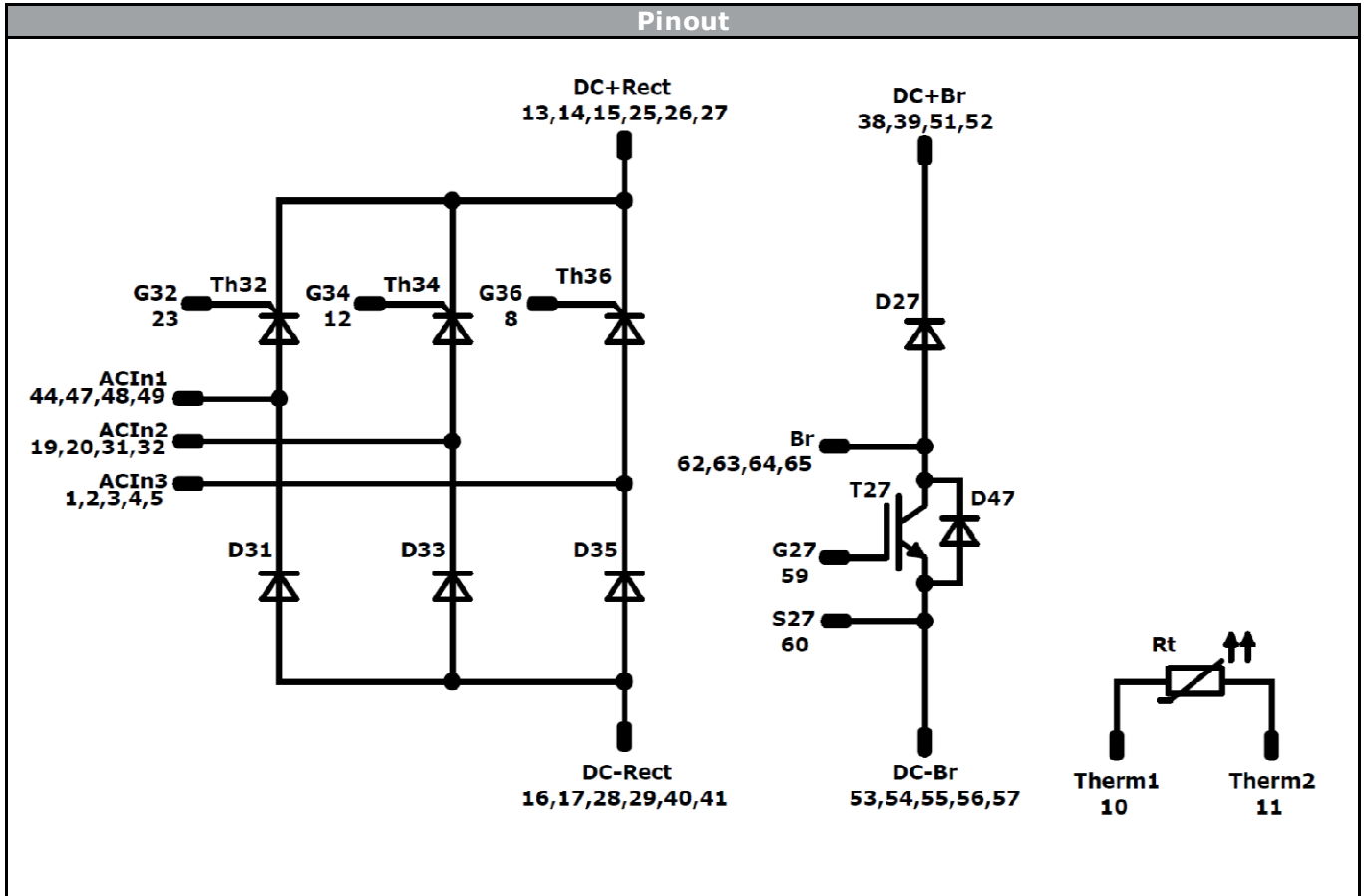
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Ordering Code & Marking							
Version	Ordering Code	in DataMatrix as		in packaging barcode as			
with std lid (black)	80-M0166BA060RW02-K369G-/0A/	K369G		K369G-/0A/			
with std lid (black) and P12	80-M0166BA060RW02-K369G-/1A/	K369G		K369G-/1A/			
with thin lid (white)	80-M0166BA060RW02-K369G-/0B/	K369G		K369G-/0B/			
with thin lid (white) and P12	80-M0166BA060RW02-K369G-/1B/	K369G		K369G-/1B/			
NN-NNNNNNNN NNNN-TTTTTTV Vinco LLLLL WWYY SSSS UL		Text	Name	Type&Ver	Date code	Vinco&Lot	Serial&UL
			NN-NNNNNNNNNNNNNN	TTTTTTTV	WWYY	Vinco LLLLL	SSSS UL
		Datamatrix	Type&Ver	Lot number	Serial	Date code	
			TTTTTTTV	LLLLL	SSSS	WWYY	





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Identification					
ID	Component	Voltage	Current	Function	Comment
T27	IGBT	1200V	100A	Brake Switch	
D47	FWD	1200V	7,5A	Brake Switch Protection Diode	
D27	FWD	1200V	50A	Brake Diode	
D31,D33,D35	Rectifier	1600V	60A	Rectifier Diode	
Th32,Th34,Th36	Thyristor	1600V	90A	Rectifier Thyristor	
Rt	PTC	-	-	Thermistor	



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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.

Document No.:	Date:	Modification:	Pages
80-M0166BA060RW02-K369G-T1-14	28 Sep. 2015		

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.