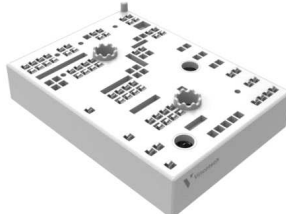
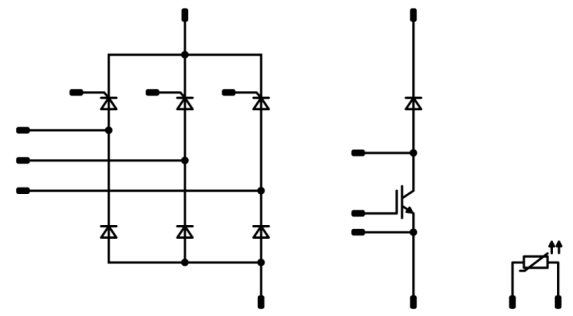




Vincotech

MiniSkiip® CON 3	1200 V / 125 A
<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">Features</div> <ul style="list-style-type: none"> Three-phase half controlled input rectifier with brake chopper Fast Trench IGBT Temperature sensor integrated 	<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">MiniSkiip® 3 housing</div> 
<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">Target applications</div> <ul style="list-style-type: none"> Solar Inverter Industrial Drives 	<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">Schematic</div> 
<div style="background-color: #f0f0f0; padding: 2px; margin-bottom: 5px;">Types</div> <ul style="list-style-type: none"> 80-M3166BB125AS-K489G31 	

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Rectifier Diode				
Peak repetitive reverse voltage	V_{RRM}		1600	V
Continuous (direct) forward current	I_F		140	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave $t_p = 10\text{ ms}$ $T_j = 150\text{ °C}$	1380	A
Surge current capability	I^2t		9520	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$ $T_s = 80\text{ °C}$	180	W
Maximum junction temperature	T_{jmax}		150	°C



Vincotech

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
Rectifier Thyristor				
Repetitive peak reverse voltage	V_{RRM}		1600	V
Forward average current	I_{FAV}		125	A
Surge forward current	I_{FSM}	$t_p = 10\text{ ms}$	1250	A
I^2t value	I^2t	$T_j = 130\text{ °C}$	7810	A ² s
Power dissipation	P_{tot}	$T_j = T_{jmax}$	168	W
Maximum Junction Temperature	T_{jmax}	$T_s = 80\text{ °C}$	130	°C

Brake Switch

Collector-emitter voltage	V_{CES}		1200	V
Collector current	I_C		140	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}	280	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	458	W
Gate-emitter voltage	V_{GES}		±20	V
Maximum junction temperature	T_{jmax}		150	°C

Brake Diode

Peak repetitive reverse voltage	V_{RRM}		1200	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	112	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave	900	A
Surge current capability	I^2t	$t_p = 10\text{ ms}$	4050	A ² s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	244	W
Maximum junction temperature	T_{jmax}	$T_s = 80\text{ °C}$	175	°C



Vincotech

Maximum Ratings

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

Parameter	Symbol	Condition	Value	Unit
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Module Properties

Thermal Properties

Storage temperature	T_{stg}		-40...+125	°C
Operation temperature under switching condition	T_{top}		-40...(T _{max} - 25)	°C

Isolation Properties

Isolation voltage	V_{isol}	DC Test Voltage* $t_p = 2\text{ s}$	5500	V
		AC Voltage $t_p = 1\text{ min}$	2500	V
Creepage distance		With std lid For more information see handling instructions	6,3	mm
Clearance		With std lid For more information see handling instructions	6,3	mm
Comparative Tracking Index	CTI		> 200	

*100 % tested in production



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		

Rectifier Diode

Static

Forward voltage	V_F				77	25 125		1,04 0,96	1,21	V
Reverse leakage current	I_R			1600		25 145			50 1100	μ A

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,39		K/W
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Rectifier Thyristor

Static

Forward voltage	V_F				110	25 125		1,11 1,06	1,2	V
Threshold voltage (for power loss calc. only)	V_{to}					130			0,85	V
Slope resistance (for power loss calc. only)	r_t					130			3,2	m Ω
Critical rate of rise of off-state voltage	$(dv/dt)_{cr}$					130			1000	V/ μ s
Critical rate of rise of on-state current	$(di/dt)_{cr}$					130			100	A/ μ s
Circuit commutated turn-off time	t_q					130		150		μ s
Holding current	I_H					25			220	mA
Latching current	I_L					25			550	mA
Gate trigger voltage	V_{GT}					25			1,98	V
Gate trigger current	I_{GT}					25			100	mA
Gate non-trigger voltage	V_{GD}					130	0,25			V
Gate non-trigger current	I_{GD}					115	6			mA

Thermal

Thermal resistance chip to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,30		K/W
---------------------------------	---------------	----------------------------------------	--	--	--	--	--	------	--	-----



Vincotech

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		

Brake Switch

Static

Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{CE}$			0,006	25	5	5,8	6,5	V
Collector-emitter saturation voltage	V_{CEsat}		15		140	25 125	1,35	1,74 1,98	2,05	V
Collector-emitter cut-off current	I_{CES}		0	1200		25			1000	μA
Gate-emitter leakage current	I_{GES}		30	0		25			2400	nA
Internal gate resistance	r_g							1,5		Ω
Input capacitance	C_{ies}							10120		pF
Output capacitance	C_{oes}	$f = 1$ Mhz	0	25		25		528		
Reverse transfer capacitance	C_{res}							460		

Thermal

Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,15		K/W
-------------------------------------	---------------	----------------------------------------	--	--	--	--	--	------	--	-----

Dynamic

Turn-on delay time	$t_{d(on)}$	$R_{goff} = 4$ Ω $R_{gon} = 4$ Ω	15/0	700	141	25		63		ns
Rise time	t_r					125		62		
Turn-off delay time	$t_{d(off)}$					25		27		
Fall time	t_f					125		30		
Turn-on energy (per pulse)	E_{on}					25		560		
Turn-off energy (per pulse)	E_{off}	125		658						
						25		61		mWs
						125		146		
						25		7,49		
						125		10,10		
						25		10,61		
						125		18,11		



Vincotech

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		
Brake Diode										
Static										
Forward voltage	V_F			150	25 150		2,50 2,53	2,7		V
Reverse leakage current	I_R			1200	25 150			180 28000		μ A
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	$\lambda_{paste} = 2,5$ W/mK (HPTP)						0,39		K/W
Dynamic										
Peak recovery current	I_{RRM}	$di/dt = 6156$ A/ μ s $di/dt = 5811$ A/ μ s	15/0	700	141	25 125		184 230		A
Reverse recovery time	t_{rr}					25 125		118 271		ns
Recovered charge	Q_r					25 125		10,66 20,25		μ C
Reverse recovered energy	E_{rec}					25 125		4,74 9,82		mWs
Peak rate of fall of recovery current	$(di_{rr}/dt)_{max}$					25 125		7043 5435		A/ μ s
Thermistor										
Rated resistance	R					25		1		k Ω
Deviation of R_{100}	$\Delta_{R/R}$	$R_{100} = 1670$ Ω				100	-2		+2	%
R_{100}	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	

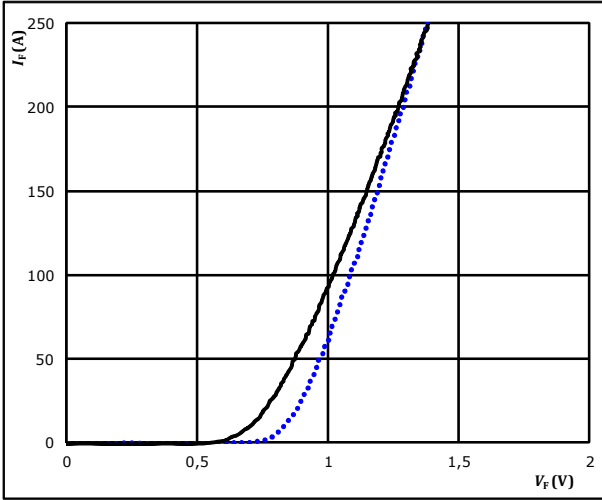


Rectifier Diode Characteristics

figure 1. Rectifier Diode

Typical forward characteristics

$$I_F = f(V_F)$$

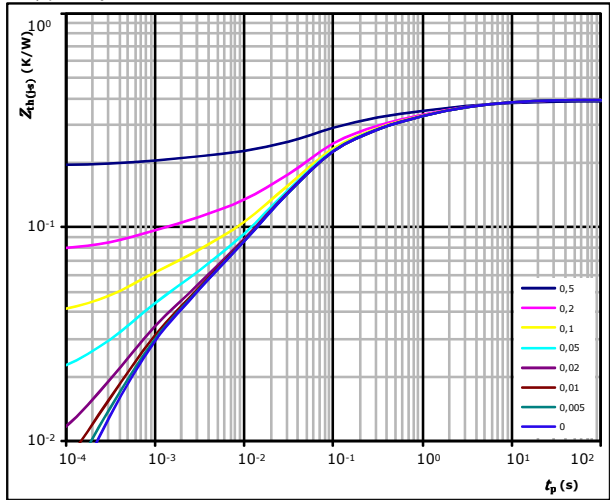


$t_p = 250 \mu s$
 $T_j: 25 \text{ }^\circ\text{C}$ (dotted blue line)
 $125 \text{ }^\circ\text{C}$ (solid black line)

figure 2. Rectifier Diode

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$
 $R_{th(j-s)} = 0,39 \text{ K/W}$

Diode thermal model values

R (K/W)	τ (s)
3,06E-02	8,01E+00
6,94E-02	1,36E+00
7,62E-02	2,37E-01
1,50E-01	4,99E-02
3,24E-02	7,73E-03
1,77E-02	1,17E-03
1,31E-02	4,59E-04

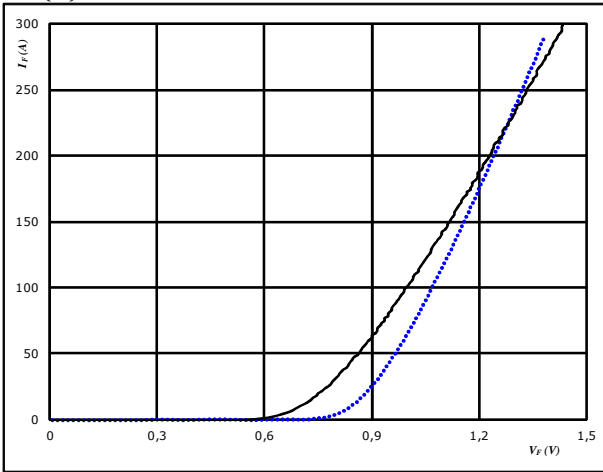


Rectifier Thyristor Characteristics

figure 1. Thyristor

Typical forward characteristics

$$I_F = f(V_F)$$

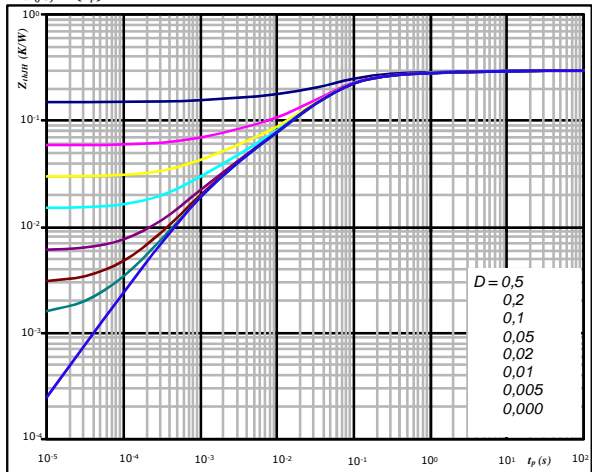


$t_p = 250 \mu\text{s}$
 $T_j: 25 \text{ } ^\circ\text{C}$ (dotted blue line)
 $125 \text{ } ^\circ\text{C}$ (solid black line)

figure 2. Thyristor

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$
 $R_{th(j-s)} = 0,30 \text{ K/W}$

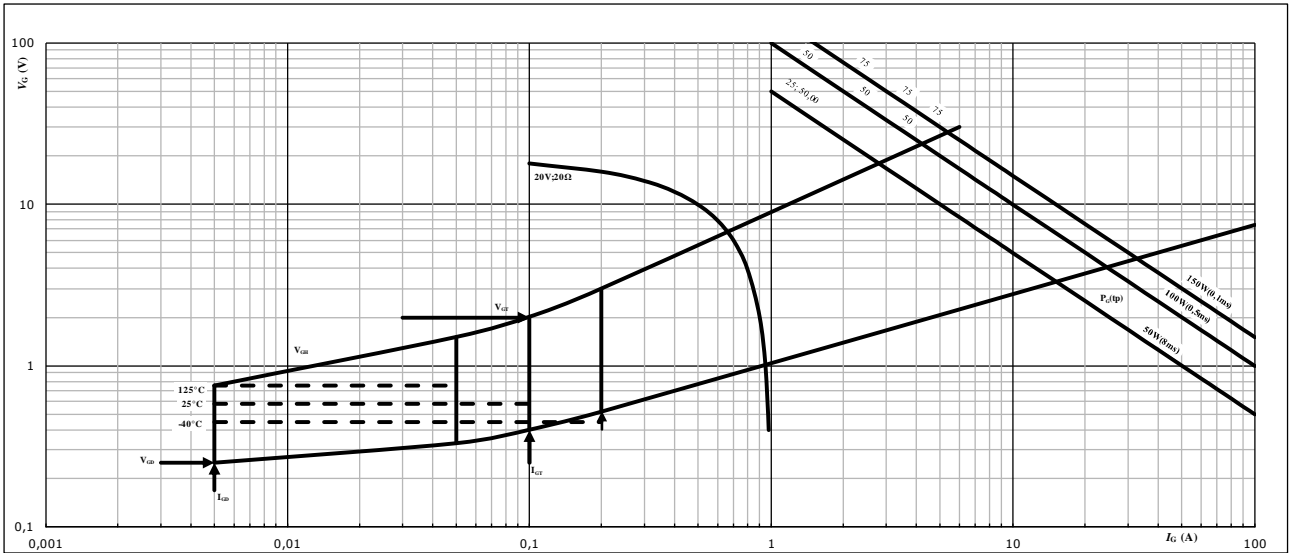
FWD thermal model values

R (K/W)	Tau (s)
1,10E-02	8,76E+00
2,07E-02	7,46E-01
5,49E-02	1,33E-01
1,59E-01	4,45E-02
2,97E-02	8,66E-03
7,88E-02	1,33E-03



Rectifier Thyristor Characteristics

figure 3. Thyristor
Gate trigger characteristics



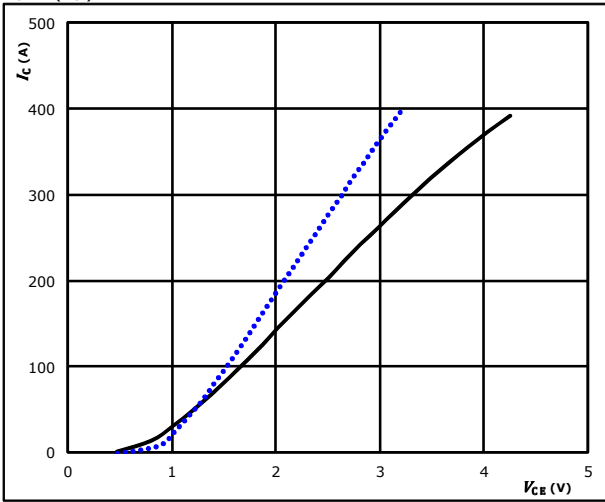


Brake Switch Characteristics

figure 1. IGBT

Typical output characteristics

$I_C = f(V_{CE})$

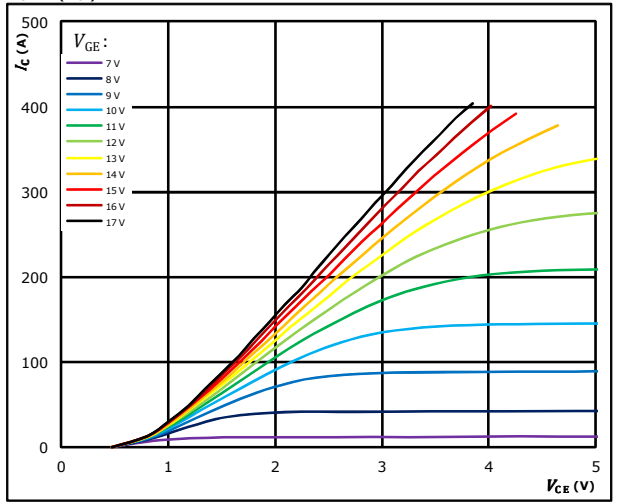


$t_p = 250 \mu s$ $T_j: 25 \text{ }^\circ C$ (dotted blue line)
 $V_{GE} = 15 V$ $125 \text{ }^\circ C$ (solid black line)

figure 2. IGBT

Typical output characteristics

$I_C = f(V_{CE})$

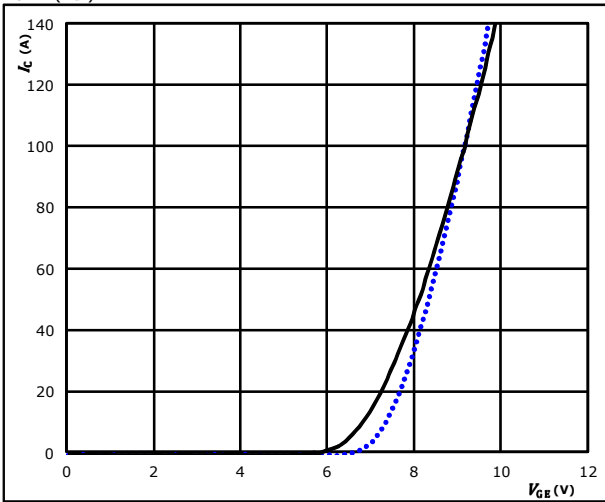


$t_p = 250 \mu s$
 $T_j = 125 \text{ }^\circ C$
 V_{GE} from 7 V to 17 V in steps of 1 V

figure 3. IGBT

Typical transfer characteristics

$I_C = f(V_{GE})$

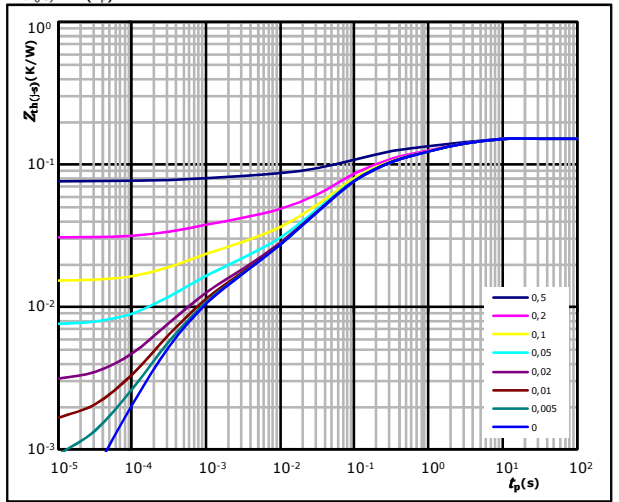


$t_p = 100 \mu s$ $T_j: 25 \text{ }^\circ C$ (dotted blue line)
 $V_{CE} = 10 V$ $125 \text{ }^\circ C$ (solid black line)

figure 4. IGBT

Transient thermal impedance as function of pulse duration

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$
 $R_{th(j-s)} = 0,15 \text{ K/W}$

IGBT thermal model values

R (K/W)	τ (s)
4,19E-02	2,12E+00
3,05E-02	2,78E-01
5,84E-02	6,20E-02
9,83E-03	8,78E-03
6,92E-03	1,18E-03
5,23E-03	3,04E-04

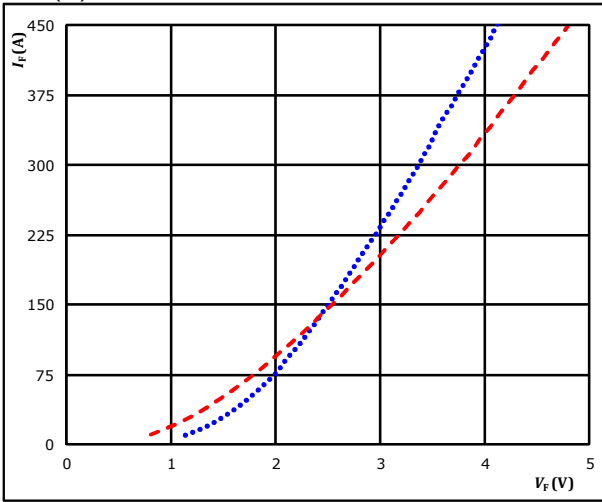


Brake Diode Characteristics

figure 1. FWD

Typical forward characteristics

$$I_F = f(V_F)$$

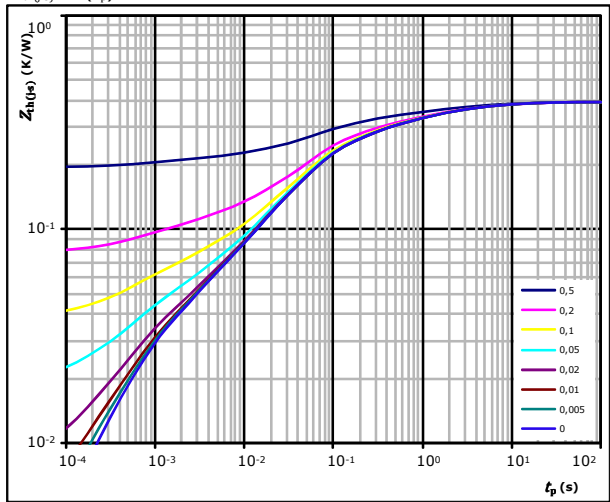


$t_p = 250 \mu s$
 T_j : 25 °C (dotted blue line), 150 °C (dashed red line)

figure 2. FWD

Transient thermal impedance as a function of pulse width

$$Z_{th(j-s)} = f(t_p)$$



$D = t_p / T$
 $R_{th(j-s)} = 0,39 \text{ K/W}$

FWD thermal model values

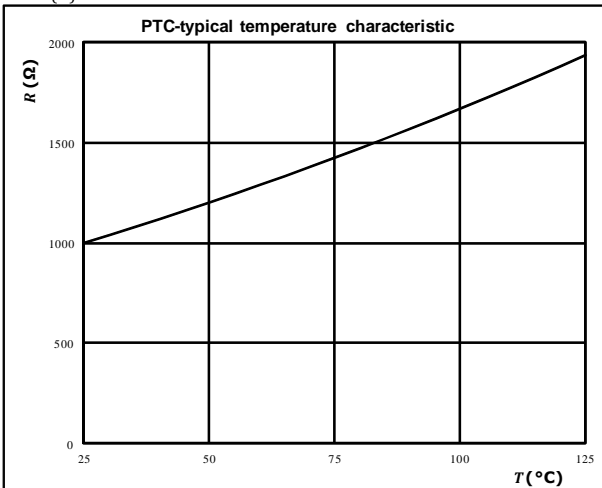
R (K/W)	τ (s)
3,07E-02	8,01E+00
6,95E-02	1,36E+00
7,63E-02	2,37E-01
1,50E-01	4,99E-02
3,25E-02	7,73E-03
1,77E-02	1,17E-03
1,32E-02	4,59E-04

Thermistor Characteristics

figure 1. Thermistor

Typical PTC characteristic
as a function of temperature

$$R = f(T)$$

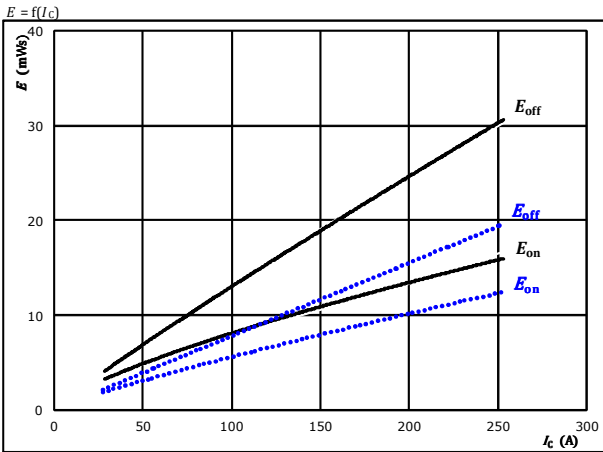




Brake Switching Characteristics

figure 1. IGBT

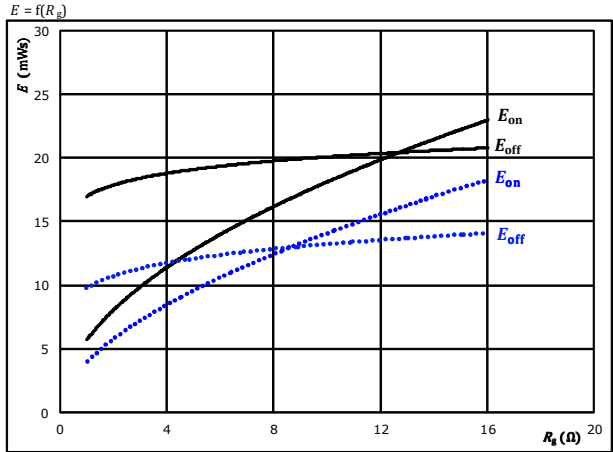
Typical switching energy losses as a function of collector current



With an inductive load at
 $V_{CE} = 700$ V
 $V_{GE} = 15/0$ V
 $R_{gon} = 4$ Ω
 $R_{goff} = 4$ Ω
 $T_j: 25$ °C (dotted blue)
 125 °C (solid black)

figure 2. IGBT

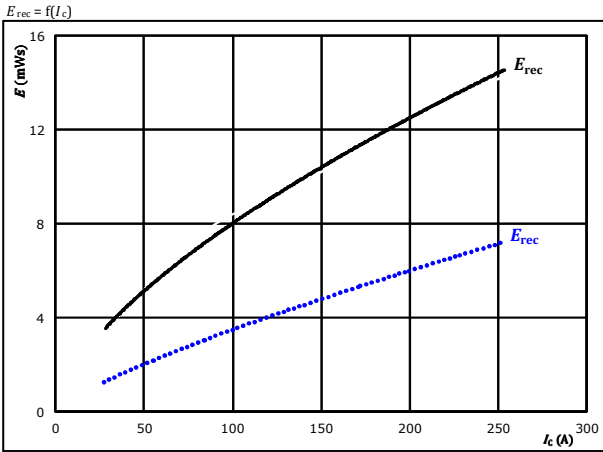
Typical switching energy losses as a function of gate resistor



With an inductive load at
 $V_{CE} = 700$ V
 $V_{GE} = 15/0$ V
 $I_C = 141$ A
 $T_j: 25$ °C (dotted blue)
 125 °C (solid black)

figure 3. FWD

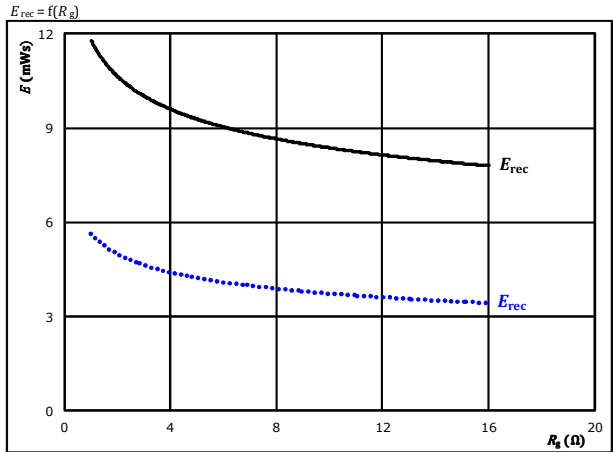
Typical reverse recovered energy loss as a function of collector current



With an inductive load at
 $V_{CE} = 700$ V
 $V_{GE} = 15/0$ V
 $R_{gon} = 4$ Ω
 $T_j: 25$ °C (dotted blue)
 125 °C (solid black)

figure 4. FWD

Typical reverse recovered energy loss as a function of gate resistor



With an inductive load at
 $V_{CE} = 700$ V
 $V_{GE} = 15/0$ V
 $I_C = 141$ A
 $T_j: 25$ °C (dotted blue)
 125 °C (solid black)

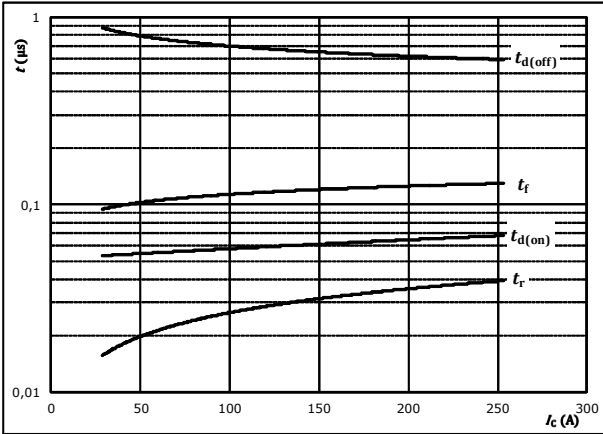


Brake Switching Characteristics

figure 5. IGBT

Typical switching times as a function of collector current

$$t = f(I_C)$$



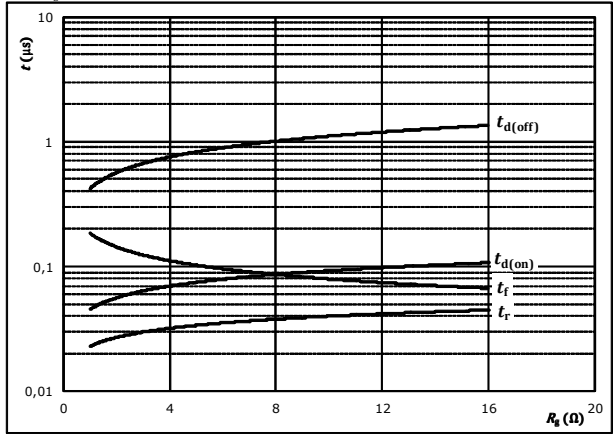
With an inductive load at

$T_j =$	125	°C
$V_{CE} =$	700	V
$V_{GE} =$	15/0	V
$R_{gon} =$	4	Ω
$R_{goff} =$	4	Ω

figure 6. IGBT

Typical switching times as a function of gate resistor

$$t = f(R_g)$$



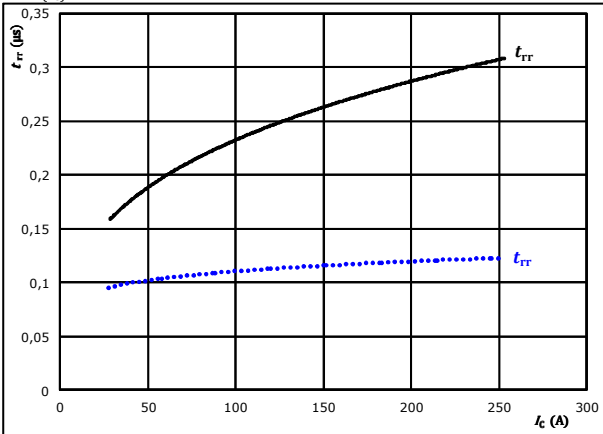
With an inductive load at

$T_j =$	125	°C
$V_{CE} =$	700	V
$V_{GE} =$	15/0	V
$I_C =$	141	A

figure 7. FWD

Typical reverse recovery time as a function of collector current

$$t_{rr} = f(I_C)$$

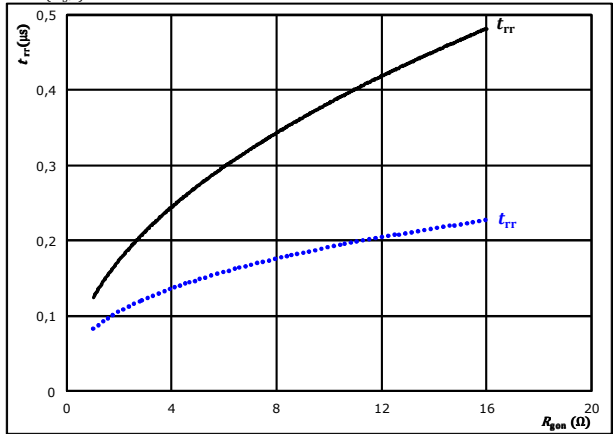


At	$V_{CE} =$	700	V	$T_j:$	25 °C
	$V_{GE} =$	15/0	V		125 °C	————
	$R_{gon} =$	4	Ω			

figure 8. FWD

Typical reverse recovery time as a function of IGBT turn on gate resistor

$$t_{rr} = f(R_{gon})$$



At	$V_{CE} =$	700	V	$T_j:$	25 °C
	$V_{GE} =$	15/0	V		125 °C	————
	$I_C =$	141	A			

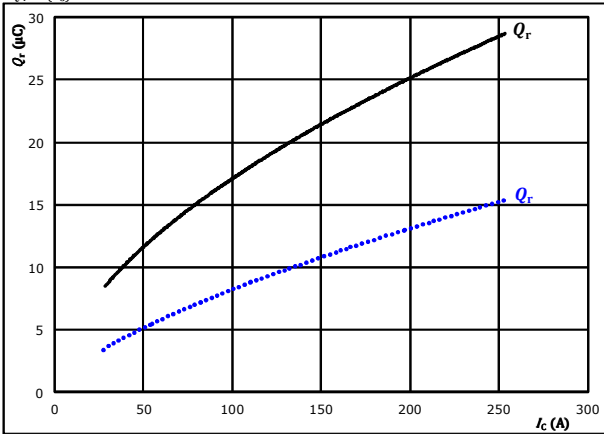


Brake Switching Characteristics

figure 9. FWD

Typical recovered charge as a function of collector current

$$Q_r = f(I_c)$$

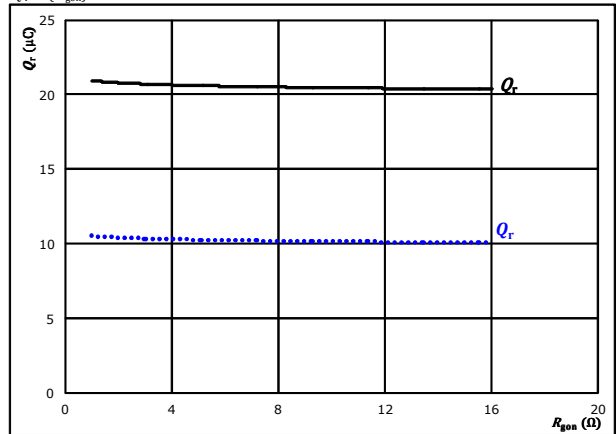


At $V_{CE} = 700$ V $T_j = 25$ °C (dotted blue line)
 $V_{GE} = 15/0$ V $T_j = 125$ °C (solid black line)
 $R_{gdn} = 4$ Ω

figure 10. FWD

Typical recovered charge as a function of IGBT turn on gate resistor

$$Q_r = f(R_{gdn})$$

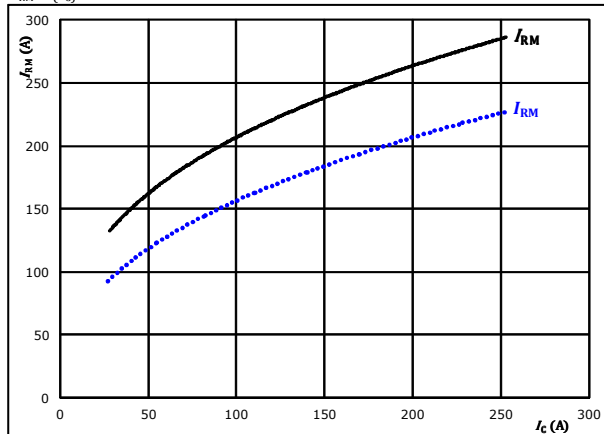


At $V_{CE} = 700$ V $T_j = 25$ °C (dotted blue line)
 $V_{GE} = 15/0$ V $T_j = 125$ °C (solid black line)
 $I_c = 141$ A

figure 11. FWD

Typical peak reverse recovery current as a function of collector current

$$I_{RM} = f(I_c)$$

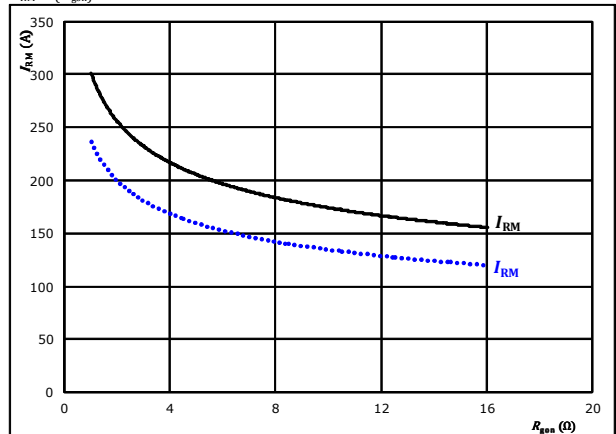


At $V_{CE} = 700$ V $T_j = 25$ °C (dotted blue line)
 $V_{GE} = 15/0$ V $T_j = 125$ °C (solid black line)
 $R_{gdn} = 4$ Ω

figure 12. FWD

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$$I_{RM} = f(R_{gdn})$$



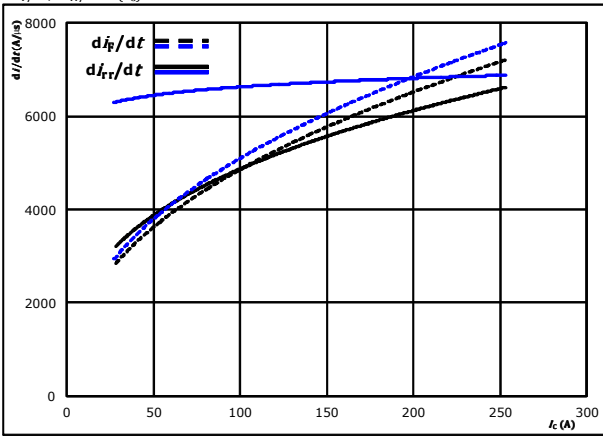
At $V_{CE} = 700$ V $T_j = 25$ °C (dotted blue line)
 $V_{GE} = 15/0$ V $T_j = 125$ °C (solid black line)
 $I_c = 141$ A



Brake Switching Characteristics

figure 13. FWD

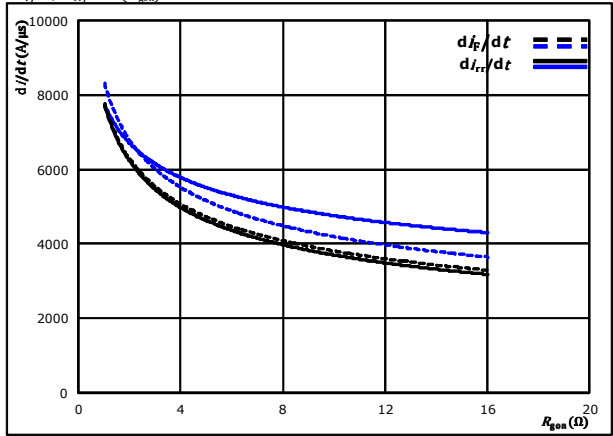
Typical rate of fall of forward and reverse recovery current as a function of collector current
 $di_f/dt, di_{rr}/dt = f(I_C)$



At $V_{CE} = 700$ V $T_j = 25$ °C $R_{g0n} = 4$ Ω
 $V_{GE} = 15/0$ V $T_j = 125$ °C

figure 14. FWD

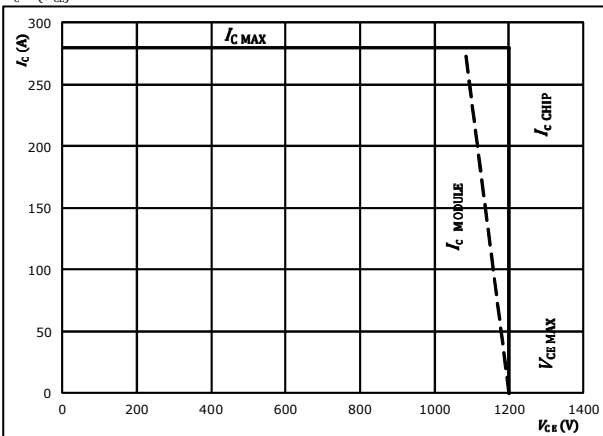
Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor
 $di_f/dt, di_{rr}/dt = f(R_{g0n})$



At $V_{CE} = 700$ V $T_j = 25$ °C $I_C = 141$ A
 $V_{GE} = 15/0$ V $T_j = 125$ °C

figure 15. IGBT

Reverse bias safe operating area
 $I_C = f(V_{CB})$



At $T_j = 175$ °C
 $R_{g0n} = 4$ Ω
 $R_{g0ff} = 4$ Ω

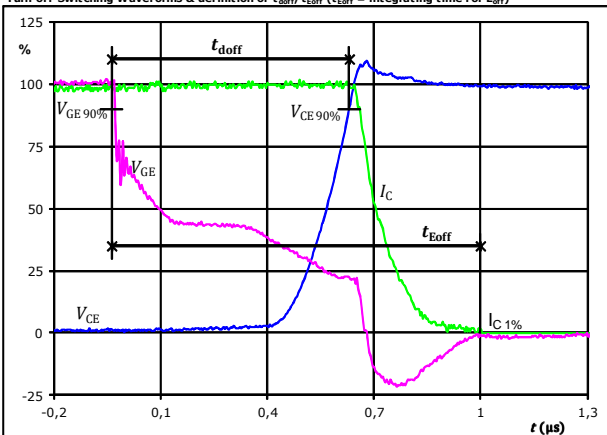


Brake Switching Definitions

General conditions		
T_j	=	125 °C
R_{gon}	=	4 Ω
R_{goff}	=	4 Ω

figure 1. IGBT

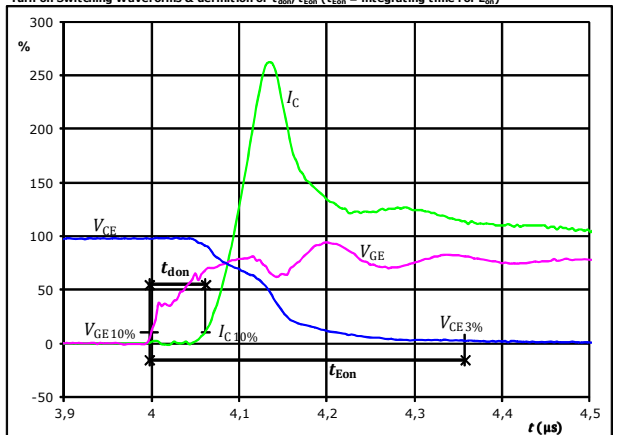
Turn-off Switching Waveforms & definition of t_{doff} , t_{Eoff} (t_{Eoff} = integrating time for E_{off})



$V_{GE}(0\%) =$	0	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	700	V
$I_C(100\%) =$	141	A
$t_{doff} =$	0,658	μ s
$t_{Eoff} =$	1,037	μ s

figure 2. IGBT

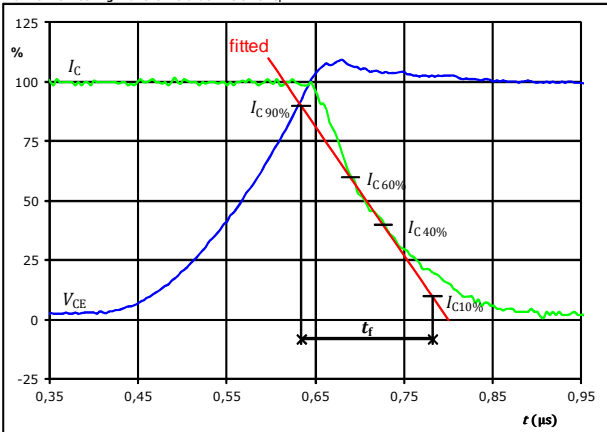
Turn-on Switching Waveforms & definition of t_{don} , t_{Eon} (t_{Eon} = integrating time for E_{on})



$V_{GE}(0\%) =$	0	V
$V_{GE}(100\%) =$	15	V
$V_C(100\%) =$	700	V
$I_C(100\%) =$	141	A
$t_{don} =$	0,062	μ s
$t_{Eon} =$	0,360	μ s

figure 3. IGBT

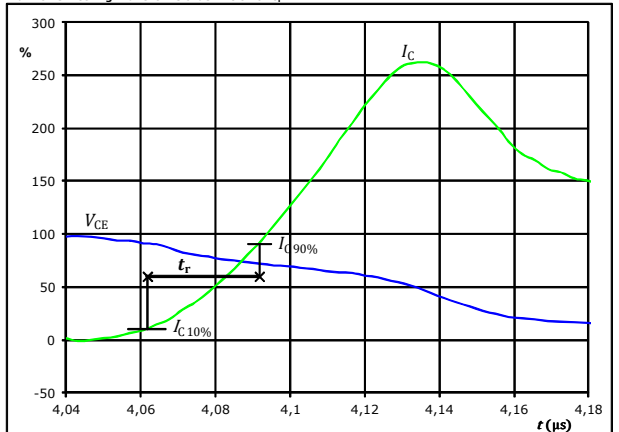
Turn-off Switching Waveforms & definition of t_f



$V_C(100\%) =$	700	V
$I_C(100\%) =$	141	A
$t_f =$	0,146	μ s

figure 4. IGBT

Turn-on Switching Waveforms & definition of t_r



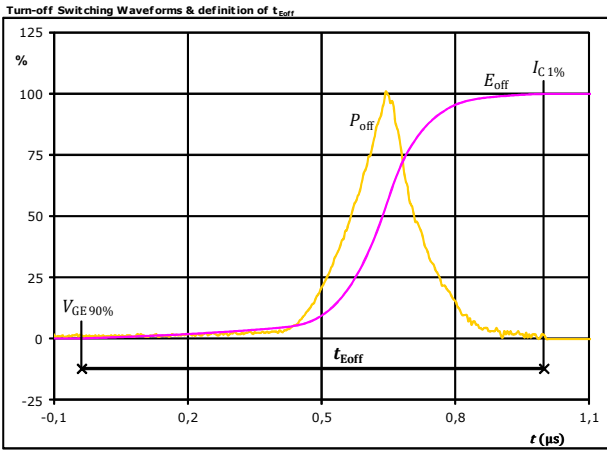
$V_C(100\%) =$	700	V
$I_C(100\%) =$	141	A
$t_r =$	0,030	μ s



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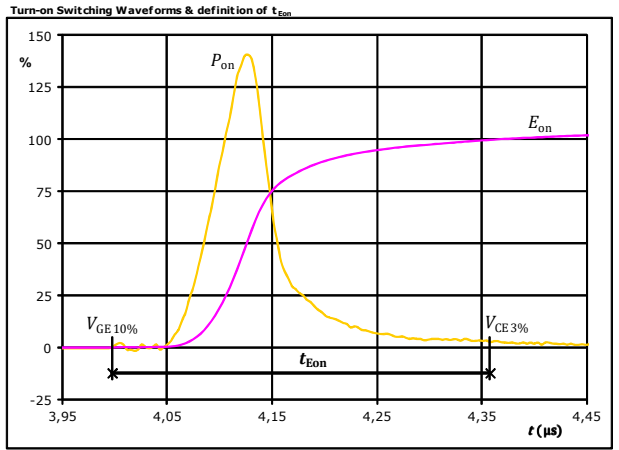
Brake Switching Characteristics

figure 5. IGBT



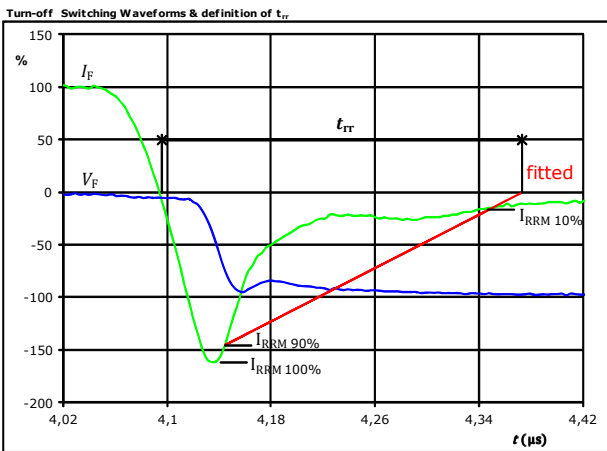
$P_{off}(100\%) =$	98,75	kW
$E_{off}(100\%) =$	18,11	mJ
$t_{Eoff} =$	1,04	μs

figure 6. IGBT



$P_{on}(100\%) =$	98,75	kW
$E_{on}(100\%) =$	10,10	mJ
$t_{Eon} =$	0,36	μs

figure 7. FWD

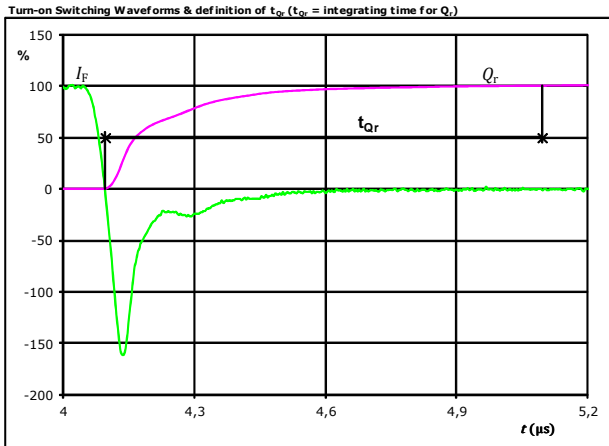


$V_F(100\%) =$	700	V
$I_F(100\%) =$	141	A
$I_{RRM}(100\%) =$	-230	A
$t_{tr} =$	0,271	μs



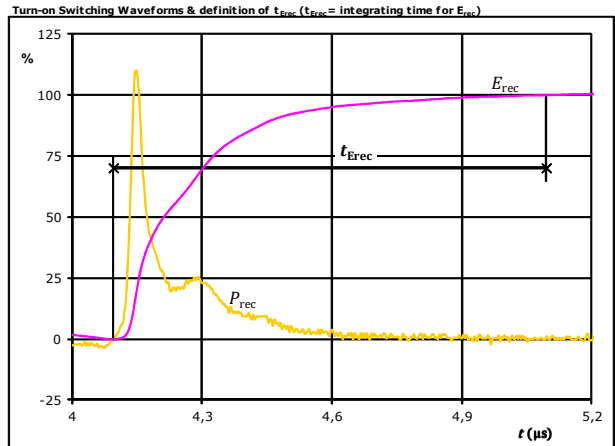
Brake Switching Characteristics

figure 8. FWD



I_F (100%) =	141	A
Q_r (100%) =	20,25	μC
t_{Qr} =	1,00	μs

figure 9. FWD



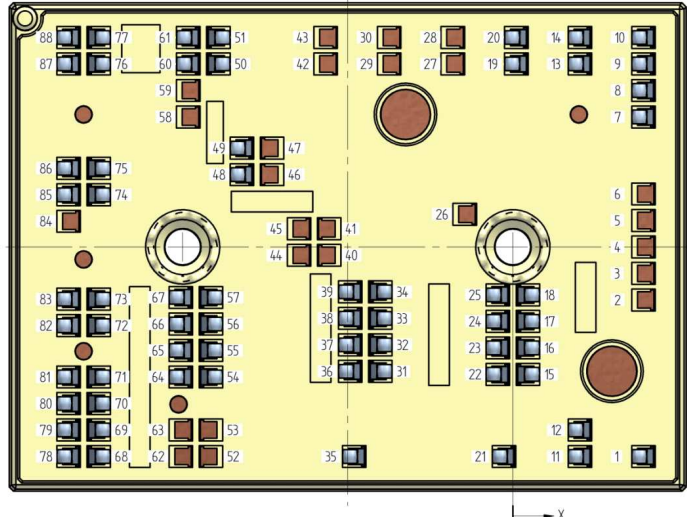
P_{rec} (100%) =	98,75	kW
E_{rec} (100%) =	9,82	mJ
t_{Erec} =	1,00	μs



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Ordering Code & Marking							
Version			Ordering Code				
With std lid (6.5mm height) + no thermal grease			80-M3166BB125AS-K489G31-/0A/				
With thin lid (2.8mm height) + no thermal grease			80-M3166BB125AS-K489G31-/0B/				
With std lid (6.5mm height) + thermal grease (0,8 W/mK, P12, silicone-based)			80-M3166BB125AS-K489G31-/1A/				
With thin lid (2.8mm height) + thermal grease (0,8 W/mK, P12, silicone-based)			80-M3166BB125AS-K489G31-/1B/				
With std lid (6.5mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)			80-M3166BB125AS-K489G31-/4A/				
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, TG20032, silicone-free)			80-M3166BB125AS-K489G31-/4B/				
With std lid (6.5mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)			80-M3166BB125AS-K489G31-/5A/				
With thin lid (2.8mm height) + thermal grease (2,5 W/mK, HPTP, silicone-based)			80-M3166BB125AS-K489G31-/5B/				
	Text	Name		Date code	UL & VIN	Lot	Serial
		NN-NNNNNNNNNNNNNNNNNNNN-TTTTTTW		WWYY	UL VIN	LLLLL	SSSS
		Type&Ver	Lot number	Serial	Date code		
Datamatrix		TTTTTTW	LLLLL	SSSS	WWYY		

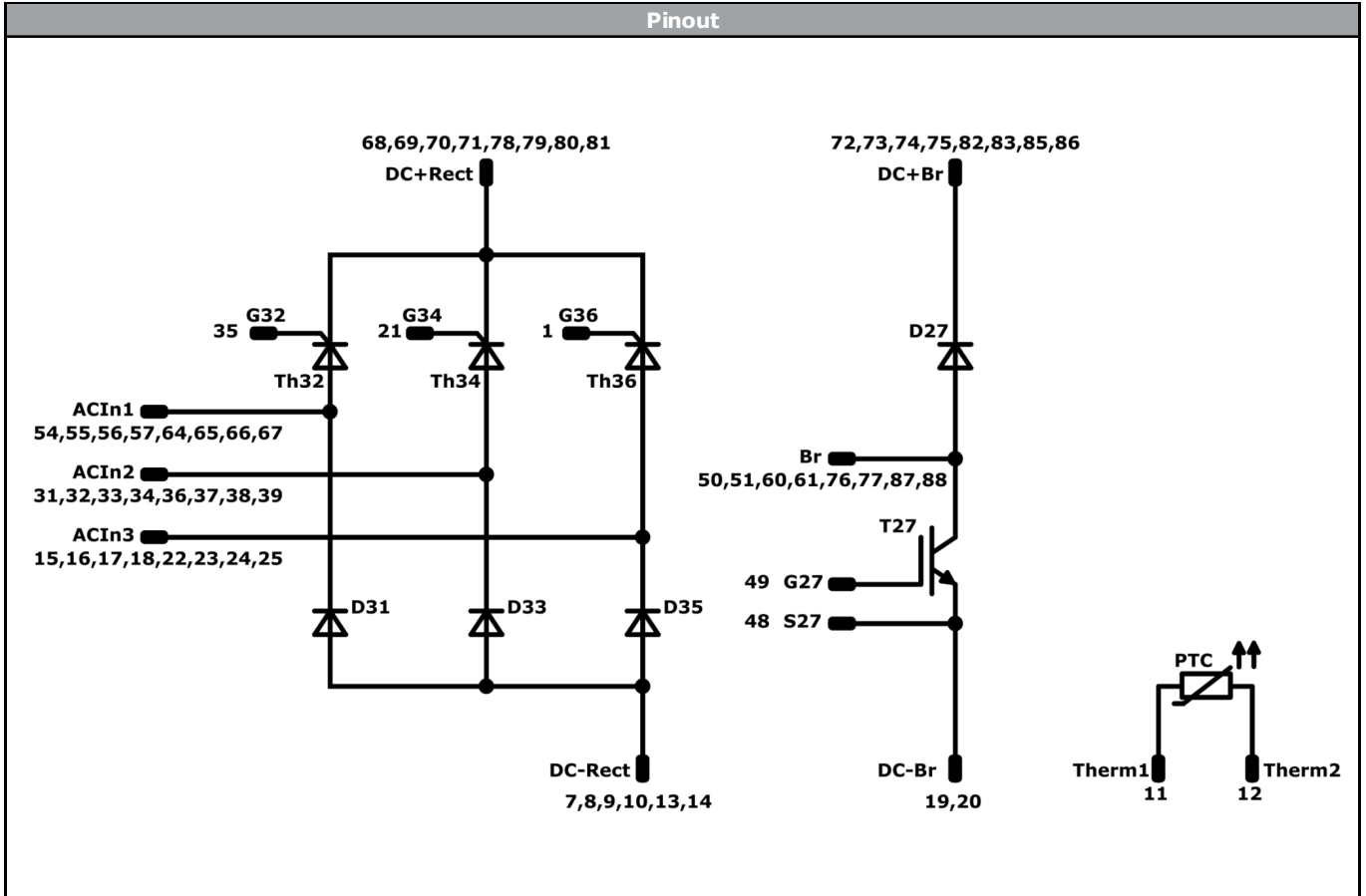
Outline							
PCB pad table				PCB pad table			
Pad	X	Y	Function	Pad	X	Y	Function
1	15,83	-25,3	G36	45			Not assembled
2			Not assembled	46			Not assembled
3			Not assembled	47			Not assembled
4			Not assembled	48	-32,82	8,74	S27
5			Not assembled	49	-32,82	11,94	G27
6			Not assembled	50	4,32	22,1	Br
7	15,83	15,7	DC-Rect	51	4,32	25,3	Br
8	15,83	18,9	DC-Rect	52			Not assembled
9	15,83	22,1	DC-Rect	53			Not assembled
10	15,83	25,3	DC-Rect	54	3,42	-15,7	ACIn1
11	8,13	-25,3	Therm1	55	3,42	-12,5	ACIn1
12	8,13	-22,1	Therm2	56	3,42	-9,3	ACIn1
13	8,13	22,1	DC-Rect	57	3,42	-6,1	ACIn1
14	8,13	25,3	DC-Rect	58			Not assembled
15	41,82	-15,38	ACIn3	59			Not assembled
16	41,82	-12,18	ACIn3	60	-39,32	22,1	Br
17	41,82	-8,98	ACIn3	61	-39,32	25,3	Br
18	41,82	-5,79	ACIn3	62			Not assembled
19	0,43	22,1	DC-Br	63			Not assembled
20	0,43	25,3	DC-Br	64	-40,22	-15,7	ACIn1
21	-1,07	-25,3	G34	65	-40,22	-12,5	ACIn1
22	-1,82	-15,38	ACIn3	66	-40,22	-9,3	ACIn1
23	-1,82	-12,18	ACIn3	67	-40,22	-6,09	ACIn1
24	-1,82	-8,98	ACIn3	68	-10,18	-25,3	DC+Rect
25	-1,82	-5,79	ACIn3	69	-10,18	-22,1	DC+Rect
26			Not assembled	70	-10,18	-18,9	DC+Rect
27			Not assembled	71	-10,18	-15,7	DC+Rect
28			Not assembled	72	-10,18	-9,5	DC+Br
29			Not assembled	73	-10,18	-6,3	DC+Br
30			Not assembled	74	-10,18	6,3	DC+Br
31	23,95	-15,02	ACIn2	75	-10,18	9,5	DC+Br
32	23,95	-11,82	ACIn2	76	-10,18	22,1	Br
33	23,95	-8,63	ACIn2	77	-10,18	25,3	Br
34	23,95	-5,42	ACIn2	78	-53,82	-25,3	DC+Rect
35	-19,22	-25,3	G32	79	-53,82	-22,1	DC+Rect
36	-19,7	-15,02	ACIn2	80	-53,82	-18,9	DC+Rect
37	-19,7	-11,82	ACIn2	81	-53,82	-15,7	DC+Rect
38	-19,7	-8,62	ACIn2	82	-53,82	-9,5	DC+Br
39	-19,7	-5,42	ACIn2	83	-53,82	-6,3	DC+Br
40			Not assembled	84			Not assembled
41			Not assembled	85	-53,82	6,3	DC+Br
42			Not assembled	86	-53,82	9,5	DC+Br
43			Not assembled	87	-53,82	22,1	Br
44			Not assembled	88	-53,82	25,3	Br



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



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Identification					
ID	Component	Voltage	Current	Function	Comment
D31, D33, D35	Rectifier Diode	1600 V	140 A	Rectifier Diode	
Th32, Th34, Th36	Thyristor	1600 V	125 A	Rectifier Thyristor	
T27	IGBT	1200 V	140 A	Brake Switch	
D27	FWD	1200 V	150 A	Brake Diode	
PTC	PTC			Thermistor	




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Packaging instruction			
Standard packaging quantity (SPQ) 48	>SPQ	Standard	<SPQ Sample

Handling instruction
Handling instructions for MiniSkiIP® 3 packages see vincotech.com website.

Package data
Package data for MiniSkiIP® 3 packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website. 

Document No.:	Date:	Modification:	Pages
80-M3166BB125AS-K489G31-D2-14	11 Mar. 2019	Thyristor graph corrected	9

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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.