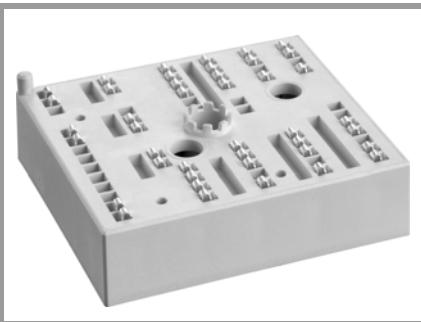


# SKiiP 24NAB12T7V1



MiniSKiiP® 2

## 3-phase Converter-Inverter-Brake (CIB)

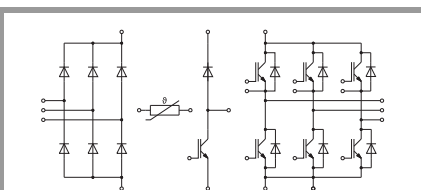
### SKiiP 24NAB12T7V1

#### Features\*

- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- New SKR PEP diode technology for enhanced power and environmental robustness
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

#### Remarks

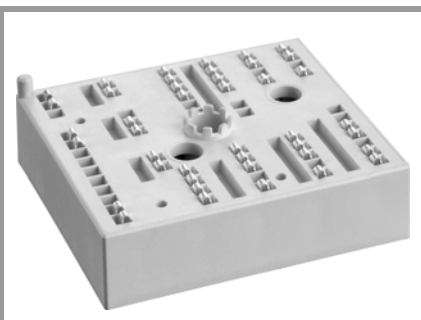
- Max. case temperature limited to  $T_C=T_S=125\text{ °C}$
- Product reliability results valid for  $T_j \leq 150\text{ °C}$  (recommended  $T_{j,op} = -40 \dots +150\text{ °C}$ )
- MiniSKiiP “Technical Explanations” and “Mounting Instructions” are part of the data sheet. Please refer to both documents for further information.
- For storage and case temperature with TIM see document: “Technical Explanations Thermal Interface Materials”
- Inverter IGBT: T1 – T6
- Chopper IGBT: T14
- Inverse Diode: D1 – D6
- Freewheeling Diode: D13
- Rectifier Diode: D7 – D12



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Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Inverter - IGBT</b>				
$V_{CES}$	$T_j = 25\text{ °C}$		1200	V
$I_C$	$\lambda_{paste}=0.8\text{ W/(mK)}$	$T_s = 70\text{ °C}$	42	A
		$T_j = 175\text{ °C}$	34	A
$I_C$	$\lambda_{paste}=2.5\text{ W/(mK)}$	$T_s = 70\text{ °C}$	47	A
		$T_j = 175\text{ °C}$	38	A
$I_{Chom}$			35	A
$I_{CRM}$			70	A
$V_{GES}$			-20 ... 20	V
$t_{psc}$	$V_{CC} = 800\text{ V}$	$T_j = 175\text{ °C}$	7	$\mu\text{s}$
	$V_{GE} \leq 15\text{ V}$			
	$V_{CES} \leq 1200\text{ V}$			
$T_j$			-40 ... 175	$^{\circ}\text{C}$
<b>Chopper - IGBT</b>				
$V_{CES}$	$T_j = 25\text{ °C}$		1200	V
$I_C$	$\lambda_{paste}=0.8\text{ W/(mK)}$	$T_s = 70\text{ °C}$	42	A
		$T_j = 175\text{ °C}$	34	A
$I_C$	$\lambda_{paste}=2.5\text{ W/(mK)}$	$T_s = 70\text{ °C}$	47	A
		$T_j = 175\text{ °C}$	38	A
$I_{Chom}$			35	A
$I_{CRM}$			70	A
$V_{GES}$			-20 ... 20	V
$t_{psc}$	$V_{CC} = 800\text{ V}$	$T_j = 175\text{ °C}$	7	$\mu\text{s}$
	$V_{GE} \leq 15\text{ V}$			
	$V_{CES} \leq 1200\text{ V}$			
$T_j$			-40 ... 175	$^{\circ}\text{C}$
<b>Inverse - Diode</b>				
$V_{RRM}$	$T_j = 25\text{ °C}$		1200	V
$I_F$	$\lambda_{paste}=0.8\text{ W/(mK)}$	$T_s = 70\text{ °C}$	33	A
		$T_j = 175\text{ °C}$	27	A
$I_F$	$\lambda_{paste}=2.5\text{ W/(mK)}$	$T_s = 70\text{ °C}$	37	A
		$T_j = 175\text{ °C}$	30	A
$I_{FRM}$			70	A
$I_{FSM}$	$t_p = 10\text{ ms, sin } 180^{\circ}, T_j = 150\text{ °C}$		170	A
$T_j$			-40 ... 175	$^{\circ}\text{C}$
<b>Freewheeling - Diode</b>				
$V_{RRM}$	$T_j = 25\text{ °C}$		1200	V
$I_F$	$\lambda_{paste}=0.8\text{ W/(mK)}$	$T_s = 70\text{ °C}$	33	A
		$T_j = 175\text{ °C}$	27	A
$I_F$	$\lambda_{paste}=2.5\text{ W/(mK)}$	$T_s = 70\text{ °C}$	37	A
		$T_j = 175\text{ °C}$	30	A
$I_{FRM}$			70	A
$I_{FSM}$	$t_p = 10\text{ ms, sin } 180^{\circ}, T_j = 150\text{ °C}$		170	A
$T_j$			-40 ... 175	$^{\circ}\text{C}$

# SKiiP 24NAB12T7V1



MiniSKiiP® 2

## 3-phase Converter-Inverter-Brake (CIB)

### SKiiP 24NAB12T7V1

#### Features\*

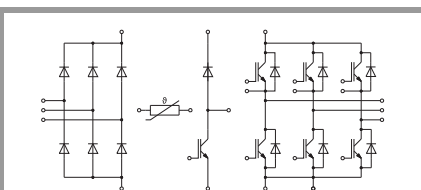
- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- New SKR PEP diode technology for enhanced power and environmental robustness
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

#### Remarks

- Max. case temperature limited to  $T_C=T_S=125\text{ °C}$
- Product reliability results valid for  $T_j \leq 150\text{ °C}$  (recommended  $T_{j,op} = -40 \dots +150\text{ °C}$ )
- MiniSKiiP “Technical Explanations” and “Mounting Instructions” are part of the data sheet. Please refer to both documents for further information.
- For storage and case temperature with TIM see document: “Technical Explanations Thermal Interface Materials”
- Inverter IGBT: T1 – T6
- Chopper IGBT: T14
- Inverse Diode: D1 – D6
- Freewheeling Diode: D13
- Rectifier Diode: D7 – D12

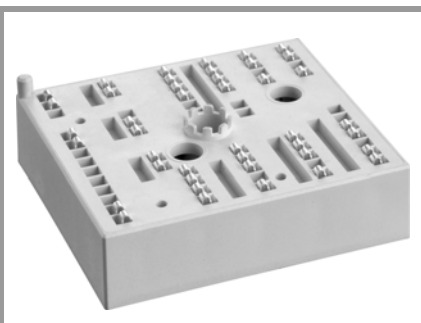
Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Rectifier - Diode</b>				
$V_{RRM}$	$T_j = 25\text{ °C}$		1600	V
$I_F$	$\lambda_{paste} = 0.8\text{ W/(mK)}$	$T_s = 70\text{ °C}$	49	A
		$T_s = 100\text{ °C}$	39	A
$I_F$	$\lambda_{paste} = 2.5\text{ W/(mK)}$	$T_s = 70\text{ °C}$	55	A
		$T_s = 100\text{ °C}$	43	A
$I_{FSM}$	$t_p = 10\text{ ms}$ $\sin 180^\circ$	$T_j = 25\text{ °C}$	370	A
		$T_j = 150\text{ °C}$	270	A
$i^2t$	$t_p = 10\text{ ms}$ $\sin 180^\circ$	$T_j = 25\text{ °C}$	685	A <sup>2</sup> s
		$T_j = 150\text{ °C}$	365	A <sup>2</sup> s
$T_j$			-40 ... 175	°C
<b>Module</b>				
$I_{t(RMS)}$	$T_{terminal} = 80\text{ °C}$ , 20 A per spring		40	A
$T_{stg}$	module without TIM		-40 ... 125	°C
$V_{isol}$	AC sinus 50 Hz, 1 min		2500	V

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Inverter - IGBT</b>						
$V_{CE(sat)}$	$I_C = 35\text{ A}$ $V_{GE} = 15\text{ V}$ chipelevel	$T_j = 25\text{ °C}$	1.60	1.75		V
		$T_j = 150\text{ °C}$	1.82	1.96		V
		$T_j = 175\text{ °C}$	1.86	2.00		V
$V_{CE0}$	chipelevel	$T_j = 25\text{ °C}$	0.90	1.00		V
		$T_j = 150\text{ °C}$	0.75	0.83		V
		$T_j = 175\text{ °C}$	0.72	0.80		V
$r_{CE}$	$V_{GE} = 15\text{ V}$ chipelevel	$T_j = 25\text{ °C}$	20	21		mΩ
		$T_j = 150\text{ °C}$	31	32		mΩ
		$T_j = 175\text{ °C}$	33	34		mΩ
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 0.75\text{ mA}$		5.15	5.8	6.45	V
$I_{CES}$	$V_{GE} = 0\text{ V}$ , $V_{CE} = 1200\text{ V}$ , $T_j = 25\text{ °C}$				1	mA
$C_{ies}$	$V_{CE} = 25\text{ V}$ $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	6.60			nF
$C_{oes}$		$f = 1\text{ MHz}$	0.09			nF
$C_{res}$		$f = 1\text{ MHz}$	0.02			nF
$Q_G$	$V_{GE} = -8\text{ V} \dots +15\text{ V}$		490			nC
$R_{Gint}$	$T_j = 25\text{ °C}$		0			Ω
$t_{d(on)}$	$V_{CC} = 600\text{ V}$ $I_C = 35\text{ A}$ $R_{G on} = 9.1\text{ Ω}$ $R_{G off} = 9.1\text{ Ω}$	$T_j = 25\text{ °C}$	37			ns
		$T_j = 150\text{ °C}$	39			ns
		$T_j = 175\text{ °C}$	40			ns
$t_r$	$V_{GE} = +15/-15\text{ V}$	$T_j = 25\text{ °C}$	37			ns
		$T_j = 150\text{ °C}$	43			ns
		$T_j = 175\text{ °C}$	46			ns
$E_{on}$	@ $T_j = 150\text{ °C}$ : $di/dt_{on} = 860\text{ A/μs}$ $di/dt_{off} = 380\text{ A/μs}$ $dv/dt = 3610\text{ V/μs}$	$T_j = 25\text{ °C}$	2.8			mJ
		$T_j = 150\text{ °C}$	4			mJ
		$T_j = 175\text{ °C}$	4.2			mJ



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# SKiiP 24NAB12T7V1



MiniSKiiP® 2

## 3-phase Converter-Inverter-Brake (CIB)

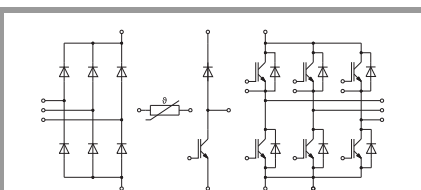
### SKiiP 24NAB12T7V1

#### Features\*

- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- New SKR PEP diode technology for enhanced power and environmental robustness
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

#### Remarks

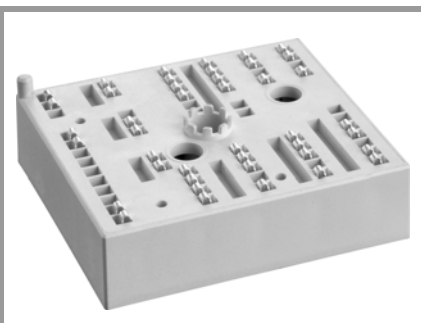
- Max. case temperature limited to  $T_C=T_S=125\text{ °C}$
- Product reliability results valid for  $T_j \leq 150\text{ °C}$  (recommended  $T_{j,op} = -40 \dots +150\text{ °C}$ )
- MiniSKiiP “Technical Explanations” and “Mounting Instructions” are part of the data sheet. Please refer to both documents for further information.
- For storage and case temperature with TIM see document: “Technical Explanations Thermal Interface Materials”
- Inverter IGBT: T1 – T6
- Chopper IGBT: T14
- Inverse Diode: D1 – D6
- Freewheeling Diode: D13
- Rectifier Diode: D7 – D12



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Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Inverter - IGBT</b>						
$t_{d(off)}$	$V_{CC} = 600\text{ V}$ $I_C = 35\text{ A}$ $R_{G\ on} = 9.1\ \Omega$ $R_{G\ off} = 9.1\ \Omega$ $V_{GE} = +15/-15\text{ V}$	$T_j = 25\text{ °C}$		231		ns
		$T_j = 150\text{ °C}$		321		ns
		$T_j = 175\text{ °C}$		346		ns
$t_f$		$T_j = 25\text{ °C}$		48		ns
		$T_j = 150\text{ °C}$		74		ns
		$T_j = 175\text{ °C}$		90		ns
$E_{off}$	@ $T_j = 150\text{ °C}$ : $di/dt_{on} = 860\text{ A}/\mu\text{s}$ $di/dt_{off} = 380\text{ A}/\mu\text{s}$ $dv/dt = 3610\text{ V}/\mu\text{s}$	$T_j = 25\text{ °C}$		2.3		mJ
		$T_j = 150\text{ °C}$		3.9		mJ
		$T_j = 175\text{ °C}$		4.2		mJ
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=0.8\text{ W}/(\text{mK})$			1.12		K/W
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=2.5\text{ W}/(\text{mK})$			0.93		K/W
<b>Chopper - IGBT</b>						
$V_{CE(sat)}$	$I_C = 35\text{ A}$ $V_{GE} = 15\text{ V}$ chipelevel	$T_j = 25\text{ °C}$		1.60	1.75	V
		$T_j = 150\text{ °C}$		1.82	1.96	V
		$T_j = 175\text{ °C}$		1.86	2.00	V
$V_{CE0}$	chipelevel	$T_j = 25\text{ °C}$		0.90	1.00	V
		$T_j = 150\text{ °C}$		0.75	0.83	V
		$T_j = 175\text{ °C}$		0.72	0.80	V
$r_{CE}$	$V_{GE} = 15\text{ V}$ chipelevel	$T_j = 25\text{ °C}$		20	21	m $\Omega$
		$T_j = 150\text{ °C}$		31	32	m $\Omega$
		$T_j = 175\text{ °C}$		33	34	m $\Omega$
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 0.75\text{ mA}$		5.15	5.8	6.45	V
$I_{CES}$	$V_{GE} = 0\text{ V}, V_{CE} = 1200\text{ V}, T_j = 25\text{ °C}$				1	mA
$C_{ies}$	$V_{CE} = 25\text{ V}$ $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$		6.60		nF
$C_{oes}$		$f = 1\text{ MHz}$		0.09		nF
$C_{res}$		$f = 1\text{ MHz}$		0.02		nF
$Q_G$	$V_{GE} = -8\text{ V} \dots +15\text{ V}$			490		nC
$R_{Gint}$	$T_j = 25\text{ °C}$			0		$\Omega$
$t_{d(on)}$		$T_j = 25\text{ °C}$		37		ns
		$T_j = 150\text{ °C}$		39		ns
		$T_j = 175\text{ °C}$		40		ns
$t_r$	$V_{CC} = 600\text{ V}$ $I_C = 35\text{ A}$ $R_{G\ on} = 9.1\ \Omega$ $R_{G\ off} = 9.1\ \Omega$ $V_{GE} = +15/-15\text{ V}$	$T_j = 25\text{ °C}$		37		ns
		$T_j = 150\text{ °C}$		43		ns
		$T_j = 175\text{ °C}$		46		ns
$E_{on}$		$T_j = 25\text{ °C}$		2.8		mJ
		$T_j = 150\text{ °C}$		4		mJ
		$T_j = 175\text{ °C}$		4.2		mJ
$t_{d(off)}$		$T_j = 25\text{ °C}$		231		ns
		$T_j = 150\text{ °C}$		321		ns
		$T_j = 175\text{ °C}$		346		ns
$t_f$		$T_j = 25\text{ °C}$		48		ns
		$T_j = 150\text{ °C}$		74		ns
		$T_j = 175\text{ °C}$		90		ns
$E_{off}$		$T_j = 25\text{ °C}$		2.3		mJ
		$T_j = 150\text{ °C}$		3.9		mJ
		$T_j = 175\text{ °C}$		4.2		mJ
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=0.8\text{ W}/(\text{mK})$			1.12		K/W
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=2.5\text{ W}/(\text{mK})$			0.93		K/W

# SKiiP 24NAB12T7V1



MiniSKiiP® 2

## 3-phase Converter-Inverter-Brake (CIB)

### SKiiP 24NAB12T7V1

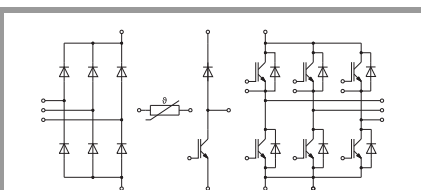
#### Features\*

- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- New SKR PEP diode technology for enhanced power and environmental robustness
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

#### Remarks

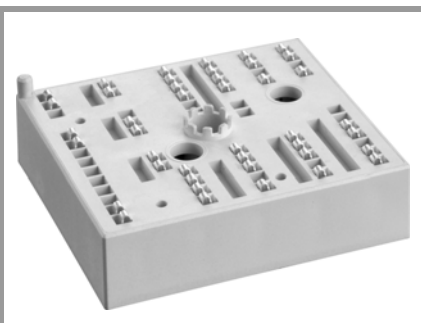
- Max. case temperature limited to  $T_C=T_S=125\text{ °C}$
- Product reliability results valid for  $T_j \leq 150\text{ °C}$  (recommended  $T_{j,op} = -40 \dots +150\text{ °C}$ )
- MiniSKiiP “Technical Explanations” and “Mounting Instructions” are part of the data sheet. Please refer to both documents for further information.
- For storage and case temperature with TIM see document: “Technical Explanations Thermal Interface Materials”
- Inverter IGBT: T1 – T6
- Chopper IGBT: T14
- Inverse Diode: D1 – D6
- Freewheeling Diode: D13
- Rectifier Diode: D7 – D12

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Inverse - Diode</b>						
$V_F = V_{EC}$	$I_F = 35\text{ A}$ $V_{GE} = 0\text{ V}$ chipelevel	$T_j = 25\text{ °C}$		2.30	2.62	V
		$T_j = 150\text{ °C}$		2.29	2.62	V
		$T_j = 175\text{ °C}$		2.14	2.46	V
$V_{F0}$	chipelevel	$T_j = 25\text{ °C}$		1.30	1.50	V
		$T_j = 150\text{ °C}$		0.90	1.10	V
		$T_j = 175\text{ °C}$		0.82	0.98	V
$r_F$	chipelevel	$T_j = 25\text{ °C}$		29	32	mΩ
		$T_j = 150\text{ °C}$		40	43	mΩ
		$T_j = 175\text{ °C}$		38	42	mΩ
$I_{RRM}$	$V_{CC} = 600\text{ V}$	$T_j = 25\text{ °C}$		22		A
		$T_j = 150\text{ °C}$		28		A
		$T_j = 175\text{ °C}$		33		A
$Q_{rr}$	$I_F = 35\text{ A}$ $V_{GE} = -15\text{ V}$	$T_j = 25\text{ °C}$		2		μC
		$T_j = 150\text{ °C}$		5.2		μC
		$T_j = 175\text{ °C}$		5.7		μC
$E_{rr}$	@ $T_j = 150\text{ °C}$ : $di/dt_{off} = 870\text{ A/μs}$	$T_j = 25\text{ °C}$		0.65		mJ
		$T_j = 150\text{ °C}$		2.1		mJ
		$T_j = 175\text{ °C}$		2.7		mJ
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=0.8\text{ W/(mK)}$			1.34		K/W
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=2.5\text{ W/(mK)}$			1.13		K/W
<b>Freewheeling - Diode</b>						
$V_F = V_{EC}$	$I_F = 35\text{ A}$ $V_{GE} = 0\text{ V}$ chipelevel	$T_j = 25\text{ °C}$		2.30	2.62	V
		$T_j = 150\text{ °C}$		2.29	2.62	V
		$T_j = 175\text{ °C}$		2.14	2.46	V
$V_{F0}$	chipelevel	$T_j = 25\text{ °C}$		1.30	1.50	V
		$T_j = 150\text{ °C}$		0.90	1.10	V
		$T_j = 175\text{ °C}$		0.82	0.98	V
$r_F$	chipelevel	$T_j = 25\text{ °C}$		29	32	mΩ
		$T_j = 150\text{ °C}$		40	43	mΩ
		$T_j = 175\text{ °C}$		38	42	mΩ
$I_{RRM}$	$V_{CC} = 600\text{ V}$	$T_j = 25\text{ °C}$		22		A
		$T_j = 150\text{ °C}$		28		A
		$T_j = 175\text{ °C}$		33		A
$Q_{rr}$	$I_F = 35\text{ A}$ $V_{GE} = -15\text{ V}$	$T_j = 25\text{ °C}$		2		μC
		$T_j = 150\text{ °C}$		5.2		μC
		$T_j = 175\text{ °C}$		5.7		μC
$E_{rr}$	@ $T_j = 150\text{ °C}$ : $di/dt_{off} = 870\text{ A/μs}$	$T_j = 25\text{ °C}$		0.65		mJ
		$T_j = 150\text{ °C}$		2.1		mJ
		$T_j = 175\text{ °C}$		2.7		mJ
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=0.8\text{ W/(mK)}$			1.34		K/W
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=2.5\text{ W/(mK)}$			1.13		K/W



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# SKiiP 24NAB12T7V1



MiniSKiiP® 2

## 3-phase Converter-Inverter-Brake (CIB)

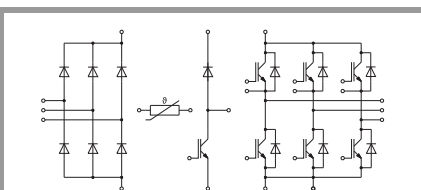
### SKiiP 24NAB12T7V1

#### Features\*

- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- New SKR PEP diode technology for enhanced power and environmental robustness
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

#### Remarks

- Max. case temperature limited to  $T_C=T_S=125\text{ °C}$
- Product reliability results valid for  $T_j \leq 150\text{ °C}$  (recommended  $T_{j,op} = -40 \dots +150\text{ °C}$ )
- MiniSKiiP “Technical Explanations” and “Mounting Instructions” are part of the data sheet. Please refer to both documents for further information.
- For storage and case temperature with TIM see document: “Technical Explanations Thermal Interface Materials”
- Inverter IGBT: T1 – T6
- Chopper IGBT: T14
- Inverse Diode: D1 – D6
- Freewheeling Diode: D13
- Rectifier Diode: D7 – D12



NAB

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Rectifier - Diode</b>						
$V_F$	$I_F = 13\text{ A}$ chipelevel	$T_j = 25\text{ °C}$		0.97	1.20	V
		$T_j = 150\text{ °C}$		0.84	1.07	V
		$T_j = 175\text{ °C}$		0.82	1.05	V
$V_{F0}$	chipelevel	$T_j = 25\text{ °C}$		0.89	1.09	V
		$T_j = 150\text{ °C}$		0.73	0.92	V
		$T_j = 175\text{ °C}$		0.69	0.88	V
$r_F$	chipelevel	$T_j = 25\text{ °C}$		6.2	8.5	mΩ
		$T_j = 150\text{ °C}$		8.8	12	mΩ
		$T_j = 175\text{ °C}$		10.0	13	mΩ
$I_R$	$T_j = 150\text{ °C}, V_{RRM}$				1.7	mA
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=0.8\text{ W/(mK)}$			1.39		K/W
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=2.5\text{ W/(mK)}$			1.2		K/W
<b>Module</b>						
$M_s$	to heat sink		2		2.5	Nm
w				55		g
$L_{CE}$				-		nH
<b>Temperature Sensor</b>						
$R_{100}$	$T_j=100\text{ °C}$ ( $R_{25}=1000\Omega$ )			1670 ± 3%		Ω
$R_{(T)}$	$R_{(T)}=1000\Omega[1+A(T-25\text{ °C})+B(T-25\text{ °C})^2]$ , $A = 7.635 \cdot 10^{-3}\text{ °C}^{-1}$ , $B = 1.731 \cdot 10^{-5}\text{ °C}^{-2}$					

Creepage distance (spring to spring) between temperature sensor and phase DC- = 3.2mm (CTI 600)

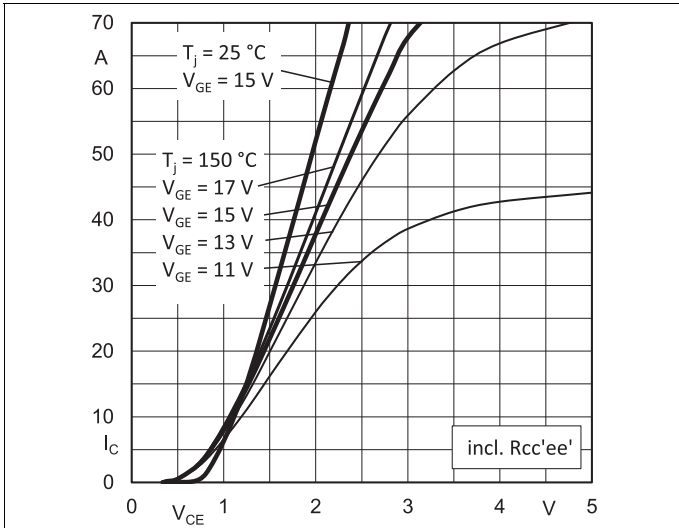


Fig. 1: Typ. output characteristic

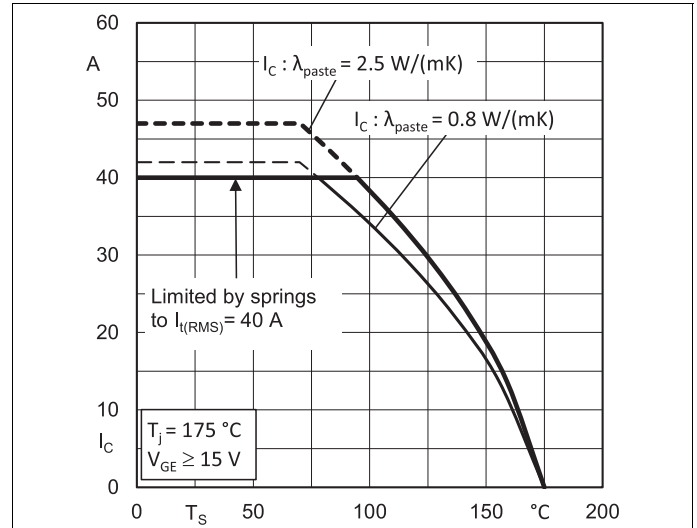


Fig. 2: Typ. rated current vs. temperature  $I_C = f(T_s)$

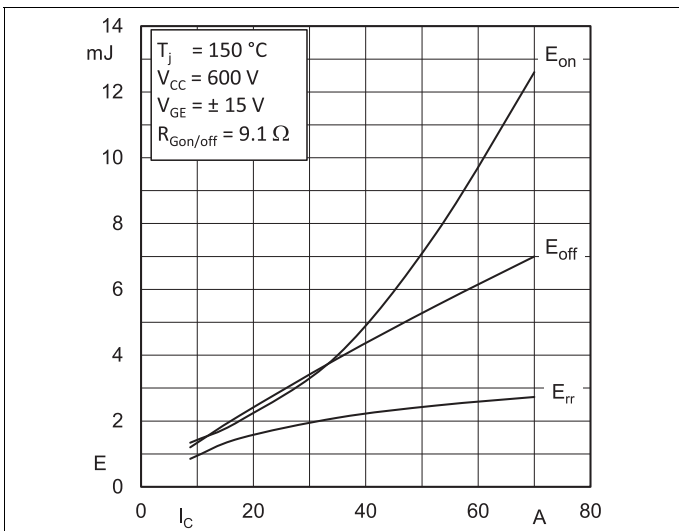


Fig. 3: Typ. turn-on /-off energy =  $f(I_C)$

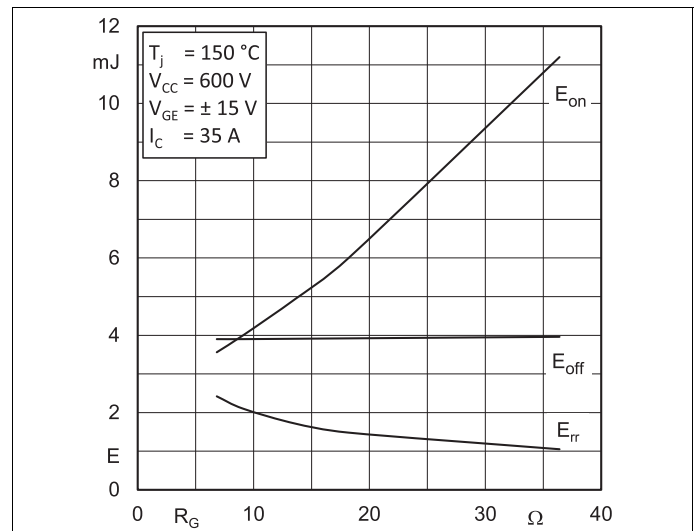


Fig. 4: Typ. turn-on /-off energy =  $f(R_G)$

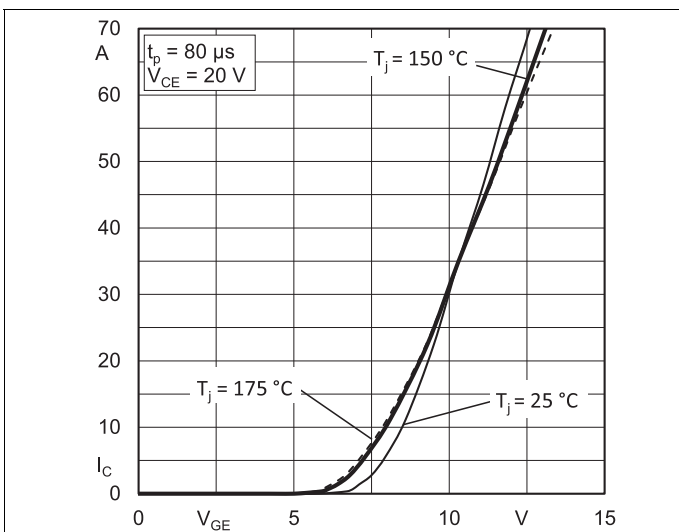


Fig. 5: Typ. transfer characteristic

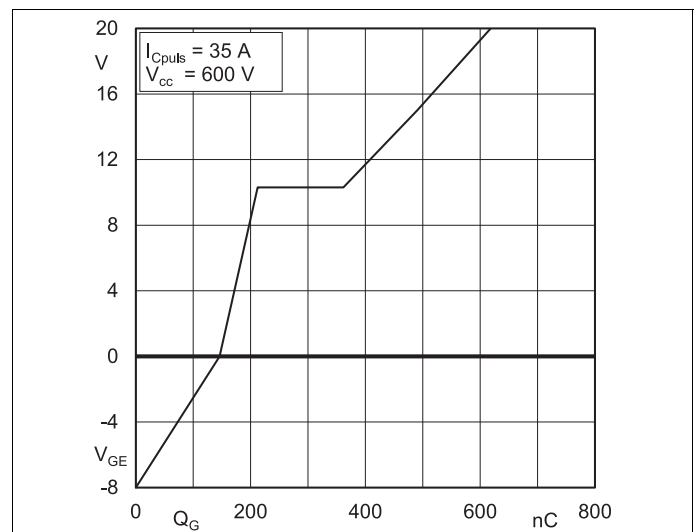


Fig. 6: Typ. gate charge characteristic

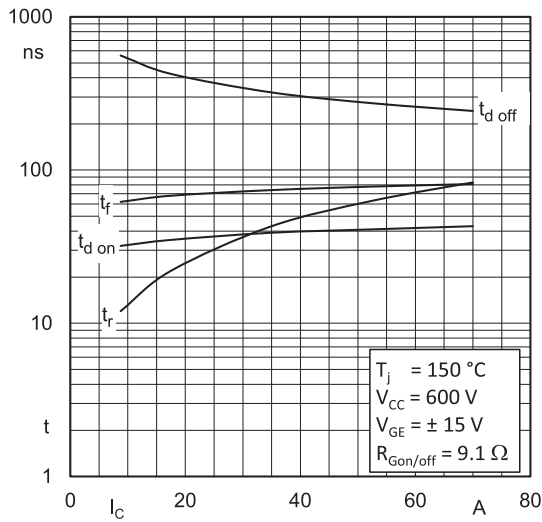


Fig. 7: Typ. switching times vs.  $I_C$

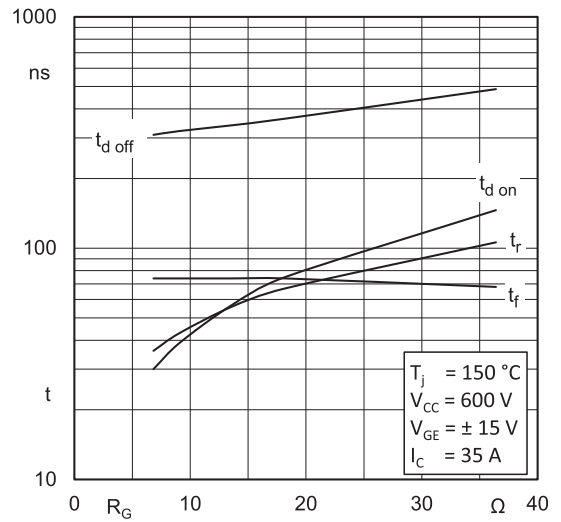


Fig. 8: Typ. switching times vs. gate resistor  $R_G$

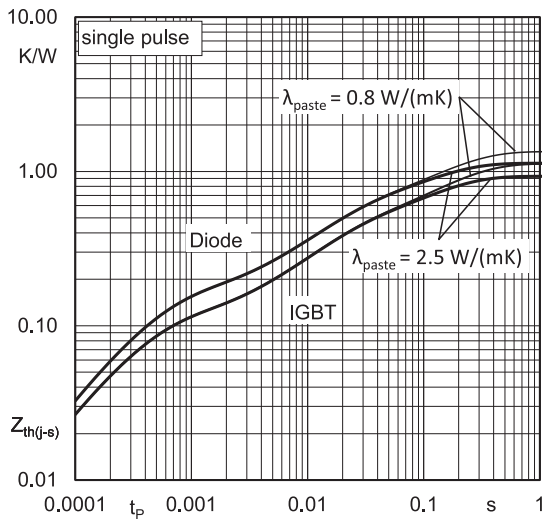


Fig. 9: Typ. transient thermal impedance

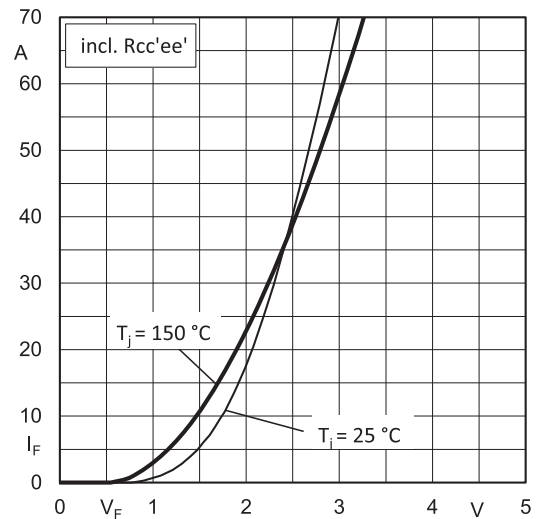


Fig. 10: Typ. CAL diode forward characteristic

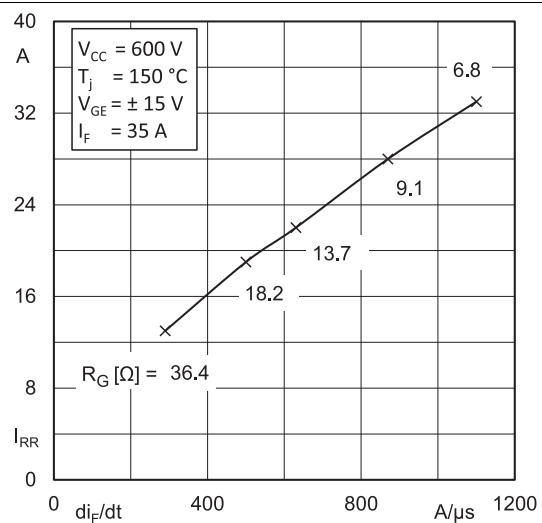


Fig. 11: Typ. CAL diode peak reverse recovery current

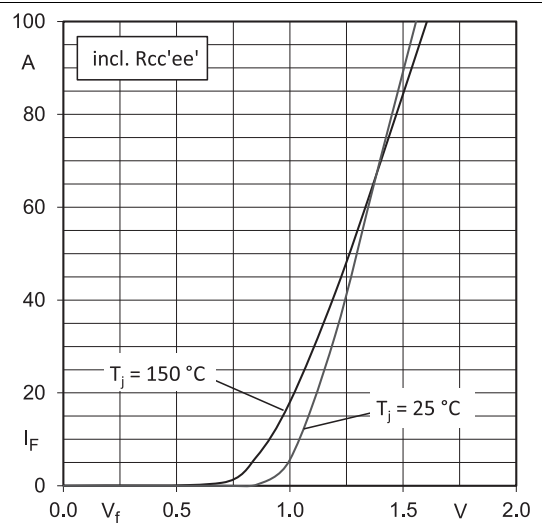
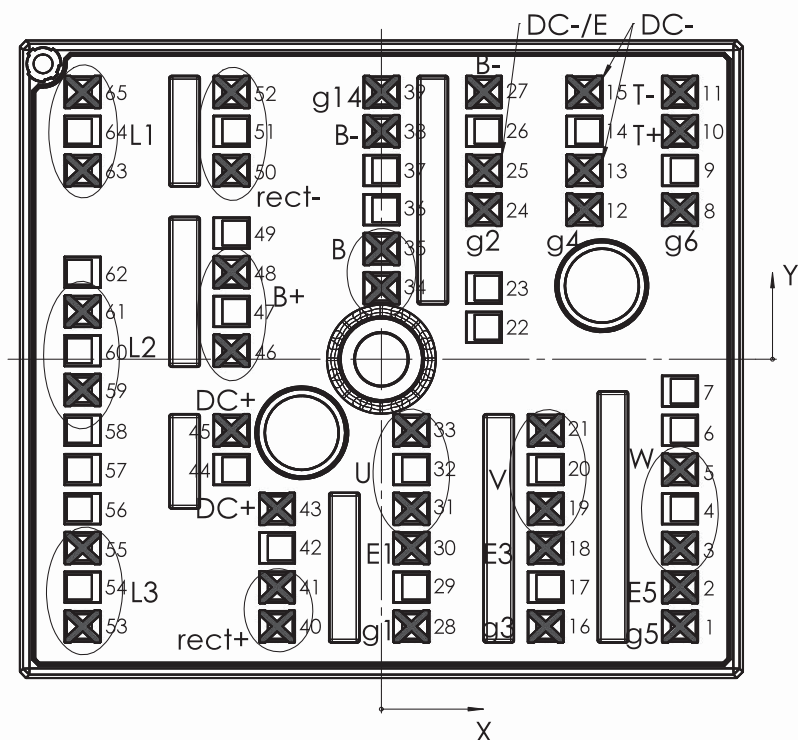


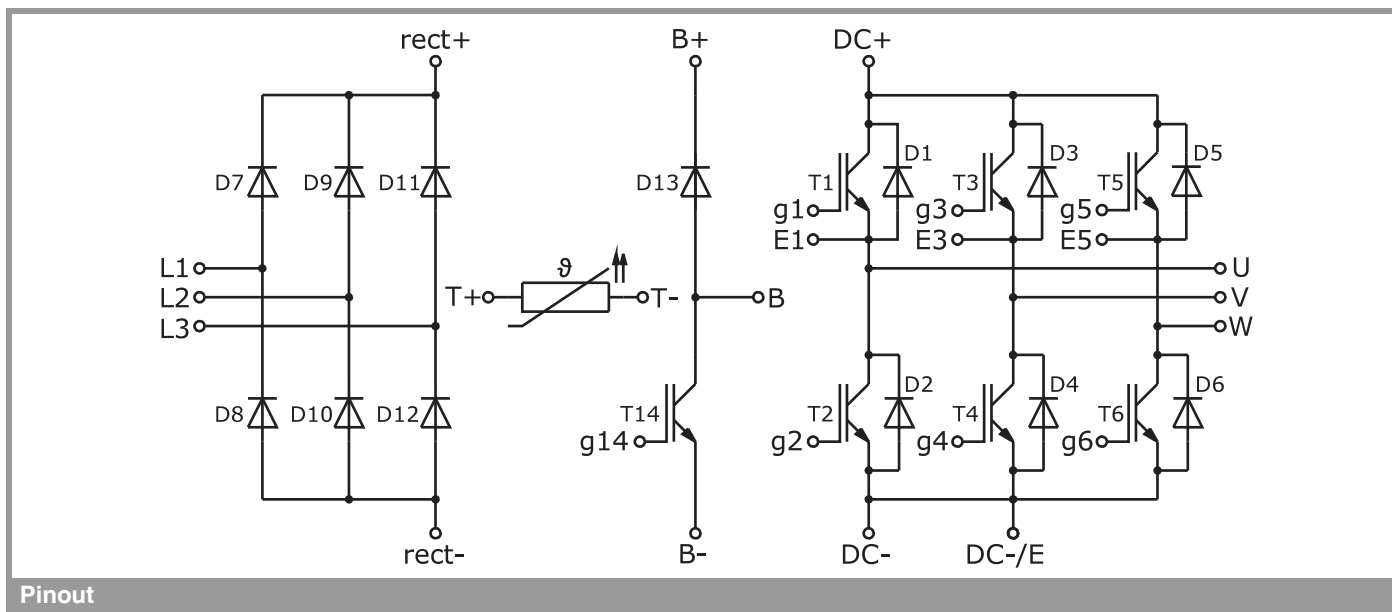
Fig. 12: Typ. input bridge forward characteristic

Pin out											
Pin	X	Y	Function	Pin	X	Y	Function	Pin	X	Y	Function
1	24,38	-21,8	g5	23				45	-12,23	-5,8	DC+
2	24,38	-18,6	E5	24	8,38	12,2	g2	46	-12,23	0,7	B+
3	24,38	-15,4	W	25	8,38	15,4	DC-/E	47			
4				26				48	-12,23	7,1	B+
5	24,38	-9	W	27	8,38	21,8	B-	49			
6				28	2,46	-21,8	g1	50	-12,23	15,4	rect-
7				29				51	-12,23	18,6	rect-
8	24,38	12,2	g6	30	2,46	-15,4	E1	52			
9				31	2,46	-12,2	U	53	-24,38	-21,8	L3
10	24,38	18,6	T+	32				54			
11	24,38	21,8	T-	33	2,46	-5,8	U	55	-24,38	-15,4	L3
12	16,58	12,2	g4	34	0,03	5,8	B	56			
13	16,58	15,4	DC-	35	0,03	9	B	57			
14				36				58			
15	16,58	21,8	DC-	37				59	-24,38	-2,5	L2
16	13,42	-21,8	g3	38	0,03	18,6	B-	60			
17				39	0,03	21,8	g14	61	-24,38	3,9	L2
18	13,42	-15,4	E3	40	-8,51	-21,8	rect+	62			
19	13,42	-12,2	V	41	-8,51	-18,6	rect+	63	-24,38	15,4	L1
20				42				64			
21	13,42	-5,8	V	43	-8,51	-12,2	DC+	65	-24,38	21,8	L1
22				44							

all values in mm







This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

### \*IMPORTANT INFORMATION AND WARNINGS

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