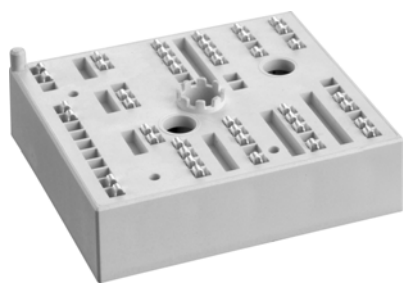


SKiiP 26GH12T4V11



MiniSKiiP® 2

H-bridge inverter

SKiiP 26GH12T4V11

Features

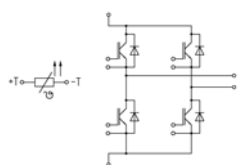
- Trench 4 IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised: File no. E63532

Typical Applications*

- Single phase inverter

Remarks

- Case temperature limited to $T_C=125^{\circ}\text{C}$ max.; $T_C = T_S$ (valid for baseplateless modules)
- Product reliability results valid for $T_J \leq 150^{\circ}\text{C}$ (recommended $T_{op} = -40 \dots +150^{\circ}\text{C}$)

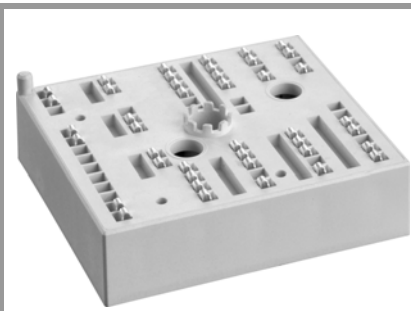


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Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Inverter - IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 175 °C	T _s = 25 °C	90	A
		T _s = 70 °C	73	A
I _{Cnom}			70	A
I _{CRM}	I _{CRM} = 3 x I _{Cnom}		210	A
V _{GES}			-20 ... 20	V
t _{psc}	V _{CC} = 800 V V _{GE} ≤ 15 V V _{CES} ≤ 1200 V	T _j = 150 °C	10	μs
T _j			-40 ... 175	°C
Inverse - Diode				
I _F	T _j = 175 °C	T _s = 25 °C	83	A
		T _s = 70 °C	66	A
I _{Fnom}			75	A
I _{FRM}	I _{FRM} = 3 x I _{Fnom}		225	A
I _{FSM}	10 ms, sin 180°, T _j = 150 °C		430	A
T _j			-40 ... 175	°C
Module				
I _{t(RMS)}	T _{terminal} = 80 °C, 20A per spring		100	A
T _{stg}			-40 ... 125	°C
V _{isol}	AC sinus 50Hz, t = 1 min		2500	V

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverter - IGBT						
V _{CE(sat)}	I _C = 70 A	T _j = 25 °C		1.85	2.10	V
	V _{GE} = 15 V chipelevel	T _j = 150 °C		2.25	2.45	V
V _{CE0}	chipelevel	T _j = 25 °C		0.8	0.9	V
		T _j = 150 °C		0.7	0.8	V
r _{CE}	V _{GE} = 15 V	T _j = 25 °C		15	17	mΩ
	chipelevel	T _j = 150 °C		22	24	mΩ
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 2 mA		5	5.8	6.5	V
I _{CES}	V _{GE} = 0 V	T _j = 25 °C		0.1	0.3	mA
	V _{CE} = 1200 V					mA
C _{ies}	V _{CE} = 25 V V _{GE} = 0 V	f = 1 MHz		3.90		nF
C _{oes}		f = 1 MHz		0.31		nF
C _{res}		f = 1 MHz		0.23		nF
Q _G	- 8 V...+ 15 V			400		nC
R _{Gint}	T _j = 25 °C			0.00		Ω
t _{d(on)}	V _{CC} = 600 V	T _j = 150 °C		26		ns
t _r	I _C = 75 A	T _j = 150 °C		36		ns
E _{on}	R _{G on} = 9.1 Ω	T _j = 150 °C		9.5		mJ
t _{d(off)}	R _{G off} = 9.1 Ω	T _j = 150 °C		320		ns
t _f	di/dt _{on} = 1820 A/μs	T _j = 150 °C		175		ns
E _{off}	di/dt _{off} = 900 A/μs	T _j = 150 °C		7.1		mJ
R _{th(j-s)}	per IGBT			0.55		K/W

SKiiP 26GH12T4V11



MiniSKiiP® 2

H-bridge inverter

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Features

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- Highly reliable spring contacts for electrical connections
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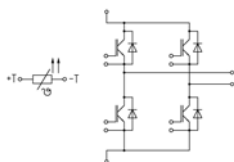
Typical Applications*

- Single phase inverter

Remarks

- Case temperature limited to $T_C=125^{\circ}\text{C}$ max.; $T_C = T_S$ (valid for baseplateless modules)
- Product reliability results valid for $T_J \leq 150^{\circ}\text{C}$ (recommended $T_{op} = -40 \dots +150^{\circ}\text{C}$)

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
V _F = V _{EC}	I _F = 75 A	T _j = 25 °C		2.2	2.5	V
	V _{GE} = 0 V chiplevel	T _j = 150 °C		2.1	2.4	V
V _{F0}	chiplevel	T _j = 25 °C		1.3	1.5	V
		T _j = 150 °C		0.9	1.1	V
r _F	chiplevel	T _j = 25 °C		12	13	mΩ
		T _j = 150 °C		16	18	mΩ
I _{R_{RRM}}	I _F = 75 A	T _j = 150 °C		80		A
Q _{rr}	di/dt _{off} = 2120 A/μs	T _j = 150 °C		13.3		μC
E _{rr}	V _{GE} = -15 V	T _j = 150 °C		5.6		mJ
	V _{CC} = 600 V					
R _{th(j-s)}	per Diode			0.75		K/W
Module						
M _s	to heat sink		2		2.5	Nm
w				55		g
Temperature Sensor						
R ₁₀₀	T _r =100°C (R ₂₅ =1000Ω)			1670 ± 3%		Ω
R(T)	R(T)=1000Ω[1+A(T-25°C)+B(T-25°C) ²], A = 7.635*10 ⁻³ °C ⁻¹ , B = 1.731*10 ⁻⁵ °C ⁻²					



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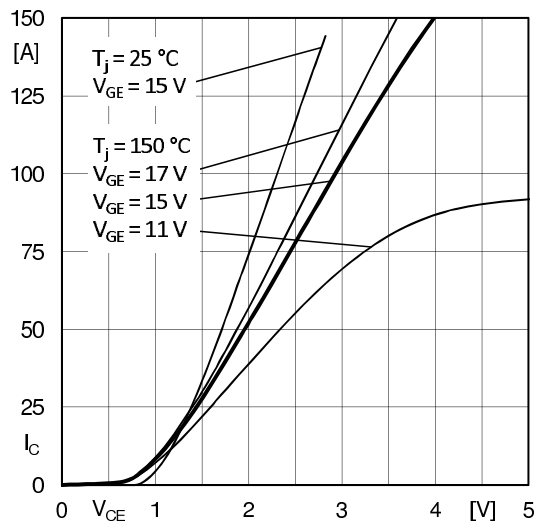


Fig. 1: Typ. output characteristic, inclusive $R_{CC'+EE'}$

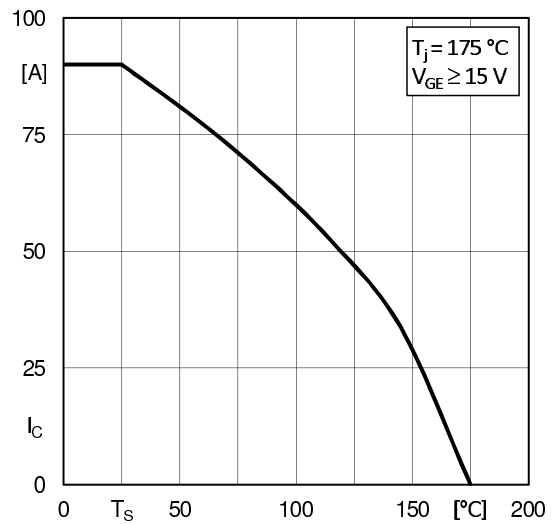


Fig. 2: Rated current vs. temperature $I_C = f(T_S)$

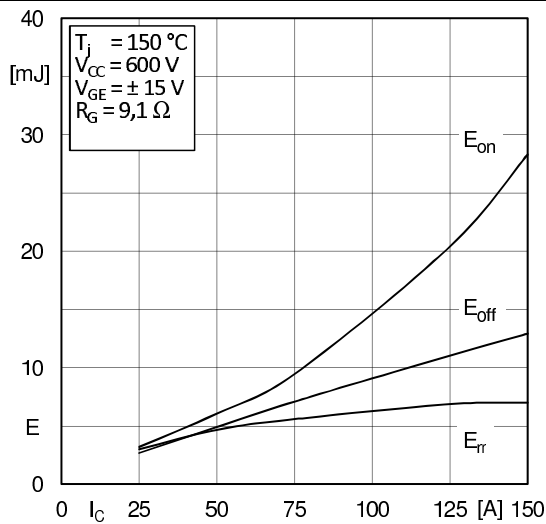


Fig. 3: Typ. turn-on /-off energy = $f(I_C)$

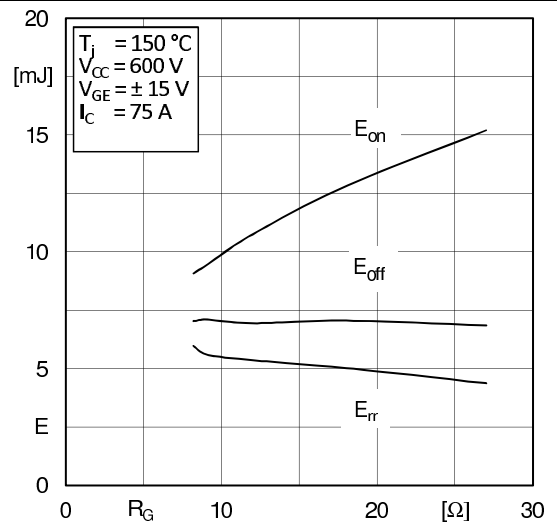


Fig. 4: Typ. turn-on /-off energy = $f(R_G)$

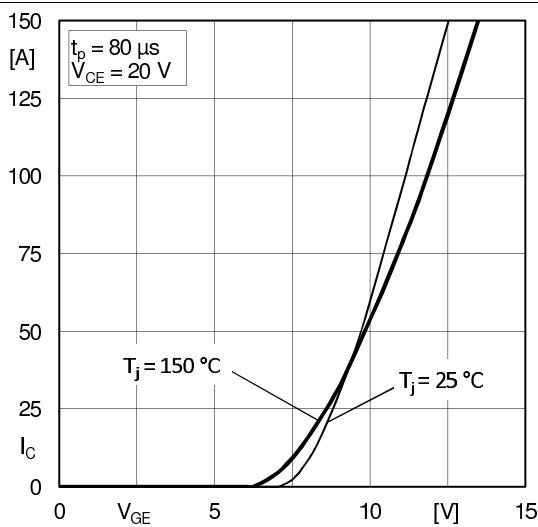


Fig. 5: Typ. transfer characteristic

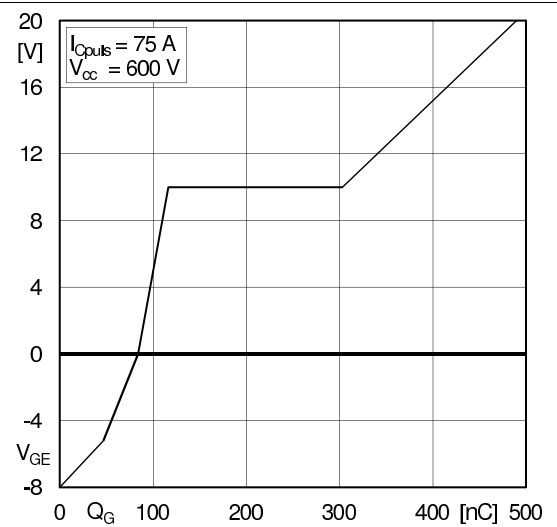
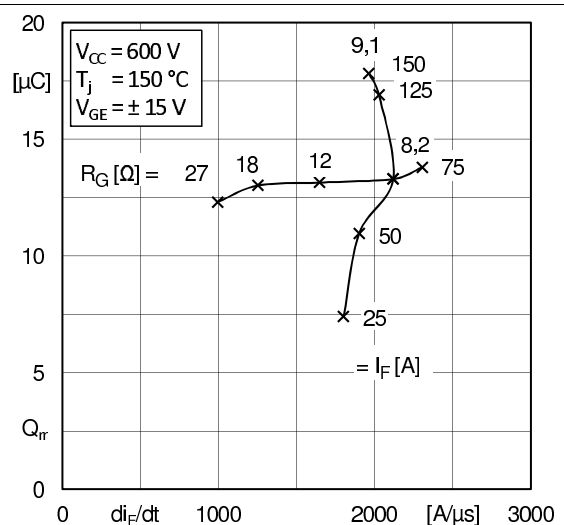
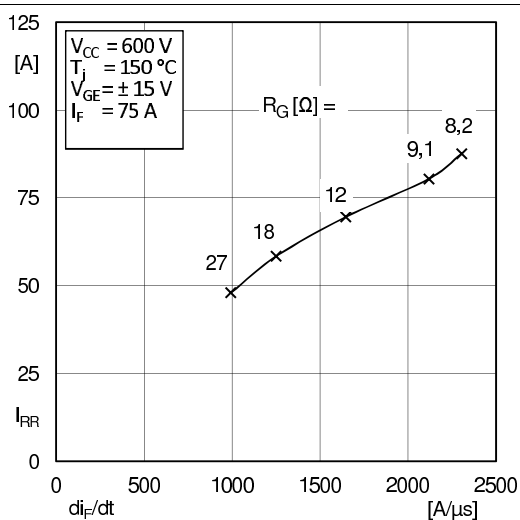
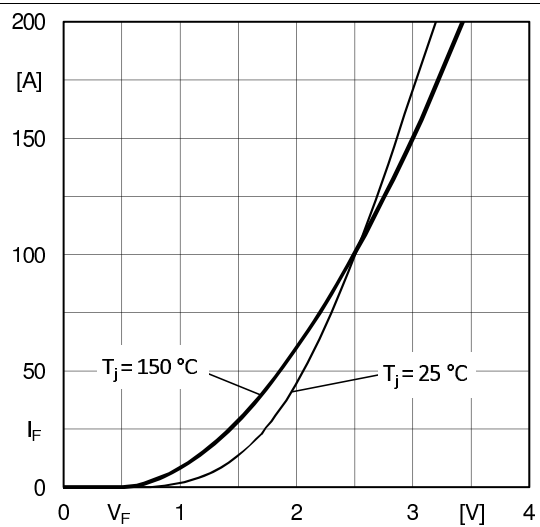
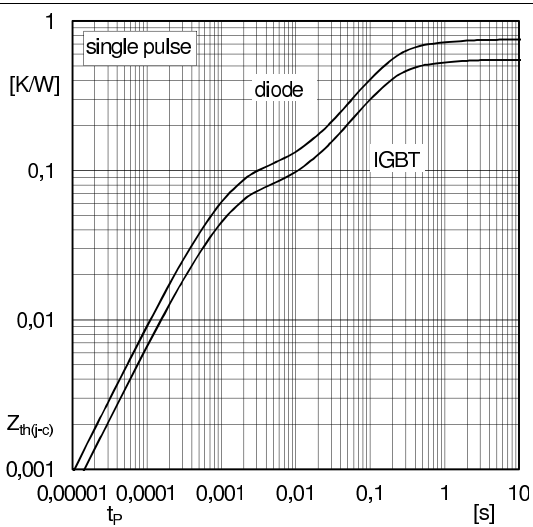
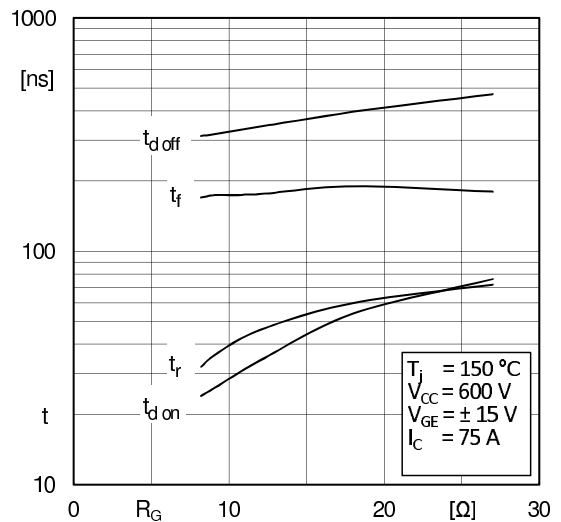
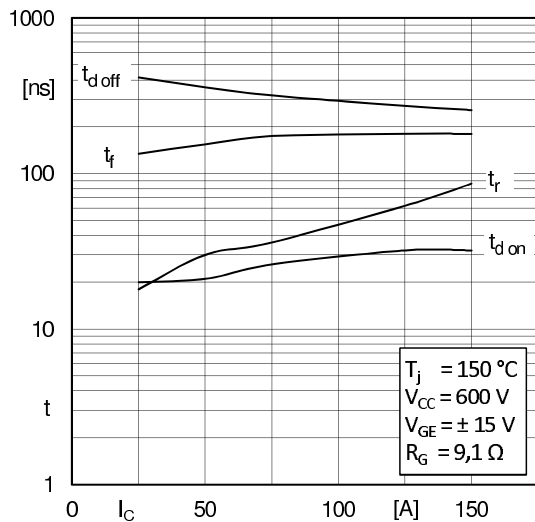
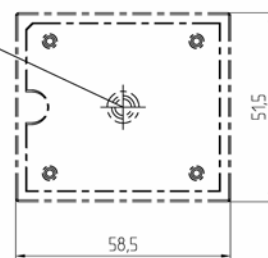
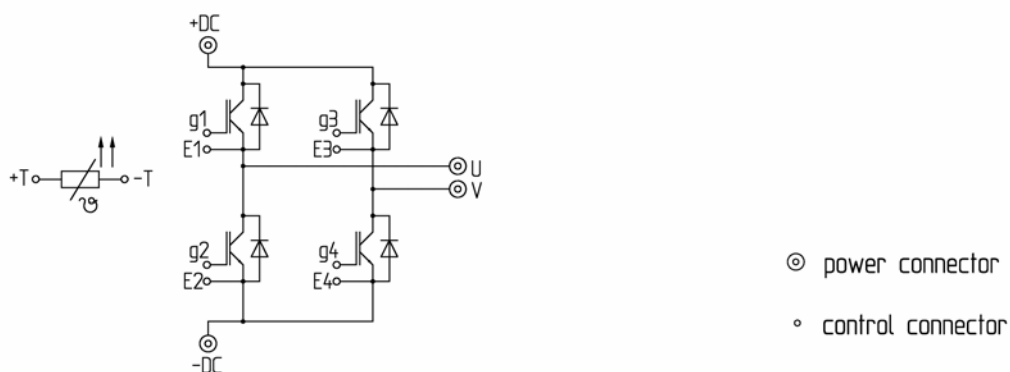


Fig. 6: Typ. gate charge characteristic





pinout, dimensions



pinout

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.