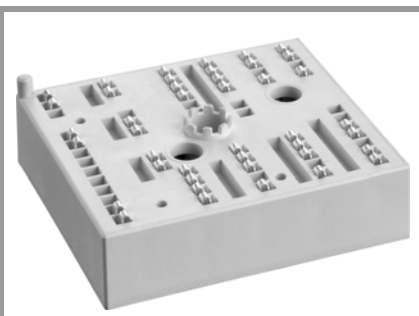


SKiIP 26GH12T4V11



MiniSKiIP® 2

H-bridge inverter

SKiIP 26GH12T4V11

Features*

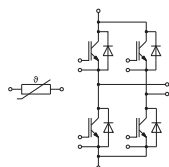
- Trench 4 IGBTs
- Robust and soft switching freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

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 $T_{op} = -40 \dots +150^\circ\text{C}$)

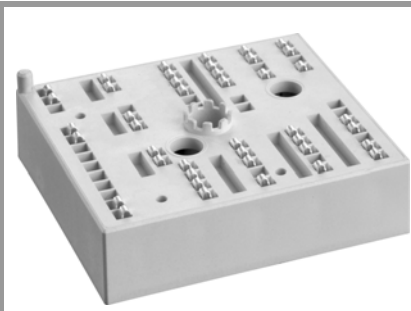


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Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Inverter - IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 175 °C	T _s = 25 °C	90	A
		T _s = 70 °C	73	A
I _{Cnom}			70	A
I _{CRM}			210	A
V _{GES}			-20 ... 20	V
t _{psc}	V _{CC} = 800 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 _{FRM}			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, 20 A per spring		100	A
T _{stg}	module without TIM		-40 ... 125	°C
V _{isol}	AC sinus 50 Hz, 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		0.80	0.90	V
		T _j = 150 °C		0.70	0.80	V
r _{CE}	V _{GE} = 15 V chipelevel	T _j = 25 °C		15	17	mΩ
		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			1	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	V _{GE} = - 8 V...+ 15 V			400		nC
R _{Gint}	T _j = 25 °C			0		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		320		ns
	di/dt _{off} = 900 A/μs	T _j = 150 °C		175		ns
E _{off}	V _{GE} = +15/-15 V	T _j = 150 °C		7.1		mJ
R _{th(j-s)}	per IGBT, λ _{paste} =0.8 W/(K*m)			0.55		K/W

SKiiP 26GH12T4V11



MiniSKiiP® 2

H-bridge inverter

SKiiP 26GH12T4V11

Features*

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

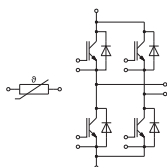
Typical Applications

- 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 $T_{op} = -40 \dots +150^{\circ}\text{C}$)

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
$V_F = V_{EC}$	$I_F = 75\text{ A}$	$T_j = 25\text{ }^{\circ}\text{C}$		2.17	2.49	V
	$V_{GE} = 0\text{ V}$ chiplevel	$T_j = 150\text{ }^{\circ}\text{C}$		2.11	2.42	V
V_{F0}	chiplevel	$T_j = 25\text{ }^{\circ}\text{C}$		1.30	1.50	V
		$T_j = 150\text{ }^{\circ}\text{C}$		0.90	1.10	V
r_F	chiplevel	$T_j = 25\text{ }^{\circ}\text{C}$		12	13	mΩ
		$T_j = 150\text{ }^{\circ}\text{C}$		16	18	mΩ
I_{RRM}	$I_F = 75\text{ A}$	$T_j = 150\text{ }^{\circ}\text{C}$		80		A
Q_{rr}	$di/dt_{off} = 2120\text{ A}/\mu\text{s}$	$T_j = 150\text{ }^{\circ}\text{C}$		13.3		μC
E_{rr}	$V_{GE} = -15\text{ V}$	$T_j = 150\text{ }^{\circ}\text{C}$		5.6		mJ
	$V_{CC} = 600\text{ V}$					
$R_{th(j-s)}$	per Diode, $\lambda_{paste}=0.8\text{ W}/(\text{K}\cdot\text{m})$			0.75		K/W
Module						
L_{CE}			-			nH
M_s	to heat sink		2		2.5	Nm
w			55			g
Temperature Sensor						
R_{100}	$T_r=100^{\circ}\text{C}$ ($R_{25}=1000\Omega$)		$1670 \pm 3\%$			Ω
$B_{100/125}$	$R(T)=R_{100}\exp[B_{100/125}(1/T-1/T_{100})]$; $T[\text{K}]$		$3550 \pm 2\%$			K



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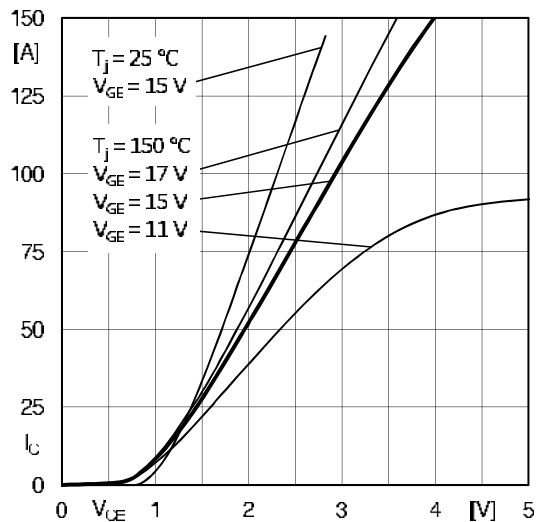


Fig. 1: Typ. output characteristic

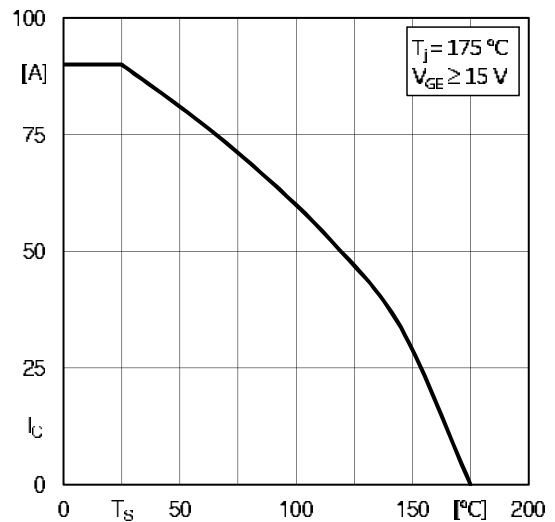


Fig. 2: Rated current vs. temperature $I_C = f(T_S)$

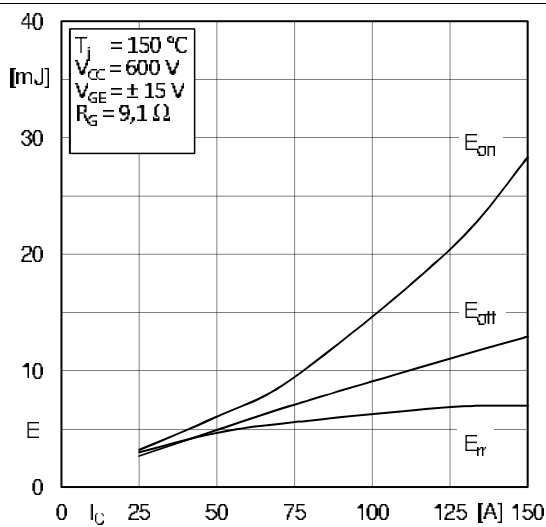


Fig. 3: Typ. turn-on /-off energy = $f(I_C)$

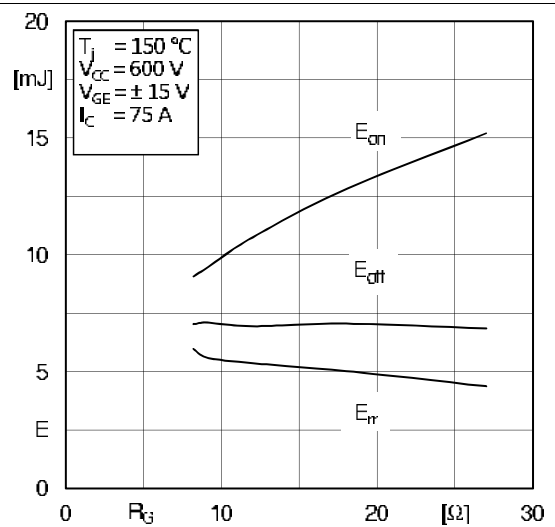


Fig. 4: Typ. turn-on /-off energy = $f(R_G)$

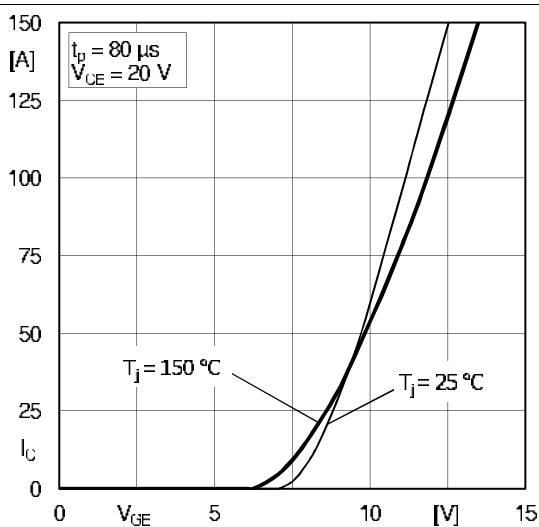


Fig. 5: Typ. transfer characteristic

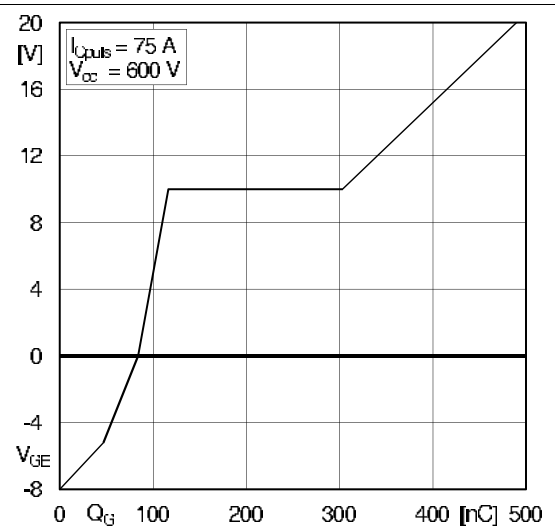


Fig. 6: Typ. gate charge characteristic

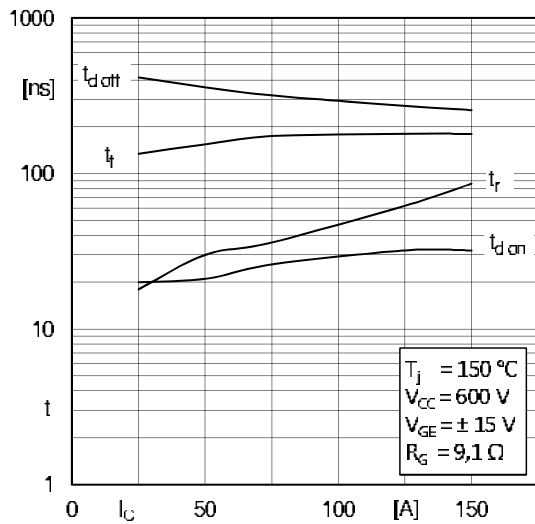


Fig. 7: Typ. switching times vs. I_C

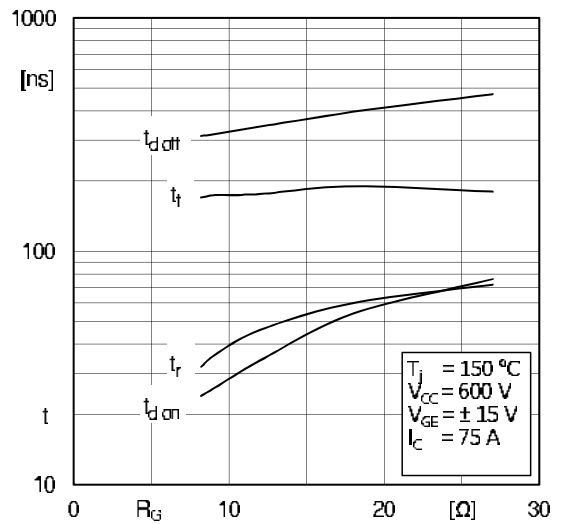


Fig. 8: Typ. switching times vs. gate resistor R_G

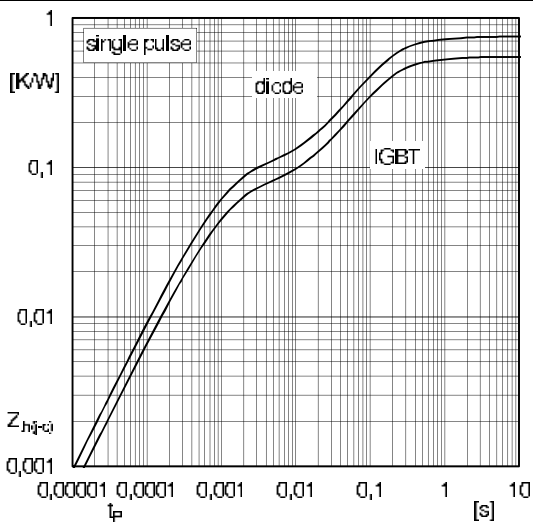


Fig. 9: Typ. transient thermal impedance

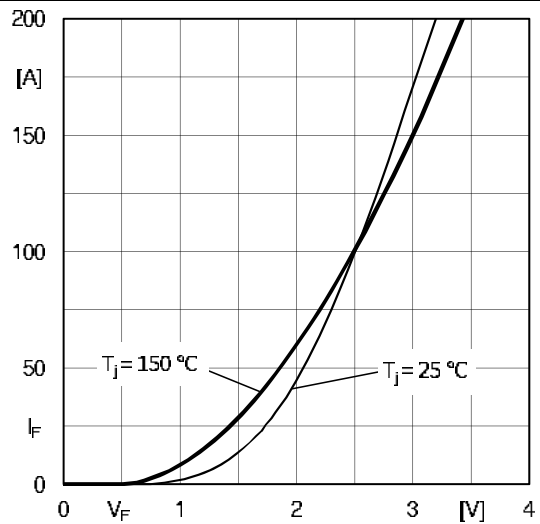


Fig. 10: Typ. CAL diode forward characteristic

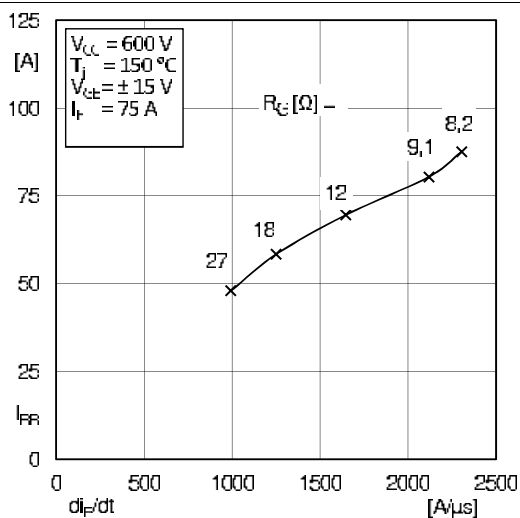


Fig. 11: Typ. CAL diode peak reverse recovery current

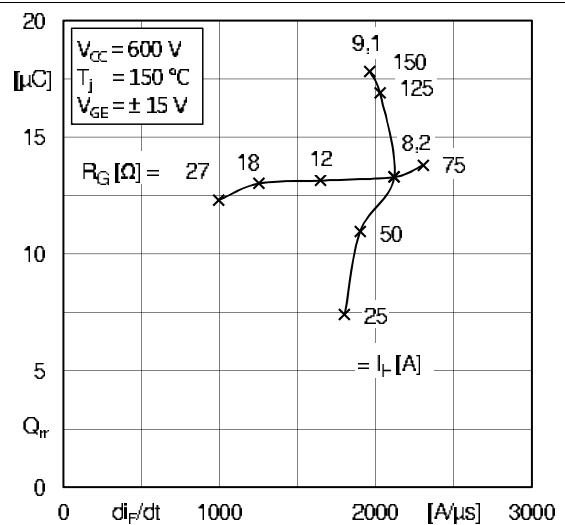
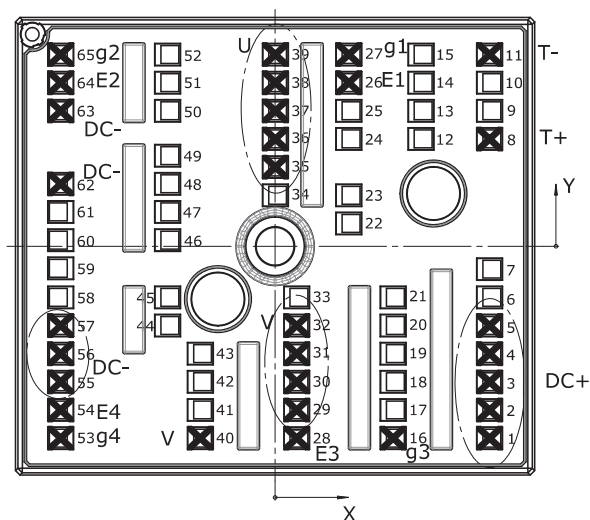


Fig. 12: Typ. CAL diode recovery charge

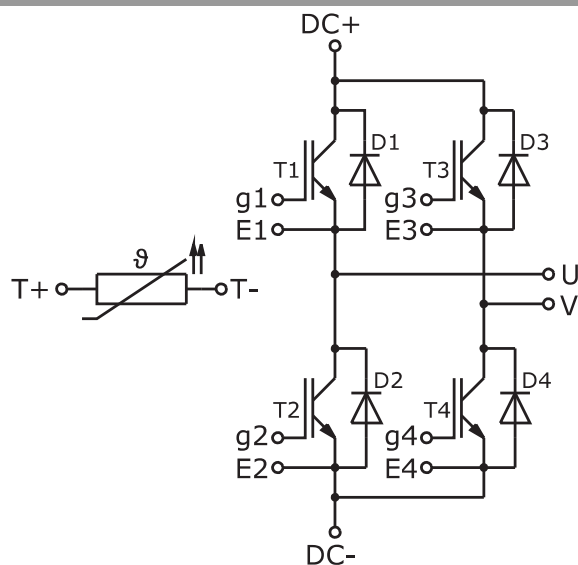
SKiiP 26GH12T4V11

Pin out											
Pin	X	Y	Function	Pin	X	Y	Function	Pin	X	Y	Function
1	24,38	-21,80	DC+	23	8,38	5,80		45	-12,23	-5,80	
2	24,38	-18,60	DC+	24	8,38	12,20		46	-12,23	0,70	
3	24,38	-15,40	DC+	25	8,38	15,40		47	-12,23	3,90	
4	24,38	-12,20	DC+	26	8,38	18,60	E1	48	-12,23	7,10	
5	24,38	-9,00	DC+	27	8,38	21,80	g1	49	-12,23	10,30	
6	24,38	-5,80		28	2,46	-21,80	E3	50	-12,23	15,40	
7	24,38	-2,60		29	2,46	-18,60	V	51	-12,23	18,60	
8	24,38	12,20	T+	30	2,46	-15,40	V	52	-12,23	21,80	
9	24,38	15,40		31	2,46	-12,20	V	53	-24,38	-21,80	g4
10	24,38	18,60		32	2,46	-9,00	V	54	-24,38	-18,60	E4
11	24,38	21,80	T-	33	2,46	-5,80		55	-24,38	-15,40	DC-
12	16,58	12,20		34	0,03	5,80		56	-24,38	-12,20	DC-
13	16,58	15,40		35	0,03	9,00	U	57	-24,38	-9,00	DC-
14	16,58	18,60		36	0,03	12,20	U	58	-24,38	-5,80	
15	16,58	21,80		37	0,03	15,40	U	59	-24,38	-2,50	
16	13,42	-21,80	g3	38	0,03	18,60	U	60	-24,38	0,70	
17	13,42	-18,60		39	0,03	21,80	U	61	-24,38	3,90	
18	13,42	-15,40		40	-8,51	-21,80	V	62	-24,38	7,10	DC-
19	13,42	-12,20		41	-8,51	-18,60		63	-24,38	15,40	DC-
20	13,42	-9,00		42	-8,51	-15,40		64	-24,38	18,60	E2
21	13,42	-5,80		43	-8,51	-12,20		65	-24,38	21,80	g2
22	8,38	2,60		44	-12,23	-9,00					

all values in mm



Pinout and Dimensions



Pinout

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

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