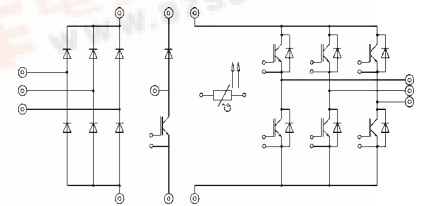


SKiIP 31 NAB 063 T1

Absolute Maximum Ratings		Values	Units
Symbol	Conditions ¹⁾		
Inverter			
V _{CES}		600	V
V _{GES}		± 20	V
I _C	T _{heatsink} = 25 / 80 °C	45 / 32	A
I _{CM}	t _p < 1 ms; T _{heatsink} = 25 / 80 °C	90 / 64	A
I _F = -I _C	T _{heatsink} = 25 / 80 °C	57 / 38	A
I _{FM} = -I _{CM}	t _p < 1 ms; T _{heatsink} = 25 / 80 °C	114 / 76	A
Bridge Rectifier			
V _{RRM}		800	V
I _D	T _{heatsink} = 80 °C	35	A
I _{FSM}	t _p = 10 ms; sin. 180 °, T _j = 25 °C	700	A
I ² t	t _p = 10 ms; sin. 180 °, T _j = 25 °C	2400	A ² s
T _j		- 40 ... + 150	°C
T _{stg}		- 40 ... + 125	°C
V _{isol}	AC, 1 min.	2500	V

MiniSKiIP 3
SEMİKRON integrated intelligent Power
SKiIP 31 NAB 063 T1
3-phase bridge rectifier + braking chopper + 3-phase bridge inverter

Case M3



Characteristics		min.	typ.	max.	Units
Symbol	Conditions ¹⁾				
IGBT - Inverter & Chopper					
V _{CEsat}	I _C = 50 A T _j = 25 (125) °C	-	2,1(2,4)	2,6(2,9)	V
t _{d(on)}	V _{CC} = 300 V; V _{GE} = ± 15 V	-	45	-	ns
t _r	I _C = 30 A; T _j = 125 °C	-	35	-	ns
t _{d(off)}	R _{gon} = R _{goff} = 22 Ω	-	250	-	ns
t _f	inductive load	-	25	-	ns
E _{on} + E _{off}		-	2,65	-	mJ
C _{ies}	V _{CE} = 25 V; V _{GE} = 0 V, 1 MHz	-	2,8	-	nF
R _{thjh}	per IGBT	-	-	1,0	K/W
Diode ²⁾ - Inverter & Chopper					
V _F = V _{EC}	I _F = 50 A T _j = 25 (125) °C	-	1,45(1,4)	1,7(1,7)	V
V _{TO}	T _j = 125 °C	-	0,85	0,9	V
r _T	T _j = 125 °C	-	11	16	mΩ
I _{RRM}	I _F = 50 A, V _R = - 300 V	-	31	-	A
Q _{rr}	di _F /dt = - 800 A/μs	-	3,3	-	μC
E _{off}	V _{GE} = 0 V, T _j = 125 °C	-	0,36	-	mJ
R _{thjh}	per diode	-	-	1,2	K/W
Diode - Rectifier					
V _F	I _F = 35 A T _j = 25 °C	-	1,2	-	V
R _{thjh}	per diode	-	-	1,2	K/W
Temperature Sensor					
R _{TS}	T = 25 / 100 °C		1000 / 1670		Ω
Mechanical Data					
M ₁	Mounting torque	2	-	2,5	Nm
Case			M3		

UL recognized file no. E63532

- fast NPT IGBTs

¹⁾ T_{heatsink} = 25 °C, unless otherwise specified

²⁾ CAL = Controlled Axial Lifetime Technology (soft and fast recovery)

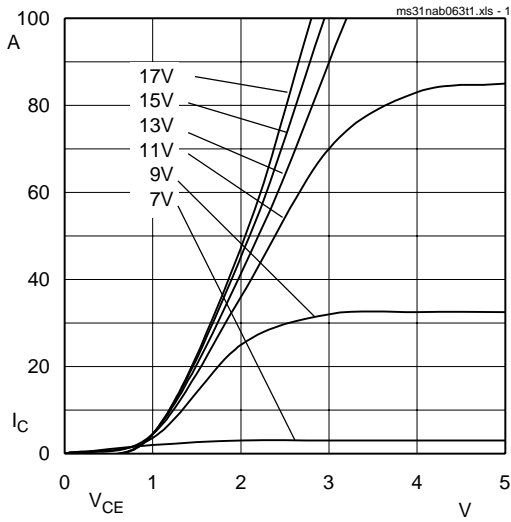


Fig. 1 Typ. output characteristic, $t_p = 80\ \mu\text{s}$; 25 °C

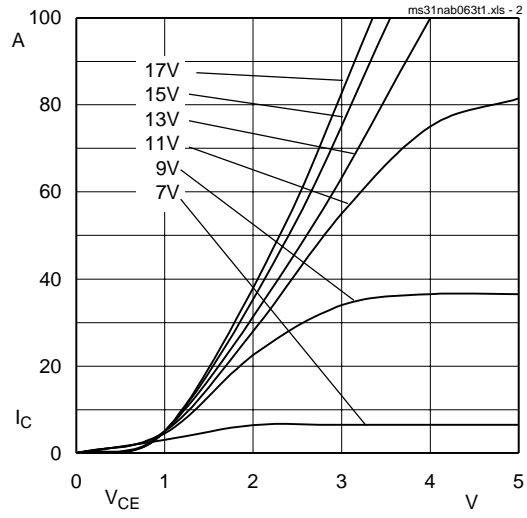


Fig. 2 Typ. output characteristic, $t_p = 80\ \mu\text{s}$; 125 °C

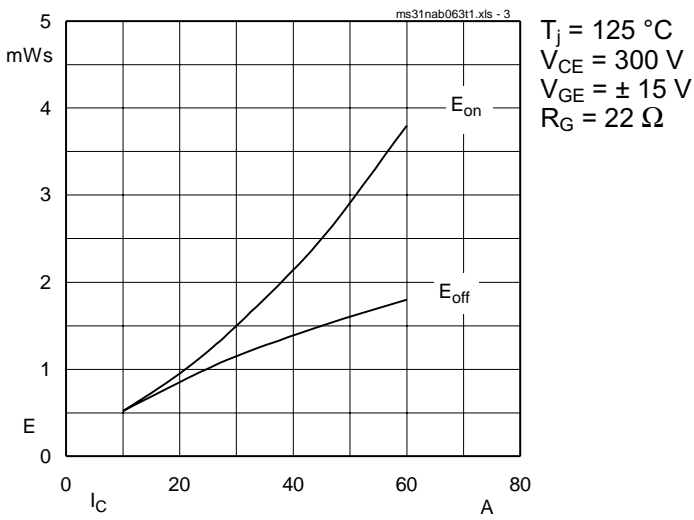


Fig. 3 Turn-on /-off energy = $f(I_C)$

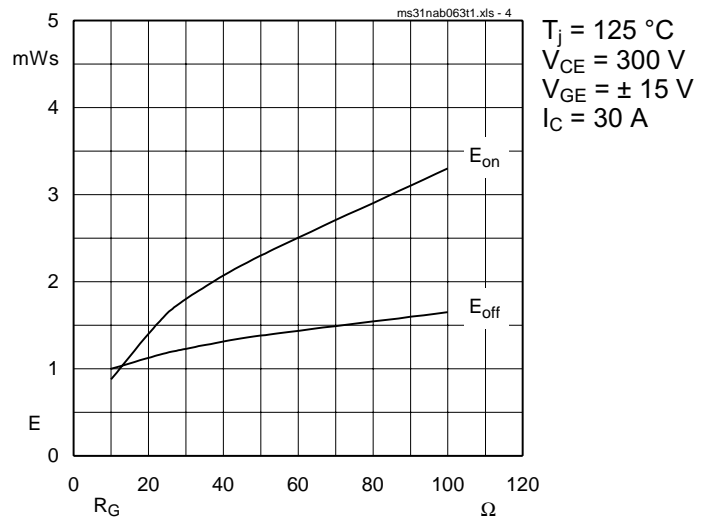


Fig. 4 Turn-on /-off energy = $f(R_G)$

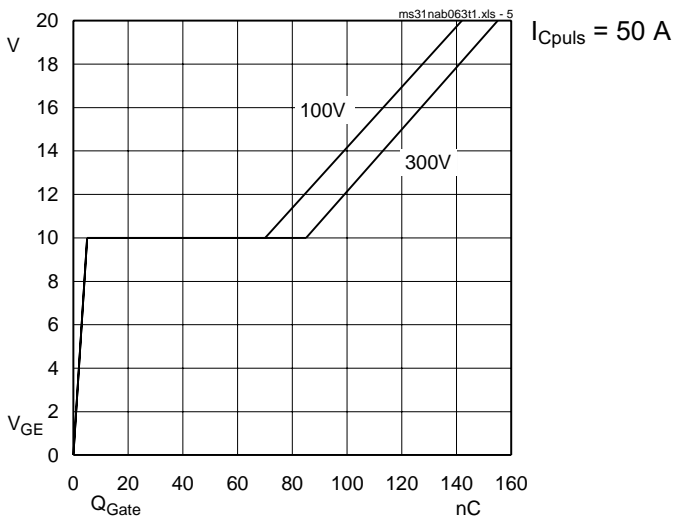


Fig. 5 Typ. gate charge characteristic

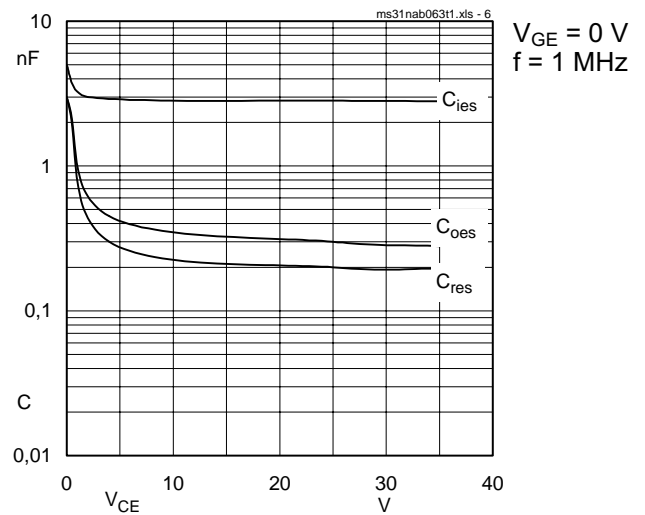


Fig. 6 Typ. capacitances vs. V_{CE}

2. Common characteristics of MiniSKiiP

MiniSKiiP 600 V

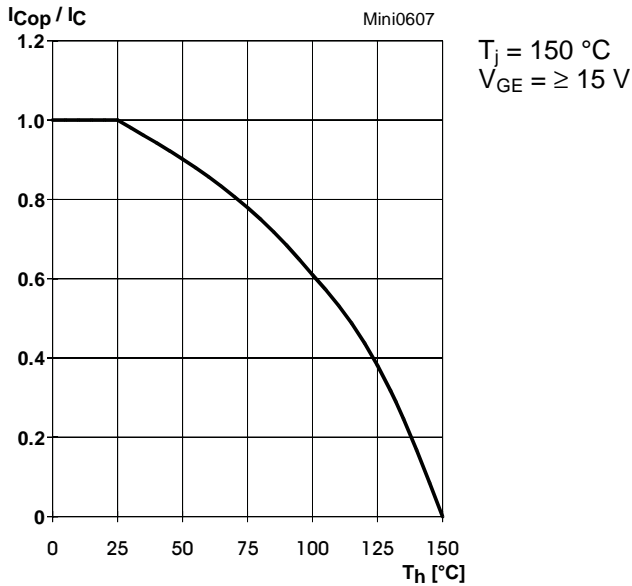


Fig. 7 Rated current of the IGBT $I_{COP} / I_C = f(T_h)$

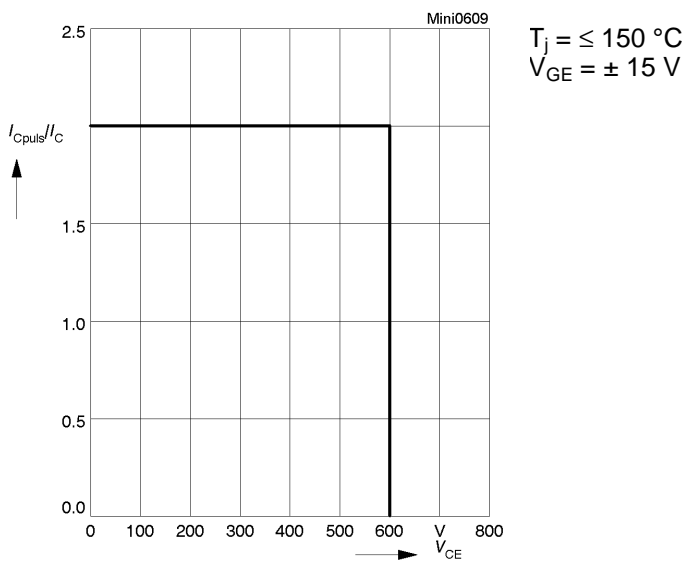


Fig. 9 Turn-off safe operating area (RBSOA) of the IGBT

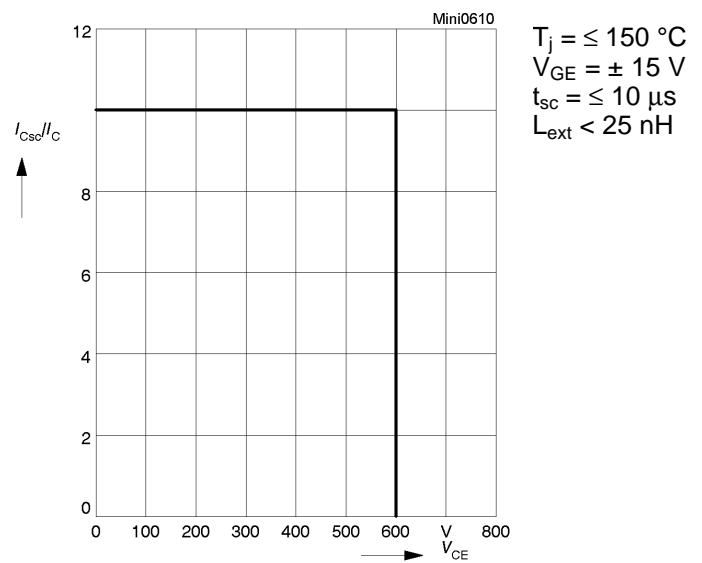


Fig. 10 Safe operating area at short circuit of the IGBT

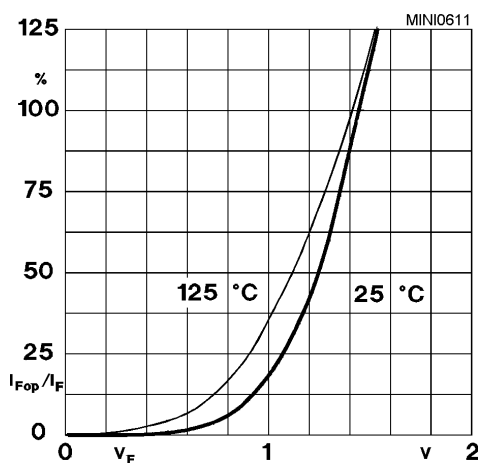


Fig. 11 Typ. freewheeling diode forward characteristic

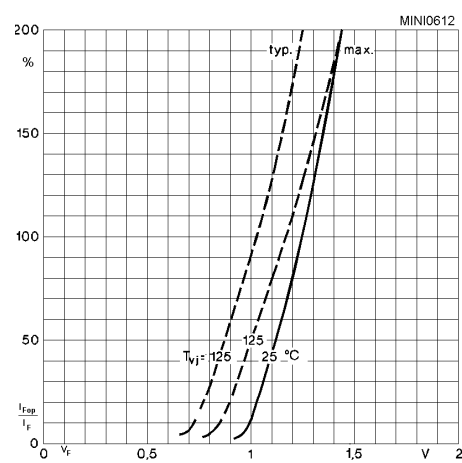


Fig. 12 Forward characteristic of the input bridge diode

