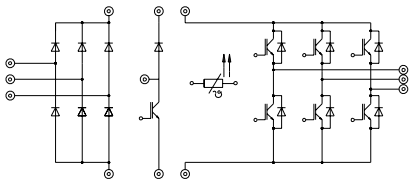
SEMIKRON

Absolute Maximum Ratings			
Symbol	**Conditions** [1]	**Values**	**Units**
Inverter	(Chopper see SKiiP 22 NAB 12 T18)		
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	$T_{heatsink}$ = 25 / 80 °C	33 / 22	A
I_{CM}	t_p < 1 ms; $T_{heatsink}$ = 25 / 80 °C	66 / 44	A
$I_F = -I_C$	$T_{heatsink}$ = 25 / 80 °C	38 / 26	A
$I_{FM} = -I_{CM}$	t_p < 1 ms; $T_{heatsink}$ = 25 / 80 °C	76 / 52	A
Bridge Rectifier			
V_{RRM}		1500	V
I_D	$T_{heatsink}$ = 80 °C	35	A
I_{FSM}	t_p = 10 ms; sin. 180 °, T_j = 25 °C	700	A
I^2t	t_p = 10 ms; sin. 180 °, T_j = 25 °C	2400	A^2s
T_j		– 40 ... + 150	°C
T_{stg}		– 40 ... + 125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics					
Symbol	**Conditions** [1]	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter					
V_{CEsat}	I_C = 25 A T_j = 25 (125) °C	–	2,5(3,1)	3,0(3,7)	V
$t_{d(on)}$	V_{CC} = 600 V; V_{GE} = ± 15 V	–	75	150	ns
t_r	I_C = 25 A; T_j = 125 °C	–	65	130	ns
$t_{d(off)}$	$R_{gon} = R_{goff}$ = 47 Ω	–	400	600	ns
t_f	inductive load	–	50	100	ns
$E_{on} + E_{off}$		–	6,2	–	mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V, 1 MHz	–	1,65	–	nF
R_{thjh}	per IGBT	–	–	1,0	K/W
IGBT - Chopper *					
V_{CEsat}	I_C = 15 A T_j = 25 (125) °C	–	2,5(3,1)	3,0(3,7)	V
$t_{d(on)}$	V_{CC} = 600 V; V_{GE} = ± 15 V	–	55	110	ns
t_r	I_C = 15 A; T_j = 125 °C	–	45	90	ns
$t_{d(off)}$	$R_{gon} = R_{goff}$ = 82 Ω	–	400	600	ns
t_f	inductive load	–	70	100	ns
$E_{on} + E_{off}$		–	4,0	–	mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V, 1 MHz	–	1,0	–	nF
R_{thjh}	per IGBT	–	–	1,4	K/W
Diode [2] - Inverter (Diode [2] - Chopper see SKiiP 22 NAB 12 T18)					
$V_F = V_{EC}$	I_F = 25 A T_j = 25 (125) °C	–	2,0(1,8)	2,5(2,3)	V
V_{TO}	T_j = 125 °C	–	1,0	1,2	V
r_T	T_j = 125 °C	–	32	44	mΩ
I_{RRM}	I_F = 25 A, V_R = – 600 V	–	25	–	A
Q_{rr}	di_F/dt = – 500 A/µs	–	4,5	–	µC
E_{off}	V_{GE} = 0 V, T_j = 125 °C	–	1,0	–	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	–	–	1,6	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		

MiniSKiiP 3
SEMIKRON integrated intelligent Power
SKiiP 30 NAB 12 T10
3-phase bridge rectifier + braking chopper
3-phase bridge inverter

Case M3



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Options

- also available with powerful chopper. For characteristics please refer to Inverter IGBT

[1] $T_{heatsink}$ = 25 °C, unless otherwise specified

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

* For diagrams of the Chopper IGBT please refer to SKiiP 22 NAB 12 T18

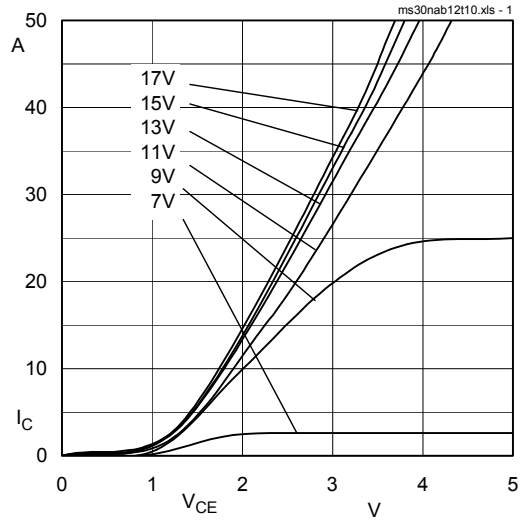

Fig. 1 Typ. output characteristic, t_p = 80 µs; 25 °C

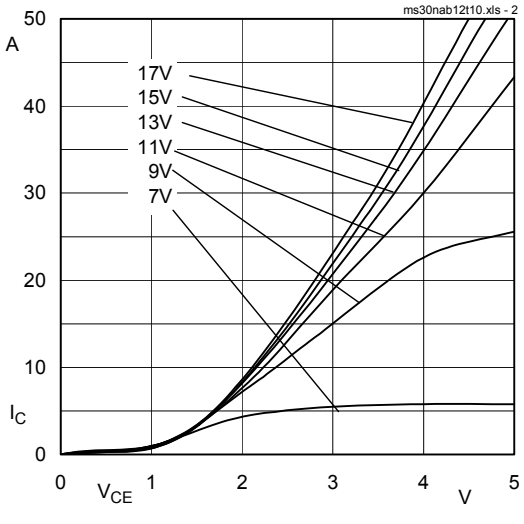

Fig. 2 Typ. output characteristic, t_p = 80 µs; 125 °C

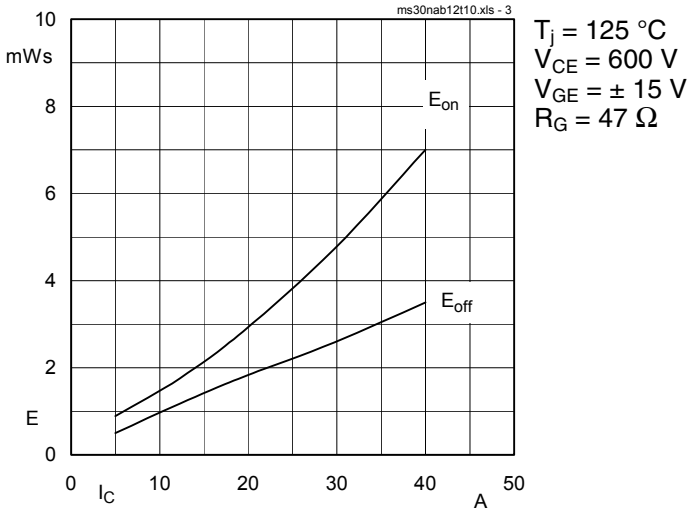

Fig. 3 Turn-on /-off energy = f (I_C)

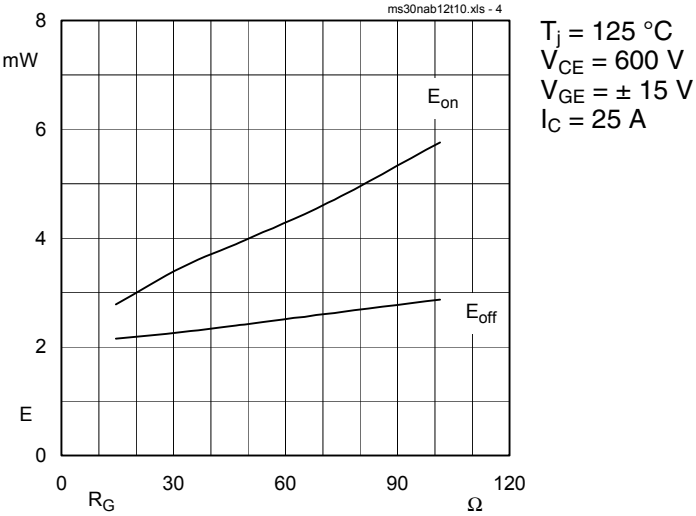

Fig. 4 Turn-on /-off energy = f (R_G)

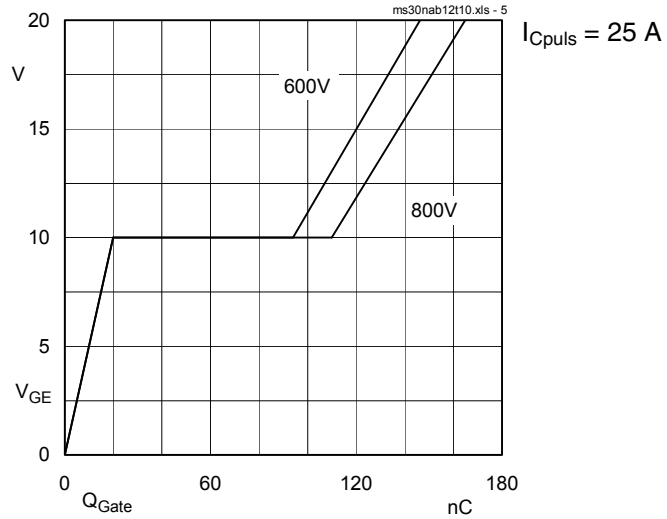

Fig. 5 Typ. gate charge characteristic

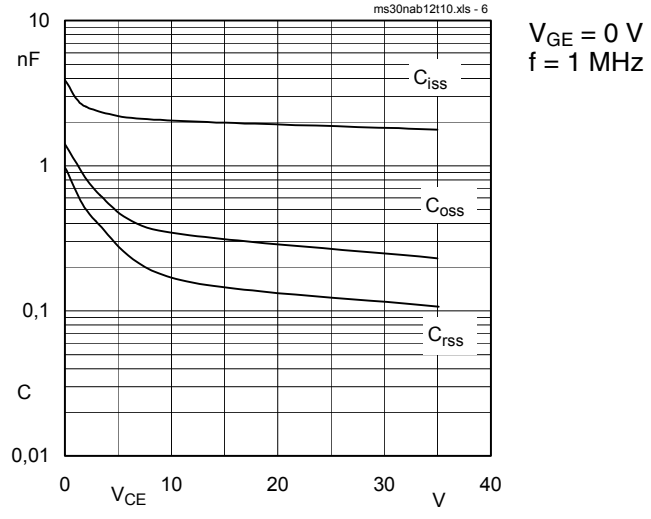

Fig. 6 Typ. capacitances vs. V_{CE}