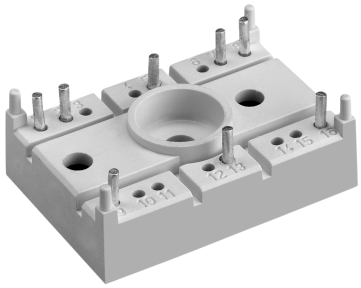
SEMIKRON

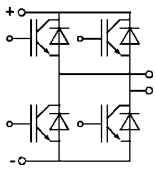
Absolute Maximum Ratings			
Symbol	Conditions [1]	Values	Units
V_{CES}		1200	V
V_{GES}		± 20	V
I_C	T_h = 25/80 °C	16 / 11	A
I_{CM}	t_p < 1 ms; T_h = 25/80 °C	32 / 22	A
$I_F = -I_C$	T_h = 25/80 °C	18 / 12	A
$I_{FM} = -I_{CM}$	t_p < 1 ms; T_h = 25/80 °C	36 / 24	A
T_j		- 40 ... + 150	°C
T_{stg}		- 40 ... + 125	°C
T_{sol}	Terminals, 10 s	260	°C
V_{isol}	AC, 1 min	2500	V

Characteristics					
Symbol	Conditions [1]	min.	typ.	max.	Units
V_{CEsat}	I_C = 10 A; T_j = 25 (125) °C	–	2,7(3,3)	3,2(3,9)	V
$t_{d(on)}$	V_{CC} = 600 V; V_{GE} = ± 15 V	–	30	–	ns
t_r	I_C = 10 A, T_j = 125 °C	–	45	–	ns
$t_{d(off)}$	$R_{Gon} = R_{Goff}$ = 50 Ω	–	200	–	ns
t_f	inductive load	–	35	–	ns
$E_{on} + E_{off}$		–	2,3	–	mJ
C_{ies}	V_{CE} = 25 V; V_{GE} = 0V, 1 MHz	–	0,53	–	nF
R_{thjh} [3]	per IGBT	–	–	1,8	K/W
Inverse Diode [2]					
$V_F = V_{EC}$	I_F = 10 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	–	80	110	mΩ
I_{RRM}	I_F = 10 A; V_R = 600 V	–	12	–	A
Q_{rr}	di_F/dt = - 300 A/µs	–	1,8	–	µC
E_{off}	V_{GE} = 0 V; T_j = 125 °C	–	0,4	–	mJ
R_{thjh} [3]	per Diode	–	–	2,1	K/W
Mechanical Data					
M_1	mounting torque	–	–	2,0	Nm
w		–	21	–	g
Case			T 5		

SEMITOP® 2
IGBT Module

SK 10 GH 123





GH

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N channel, homogeneous silicon structure (NPT Non-Punch-through IGBT)
- High short circuit capability
- Fast and soft inverse CAL-diodes
- UL recognized, file no. E 63 532

Typical Applications

- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS

[1] T_h = 25 °C, unless otherwise specified
[2] CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
[3] Thermal resistance junction to heatsink

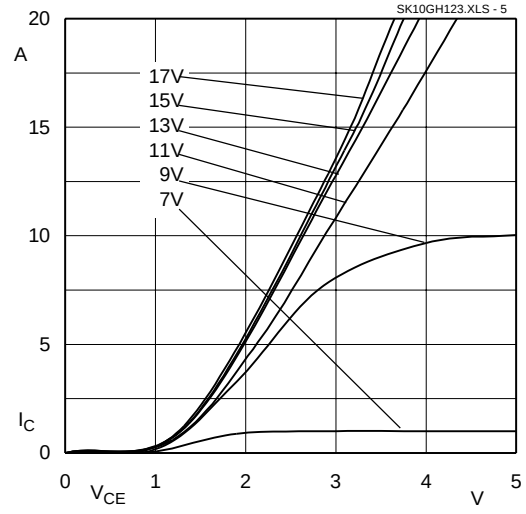


Fig. 5 Typ. output characteristic, t_p = 80 µs; 25 °C

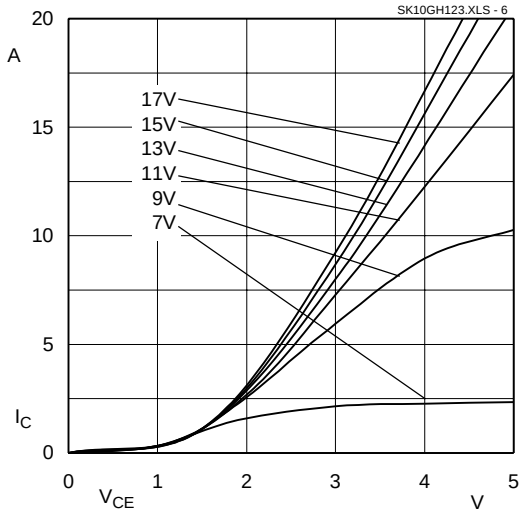


Fig. 6 Typ. output characteristic, t_p = 80 µs; 125 °C

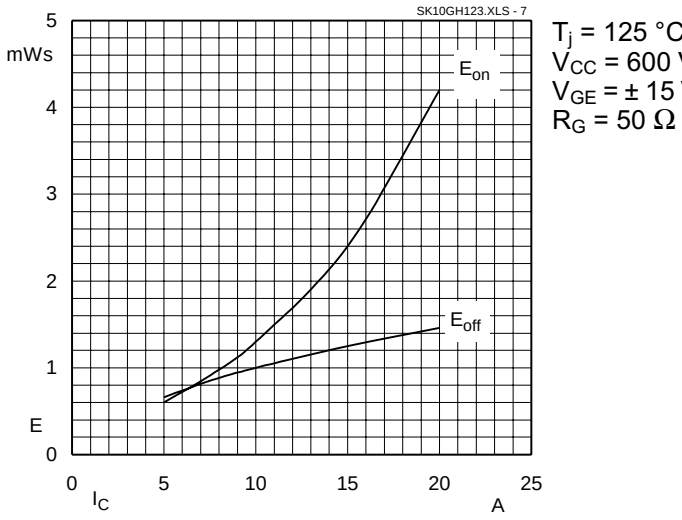


Fig. 7 Turn-on /-off energy = f (I_C)

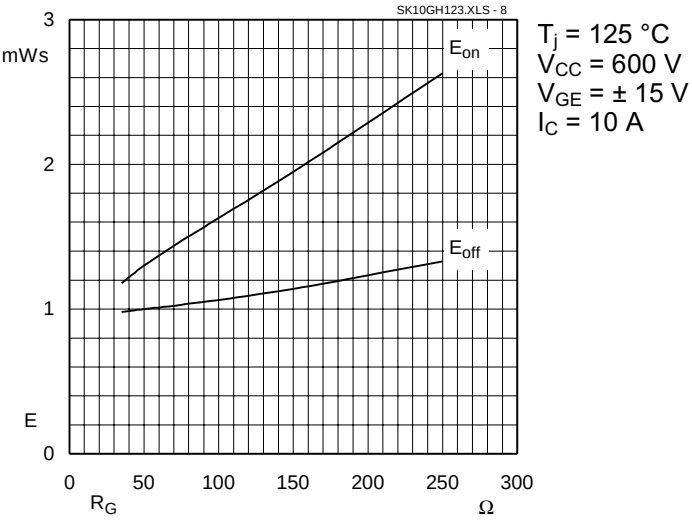


Fig. 8 Turn-on /-off energy = f (R_G)

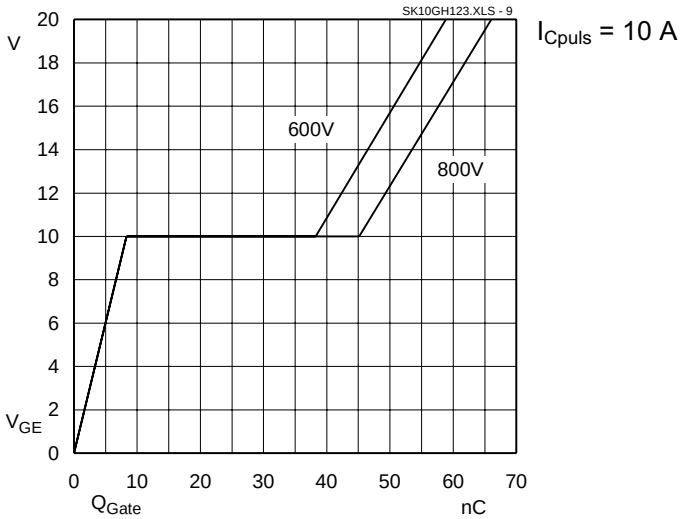


Fig. 9 Typ. gate charge characteristic

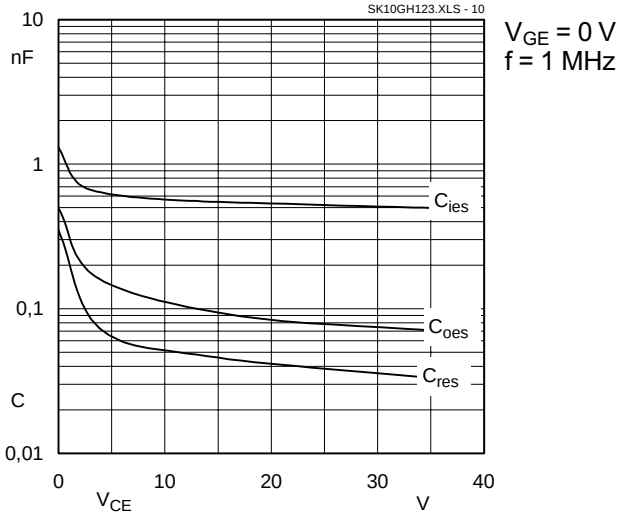
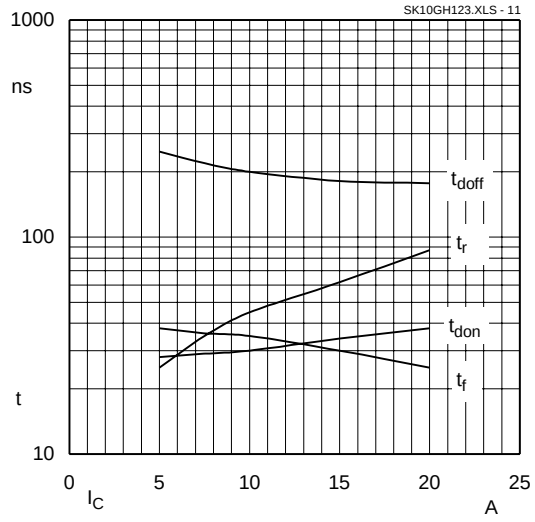
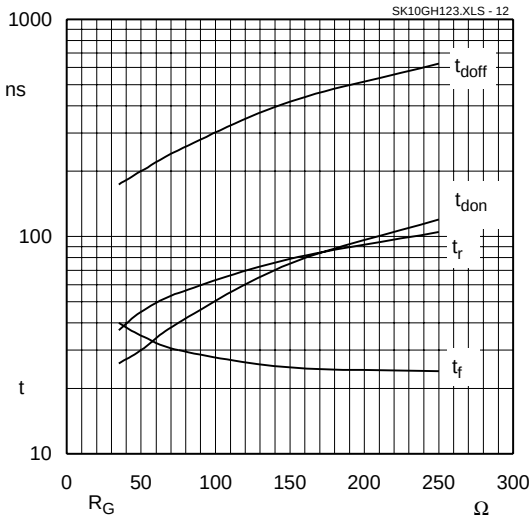


Fig. 10 Typ. capacitances vs. V_{CE}



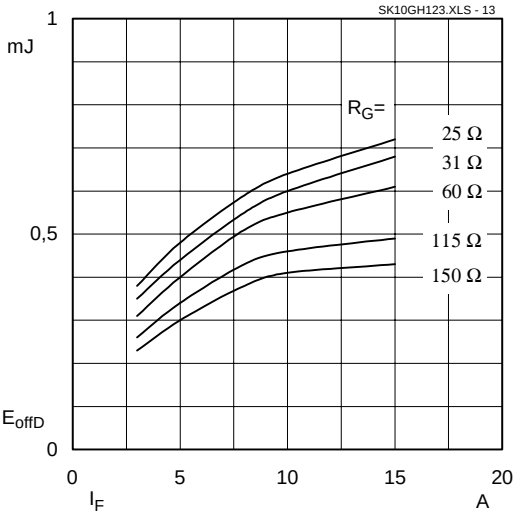
T_j = 125 °C
V_{CC} = 600 V
V_{GE} = ± 15 V
R_{Gon} = 50 Ω
R_{Goff} = 50 Ω
induct. load

Fig. 11 Typ. switching times vs. I_C



T_j = 125 °C
V_{CC} = 600 V
V_{GE} = ± 15 V
I_C = 10 A
induct. load

Fig. 12 Typ. switching times vs. gate resistor R_G

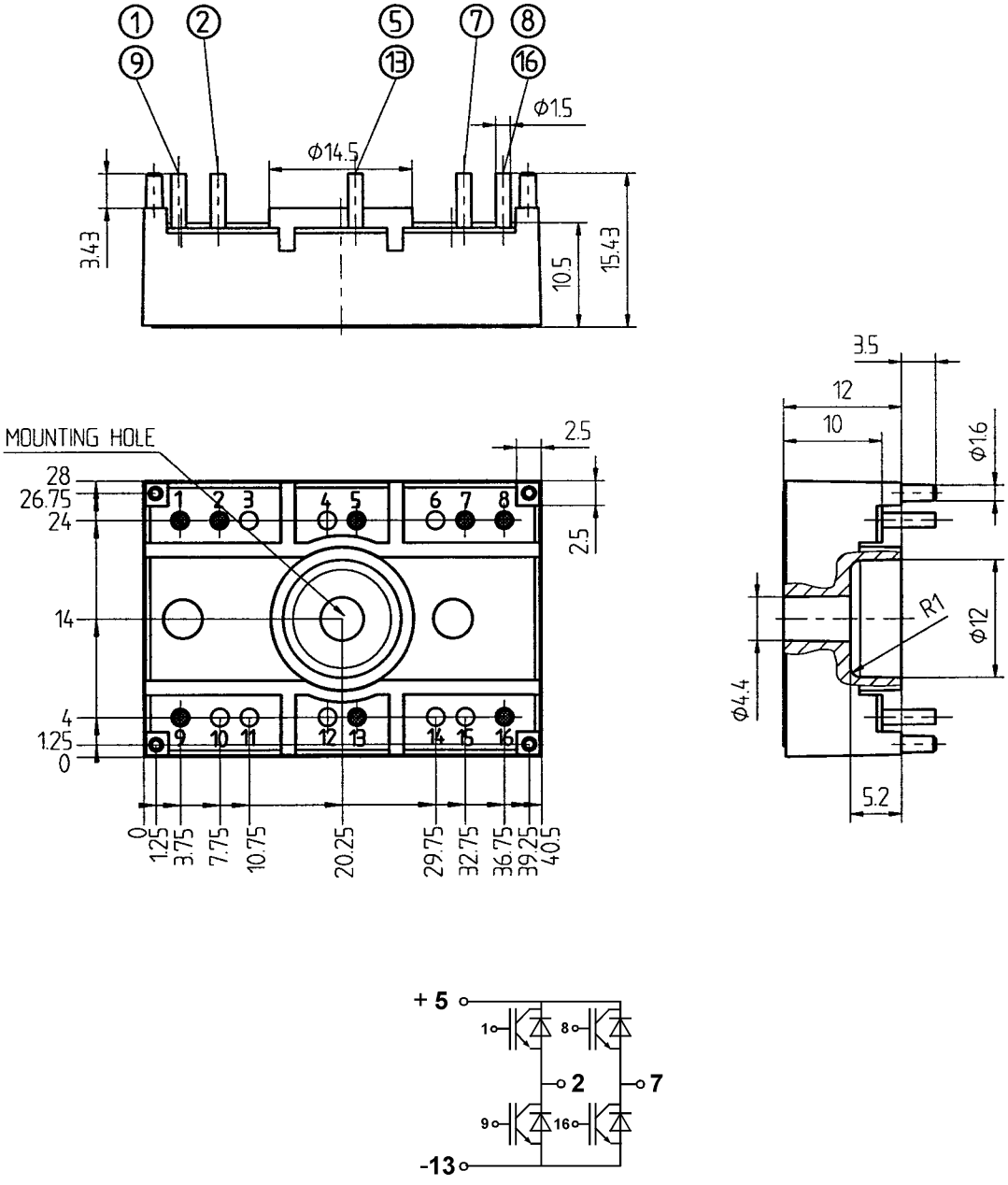


V_{CC} = 600 V
T_j = 125 °C
V_{GE} = ± 15 V

Fig. 13 Diode turn-off energy dissipation per pulse

SEMITOP® 2
SK 10 GH 123

Case T 5



Dimensions in mm