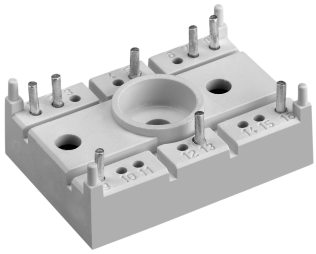
SEMIKRON

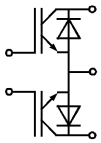
Absolute Maximum Ratings			
Symbol	Conditions [1]	Values	Units
V_{CES}		600	V
V_{GES}		± 20	V
I_C	T_h = 25/80 °C	81 / 57	A
I_{CM}	t_p < 1 ms; T_h = 25/80 °C	162 / 114	A
$I_F = -I_C$	T_h = 25/80 °C	105 / 75	A
$I_{FM} = -I_{CM}$	t_p < 1 ms; T_h = 25/80 °C	210 / 150	A
T_j		– 40 ... + 150	°C
T_{stg}		– 40 ... + 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 = 60 A; T_j = 25 (125) °C	–	1,8(2,0)	2,1(2,3)	V
$t_{d(on)}$	V_{CC} = 300 V; V_{GE} = ± 15 V	–	45	60	ns
t_r	I_C = 60 A, T_j = 125 °C	–	35	50	ns
$t_{d(off)}$	$R_{Gon} = R_{Goff}$ = 11 Ω	–	250	300	ns
t_f	inductive load	–	25	40	ns
$E_{on} + E_{off}$		–	5,3	6,9	mJ
C_{ies}		–	5,6	–	nF
R_{thjh} [3]		–	–	0,6	K/W
Inverse Diode [2]					
$V_F = V_{EC}$	I_F = 60 A; T_j = 25 (125) °C	–	1,3(1,2)	1,5(1,45)	V
V_{TO}	T_j = 125 °C	–	0,8	0,9	V
r_T	T_j = 125 °C	–	5,8	7,5	mΩ
I_{RRM}	I_F = 60 A; V_R = 300 V	–	22	26	A
Q_{rr}	di_F/dt = – 500 A/µs	–	2,2	3,5	µC
E_{off}	V_{GE} = 0 V; T_j = 125 °C	–	0,2	0,3	mJ
R_{thjh} [3]	per Diode	–	–	1,2	K/W
Mechanical Data					
M_1	mounting torque	–	–	2,0	Nm
w		–	19	–	g
Case			T 35		

SEMITOP® 2
IGBT Module

SK 80 GM 063





GM

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
- Low tail current with low temperature dependence
- 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

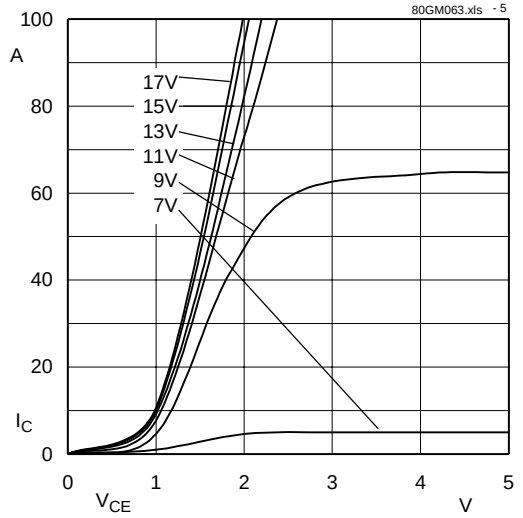


Fig. 5 Typ. output characteristic, t_p = 80 µs; 25 °C

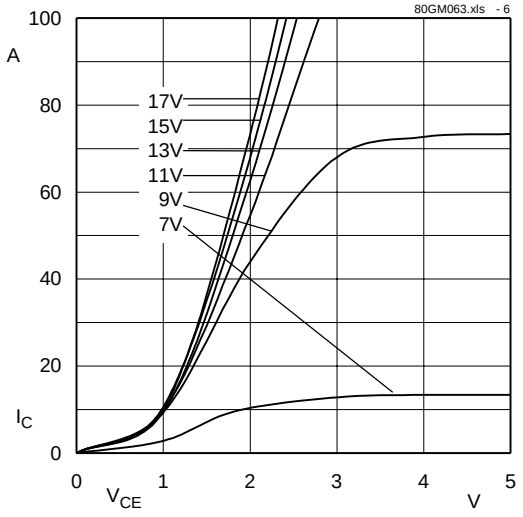
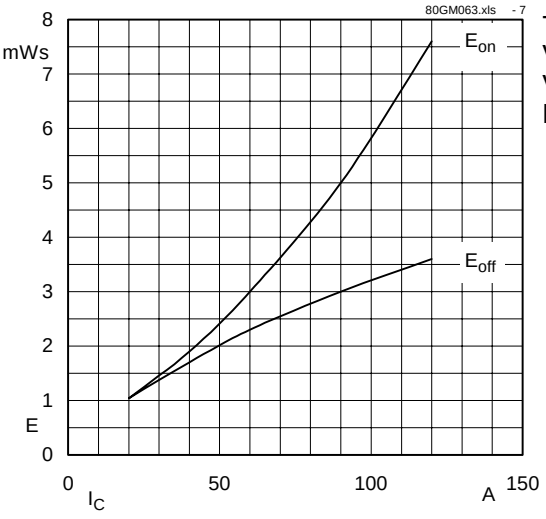
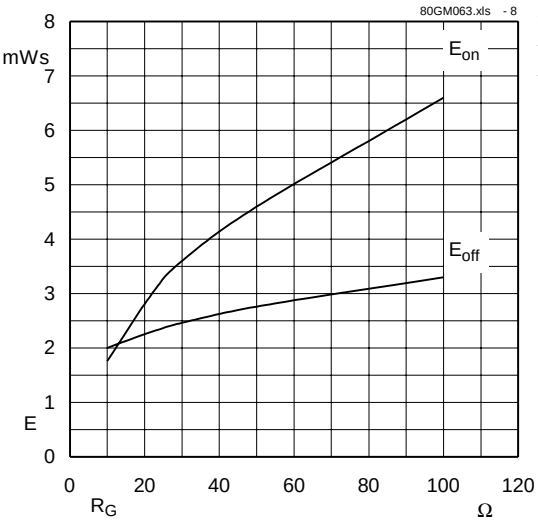


Fig. 6 Typ. output characteristic, t_p = 80 µs; 125 °C



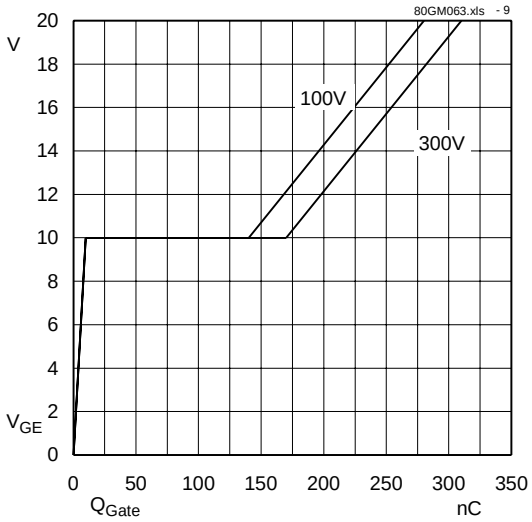
T_j = 125 °C
V_{CC} = 300 V
V_{GE} = ± 15 V
R_G = 11 Ω

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



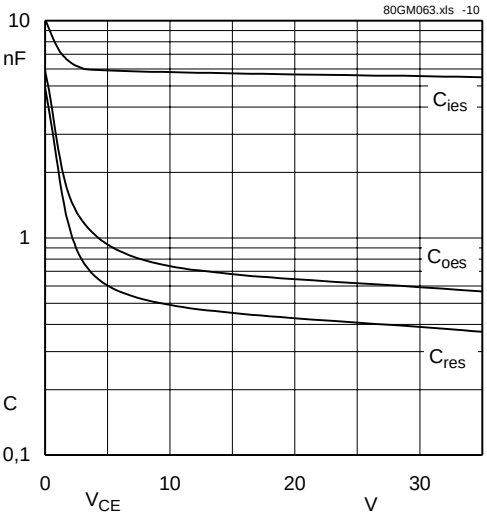
T_j = 125 °C
V_{CC} = 300 V
V_{GE} = ± 15 V
I_C = 60 A

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



I_{Cpuls} = 60 A

Fig. 9 Typ. gate charge characteristic



V_{GE} = 0 V
f = 1 MHz

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

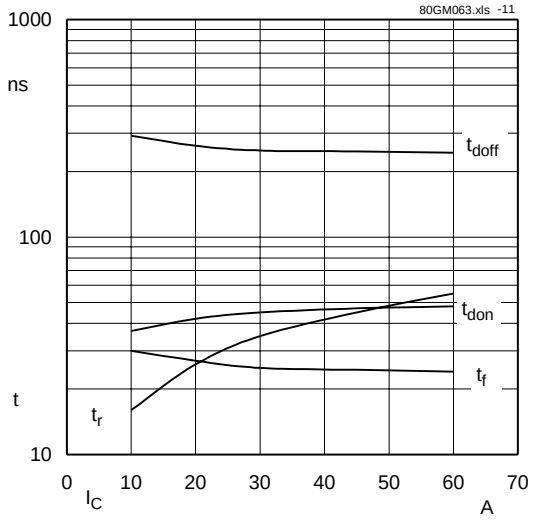


Fig. 11 Typ. switching times vs. I_C

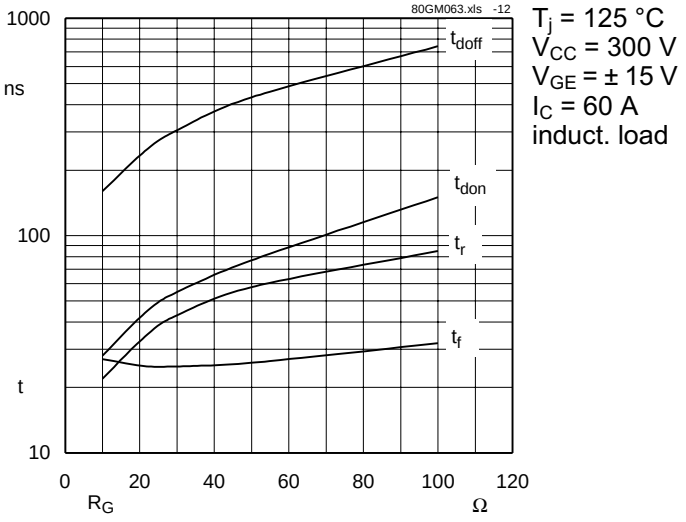


Fig. 12 Typ. switching times vs. gate resistor R_G

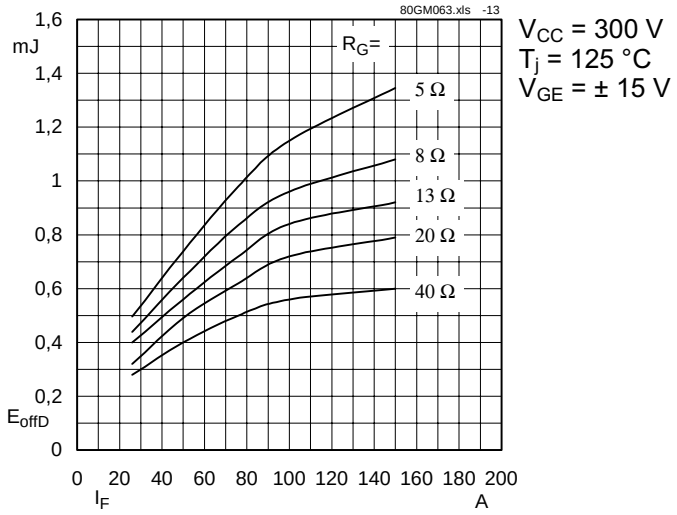
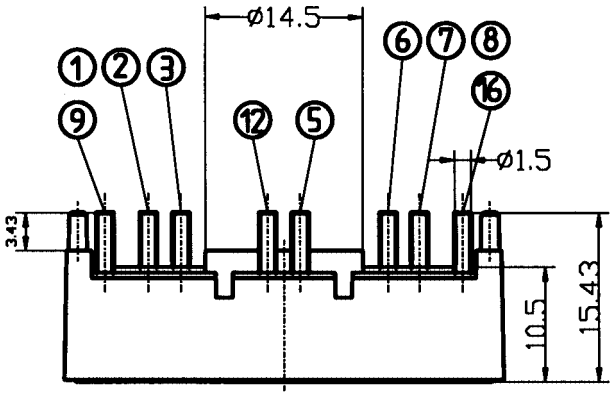
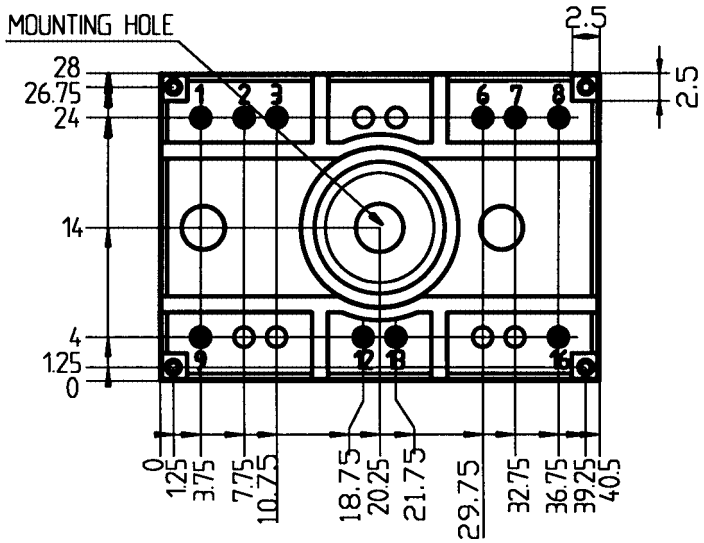


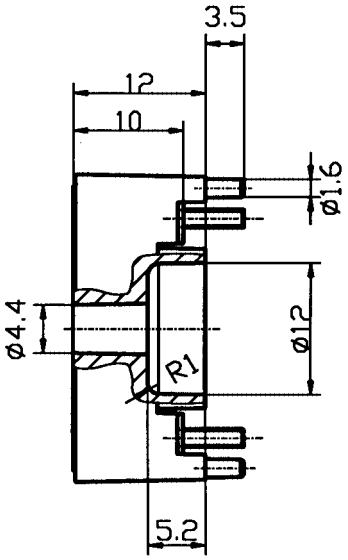
Fig. 13 Diode turn-off energy dissipation per pulse

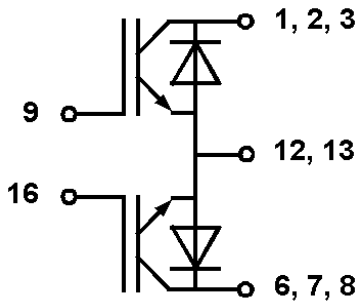
SEMITOP® 2
SK 80 GM 063

Case T 35









Dimensions in mm