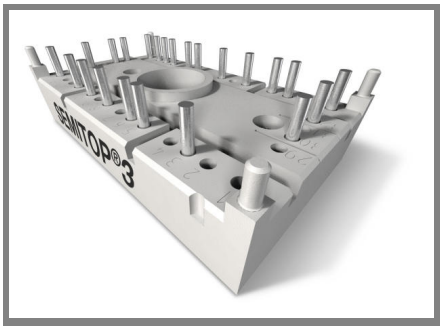
SK50GB067



SEMITOP® 3

IGBT Module

SK50GB067

SK50GAL067

SK50GAR067

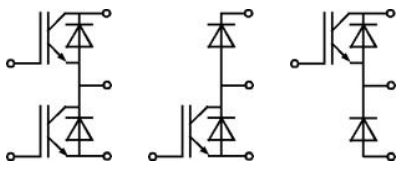
Target Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Hyperfast NPT technology IGBT
- N-channel homogeneous silicon structure (NPT Non-Punch-Through IGBT)
- Positive $V_{ce,sat}$ temperature coefficient (Easy paralleling)
- Low tail current with low temperature dependence
- Low treshold voltage

Typical Applications*

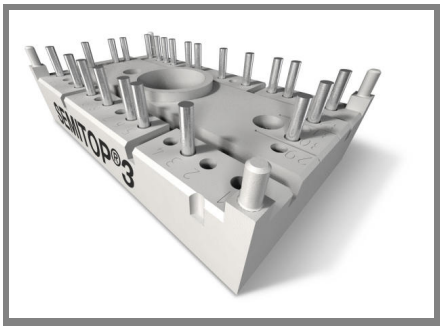
- Switching (not for linear use)
- High Frequencies Applications
- Welding generator
- Switched mode power supplies
- UPS



GB GAL GAR

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified		
Symbol	**Conditions**		**Values**	**Units**
IGBT				
V_{CES}	T_j = 25 °C		600	V
I_C	T_j = 125 °C	T_s = 25 °C	83	A
		T_s = 80 °C	54	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		240	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 300 V; $V_{GE} \leq$ 20 V; V_{CES} < 600 V	T_j = 125 °C	10	µs
Inverse Diode				
I_F	T_j = 150 °C	T_s = 25 °C	90	A
		T_s = 80 °C	56	A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}			A
I_{FSM}	t_p = 10 ms; sinusoidal	T_j = °C	360	A
Freewheeling Diode				
I_F	T_j = 150 °C	T_s = 25 °C	90	A
		T_s = 80 °C	56	A
I_{FRM}				A
I_{FSM}	t_p = ms;	T_j = °C	360	A
Module				
$I_{t(RMS)}$				A
T_{vj}			-40 ... +150	°C
T_{stg}			-40 ... +125	°C
V_{isol}	AC, 1 min.		2500	V

Characteristics		T_s = 25 °C, unless otherwise specified				
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1,2 mA		3	4	5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,008	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			480	nA
V_{CE0}		T_j = 150 °C			2	V
r_{CE}	V_{GE} = 15 V	T_j = 150°C		12,5		mΩ
$V_{CE(sat)}$	I_{Cnom} = 120 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		2,8	3,15	V
		T_j = 125°C$_{chiplev.}$		3,5	4	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		6		nF
C_{oes}				0,6		nF
C_{res}				0,36		nF
$t_{d(on)}$	R_{Gon} = 0 Ω	V_{CC} = 400V, I_C= 120A, T_j = 125 °C, V_{GE}=±15V		38		ns
t_r				31		ns
E_{on}				7,5		mJ
$t_{d(off)}$	R_{Goff} = 11 Ω			260		ns
t_f				30		ns
E_{off}				2,5		mJ
$R_{th(j-s)}$	per IGBT				0,45	K/W



SEMITOP® 3

IGBT Module

SK50GB067

SK50GAL067

SK50GAR067

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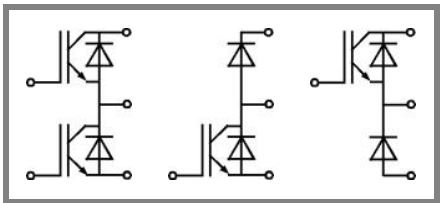


GB **GAL** **GAR**

Characteristics

Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 120 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$			2	V
		T_j = 150 °$C_{chiplev.}$		1,25		V
V_{F0}		T_j = 25 °C				V
		T_j = 150 °C		1		V
r_F		T_j = 25 °C				mΩ
		T_j = 150 °C		4		mΩ
I_{RRM}	I_F = 120 A	T_j = 125 °C		10		A
Q_{rr}	di/dt = -100 A/µs			8		µC
E_{rr}	V_{CC}= 400V			1,6		mJ
$R_{th(j-s)D}$	per diode				0,8	K/W
Free-wheeling diode						
$V_F = V_{EC}$	I_{Fnom} = 120 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$			2	V
		T_j = 150 °$C_{chiplev.}$		1,25		V
V_{F0}		T_j = 25 °C				V
		T_j = 150 °C		1		V
r_F		T_j = 25 °C				V
		T_j = 150 °C		4		V
I_{RRM}	I_F = 120 A	T_j = 125 °C		10		A
Q_{rr}				8		µC
E_{rr}				1,6		mJ
$R_{th(j-s)FD}$	per diode				0,8	K/W
M_s	to heat sink		2,25		2,5	Nm
w				29		g

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.

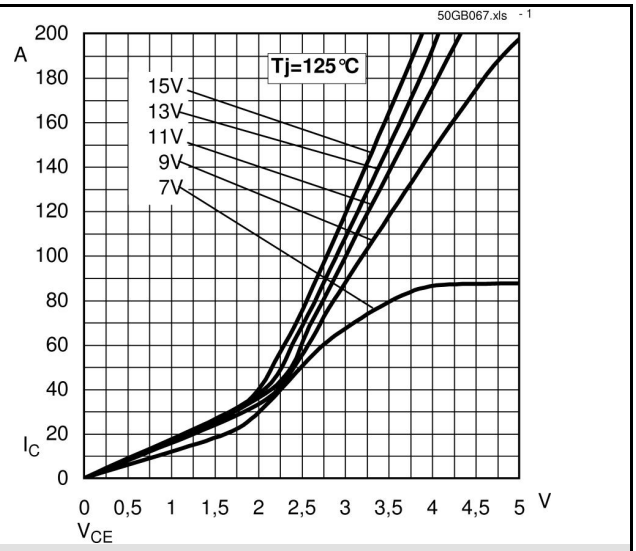


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

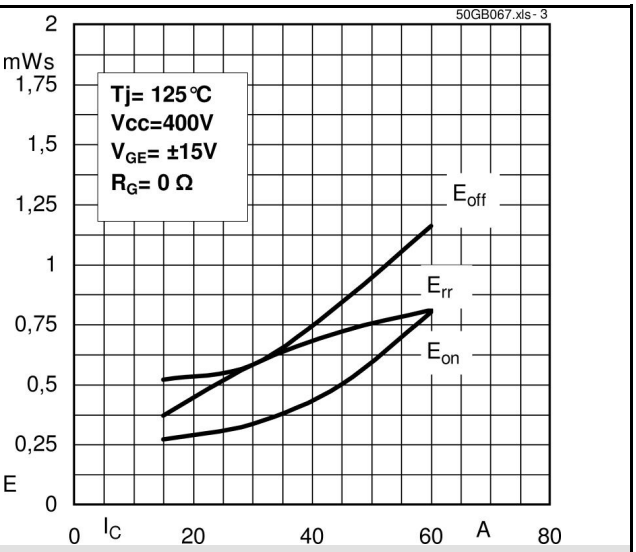


Fig. 3 Typ. turn-on /-off energy = f (I_C)

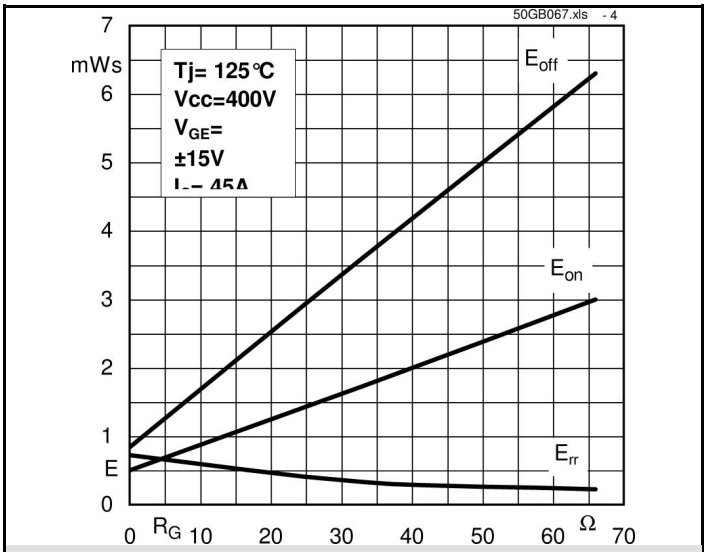


Fig. 4 Typ. turn-on /-off energy = f (R_G)

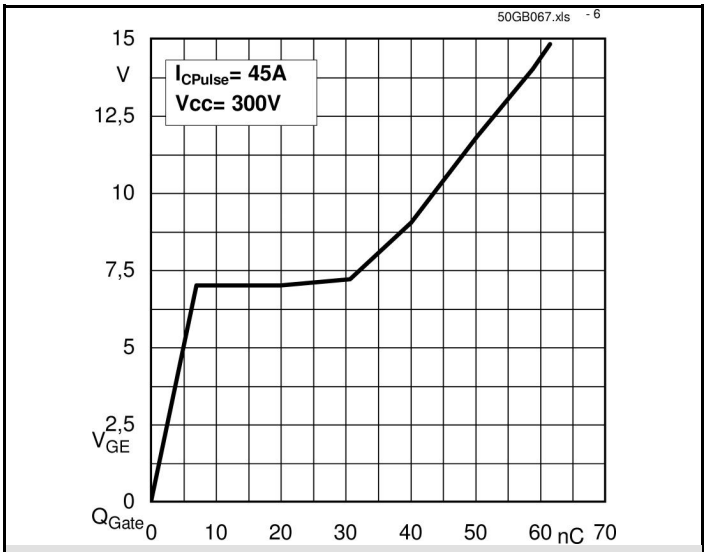


Fig. 6 Typ. gate charge characteristic

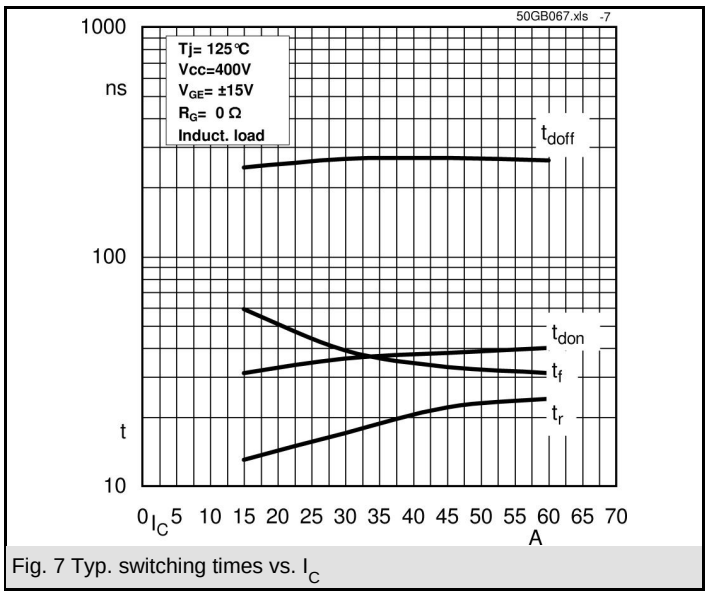


Fig. 7 Typ. switching times vs. I_C

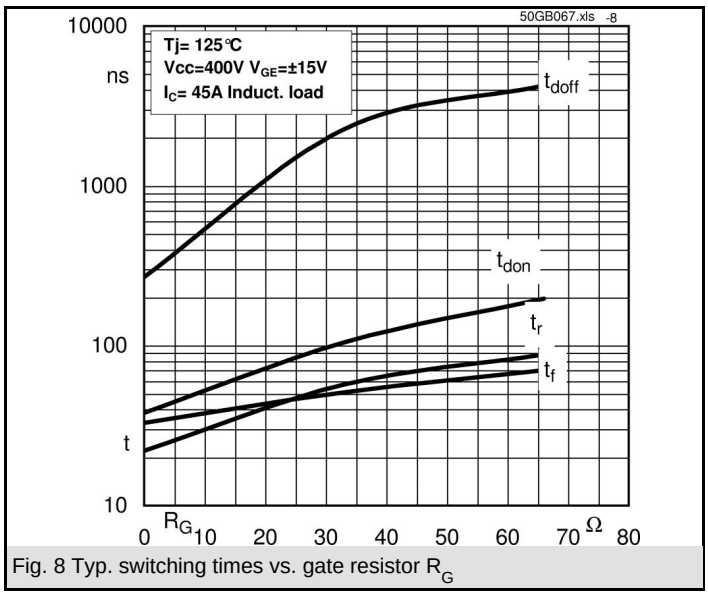


Fig. 8 Typ. switching times vs. gate resistor R_G

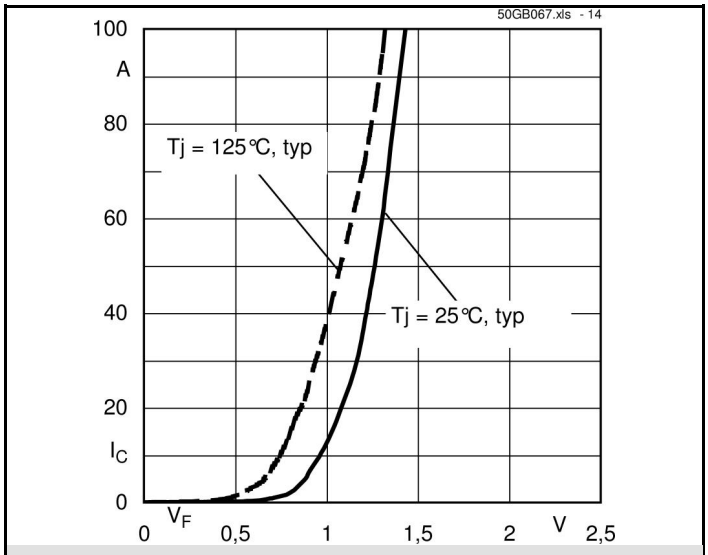
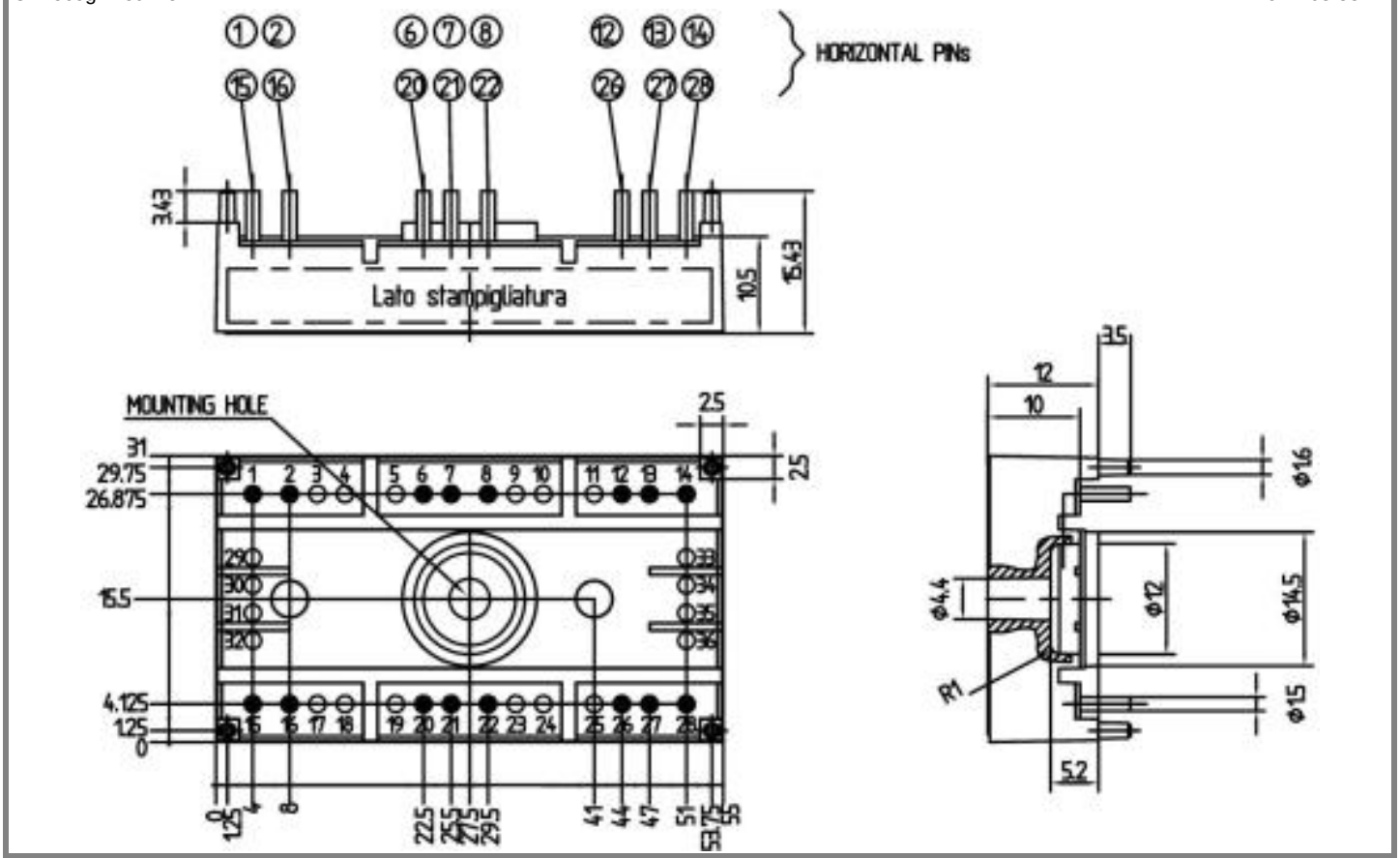
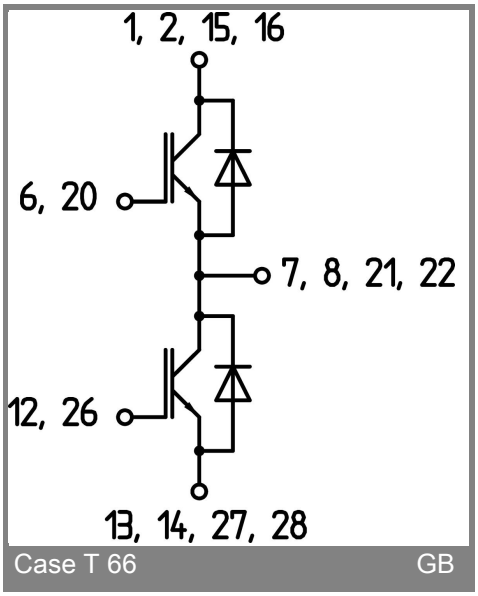


Fig. 10 CAL diode forward characteristic

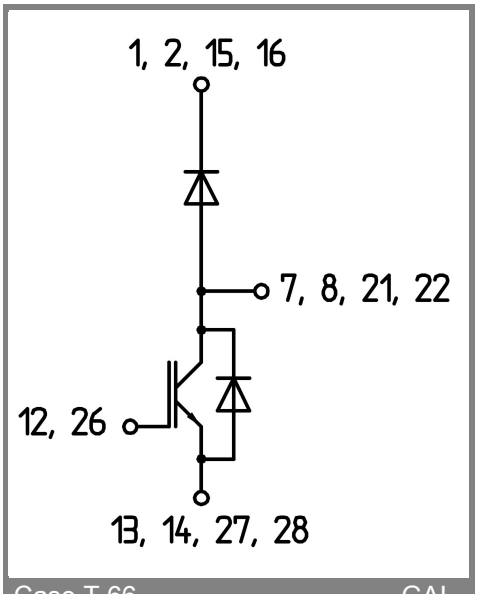
UL recognized file no. E 63 532



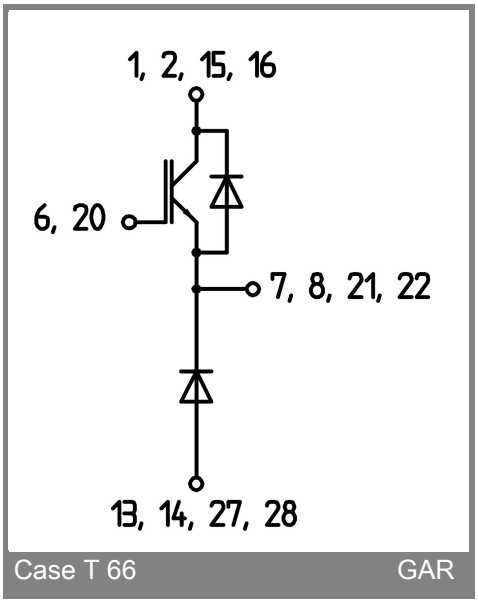
Case T66 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 66 GB



Case T 66 GAL



Case T 66 GAR

