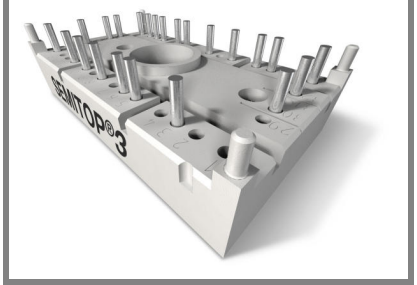
SK50GB067



SEMITOP® 3

IGBT Module

SK50GB067

SK50GAL067

SK50GAR067

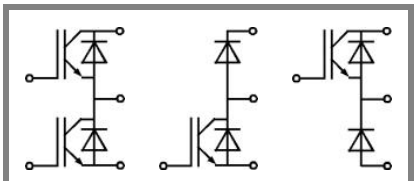
Target Data

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

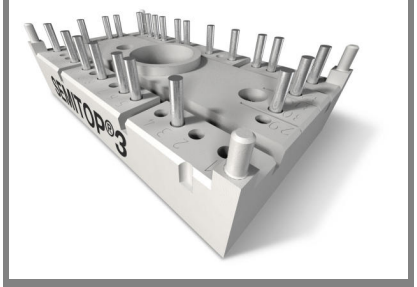
- Switching (not for linear use)
- High Frequencies Applications
- Welding generator
- Switched mode power supplies
- UPS



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		38		ns
t_r		I_C= 120A		31		ns
E_{on}		T_j = 125 °C		7,5		mJ
$t_{d(off)}$	R_{Goff} = 11 Ω	V_{GE}=±15V		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

Target Data

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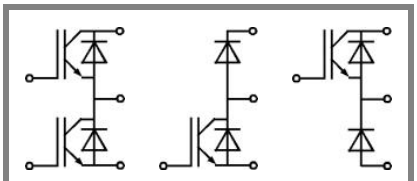


GB GAL GAR

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.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

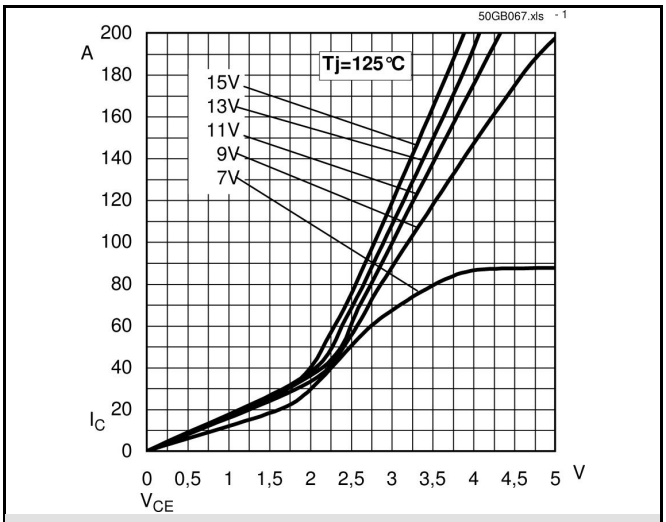


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+ EE'}$

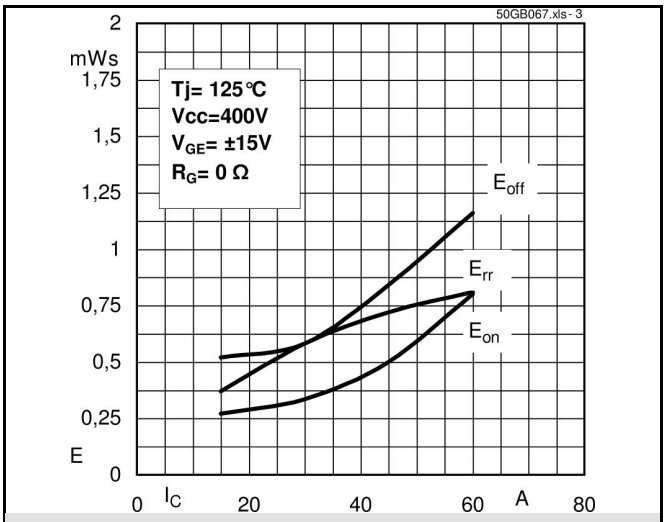


Fig. 3 Typ. turn-on /-off energy = f (I_C)

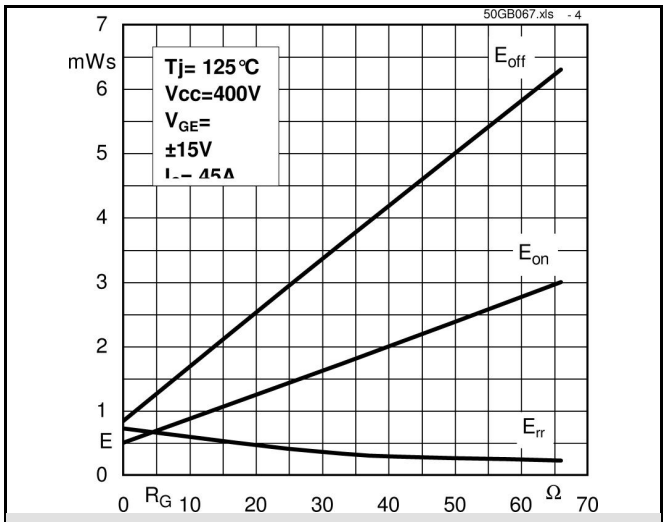


Fig. 4 Typ. turn-on /-off energy = f (R_G)

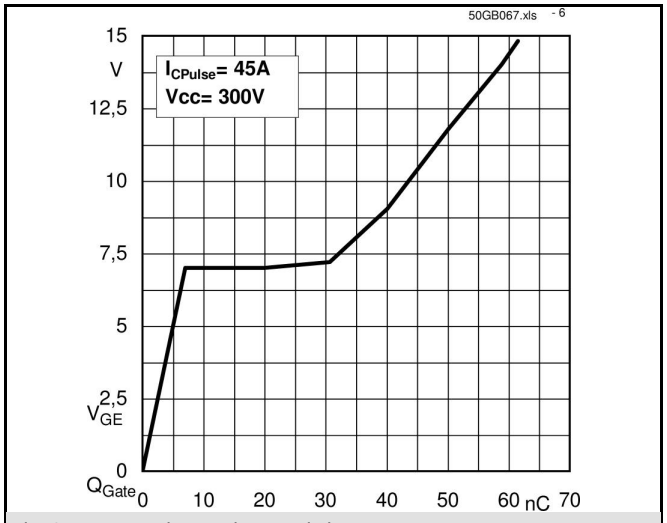


Fig. 6 Typ. gate charge characteristic

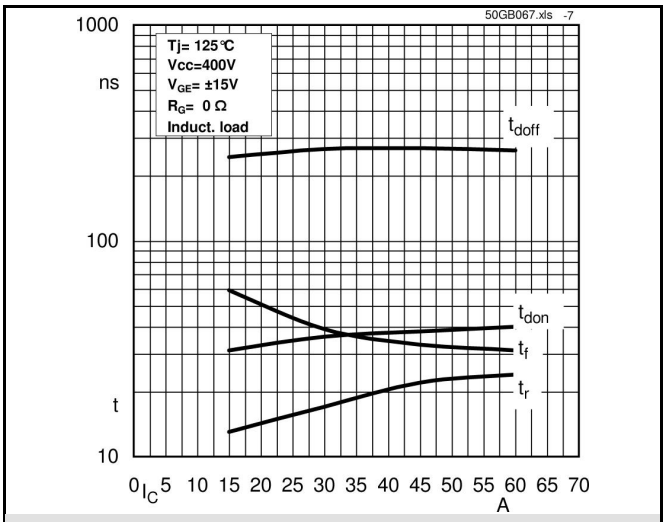


Fig. 7 Typ. switching times vs. I_C

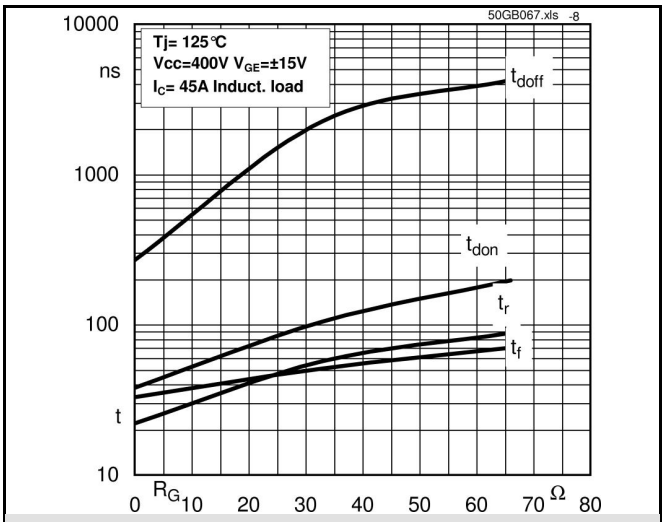


Fig. 8 Typ. switching times vs. gate resistor R_G

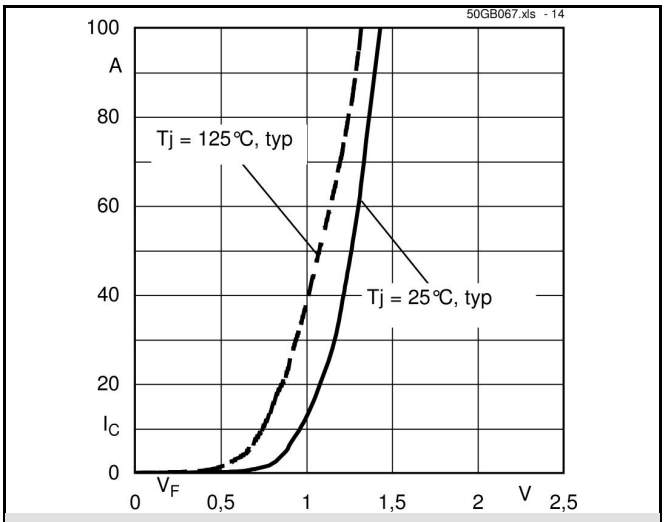
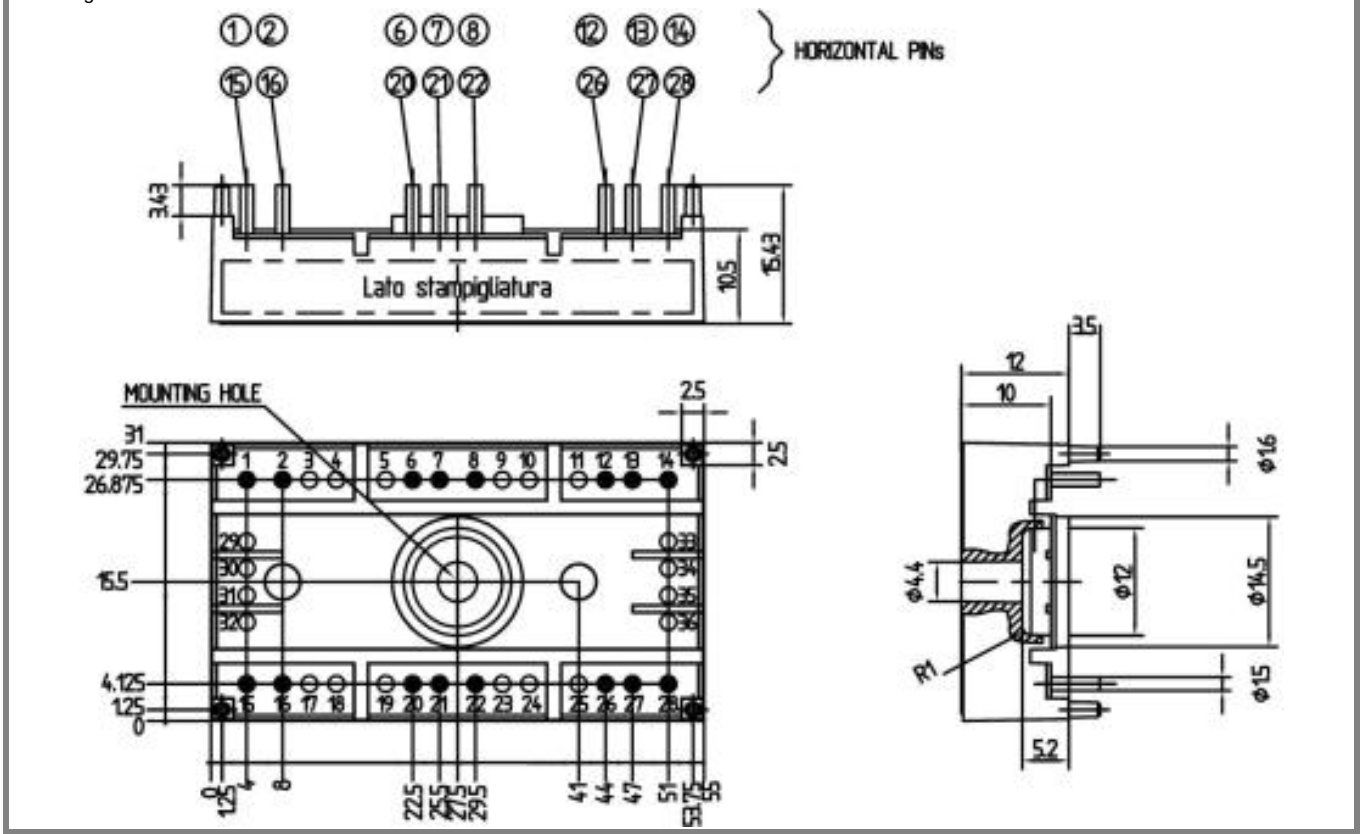
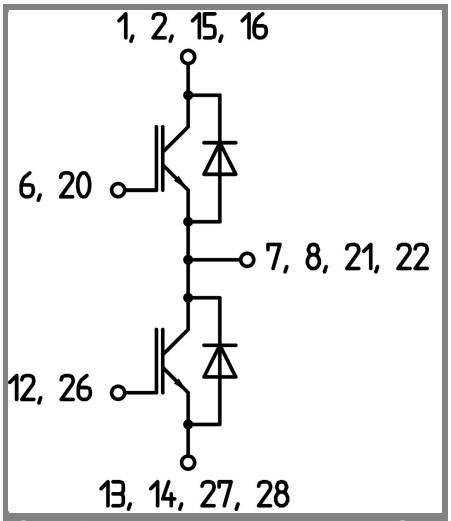


Fig. 10 CAL diode forward characteristic

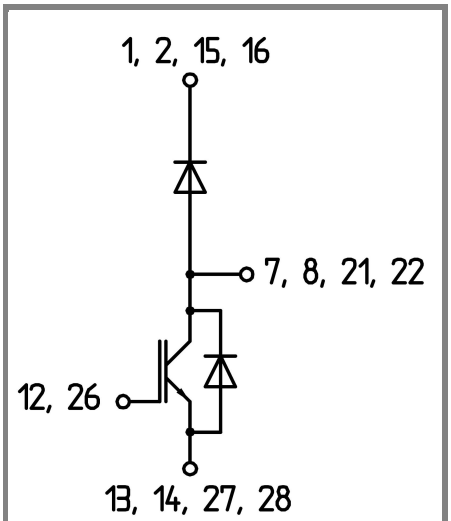
UL recognized file no. E 63 532



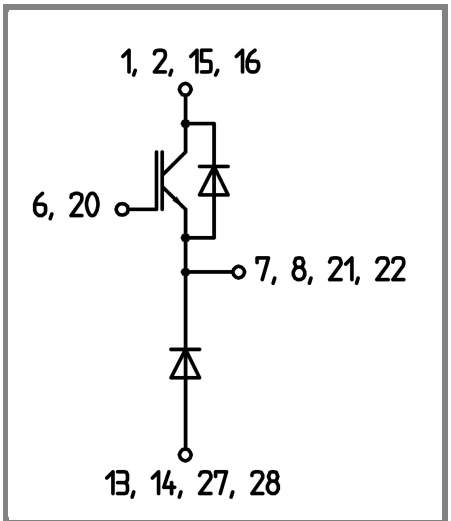
Case T66 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 66 GB



Case T 66 GAL



Case T 66 GAR

