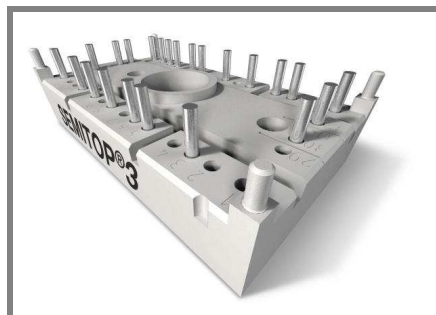




SEMITOP® 3

IGBT Module

SK45GH063

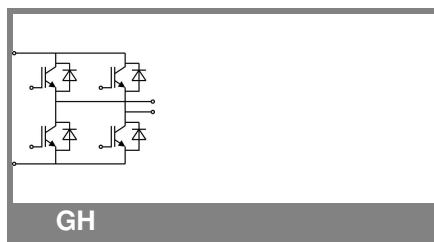
Preliminary Data

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 punchthrough IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E63532

Typical Applications*

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



GH

Absolute Maximum Ratings				$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions			Values	Units
IGBT					
V_{CES}	$T_j = 25\text{ °C}$			600	V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$		45	A
		$T_s = 80\text{ °C}$		30	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$			100	A
V_{GES}				± 20	V
t_{psc}	$V_{CC} = 300\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 125\text{ °C}$ $V_{CES} < 600\text{ V}$			10	μs
Inverse Diode					
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$		57	A
		$T_s = 80\text{ °C}$		38	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$			100	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			440	A
Module					
$I_{t(RMS)}$					A
T_{vj}				-40 ... +150	$^{\circ}\text{C}$
T_{stg}				-40 ... +125	$^{\circ}\text{C}$
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 mA		4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _j = 25 °C T _j = 125 °C	0,15			mA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = 30 V	T _j = 25 °C T _j = 125 °C	120			nA nA
V _{CE0}		T _j = 25 °C T _j = 125 °C	1 1,1			V V
r _{CE}	V _{GE} = 15 V	T _j = 25°C T _j = 125°C	20			mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 50 A, V _{GE} = 15 V	T _j = 25°C _{chiplev.} T _j = 125°C _{chiplev.}	2,1 2,5			V V
C _{ies} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz	2,2 0,2			nF nF nF
Q _G	V _{GE} = 0 ... 20 V		155			nC
t _{d(on)} t _r E _{on}	R _{Gon} = 22 Ω	V _{CC} = 300V I _C = 30A	45 35 1,4			ns ns mJ
t _{d(off)} t _f E _{off}	R _{Goff} = 22 Ω	T _j = 125 °C V _{GE} =±15V	250 25 1,2			ns ns mJ
R _{th(j-s)}	per IGBT		1			K/W



IGBT Module

SK45GH063

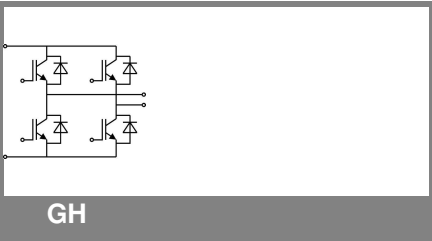
Preliminary Data

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 punchthrough IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E63532

Typical Applications*

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



Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 30 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,3	1,5	V
		T _j = 125 °C _{chiplev.}		1,2	1,45	V
V _{F0}		T _j = 125 °C		0,85	0,9	V
r _F		T _j = 125 °C		8	16	mΩ
I _{RRM}	I _F = 30 A di/dt = -500 A/μs V _{CC} = 300V	T _j = 125 °C		30		A
Q _{rr}				3		μC
E _{rr}				0,9		mJ
R _{th(j-s)D}	per diode				1,2	K/W
M _s	to heat sink M1		2,25		2,5	Nm
w				30		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.

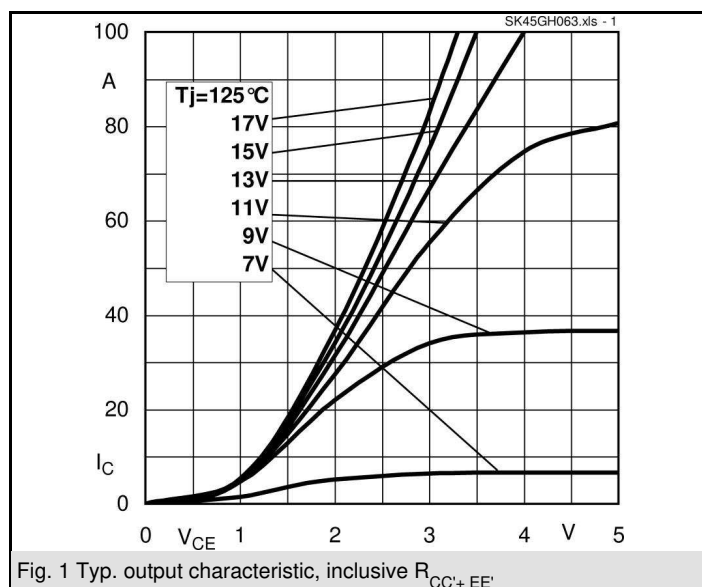


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

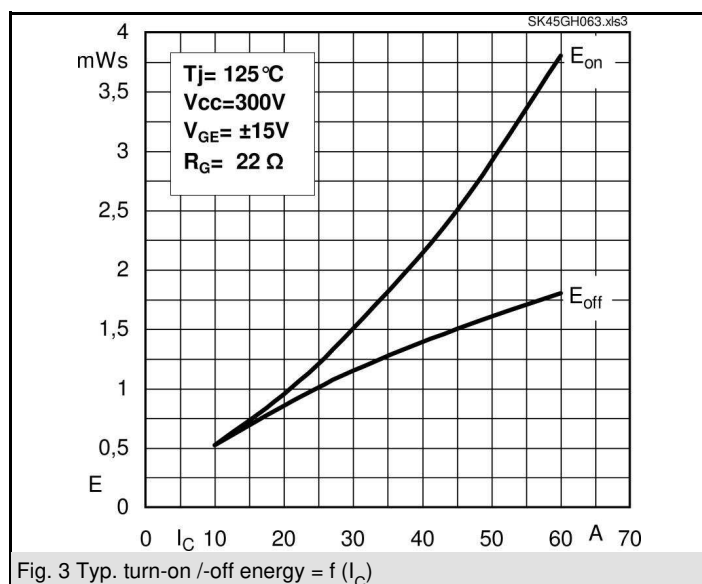


Fig. 3 Typ. turn-on /-off energy = $f(I_C)$

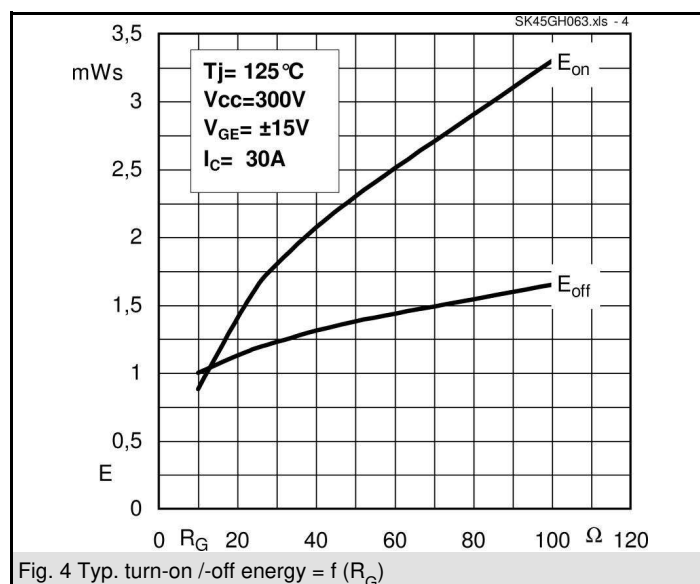


Fig. 4 Typ. turn-on /-off energy = $f(R_G)$

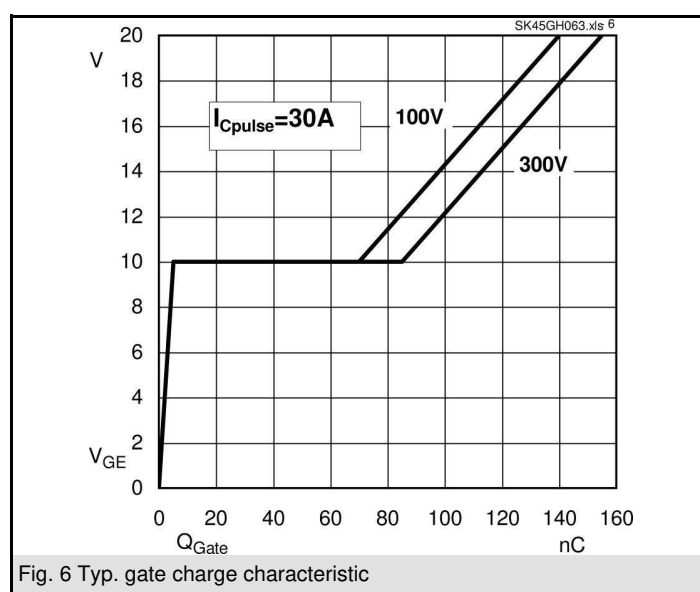
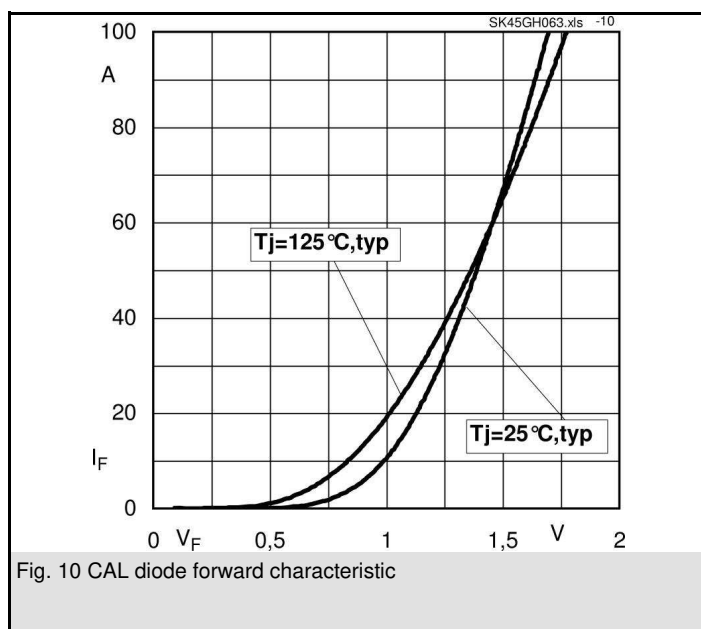
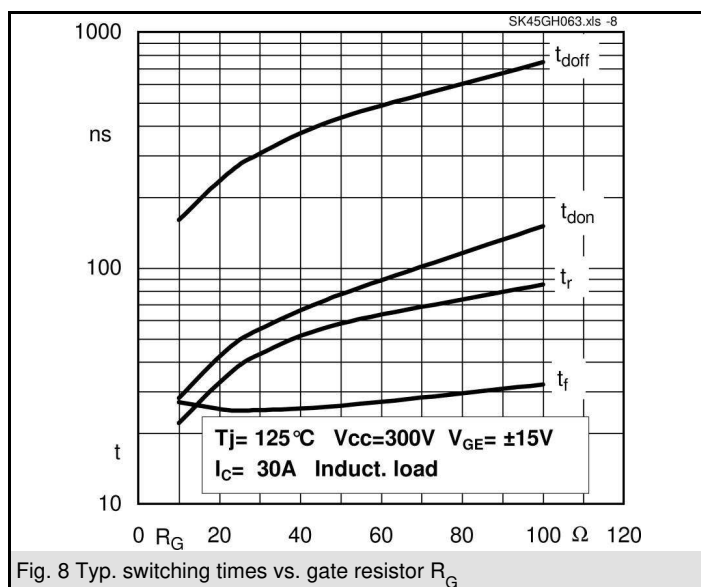
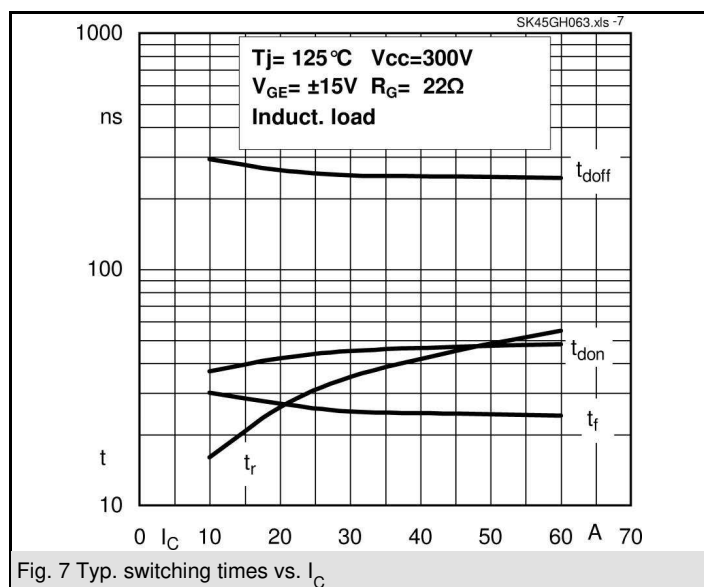
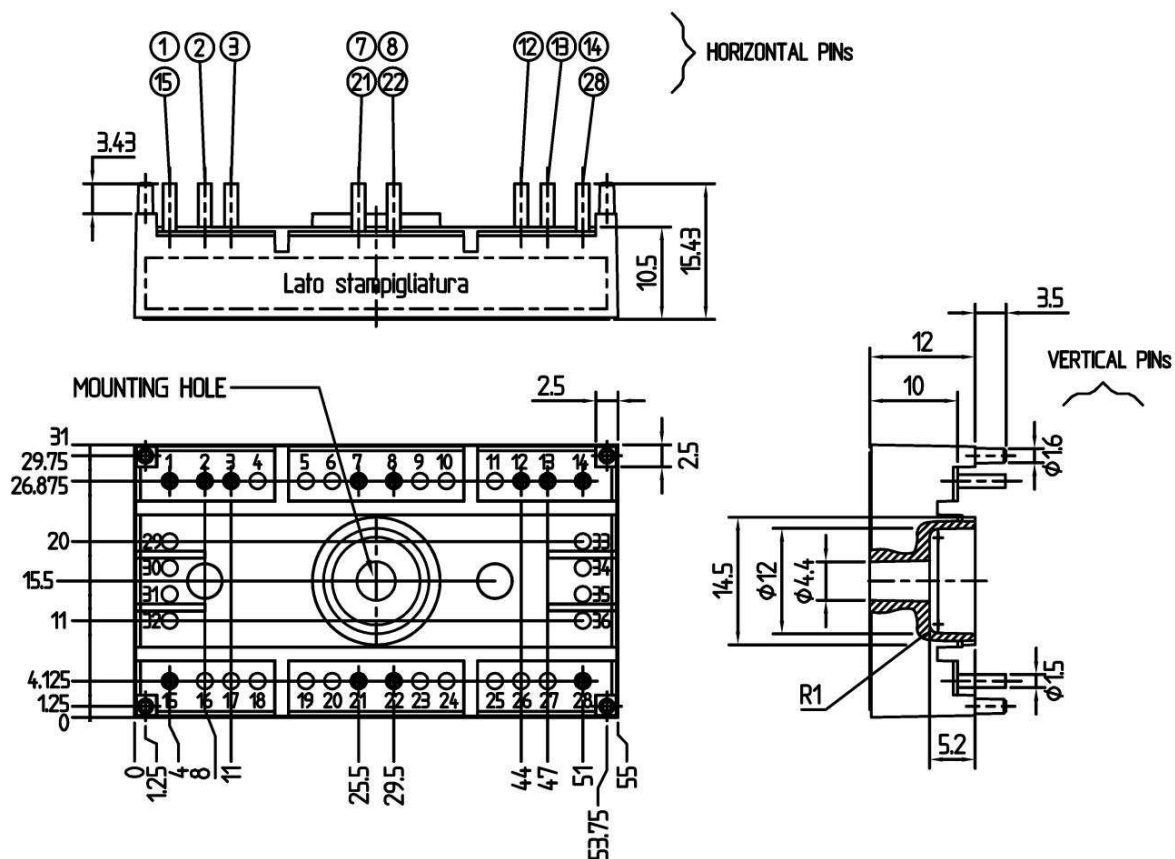
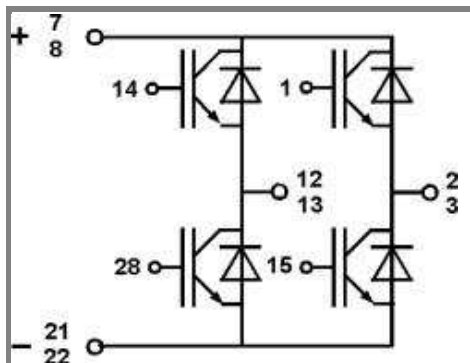


Fig. 6 Typ. gate charge characteristic





Case T19 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 19

GH