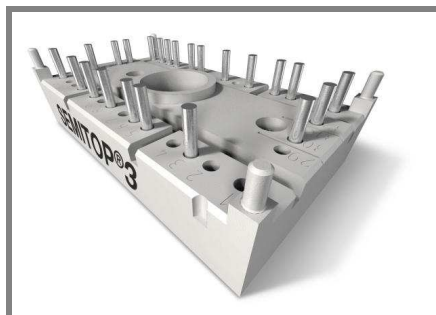




SEMITOP® 3

IGBT Module

SK13GD063

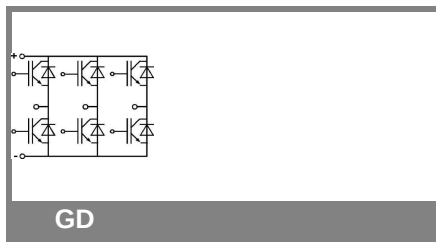
Preliminary Data

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



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	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$		18	A
		$T_s = 80\text{ °C}$		13	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$			20	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	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$		22	A
		$T_s = 80\text{ °C}$		15	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$				A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			100	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 = 0,35 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			0,05	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		110 90		mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 10 A, V _{GE} = 15 V	T _j = 25°C _{chiplev.} T _j = 125°C _{chiplev.}		2,1 2	2,5 2,3	V V
C _{ies} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		0,45 0,04		nF nF nF
Q _G	V _{GE} = 0 ... 20 V			54		nC
t _{d(on)} t _r E _{on}	R _{Gon} = 100 Ω	V _{CC} = 300V I _C = 10A		45 45 0,6		ns ns mJ
t _{d(off)} t _f E _{off}	R _{Goff} = 100 Ω	T _j = 125 °C V _{GE} = ±15V		250 20 0,4		ns ns mJ
R _{th(j-s)}	per IGBT				2	K/W



IGBT Module

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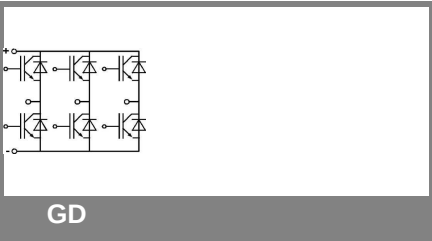
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Typical Applications*

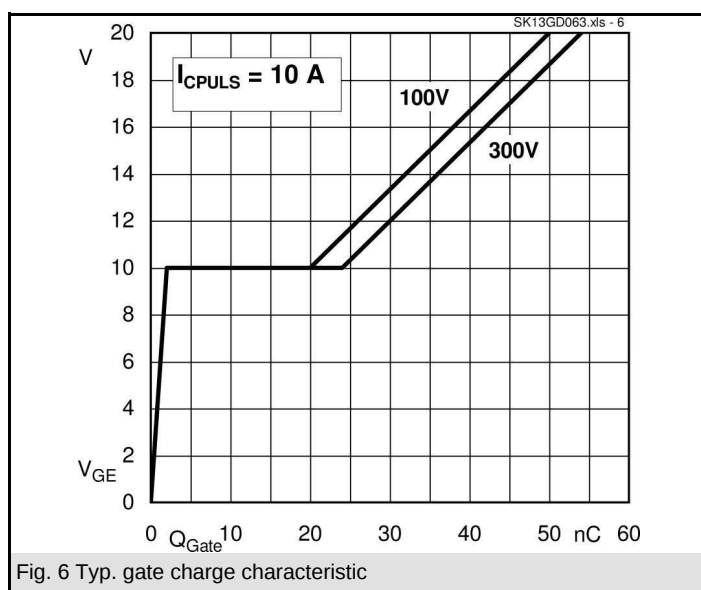
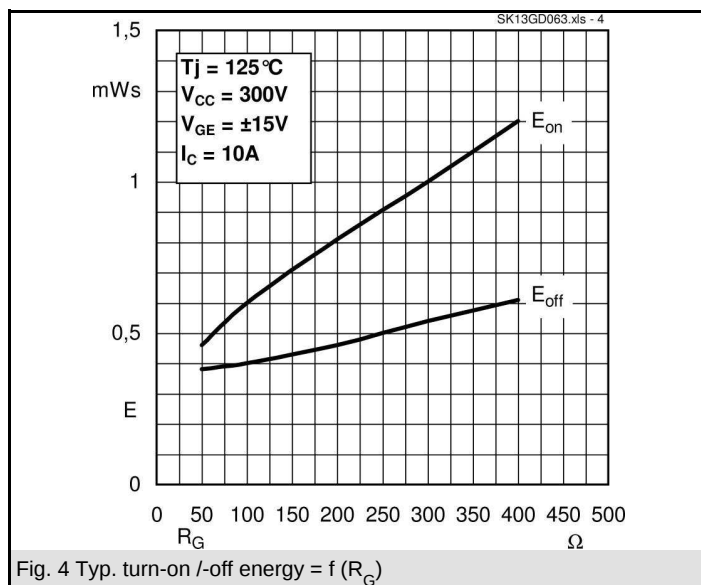
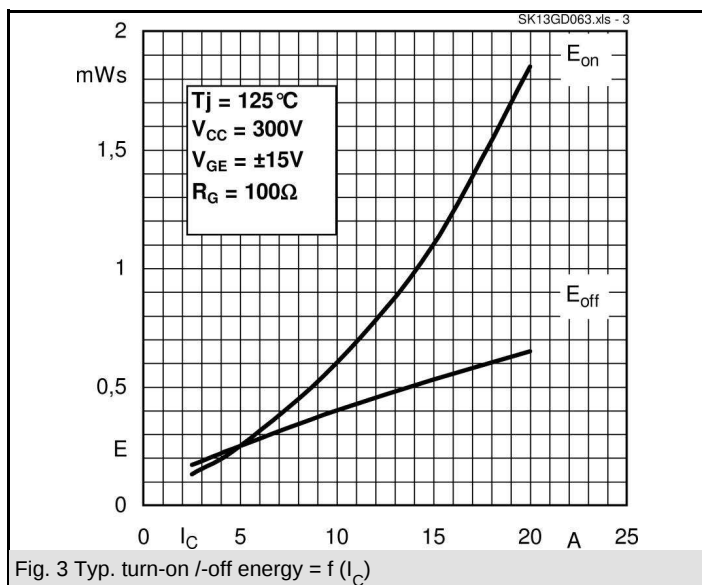
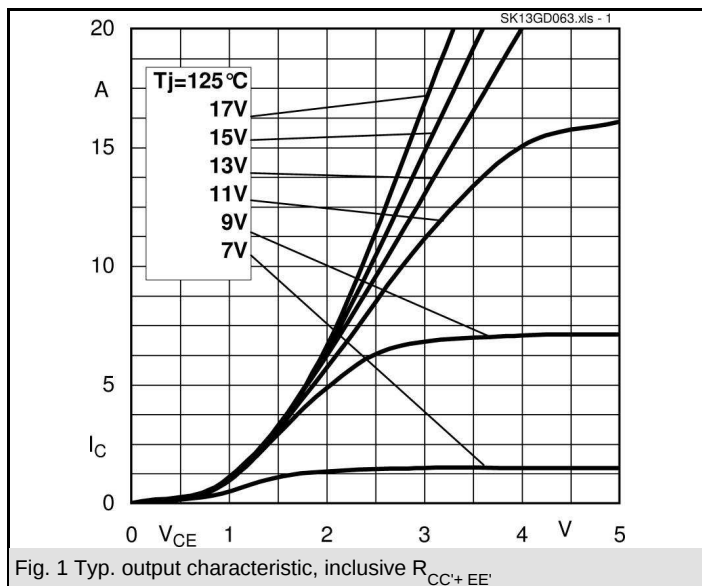
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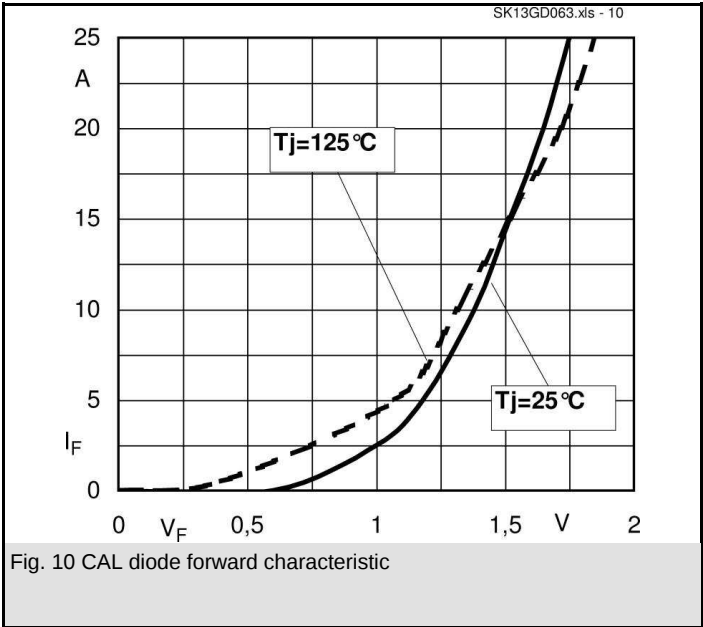
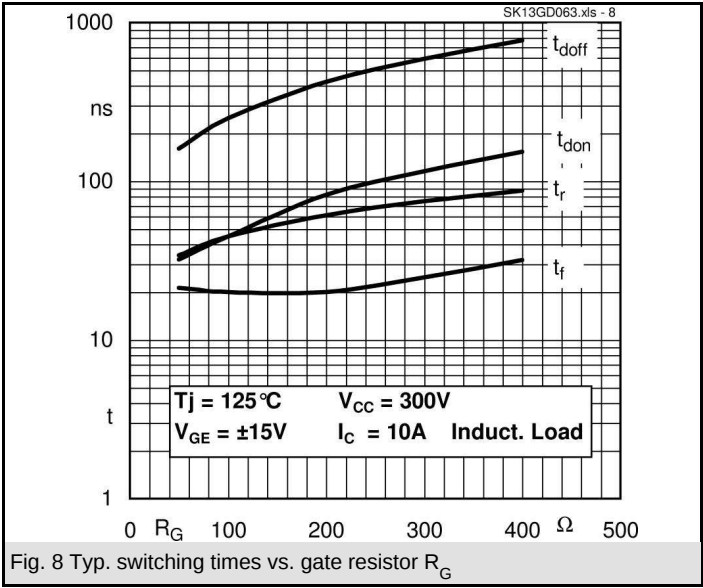
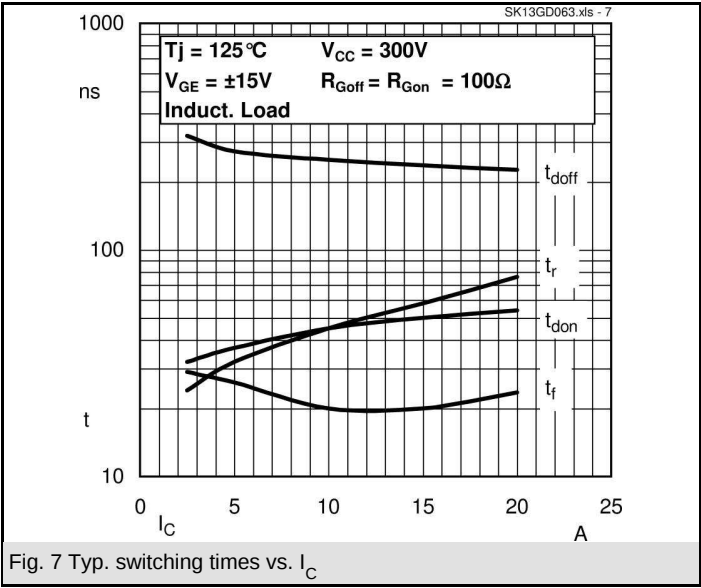


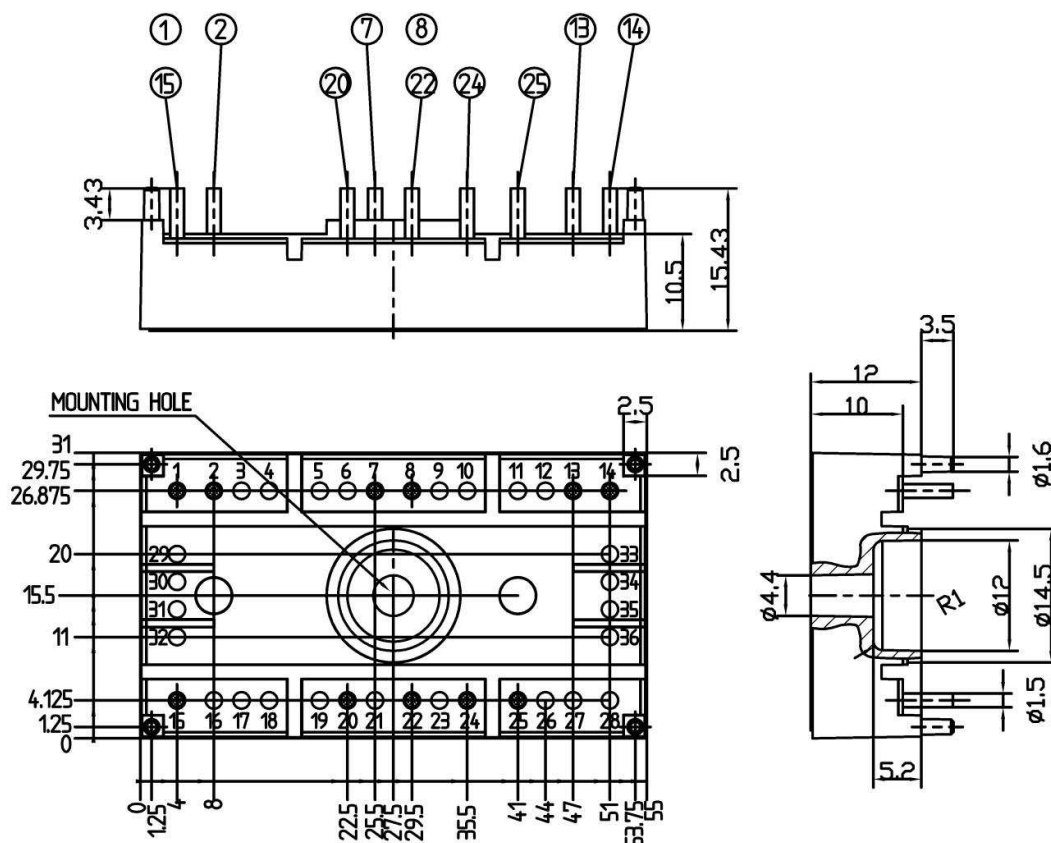
Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 10\text{ A}; V_{GE} = 0\text{ V}$	$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$	1,45	1,7	V
			1,4	1,75	V
V_{F0}		$T_j = 125\text{ }^{\circ}\text{C}$	0,85	0,9	V
r_F		$T_j = 125\text{ }^{\circ}\text{C}$	55	80	mΩ
I_{RRM}	$I_F = 10\text{ A}$ $di/dt = -200\text{ A/}\mu\text{s}$ $V_{CC} = 300\text{ V}$	$T_j = 125\text{ }^{\circ}\text{C}$	6,5		A
Q_{rr}			1		μC
E_{rr}			0,1		mJ
$R_{th(j-s)D}$	per diode			2,3	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.







Case T12 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

