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SEMITOP® 2

IGBT Module

SK20GH123

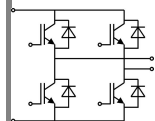
Preliminary Data

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

Typical Applications

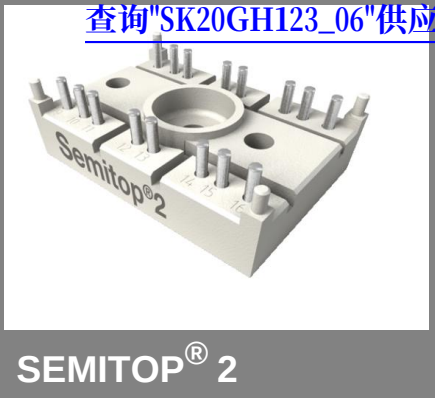
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



GH

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V _{CES}	T _j = 25 °C	1200	V	
I _C	T _j = 125 °C	T _s = 25 °C	23	A
		T _s = 80 °C	15	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}	30	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1200 V	10	μs	
Inverse Diode				
I _F	T _j = 150 °C	T _s = 25 °C	24	A
		T _s = 80 °C	17	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}		A	
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C	180	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 = 0,6 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			0,1	mA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = 30 V	T _J = 25 °C T _J = 125 °C			480	nA nA
V _{CE0}		T _J = 25 °C T _J = 125 °C		1,2 1,2		V V
r _{CE}	V _{GE} = 15 V	T _J = 25°C T _J = 125°C		86 126		mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 15 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.} T _J = 125°C _{chiplev.}	2	2,5 3,1	3 3,7	V V
C _{ies} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz		1 0,15 0,07		nF nF nF
Q _G	V _{GE} =0 ... 20 V			90		nC
t _{d(on)} t _r E _{on}	R _{Gon} = 40 Ω	V _{CC} = 600V I _{Cnom} = 15A		35 45 2		ns ns mJ
t _{d(off)} t _f E _{off}	R _{Goff} = 40 Ω	T _J = 125 °C V _{GE} =±15V		250 70 1,8		ns ns mJ
R _{th(j-s)}	per IGBT				1,4	K/W



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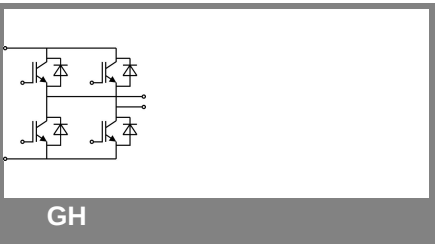
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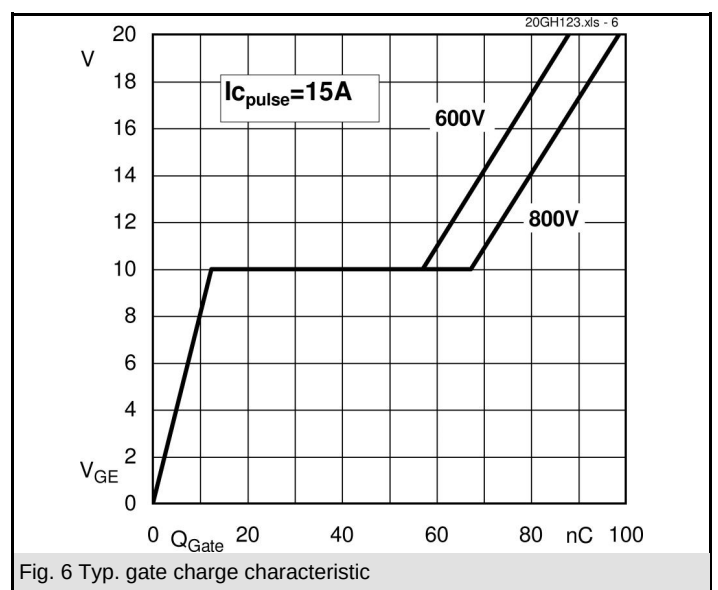
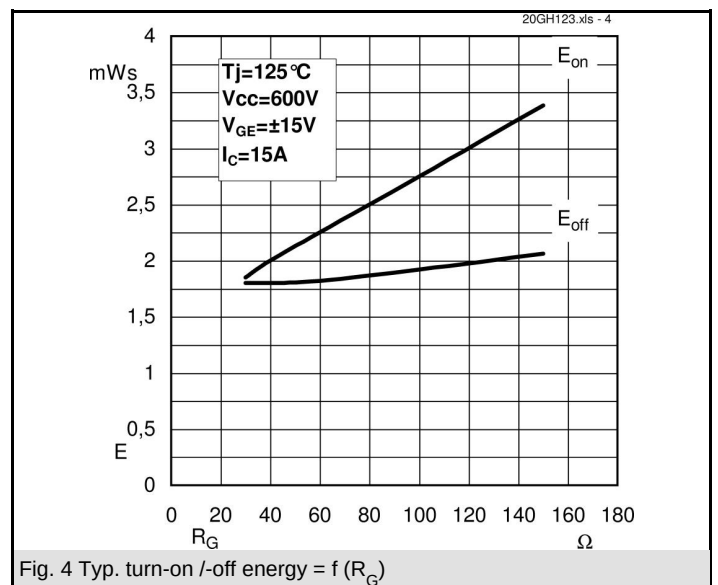
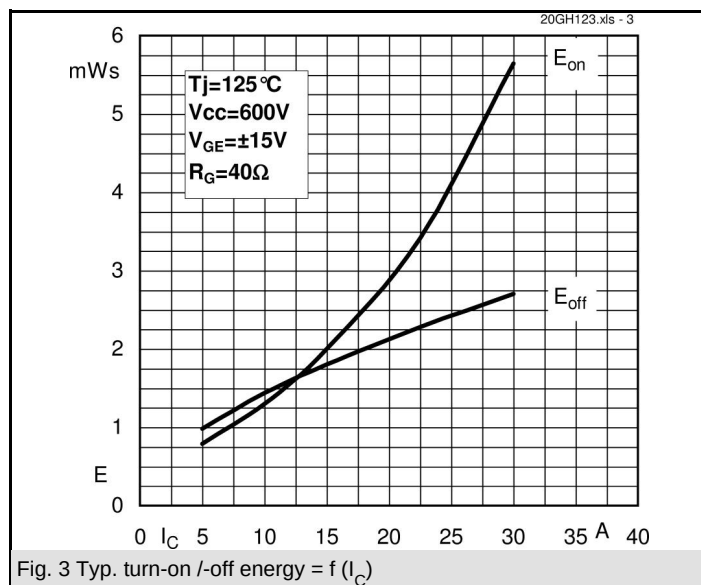
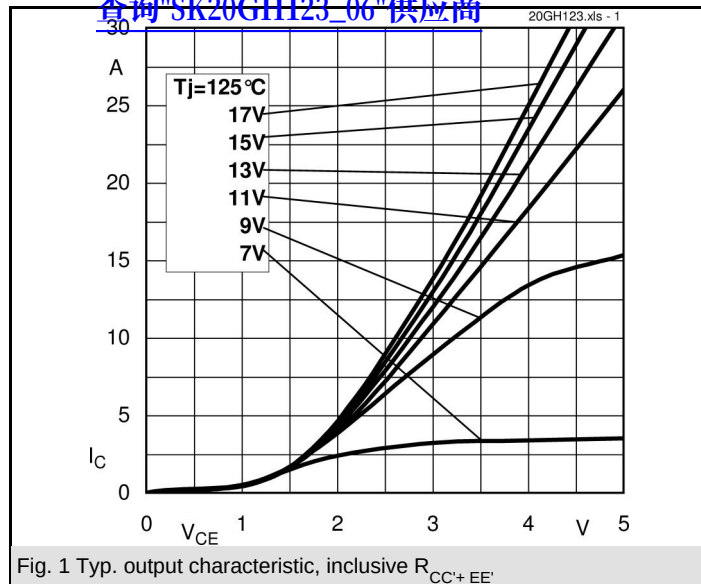


Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 15 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		2	2,5	V
		T _j = 125 °C _{chiplev.}		1,8	2,3	V
V _{F0}		T _j = 125 °C		1	1,2	V
r _F		T _j = 125 °C		53	73	mΩ
I _{RRM}	I _{Fnom} = 15 A di/dt = -200 A/μs V _{CC} = 600V	T _j = 125 °C		16		A
Q _{rr}				2,7		μC
E _{rr}				0,6		mJ
R _{th(j-s)D}	per diode				1,7	K/W
M _s	to heat sink M1				2	Nm
w				21		g

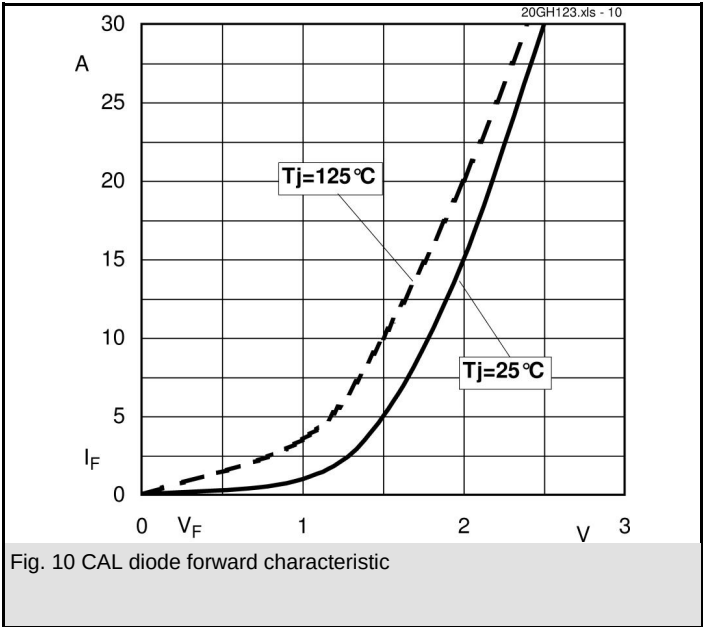
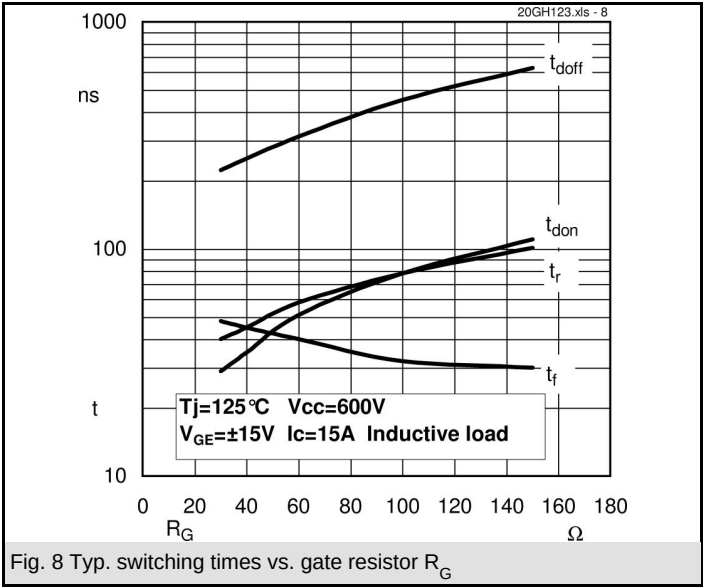
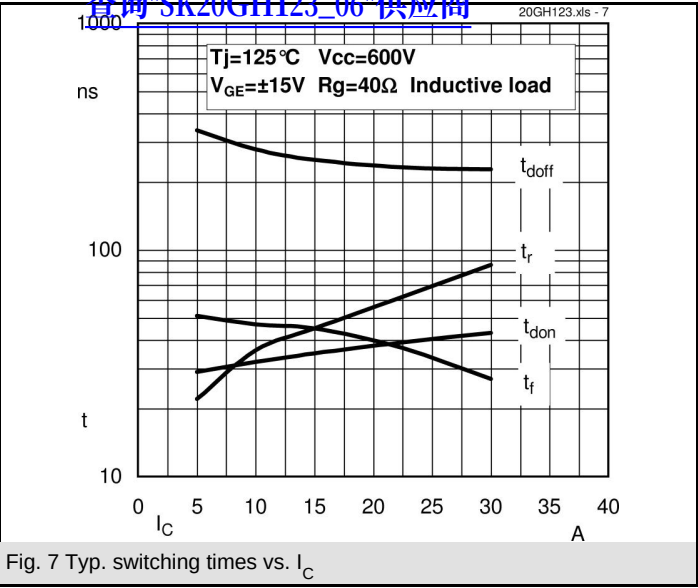
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

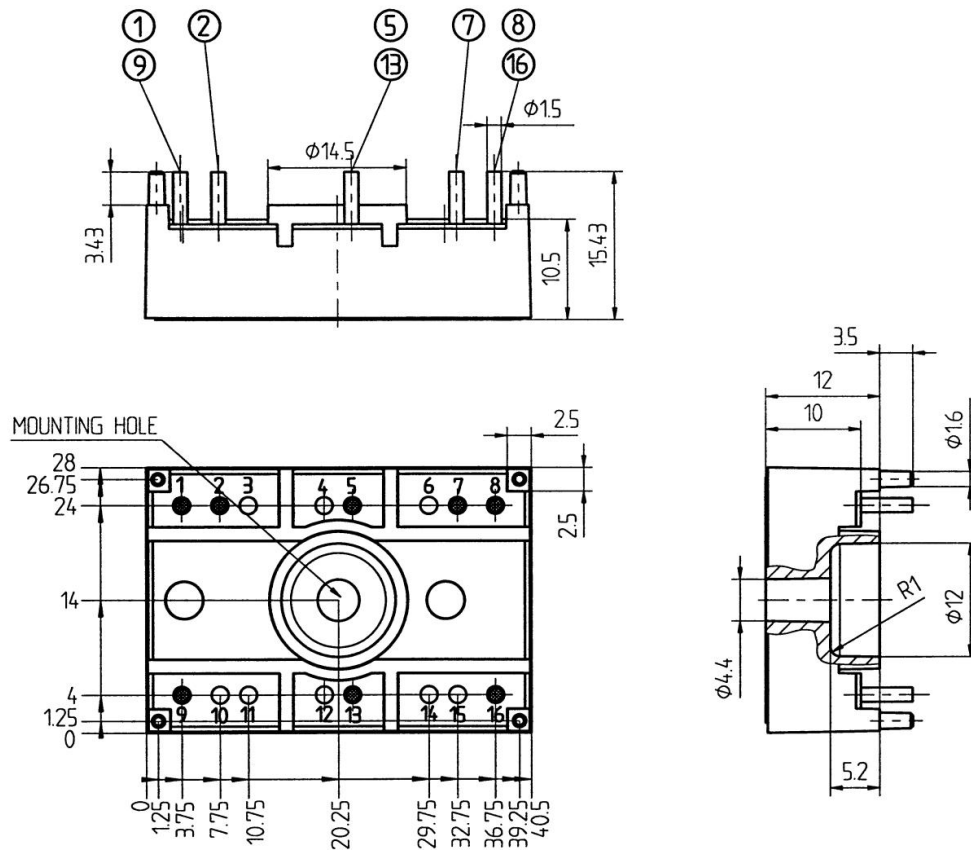
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Case T5 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

