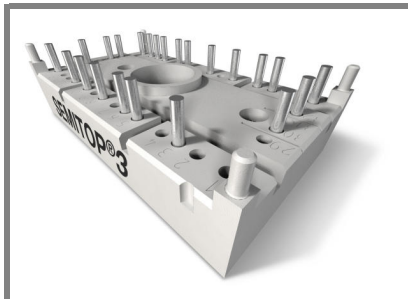


SK30GH123



SEMITOP® 3

IGBT Module

SK30GH123

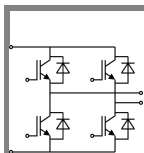
Preliminary Data

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*

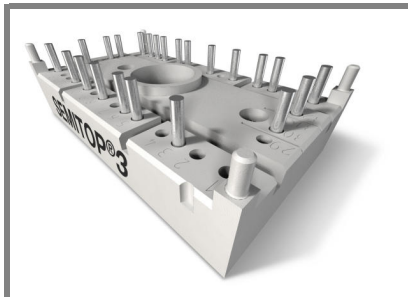
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



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Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}	$T_j = 25\text{ °C}$	1200	V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$	33 A
		$T_s = 80\text{ °C}$	22 A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	50	A
V_{GES}		± 20	V
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ °C}$ $V_{CES} < 1200\text{ V}$	10	μs
Inverse Diode			
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	37 A
		$T_s = 80\text{ °C}$	25 A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$		A
I_{FSM}	$t_p = 10\text{ ms}; \text{half sine wave}$ $T_j = 150\text{ °C}$	350	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		$T_s = 25\text{ °C}$, unless otherwise specified				
Symbol	Conditions	min.	typ.	max.	Units	
IGBT						
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1\text{ mA}$	4,5	5,5	6,5	V	
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,15	mA	
		$T_j = 125\text{ °C}$			mA	
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 30\text{ V}$	$T_j = 25\text{ °C}$		120	nA	
		$T_j = 125\text{ °C}$			nA	
V_{CE0}		$T_j = 25\text{ °C}$	1,2		V	
		$T_j = 125\text{ °C}$	1,2		V	
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	52		$\text{m}\Omega$	
		$T_j = 125\text{ °C}$	76		$\text{m}\Omega$	
$V_{CE(sat)}$	$I_{Cnom} = 25\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	2	2,5	3	V
		$T_j = 125\text{ °C}_{chiplev.}$		3,1	3,7	V
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}$ $f = 1\text{ MHz}$		1,65		nF	
C_{oes}			0,25		nF	
C_{res}			0,11		nF	
$t_{d(on)}$	$R_{Gon} = 47\ \Omega$	$V_{CC} = 600\text{ V}$ $I_C = 25\text{ A}$		65		ns
t_r				100		ns
E_{on}				3,5		mJ
$t_{d(off)}$	$R_{Goff} = 47\ \Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$		430		ns
t_f				35		ns
E_{off}				2,5		mJ
$R_{th(j-s)}$	per IGBT			1	K/W	



SEMITOR® 3

IGBT Module

SK30GH123

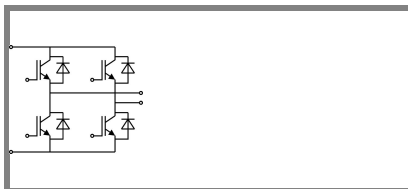
Preliminary Data

Features

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Typical Applications*

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- Switched mode power supplies
- UPS



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Characteristics

Symbol	Conditions	min.	typ.	max.	Units	
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$		$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	2	2,5	V
			$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$	1,8	2,3	V
V_{F0}			$T_j = 125 \text{ }^\circ\text{C}$	1	1,2	V
r_F			$T_j = 125 \text{ }^\circ\text{C}$	32	44	m Ω
I_{RRM}	$I_F = 2 \text{ A}$		$T_j = 125 \text{ }^\circ\text{C}$	25		A
Q_{rr}	$di/dt = -500 \text{ A}/\mu\text{s}$			4,5		μC
E_{rr}	$V_{CC} = 600\text{V}$			1		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.

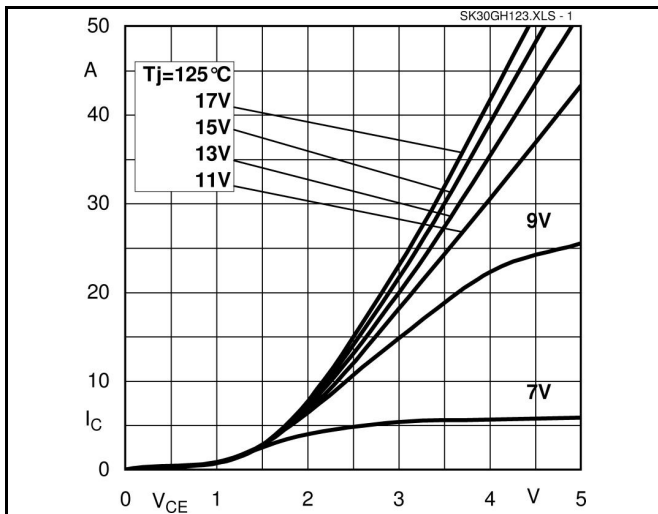


Fig. 1 Typ. output characteristic, inclusive R_{CC+EE}

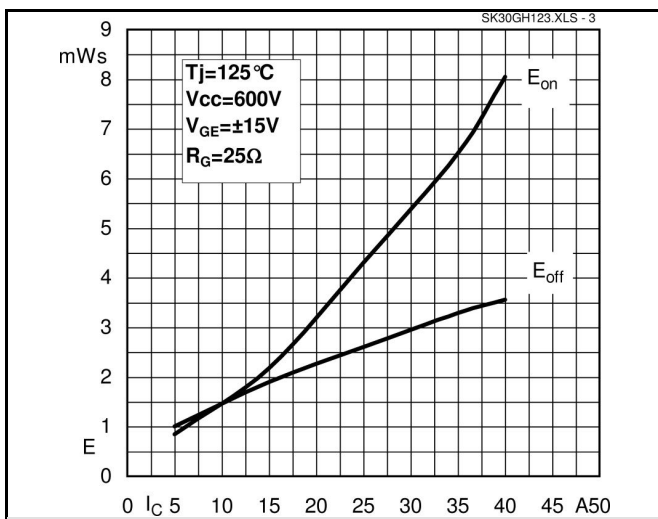


Fig. 3 Typ. turn-on /-off energy = $f(I_C)$

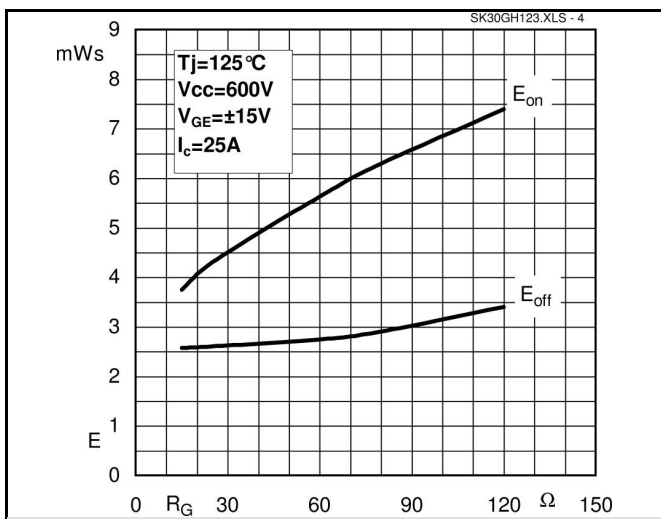


Fig. 4 Typ. turn-on /-off energy = $f(R_G)$

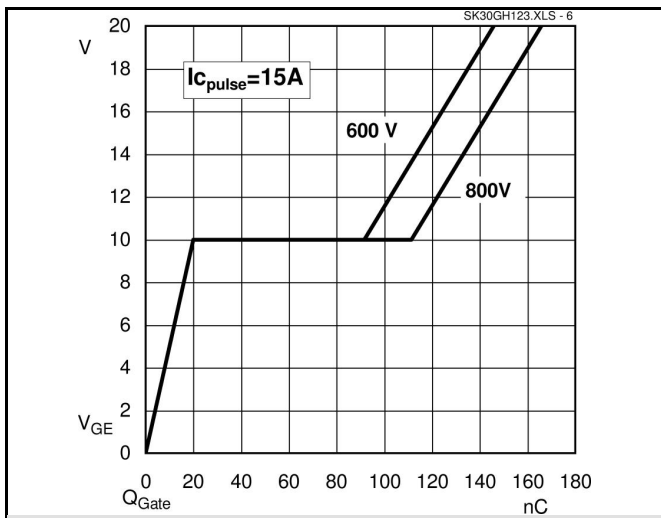
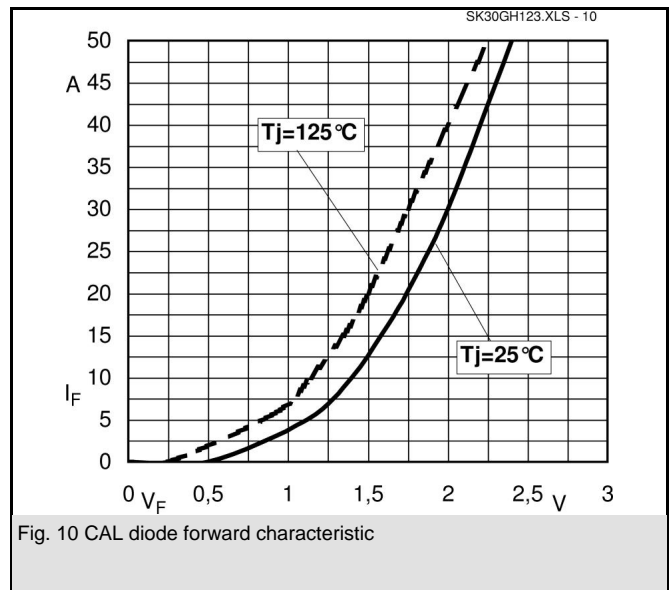
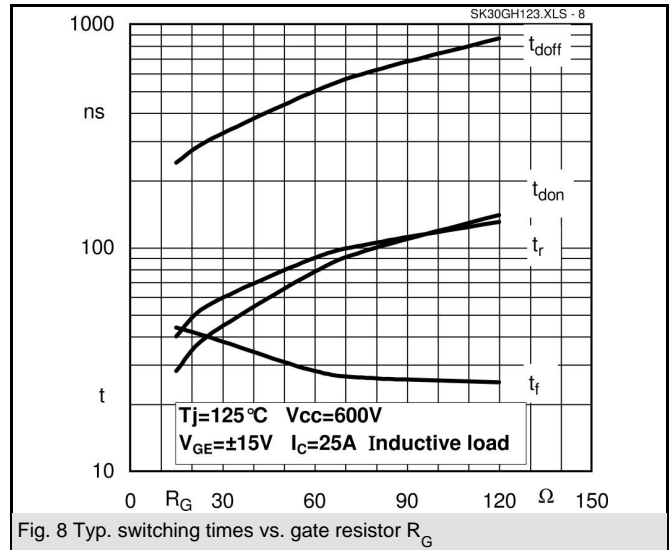
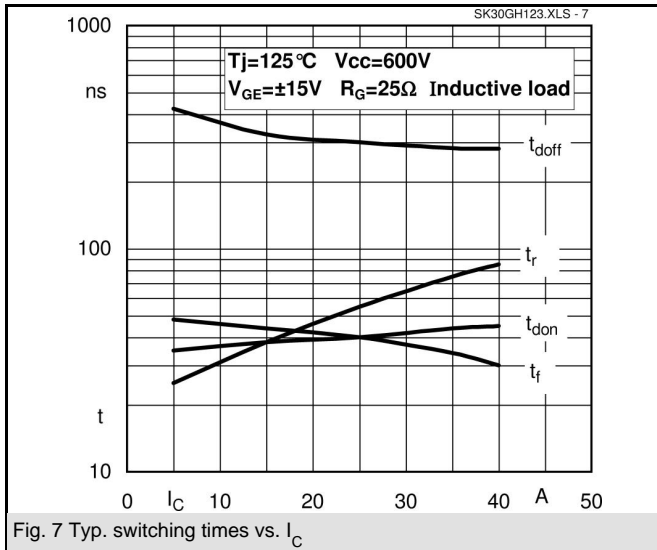


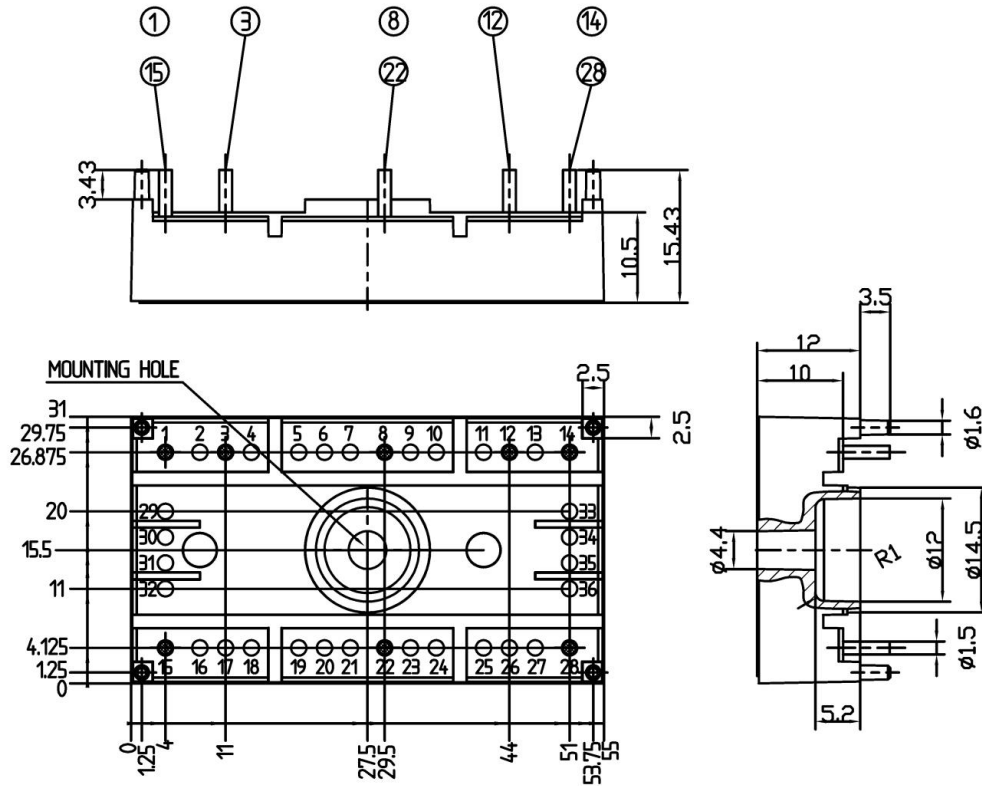
Fig. 6 Typ. gate charge characteristic



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UL recognized file

no. E 63 532



Case T20 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

