

**SEMİTOP® 2**

## IGBT Module

**SK30GB128**

**SK30GAL128**

**SK30GAR128**

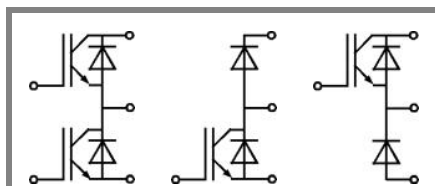
Preliminary Data

### Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- High short circuit capability
- SPT= Soft Punch Through technology
- $V_{ce,sat}$  with positive coefficient

### Typical Applications

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



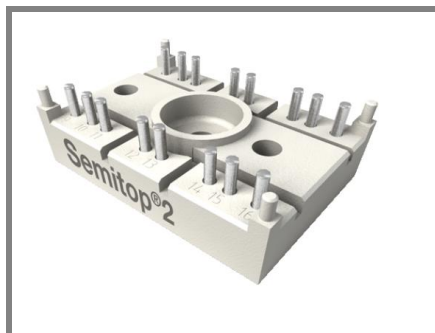
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GAL

GAR

Absolute Maximum Ratings		$T_s = 25\text{ °C}$ , unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT</b>			
$V_{CES}$	$T_j = 25\text{ °C}$	1200	V
$I_C$	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$	35
		$T_s = 80\text{ °C}$	25
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	50	A
$V_{GES}$		$\pm 20$	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	$\mu\text{s}$
<b>Inverse Diode</b>			
$I_F$	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	37
		$T_s = 80\text{ °C}$	25
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$		A
$I_{FSM}$	$t_p = 10\text{ ms}; \text{half sine wave } T_j = 150\text{ °C}$	350	A
<b>Freewheeling Diode</b>			
$I_F$	$T_j = 150\text{ °C}$	$T_{case} = 25\text{ °C}$	37
		$T_{case} = 80\text{ °C}$	25
$I_{FRM}$			A
$I_{FSM}$	$t_p = 10\text{ ms}; \text{half sine wave } T_j = 150\text{ °C}$	350	A
<b>Module</b>			
$I_{t(RMS)}$			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	
<b>IGBT</b>						
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1\text{ mA}$	4,5	5,5	6,5	V	
$I_{CES}$	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,1	mA	
		$T_j = 125\text{ °C}$		0,1	mA	
$I_{GES}$	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$		200	nA	
		$T_j = 125\text{ °C}$		200	nA	
$V_{CE0}$		$T_j = 25\text{ °C}$	1,1		V	
		$T_j = 125\text{ °C}$	1		V	
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	36		$\text{m}\Omega$	
		$T_j = 125\text{ °C}$	48		$\text{m}\Omega$	
$V_{CE(sat)}$	$I_{Cnom} = 25\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,7	2	2,3	V
		$T_j = 125\text{ °C}_{chiplev.}$		2,2	3,7	V
$C_{ies}$	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$		1,9	nF	
$C_{oes}$				0,16	nF	
$C_{res}$				0,09	nF	
$t_{d(on)}$	$R_{Gon} = 15\ \Omega$	$V_{CC} = 600\text{ V}$ $I_{Cnom} = 30\text{ A}$ $T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$		55	ns	
$t_r$				26	ns	
$E_{on}$	$R_{Goff} = 15\ \Omega$			2,8	mJ	
$t_{d(off)}$				284	ns	
$t_f$				40	ns	
$E_{off}$				2,19	mJ	
$R_{th(j-s)}$	per IGBT			1	K/W	



**SEMISTOP<sup>®</sup> 2**

## IGBT Module

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**SK30GAL128**

**SK30GAR128**

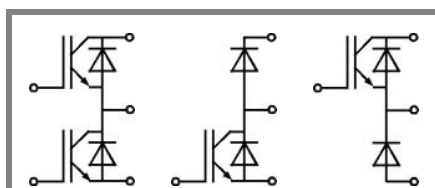
Preliminary Data

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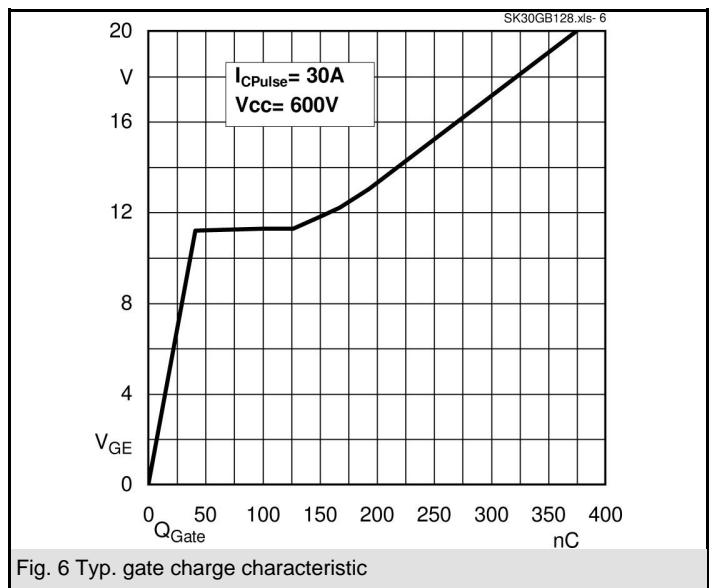
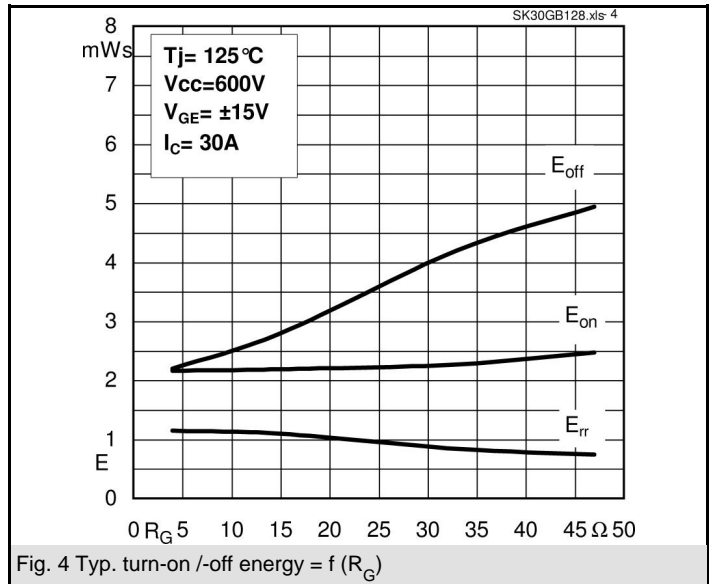
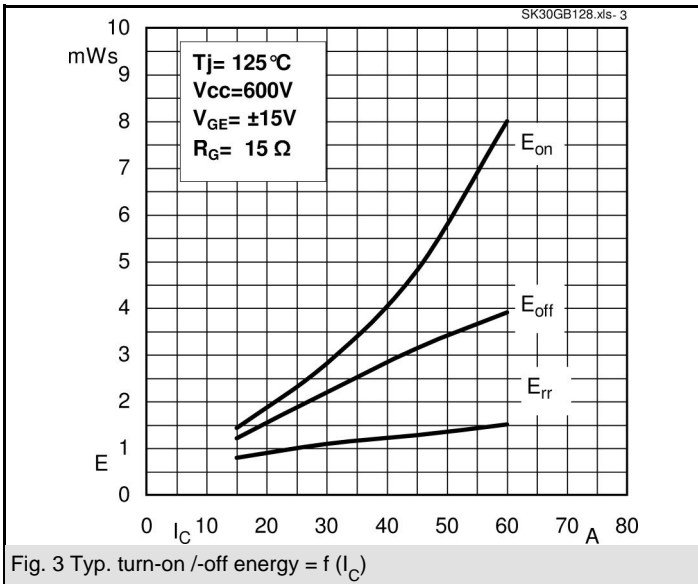
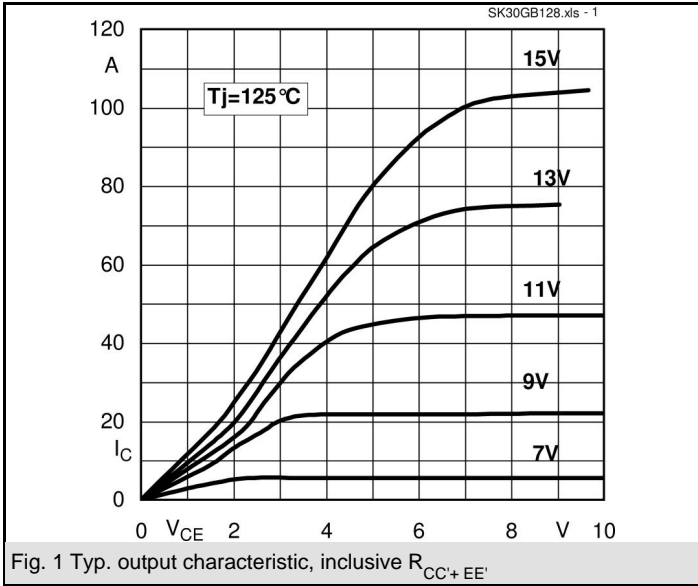
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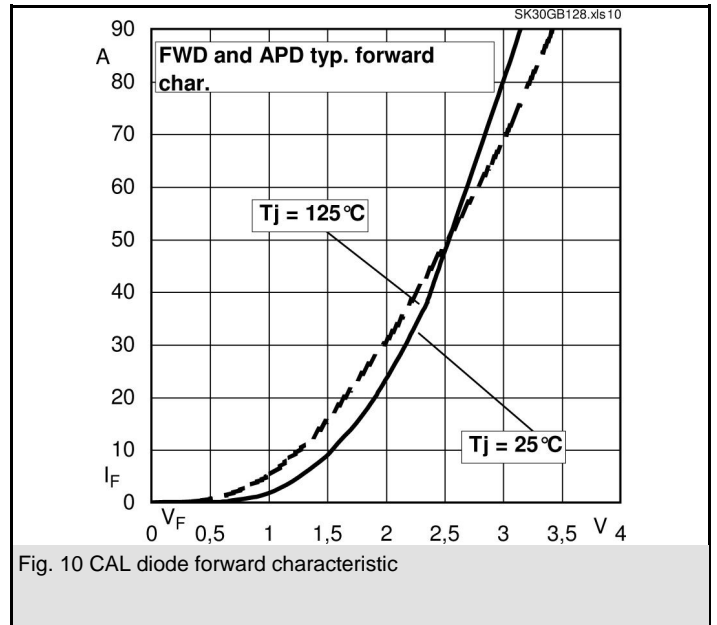
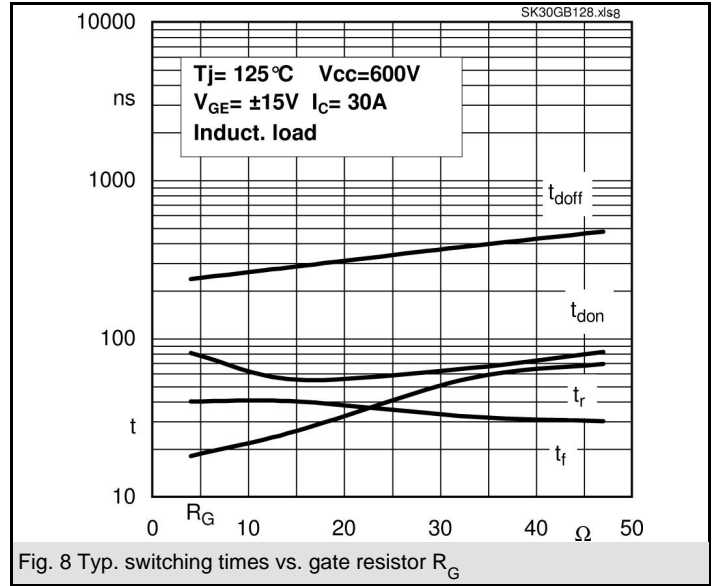
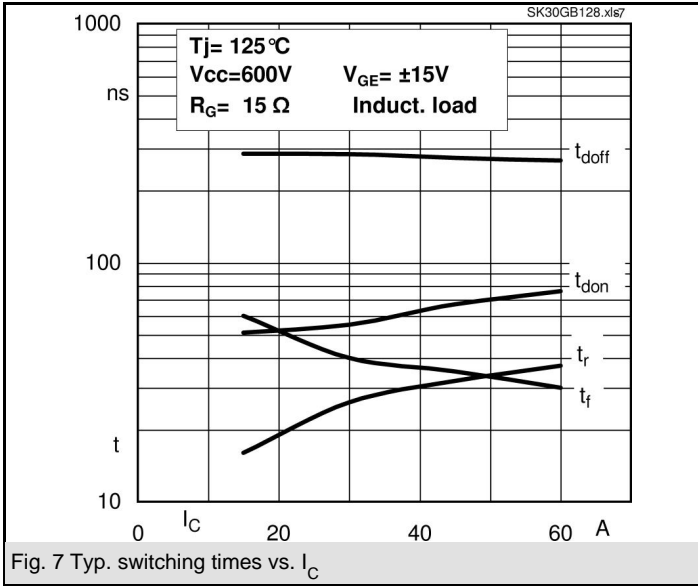
### Characteristics

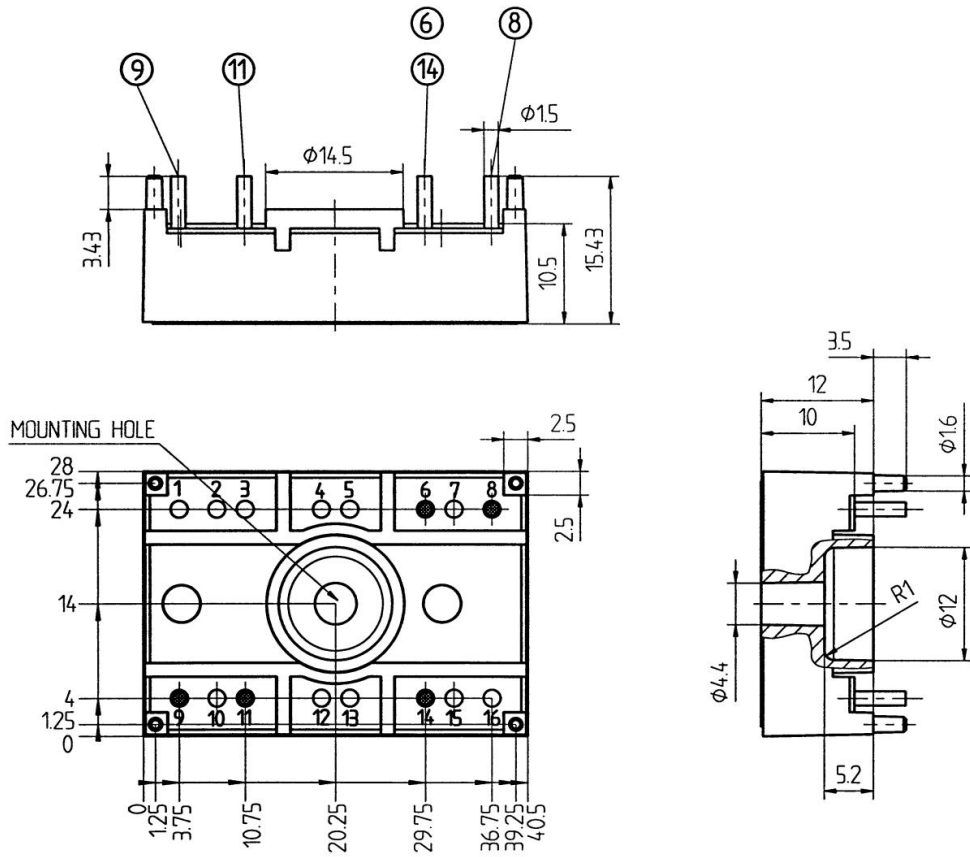
Symbol	Conditions	min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$		2	2,5	V
			1,8	2,3	V
$V_{F0}$			1	1,2	V
$r_F$			32	44	mΩ
$I_{RRM}$	$I_{Fnom} = 22 \text{ A}$		25		A
$Q_{rr}$	$di/dt = -500 \text{ A}/\mu\text{s}$		4,5		μC
$E_{rr}$	$V_{CC} = 600 \text{ V}$		1		mJ
$R_{th(j-s)D}$	per diode			1,2	K/W
<b>Freewheeling Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$		2	2,5	V
			1,8	2,3	V
$V_{F0}$			1	1,2	V
$r_F$			32	44	V
$I_{RRM}$	$I_{Fnom} = 22 \text{ A}$		253		A
$Q_{rr}$	$di/dt = -500 \text{ A}/\mu\text{s}$		4,5		μC
$E_{rr}$	$V_R = 600 \text{ V}$		1		mJ
	per diode			1,2	K/W
$M_s$	to heat sink M1			2	Nm
w			19		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.







Case T8 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

