

**SEMITOP<sup>®</sup> 2**

## IGBT Module

**SK30GB067**

**SK30GAL067**

**SK30GAR067**

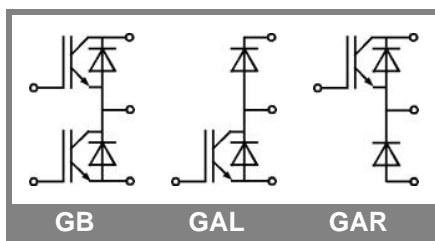
Target Data

### Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Hyperfast NPT technology IGBT
- N-channel homogeneous silicon structure (NPT Non-Punch-Through IGBT)
- Positive  $V_{ce,sat}$  temperature coefficient (Easy paralleling)
- Low tail current with low temperature dependence
- Low threshold voltage

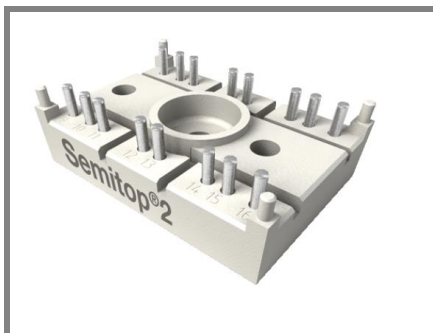
### Typical Applications

- Switching (not for linear use)
- High Frequencies Applications
- Welding generator
- Switched mode power supplies
- UPS



Absolute Maximum Ratings		$T_s = 25\text{ }^\circ\text{C}$ , unless otherwise specified		
Symbol	Conditions	Values	Units	
<b>IGBT</b>				
$V_{CES}$	$T_j = 25\text{ }^\circ\text{C}$	600	V	
$I_C$	$T_j = 125\text{ }^\circ\text{C}$	$T_s = 25\text{ }^\circ\text{C}$	45	A
		$T_s = 80\text{ }^\circ\text{C}$	30	A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	120	A	
$V_{GES}$		$\pm 20$	V	
$t_{psc}$	$V_{CC} = 300\text{ V}$ ; $V_{GE} \leq 20\text{ V}$ ; $T_j = 125\text{ }^\circ\text{C}$ $V_{CES} < 600\text{ V}$	10	$\mu\text{s}$	
<b>Inverse Diode</b>				
$I_F$	$T_j = 150\text{ }^\circ\text{C}$	$T_s = 25\text{ }^\circ\text{C}$	45	A
		$T_s = 80\text{ }^\circ\text{C}$	30	A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$		A	
$I_{FSM}$	$t_p = 10\text{ ms}$ ; sinusoidal $T_j = \text{ }^\circ\text{C}$	180	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		$T_s = 25\text{ }^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 0,6\text{ mA}$	3	4	5	V
$I_{CES}$	$V_{GE} = 0\text{ V}$ , $V_{CE} = V_{CES}$ $T_j = 25\text{ }^\circ\text{C}$			0,004	mA
$I_{GES}$	$V_{CE} = 0\text{ V}$ , $V_{GE} = 20\text{ V}$ $T_j = 25\text{ }^\circ\text{C}$			240	nA
$V_{CE0}$	$T_j = 150\text{ }^\circ\text{C}$			2	V
$r_{CE}$	$V_{GE} = 15\text{ V}$ $T_j = 150\text{ }^\circ\text{C}$		30		m $\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 60\text{ A}$ , $V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$	2,8	3,15	V
		$T_j = 125\text{ }^\circ\text{C}_{chiplev.}$	3,5	4	V
$C_{ies}$	$V_{CE} = 25$ , $V_{GE} = 0\text{ V}$ $f = 1\text{ MHz}$		3		nF
$C_{oes}$			0,3		nF
$C_{res}$			0,18		nF
$t_{d(on)}$	$R_{Gon} = 11\text{ }^\circ\Omega$	$V_{CC} = 400\text{ V}$ $I_{Cnom} = 60\text{ A}$	32		ns
$t_r$			20		ns
$E_{on}$	$R_{Goff} = 11\text{ }^\circ\Omega$	$T_j = 125\text{ }^\circ\text{C}$ $V_{GE} = \pm 15\text{ V}$	1,8		mJ
$t_{d(off)}$			340		ns
$t_f$			30		ns
$E_{off}$			1,4		mJ
$R_{th(j-s)}$	per IGBT			0,85	K/W



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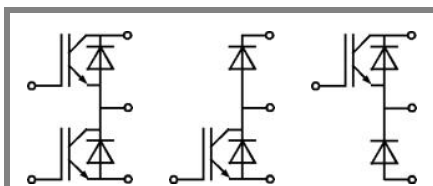
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GB

GAL

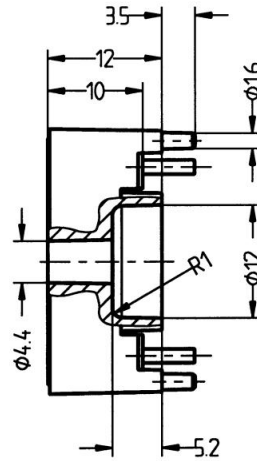
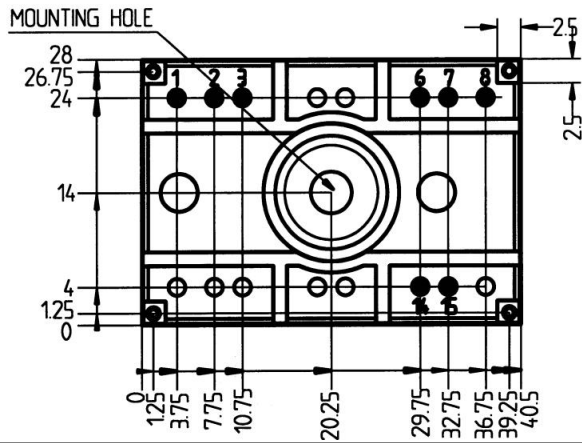
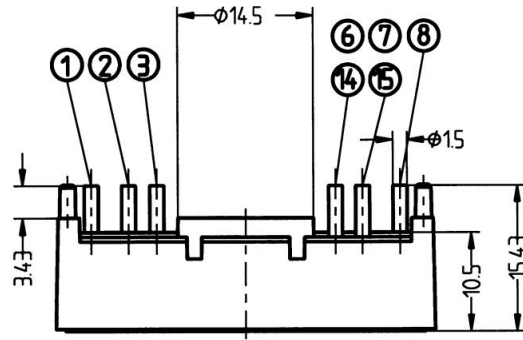
GAR

### Characteristics

Symbol	Conditions	min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 60 \text{ A}; V_{GE} = 0 \text{ V}$			2	V
					$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$
			1,25		$T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$
$V_{F0}$					$T_j = 25 \text{ }^\circ\text{C}$
			1		$T_j = 150 \text{ }^\circ\text{C}$
$r_F$					$T_j = 25 \text{ }^\circ\text{C}$
			9		$T_j = 150 \text{ }^\circ\text{C}$
$I_{RRM}$	$I_{Fnom} = 30 \text{ A}$		18		A
$Q_{rr}$	$di/dt = -100 \text{ A}/\mu\text{s}$		1,5		$\mu\text{C}$
$E_{rr}$	$V_{CC} = 400\text{V}$				mJ
$R_{th(j-s)D}$	per diode			1,6	K/W
$M_s$	to heat sink			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 T32 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)

