

SEMITOP® 3

IGBT Module

SK50GB067

SK50GAL067

SK50GAR067

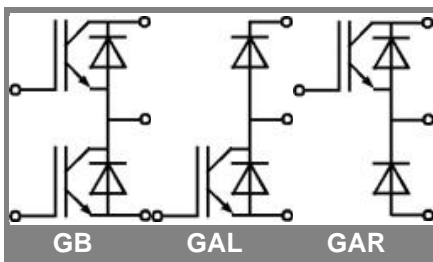
Target Data

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

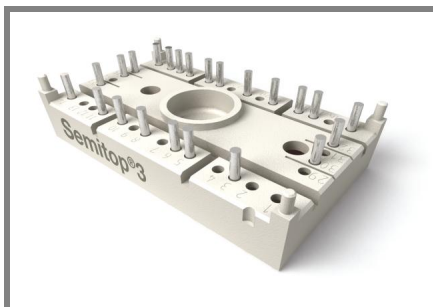
Typical Applications

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



Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ °C}$	600		V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$	83	A
		$T_s = 80\text{ °C}$	54	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	240		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	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$	90	A
		$T_s = 80\text{ °C}$	56	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$			A
I_{FSM}	$t_p = 10\text{ ms}$; sinusoidal	$T_j = \text{ °C}$	360	A
Freewheeling Diode				
I_F	$T_j = 150\text{ °C}$	$T_{case} = 25\text{ °C}$	90	A
		$T_{case} = 80\text{ °C}$	56	A
I_{FRM}				A
I_{FSM}	$t_p = \text{ms}$;	$T_j = \text{ °C}$	360	A
Module				
$I_{t(RMS)}$				A
T_{vj}		-40 ... +150		°C
T_{stg}		-40 ... +125		°C
V_{isol}	AC, 1 min.	2500		V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1,2\text{ mA}$	3	4	5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$			0,008	mA
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 20\text{ V}$			480	nA
V_{CE0}				2	V
r_{CE}	$V_{GE} = 15\text{ V}$			12,5	mΩ
$V_{CE(sat)}$	$I_{Cnom} = 120\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	2,8	3,15	V
		$T_j = 125\text{ °C}_{chiplev.}$	3,5	4	V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	6		nF
C_{oes}			0,6		nF
C_{res}			0,36		nF
$t_{d(on)}$	$R_{Gon} = 11\text{ Ω}$	$V_{CC} = 400\text{ V}$ $I_{Cnom} = 120\text{ A}$	22		ns
t_r			10		ns
E_{on}	$R_{Goff} = 11\text{ Ω}$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	7,5		mJ
$t_{d(off)}$			280		ns
t_f			26		ns
E_{off}			4		mJ
$R_{th(j-s)}$	per IGBT			0,45	K/W



SEMITOP® 3

IGBT Module

SK50GB067

SK50GAL067

SK50GAR067

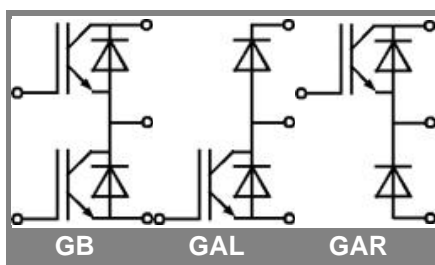
Target Data

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



Characteristics

Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 120 \text{ A}; V_{GE} = 0 \text{ V}$			2	V
					$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$
			1,25		$T_j = 150 \text{ }^\circ\text{C}_{chiplev.}$
V_{F0}					$T_j = 25 \text{ }^\circ\text{C}$
			1		$T_j = 150 \text{ }^\circ\text{C}$
r_F					$T_j = 25 \text{ }^\circ\text{C}$
			4		$T_j = 150 \text{ }^\circ\text{C}$
I_{RRM}	$I_{Fnom} = 120 \text{ A}$				$T_j = 125 \text{ }^\circ\text{C}$
Q_{rr}	$di/dt = -100 \text{ A}/\mu\text{s}$				A
E_{rr}	$V_{CC} = 400\text{V}$				μC
					mJ
$R_{th(j-s)D}$	per diode			0,8	K/W
M_s	to heat sink	2,25		2,5	Nm
w			29		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.

