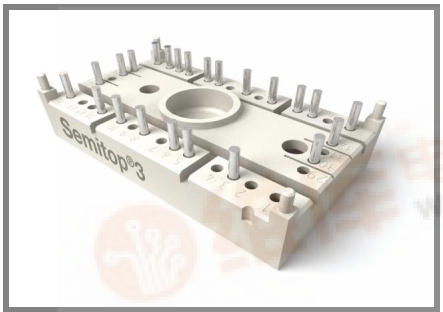
SK50GAL067



SEMITOP® 3

IGBT Module

SK50GAL067

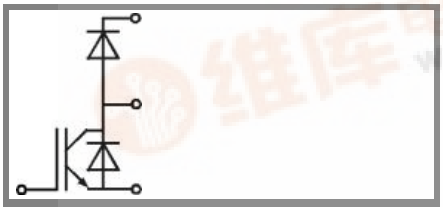
Target Data

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 treshold voltage

Typical Applications

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



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Absolute Maximum Ratings T_s = 25 °C, unless otherwise specified

Symbol	Conditions		Values	Units
IGBT				
V_{CES}	T_j = 25 °C		600	V
I_C	T_j = 125 °C	T_s = 25 °C	83	A
		T_s = 80 °C	54	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		240	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 300 V; $V_{GE} \leq$ 20 V; V_{CES} < 600 V	T_j = 125 °C	10	µs
Inverse Diode				
I_F	T_j = 125 °C	T_s = 25 °C	90	A
		T_s = 80 °C	56	A
I_{FRM}	I_{FRM} = 2xI_{Fnom}			A
I_{FSM}	t_p = 10 ms; sinusoidal	T_j = °C	360	A
Freewheeling Diode				
I_F	T_j = 125 °C	T_{case} = 25 °C	90	A
		T_{case} = 80 °C	56	A
I_{FRM}	I_{FRM} = 2xI_{Fnom}			A
I_{FSM}	t_p = 10 ms; sinusoidal	T_j = °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 °C, unless otherwise specified

Symbol	Conditions		min.	typ.	max.	Units
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1,2 mA		3	4	5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,008	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			480	nA
V_{CE0}		T_j = 150 °C			2	V
r_{CE}	V_{GE} = 15 V	T_j = 150°C		13		mΩ
$V_{CE(sat)}$	I_{Cnom} = 120 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		2,8	3,15	V
		T_j = 125°C$_{chiplev.}$		3,5	4	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		6		nF
C_{oes}				0,6		nF
C_{res}				0,37		nF
$t_{d(on)}$	R_{Gon} = 6 Ω	V_{CC} = 400V		22		ns
t_r		I_{Cnom}= 120A		10		ns
E_{on}		T_j = 125 °C		2,7		mJ
$t_{d(off)}$	R_{Goff} = 6 Ω	V_{GE}=±15V		280		ns
t_f				26		ns
E_{off}				1,9		mJ
$R_{th(j-s)}$	per IGBT				0,45	K/W

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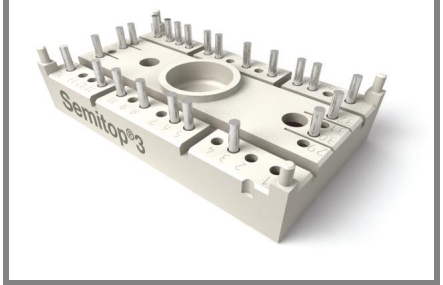

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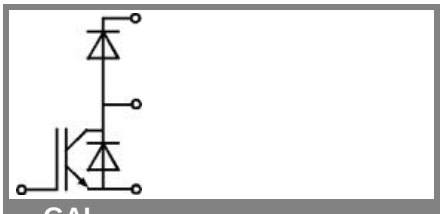

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Characteristics

Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 120 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$			2	V
		T_j = 125 °$C_{chiplev.}$		1,25		V
V_{F0}		T_j = 25 °C				V
		T_j = 150 °C		1		V
r_F		T_j = 25 °C				mΩ
		T_j = 150 °C		4		mΩ
I_{RRM}	I_{Fnom} = 120 A	T_j = 125 °C				A
Q_{rr}	di/dt = -100 A/µs					µC
E_{off}	V_R=600V					mJ
$R_{th(j-s)D}$	per diode				0,8	K/W
Freewheeling Diode						
$V_F = V_{EC}$	I_{Fnom} = 120 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$			2	V
		T_j = 125 °$C_{chiplev.}$		1,25		V
V_{F0}		T_j = 25 °C				V
		T_j = 150 °C		1		V
r_F		T_j = 25 °C				V
		T_j = 150 °C		4		V
I_{RRM}	I_{Fnom} = 120 A	T_j = 125 °C				A
Q_{rr}	di/dt = -100 A/µs					µC
E_{off}	V_R=600V					mJ
$R_{th(j-s)FD}$	per diode				0,8	K/W
M_s	to heat sink		2,25		2,5	Nm
w				29		g

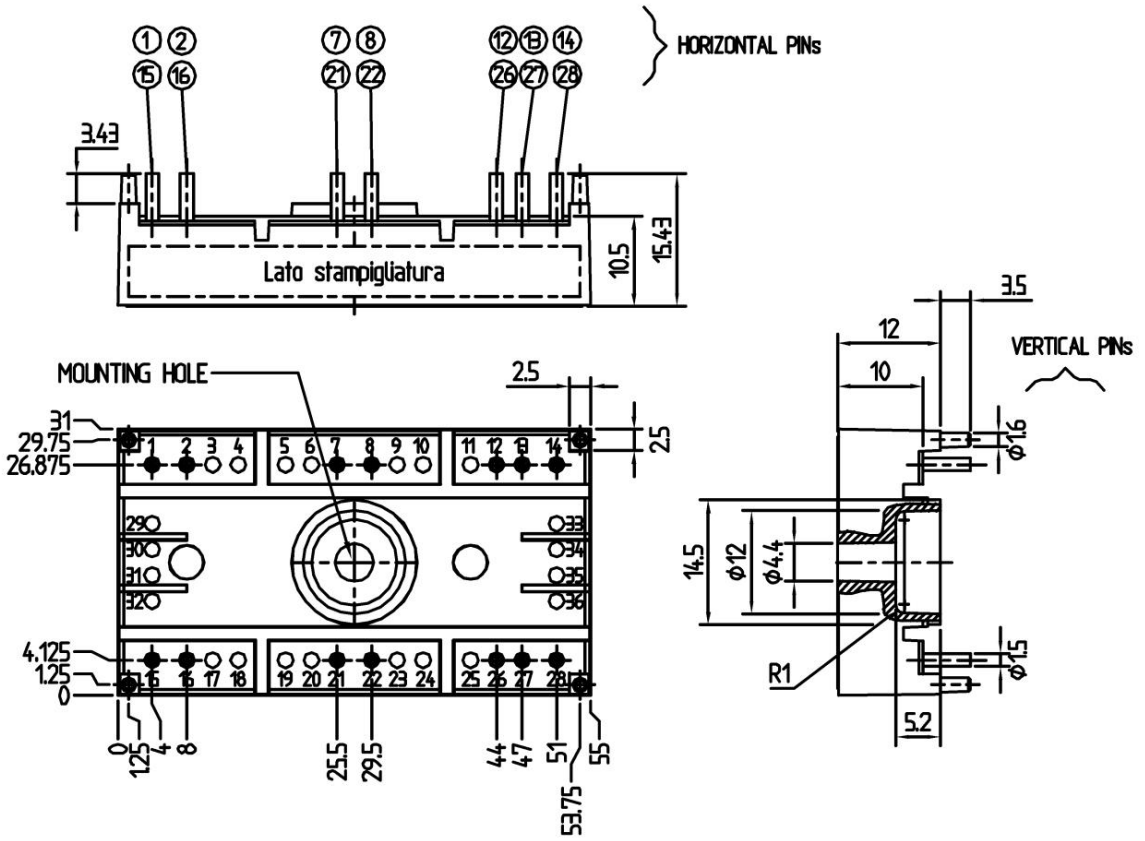
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

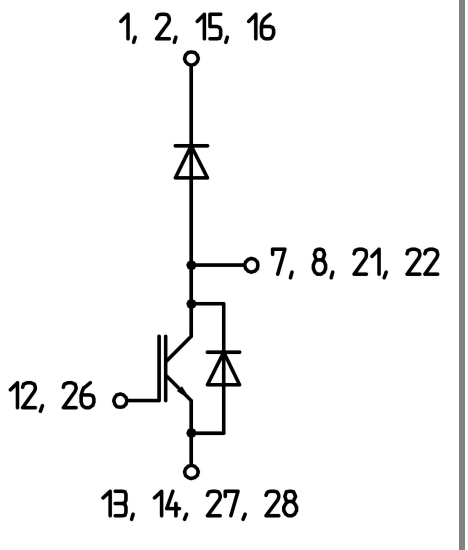
SK50GAL067

UL Recognized
File no. E 63 532

Dimensions in mm



Case T68 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 68 GAL