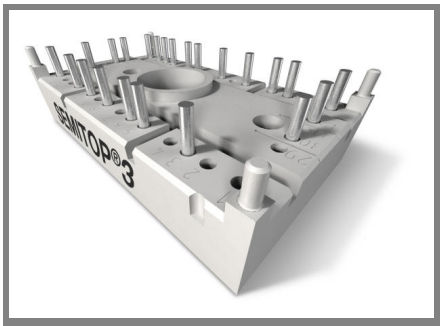
SK50MLI065



SEMITOP® 3

IGBT Module

SK50MLI065

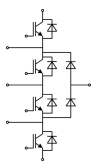
Target Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Ultra Fast NPT IGBT technology
- CAL technology FWD

Typical Applications*

- Multi level inverter

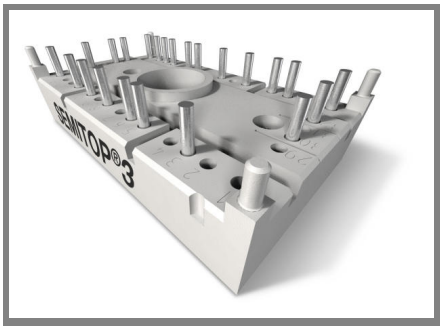


MLI

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	54	A
		T_s = 80 °C	40	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		120	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 = 150 °C	T_s = 25 °C	36	A
		T_s = 80 °C	24	A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}			A
I_{FSM}	t_p = 10 ms; half sine wave	T_j = 150 °C	200	A
Freewheeling Diode				
I_F	T_j = 150 °C	T_{case} = 25 °C	64	A
		T_{case} = 80 °C	42	A
I_{FRM}				A
I_{FSM}	t_p = 10 ms; half sine wave	T_j = 150 °C	440	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 = 1,4 mA		3	4	5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,0044	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			240	nA
V_{CE0}		T_j = 25 °C		1,4	1,9	V
		T_j = 125 °C		1,7	2,2	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C				mΩ
		T_j = 125°C		22		mΩ
$V_{CE(sat)}$	I_{Cnom} = 60 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		1,8		V
		T_j = 125°C$_{chiplev.}$		2,1		V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		3,2		nF
C_{oes}				0,3		nF
C_{res}				0,18		nF
$t_{d(on)}$	R_{Gon} = 15 Ω	V_{CC} = 300V		60		ns
t_r		I_C= 40A		30		ns
E_{on}		T_j = 125 °C		1,07		mJ
$t_{d(off)}$	R_{Goff} = 15 Ω	V_{GE}=±15V		223		ns
t_f				20		ns
E_{off}				0,76		mJ
$R_{th(j-s)}$	per IGBT				0,85	K/W

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SEMITOP® 3

IGBT Module

SK50MLI065

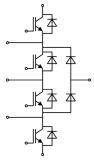
Target Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Ultra Fast NPT IGBT technology
- CAL technology FWD

Typical Applications*

- Multi level inverter



MLI

Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
Antiparallel Diode (D1)						
$V_F = V_{EC}$	I_{Fnom} = 25 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,45		V
		T_j = 125 °$C_{chiplev.}$		1,4		V
V_{F0}		T_j = 25 °C				V
		T_j = 125 °C		0,85		V
r_F		T_j = 25 °C				mΩ
		T_j = 125 °C		22		mΩ
I_{RRM}	I_F = 50 A	T_j = 125 °C				A
Q_{rr}	di/dt = -2400 A/µs					µC
E_{rr}	V_R= 300V					mJ
$R_{th(j-s)D}$	per diode				1,7	K/W
Freewheeling Diode (D2)						
$V_F = V_{EC}$	I_{Fnom} = 50 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,45		V
		T_j = 125 °$C_{chiplev.}$		1,4		V
V_{F0}		T_j = 125 °C		0,85		V
r_F		T_j = 125 °C		11		V
I_{RRM}	I_F = 50 A	T_j = 125 °C				A
Q_{rr}	di/dt = -2400 A/µs					µC
E_{rr}	V_R=300V					mJ
$R_{th(j-s)FD}$	per diode				1,1	K/W
M_s	to heat sink		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.

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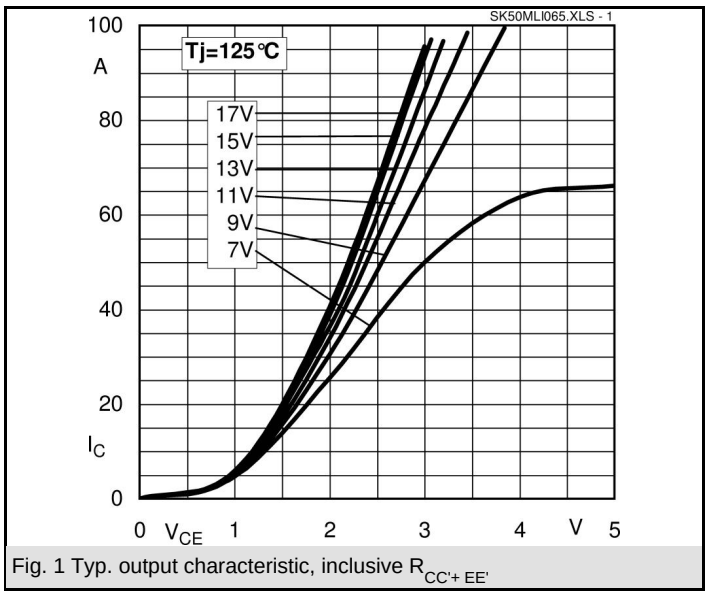


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+ EE'}$

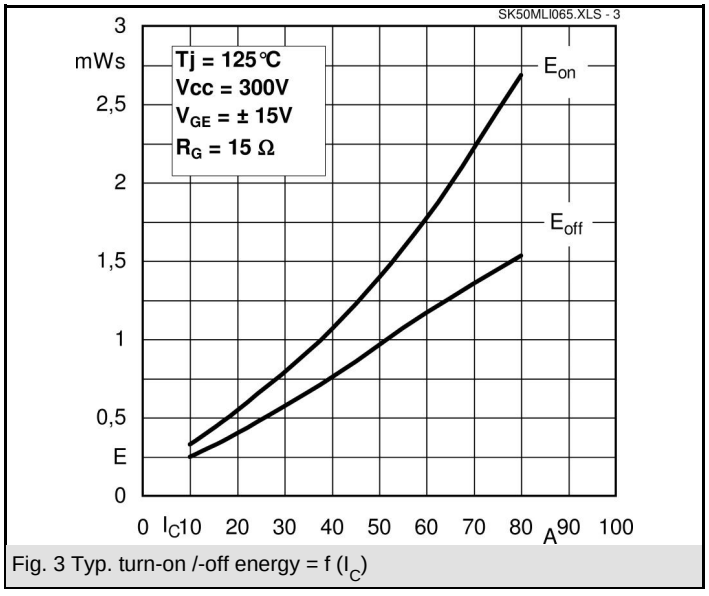


Fig. 3 Typ. turn-on /-off energy = f (I_C)

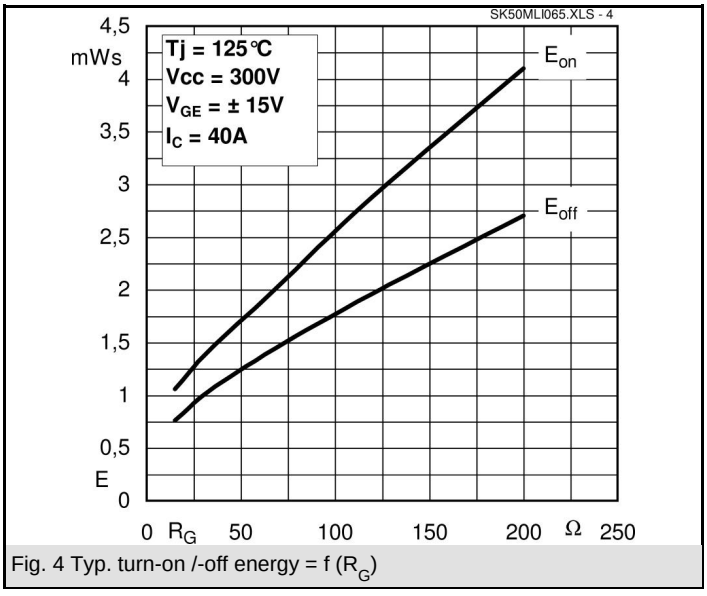


Fig. 4 Typ. turn-on /-off energy = f (R_G)

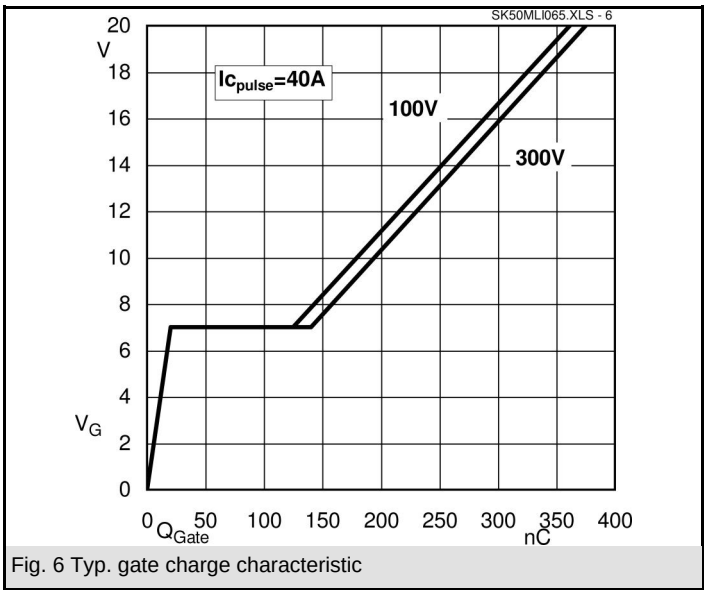


Fig. 6 Typ. gate charge characteristic

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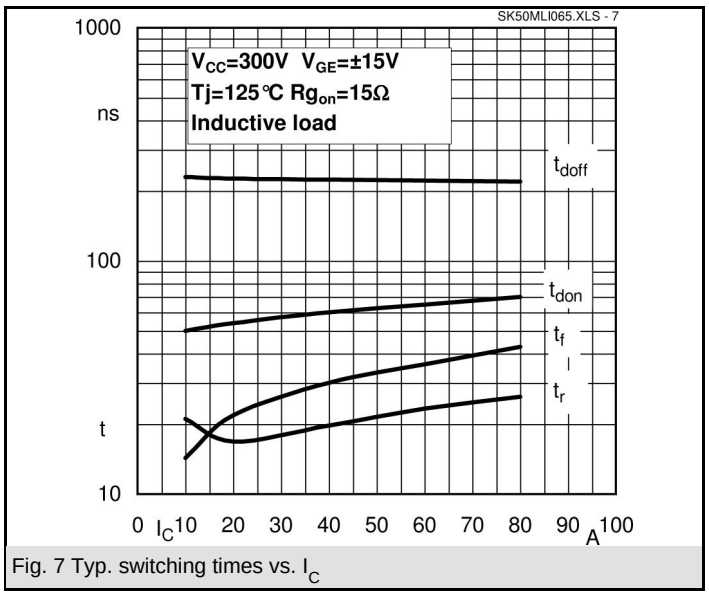


Fig. 7 Typ. switching times vs. I_C

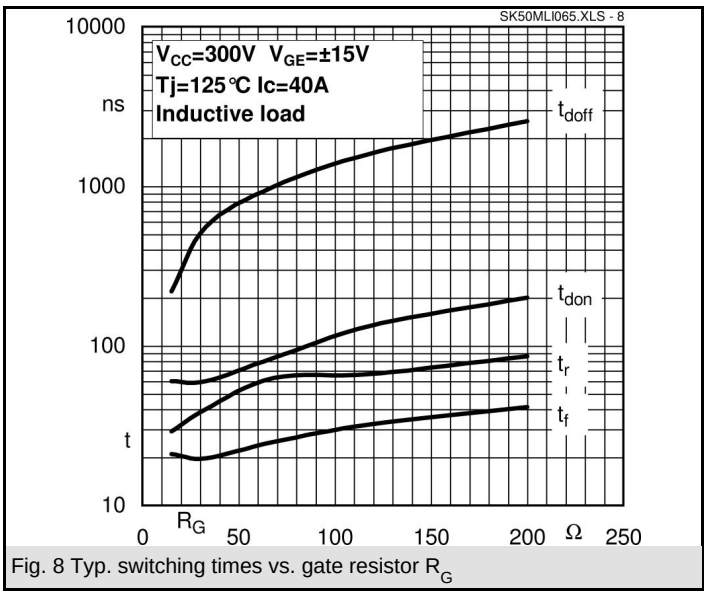


Fig. 8 Typ. switching times vs. gate resistor R_G

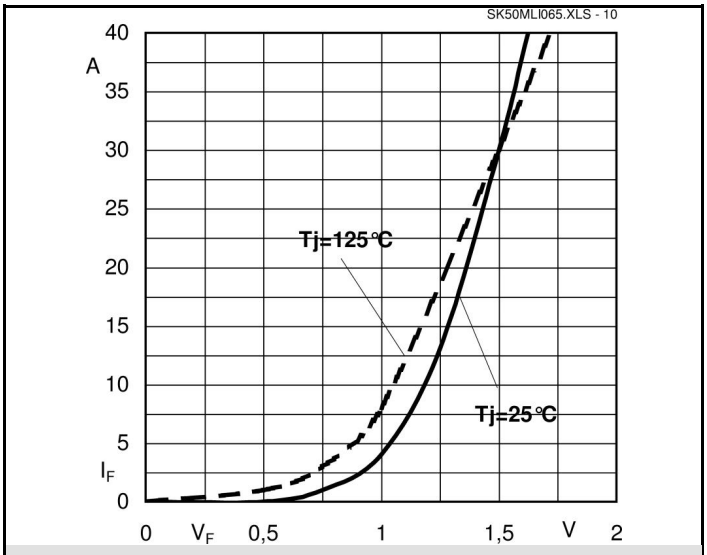
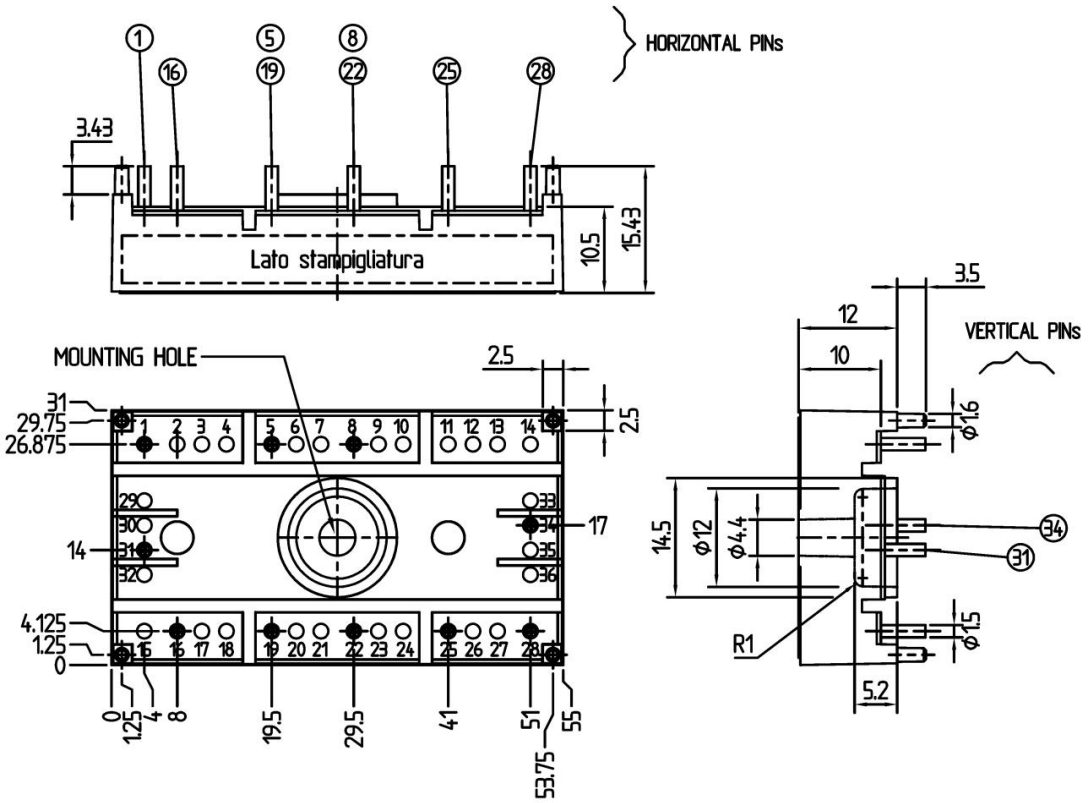


Fig. 10 CAL diode forward characteristic

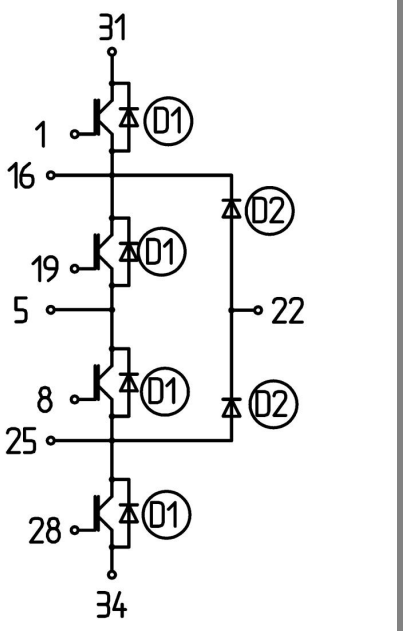
Antiparallel Diode (D1)

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UL recognized file no. E 63 532



Case T 76 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 76 MLI

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