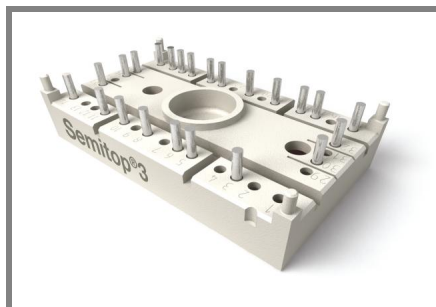




SEMITOP® 3

IGBT Module

SK50MLI065

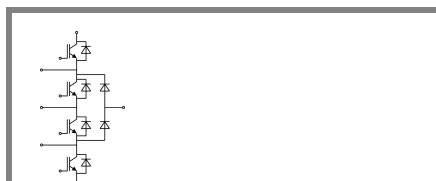
Target Data

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

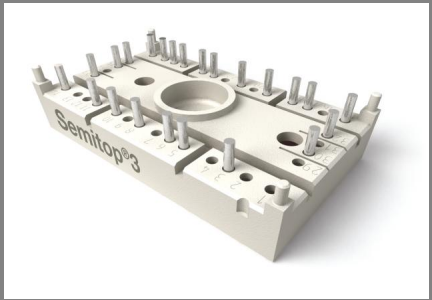
- Multi level inverter



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} ≤ 20 V; T _j = 125 °C V _{CES} < 600 V		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			V
	T _j = 125 °C		1,7 2,2			V
r _{CE}	V _{GE} = 15 V T _j = 25°C		22			mΩ
	T _j = 125°C					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 I _{Cnom} = 40A	60			ns
t _r			30			ns
E _{on}	R _{Goff} = 15 Ω	T _j = 125 °C V _{GE} = ±15V	1,07			mJ
t _{d(off)}			223			ns
t _f			20			ns
E _{off}			0,76			mJ
R _{th(j-s)}	per IGBT		0,85			K/W



SEMITOP® 3

IGBT Module

SK50MLI065

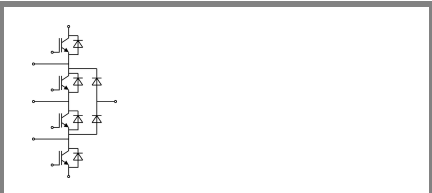
Target Data

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

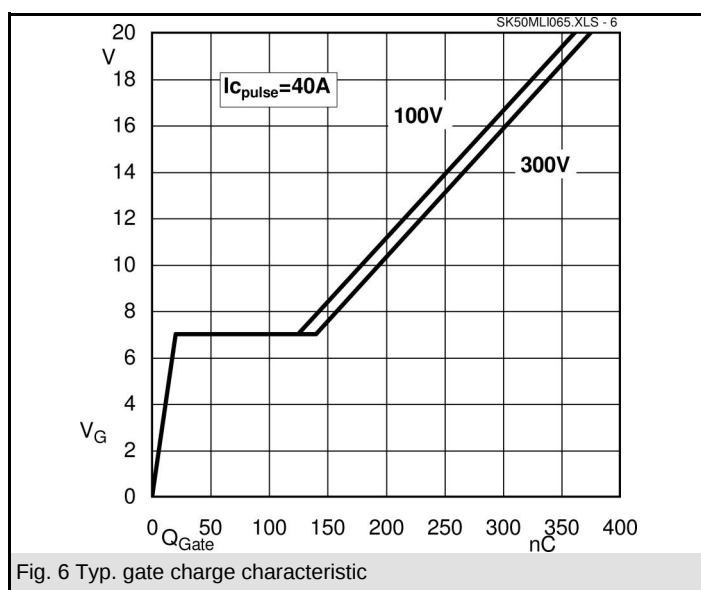
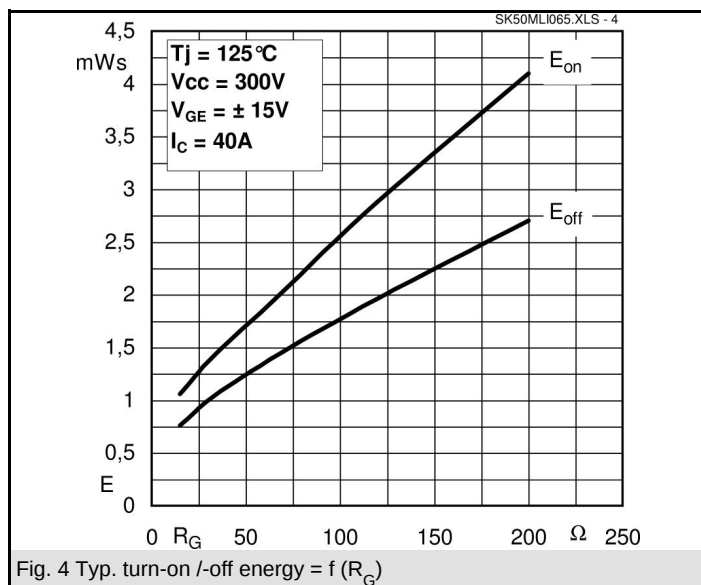
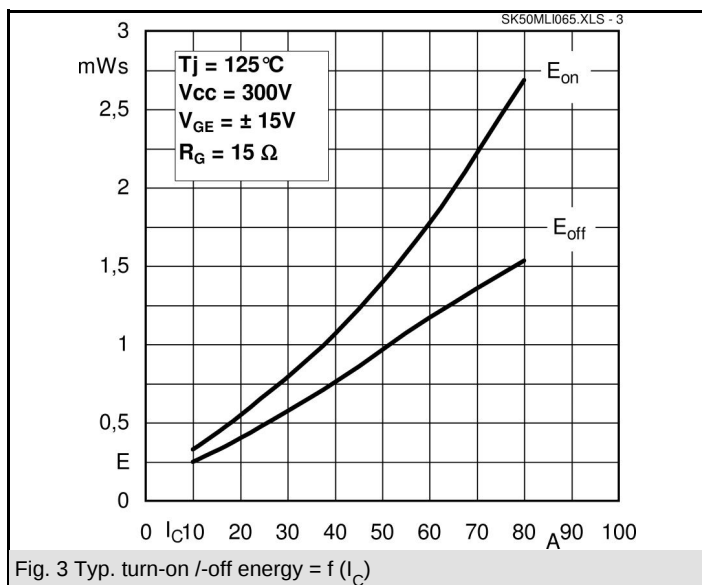
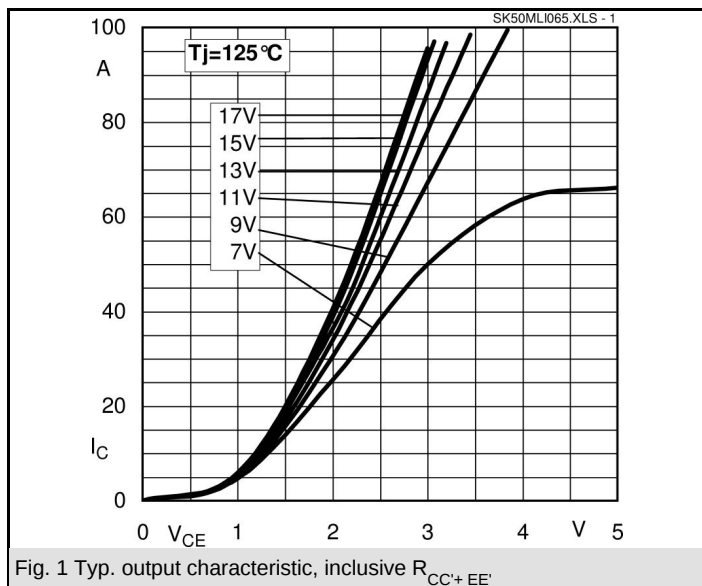


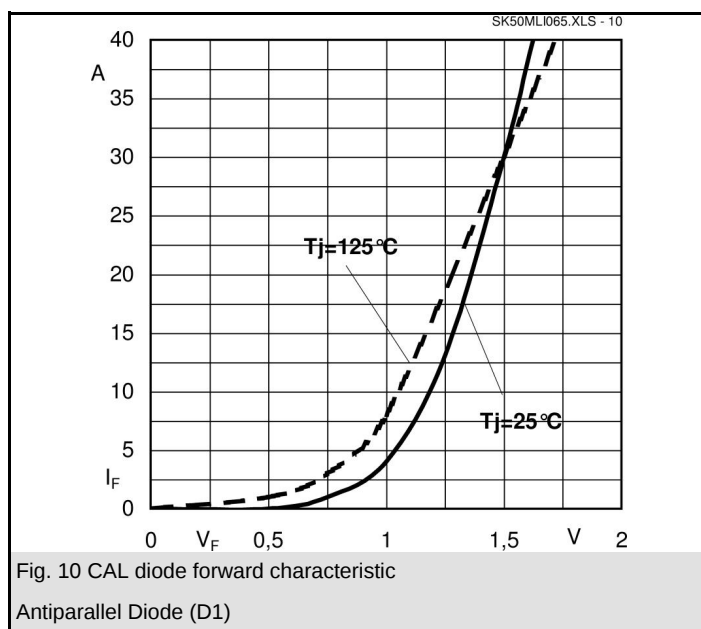
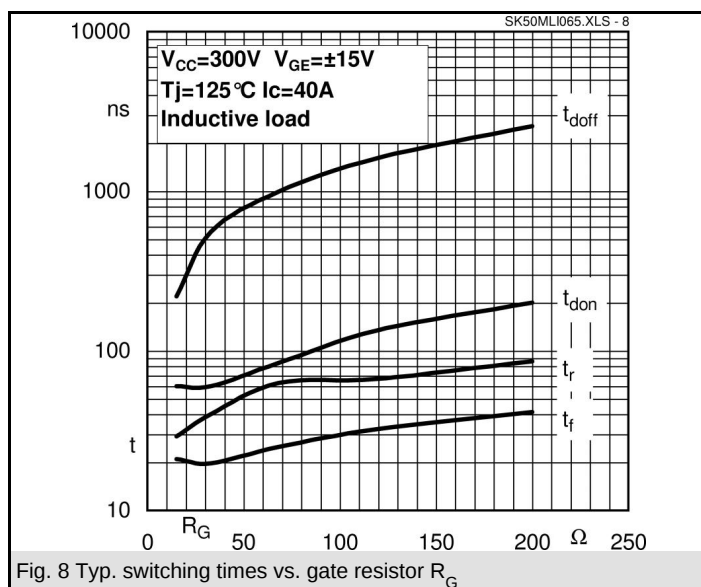
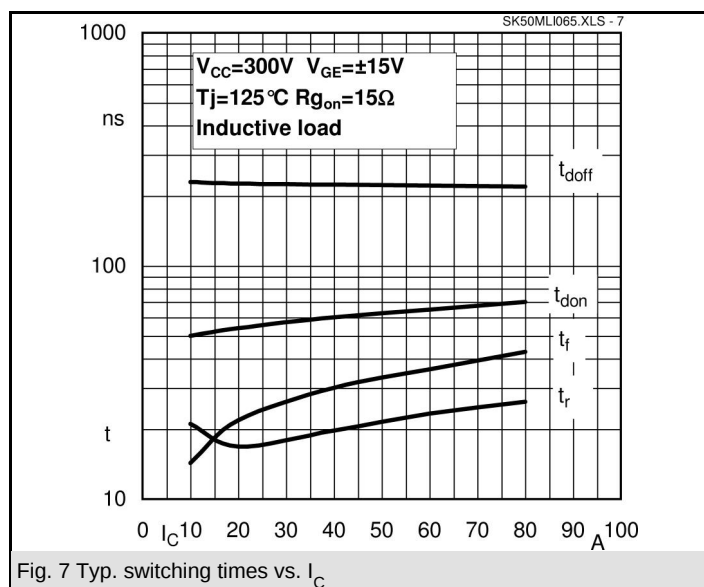
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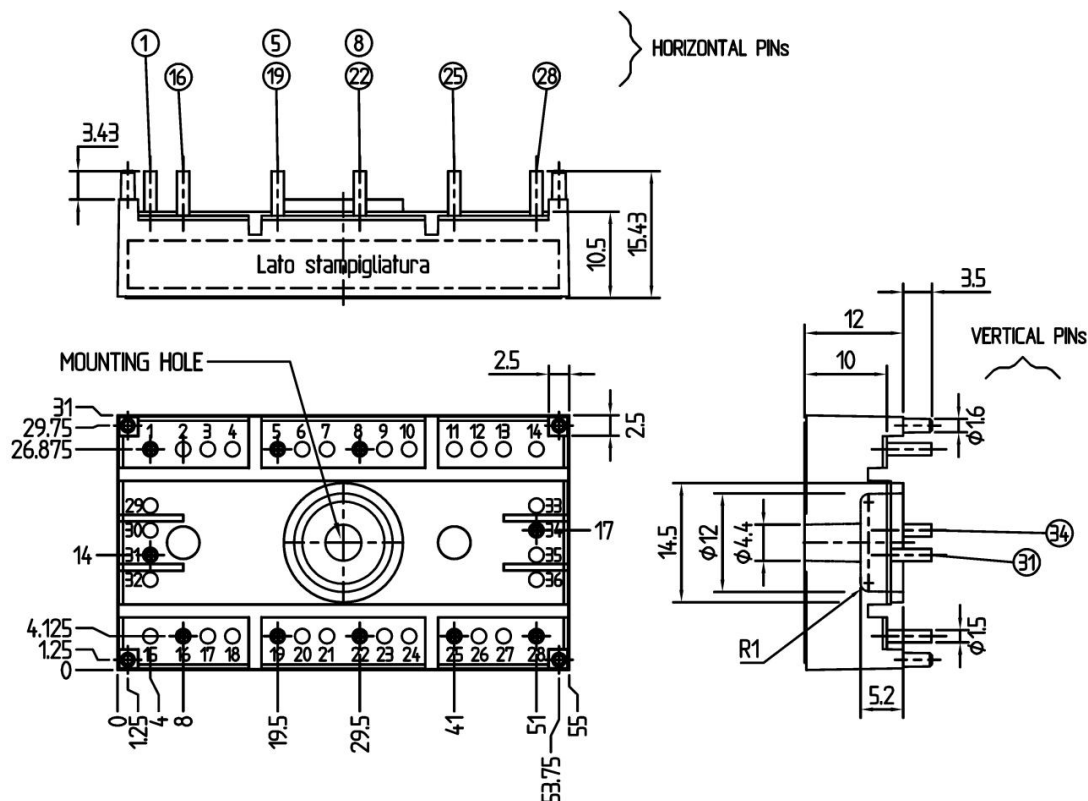
Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Antiparallel Diode (D1)						
$V_F = V_{EC}$	$I_{Fnom} = 25\text{ A}; V_{GE} = 0\text{ V}$	$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$		1,45		V
		$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$		1,4		V
V_{F0}		$T_j = 25\text{ }^{\circ}\text{C}$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

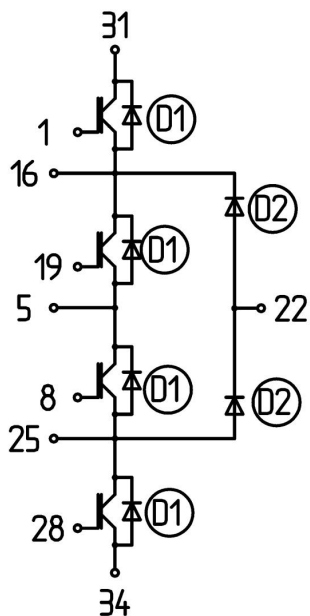
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Case T 76 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 76

MLI