



SEMITOP® 3

IGBT Module

SK30MLI066

Target Data

Features

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

Typical Applications

- 3 Level Inverter
- UPS

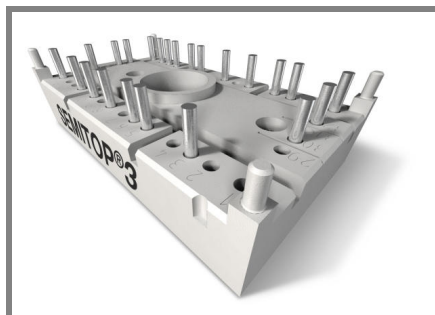
Remarks

- Visol = 3000V AC, 1s, 50Hz
- Dynamic measure: DUT= IGBT (Gate pin 1) and Neutral Clamp Diode (Kathode pin 16) as free-wheeling diode

MLI

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	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$		40	A
		$T_s = 70\text{ °C}$		31	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$			60	A
V_{GES}				± 20	V
t_{psc}	$V_{CC} = 360\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 150\text{ °C}$ $V_{CES} < 600\text{ V}$			6	μs
Inverse Diode					
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$		37	A
		$T_s = 70\text{ °C}$		30	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$			60	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			160	A
Freewheeling Diode					
I_F	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$		36	A
		$T_s = 70\text{ °C}$		28	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$			60	A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			160	A
Module					
$I_{t(RMS)}$					A
T_{vj}				-40 ... +175	$^{\circ}\text{C}$
T_{stg}				-40 ... +125	$^{\circ}\text{C}$
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 = 0,43 mA		5	5,8	6,5	V	
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _j = 25 °C		0,0016			mA	
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V T _j = 25 °C		300			nA	
V _{CE0}	T _j = 25 °C		0,9			V	
	T _j = 150 °C		0,8 1			V	
r _{CE}	V _{GE} = 15 V T _j = 25°C		18			28	mΩ
	T _j = 150°C		27			38	mΩ
V _{CE(sat)}	I _{Cnom} = 30 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}		1,45			V	
	T _j = 150°C _{chiplev.}		1,65			V	
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz		1,63			nF	
C _{oes}			0,18			nF	
C _{res}			0,05			nF	
t _{d(on)}	R _{Gon} = 25 Ω	V _{CC} = 300V I _C = 30A T _j = 150 °C V _{GE} = -7/+15 V	0,97			ns	
t _r						ns	
E _{on}	mJ						
t _{d(off)}	R _{Goff} = 25 Ω		1,77			ns	
t _f						ns	
E _{off}			mJ				
R _{th(j-s)}	per IGBT		1,65			K/W	



SEMITOP® 3

IGBT Module

SK30MLI066

Target Data

Features

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

Typical Applications

- 3 Level Inverter
- UPS

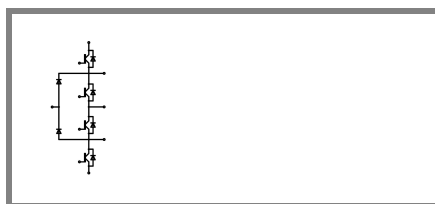
Remarks

- Visol = 3000V AC, 1s, 50Hz
- Dynamic measure: DUT= IGBT (Gate pin 1) and Neutral Clamp Diode (Kathode pin 16) as free-wheeling diode

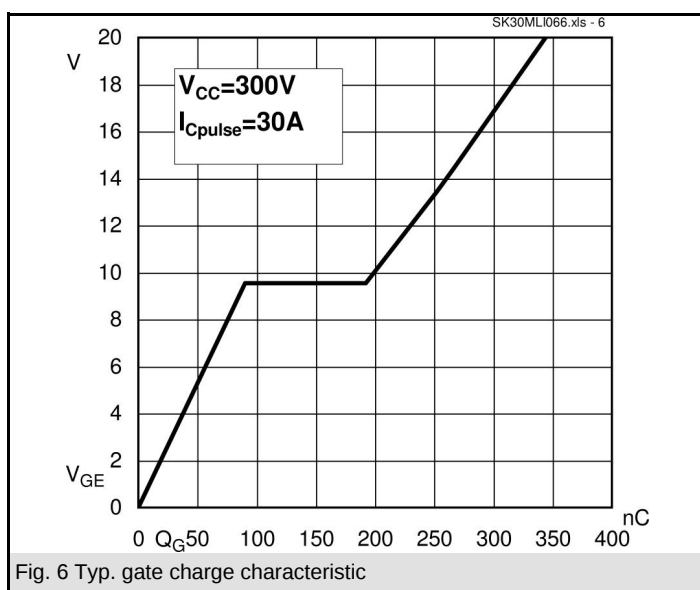
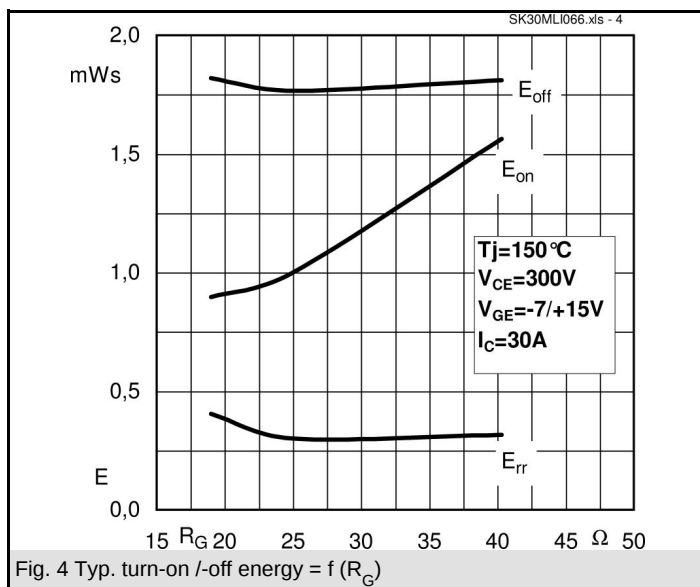
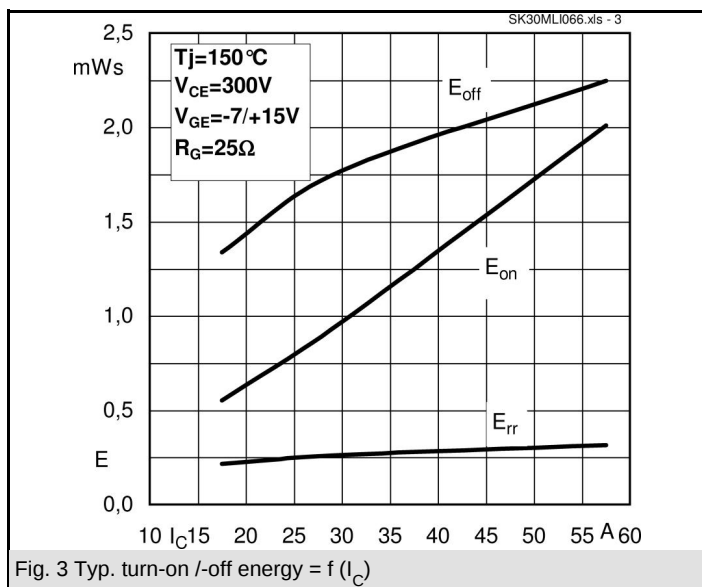
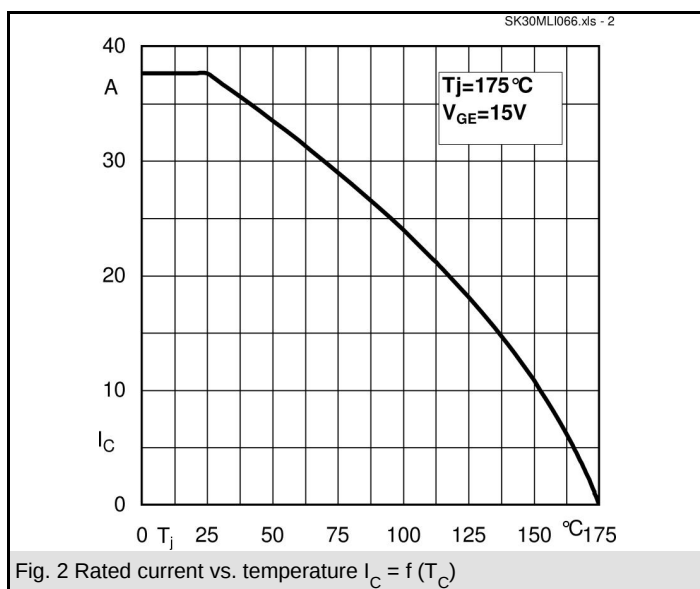
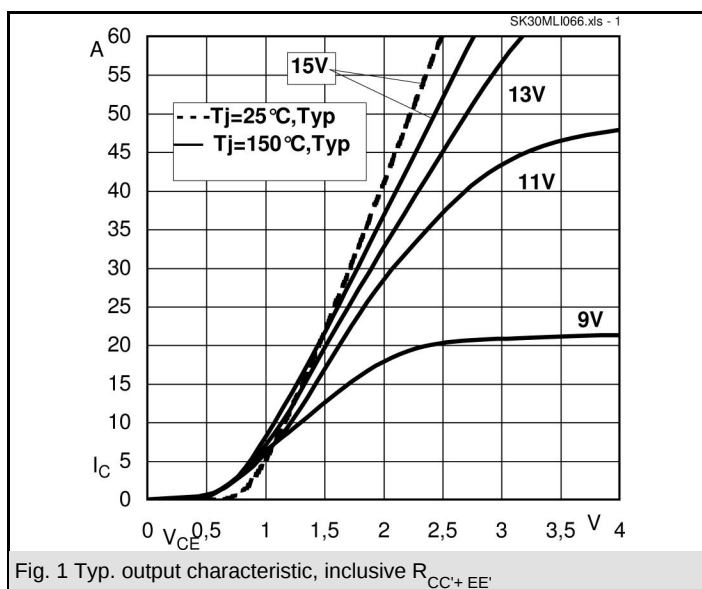
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode (Antiparallel Diode)					
$V_F = V_{EC}$	$I_{Fnom} = 30 \text{ A}; V_{GE} = 0 \text{ V}$		$T_j = 25^\circ\text{C}_{chiplev.}$ $T_j = 150^\circ\text{C}_{chiplev.}$	1,5 1,5	V V
V_{F0}			$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	1 0,9	V V
r_F			$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	16,7 20	mΩ mΩ
I_{RRM} Q_{rr} E_{rr}	$I_F = 30 \text{ A}$ $di/dt = -950 \text{ A}/\mu\text{s}$ $V_R = 300\text{V}$		$T_j = 150^\circ\text{C}$		A μC mJ
$R_{th(j-s)D}$	per diode			2,3	K/W
Freewheeling Diode (Neutral Clamp diode)					
$V_F = V_{EC}$	$I_{Fnom} = 30 \text{ A}; V_{GE} = 0 \text{ V}$		$T_j = 25^\circ\text{C}_{chiplev.}$ $T_j = 150^\circ\text{C}_{chiplev.}$	1,5 1,5	V V
V_{F0}			$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	1 0,9	V V
r_F			$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	16,7 20	V V
I_{RRM} Q_{rr} E_{rr}	$I_F = 30 \text{ A}$ $di/dt = -950 \text{ A}/\mu\text{s}$ $V_R = 300\text{V}$		$T_j = 150^\circ\text{C}$		A μC mJ
$R_{th(j-s)FD}$	per diode			2,3	K/W
M_s	to heat sink	2,25		2,5	Nm
w				30	g

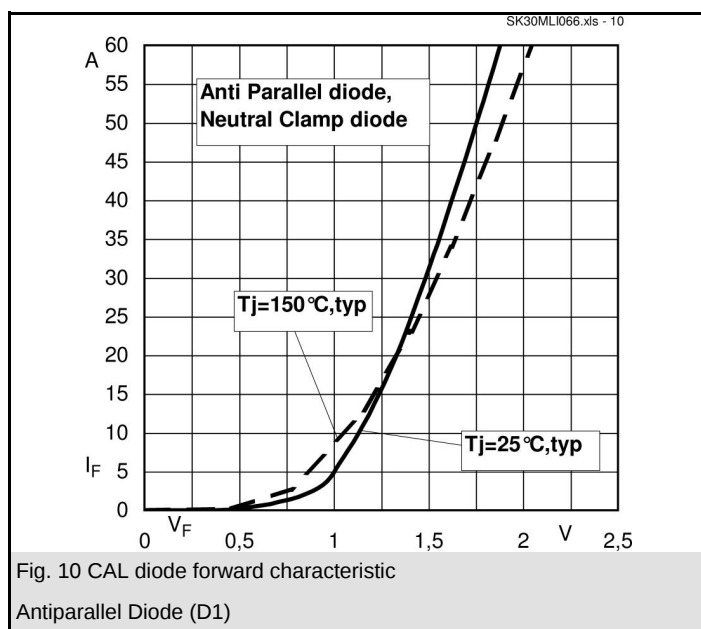
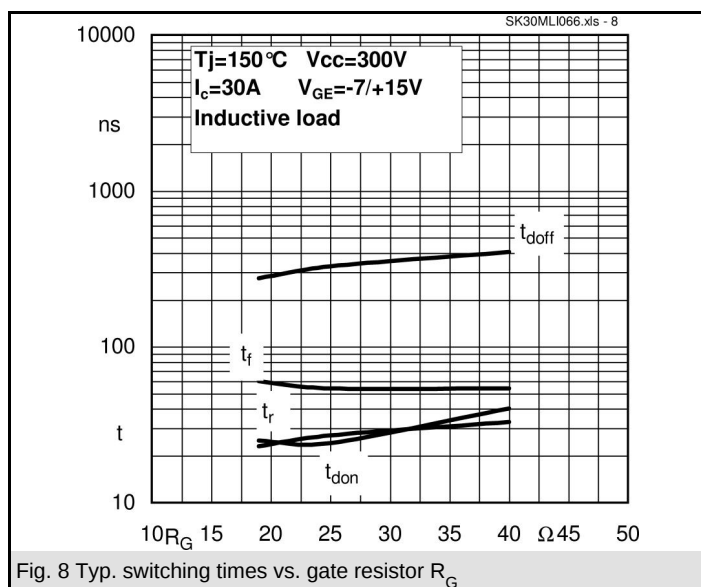
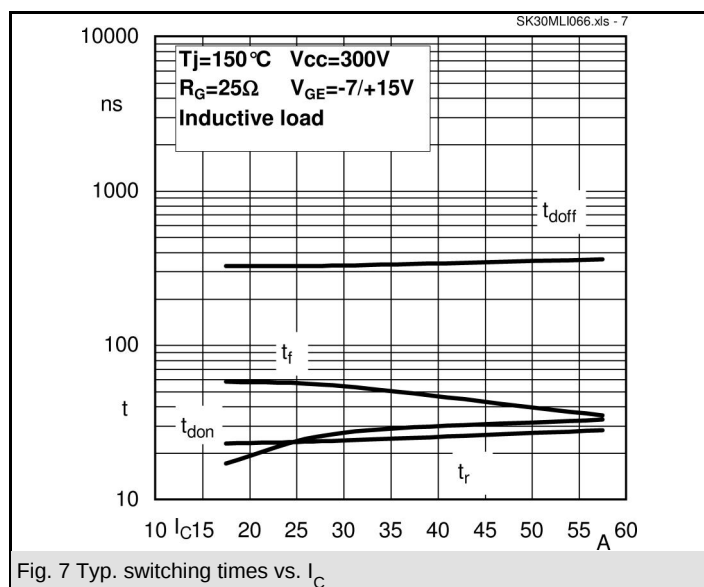
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

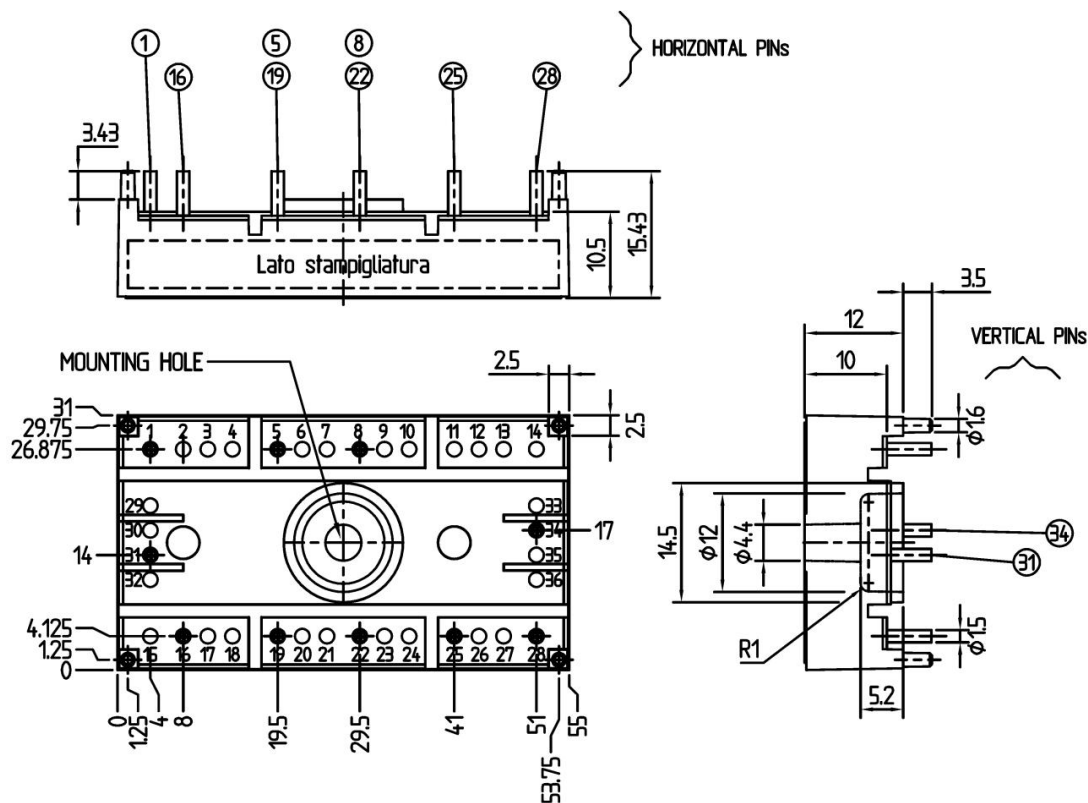
This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.



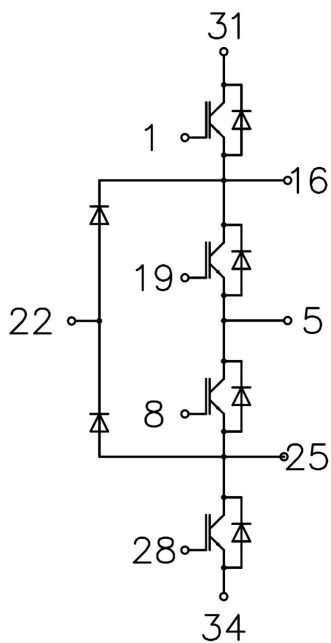
MLI







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



Case T 76

MLI