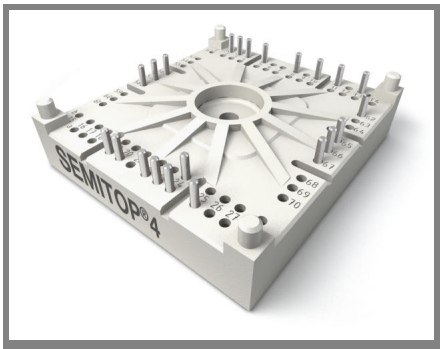


SEMITOP® 4

IGBT Module

SK75GD126T

Preliminary Data

Features

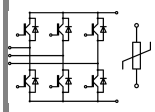
- One screw mounting module
- Fully compatible with SEMITOP®1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology FWD
- Integrated NTC temperature sensor

Typical Applications*

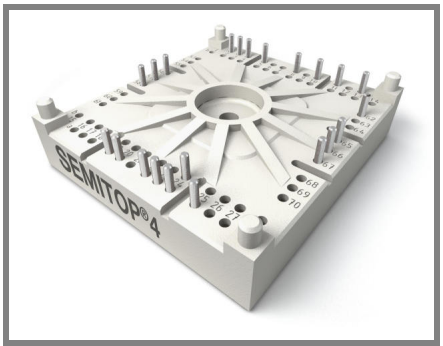
- Inverter up to 42 kVA
- Typ. motor power 18,5 kW

Absolute Maximum Ratings		T_s = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT			
V_{CES}	T_j = 25 °C	1200	V
I_C	T_j = 150 °C; T_s = 25 °C	88	A
	T_s = 70 °C	67	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}	140	A
V_{GES}		± 20	V
t_{psc}	V_{CC} = 600 V; $V_{GE} \leq$ 20 V; T_j = 125 °C; V_{CES} < 1200 V	10	µs
Inverse Diode			
I_F	T_j = 150 °C; T_s = 25 °C	91	A
	T_s = 70 °C	68	A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}	150	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 = 3 mA		5	5,8	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,0094	mA
		T_j = 125 °C				mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			1200	nA
		T_j = 125 °C				nA
V_{CE0}		T_j = 25 °C		1	1,2	V
		T_j = 125 °C		0,9	1,1	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		10	13	mΩ
		T_j = 125°C		16	19	mΩ
$V_{CE(sat)}$	I_{Cnom} = 75 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		1,7	2,1	V
		T_j = 125°C$_{chiplev.}$		2	2,4	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		5		nF
C_{oes}				0,26		nF
C_{res}				0,23		nF
$t_{d(on)}$	R_{Gon} = 8,2 Ω; di/dt = 1340 A/µs	V_{CC} = 600V; I_C= 75A; T_j = 125 °C; V_{GE}= -7/+15 V		62		ns
t_r				32		ns
E_{on}				11,3		mJ
$t_{d(off)}$	R_{Goff} = 8,2 Ω; di/dt = 1340 A/µs			514		ns
t_f				90		ns
E_{off}				10		mJ
$R_{th(j-s)}$	per IGBT			0,5		K/W



GD-T



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IGBT Module

SK75GD126T

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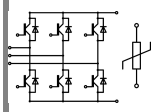


GD-T

Characteristics

Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 75 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,46		V
		T_j = 125 °$C_{chiplev.}$		1,4		V
V_{F0}		T_j = 25 °C		1,05		V
		T_j = 125 °C		0,95		V
r_F		T_j = 25 °C		5,5		mΩ
		T_j = 125 °C		6		mΩ
I_{RRM}	I_F = 75 A	T_j = 125 °C		70		A
Q_{rr}	di/dt = 1340 A/µs			20		µC
E_{rr}	V_{CC}= 600V			6		mJ
$R_{th(j-s)D}$	per diode			0,7		K/W
M_s	to heat sink		2,5		2,75	Nm
w				60		g
Temperature sensor						
R_{100}	T_s =100°C (R_{25}=5kΩ)			493±5%		Ω

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.

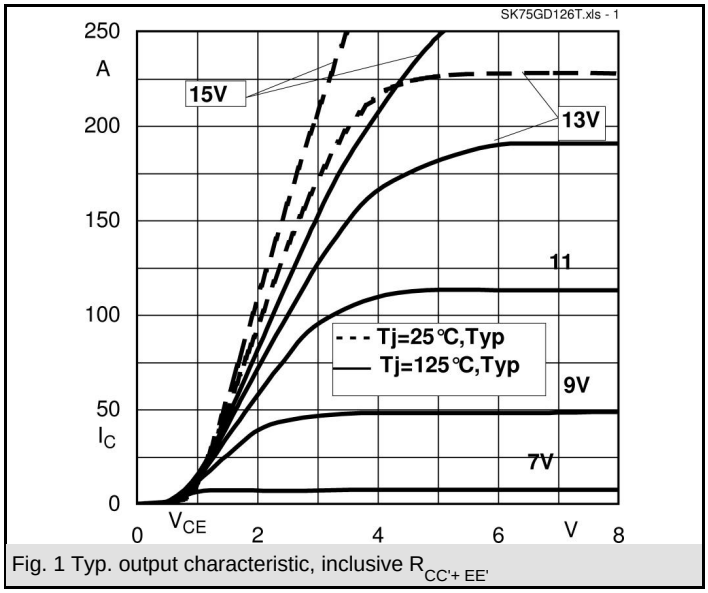


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

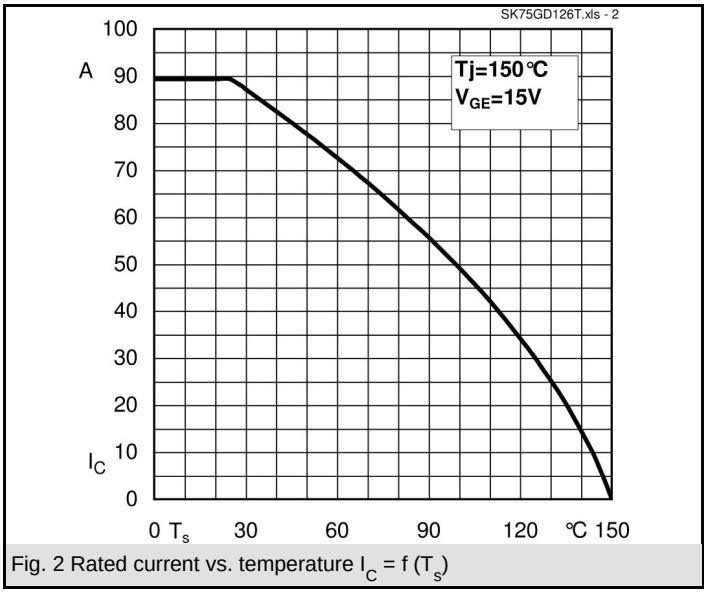


Fig. 2 Rated current vs. temperature $I_C = f(T_s)$

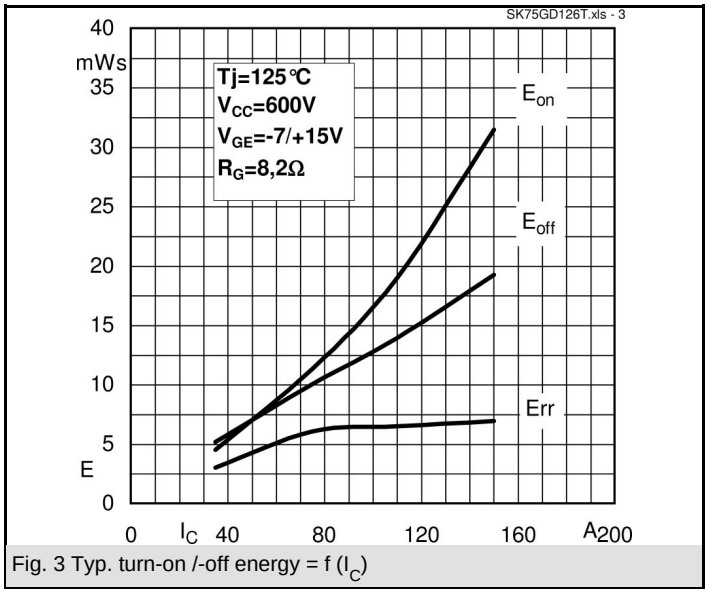


Fig. 3 Typ. turn-on /-off energy = f (I_C)

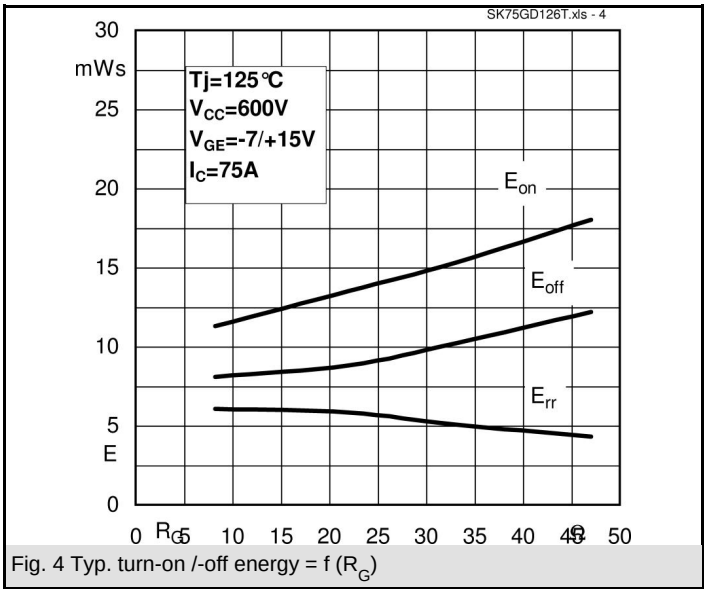


Fig. 4 Typ. turn-on /-off energy = f (R_G)

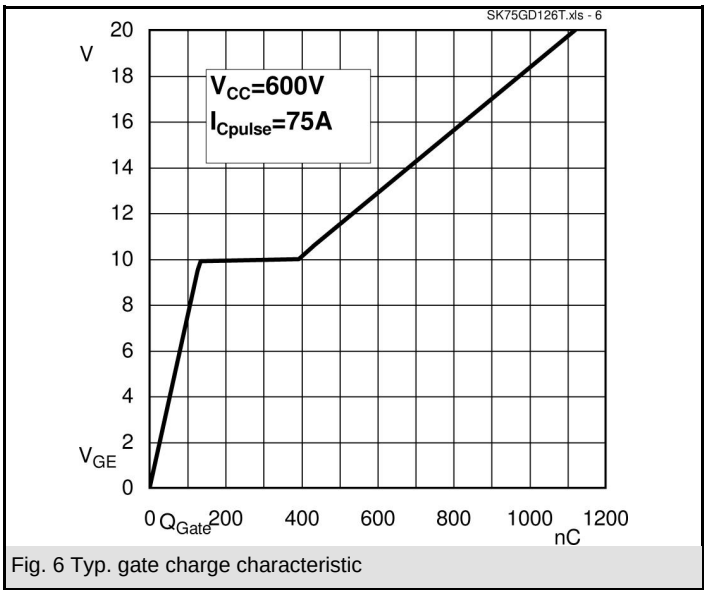


Fig. 6 Typ. gate charge characteristic

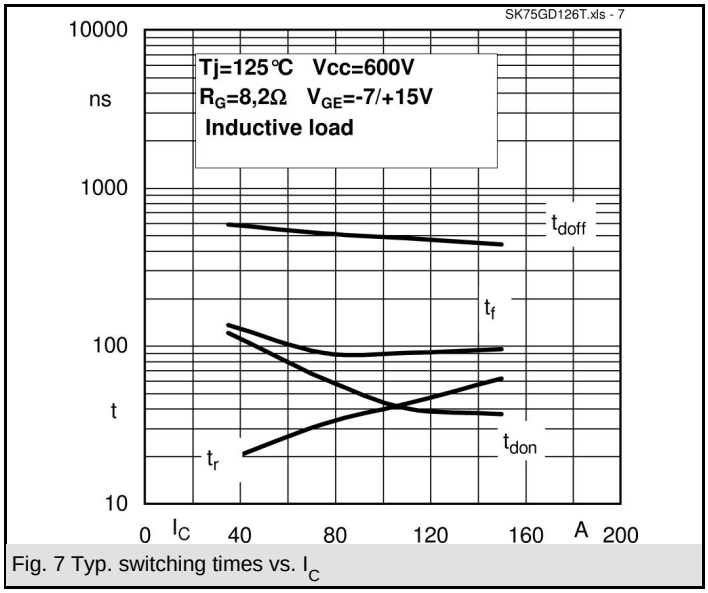


Fig. 7 Typ. switching times vs. I_C

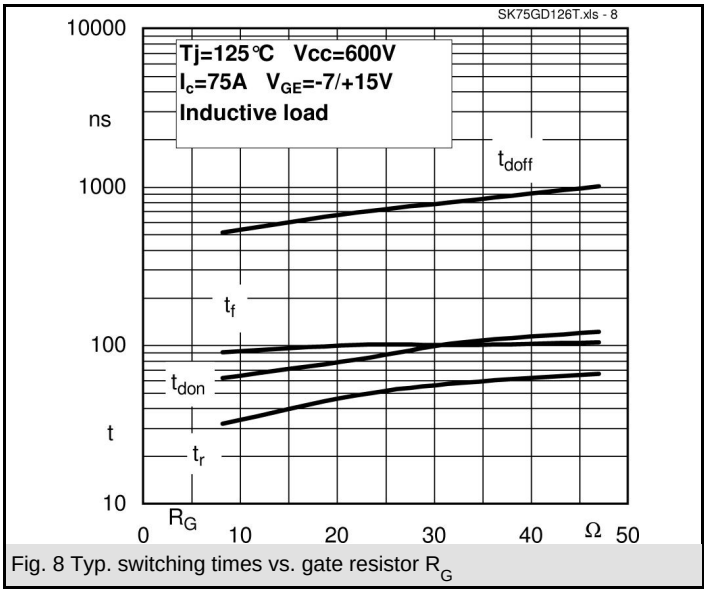


Fig. 8 Typ. switching times vs. gate resistor R_G

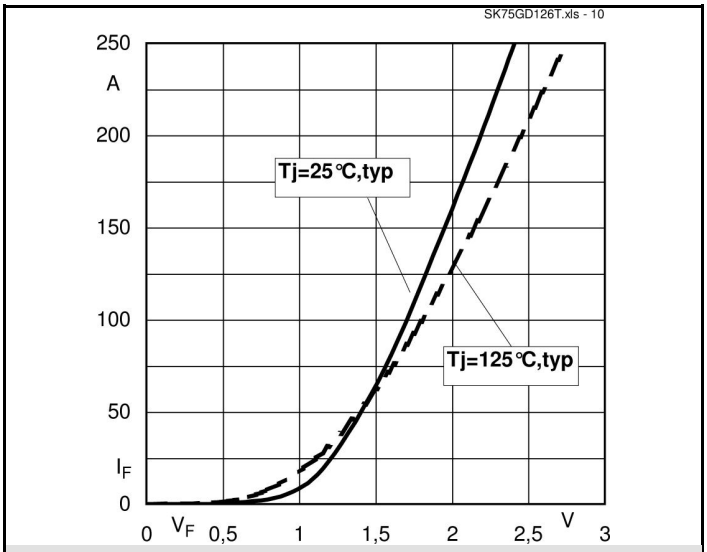
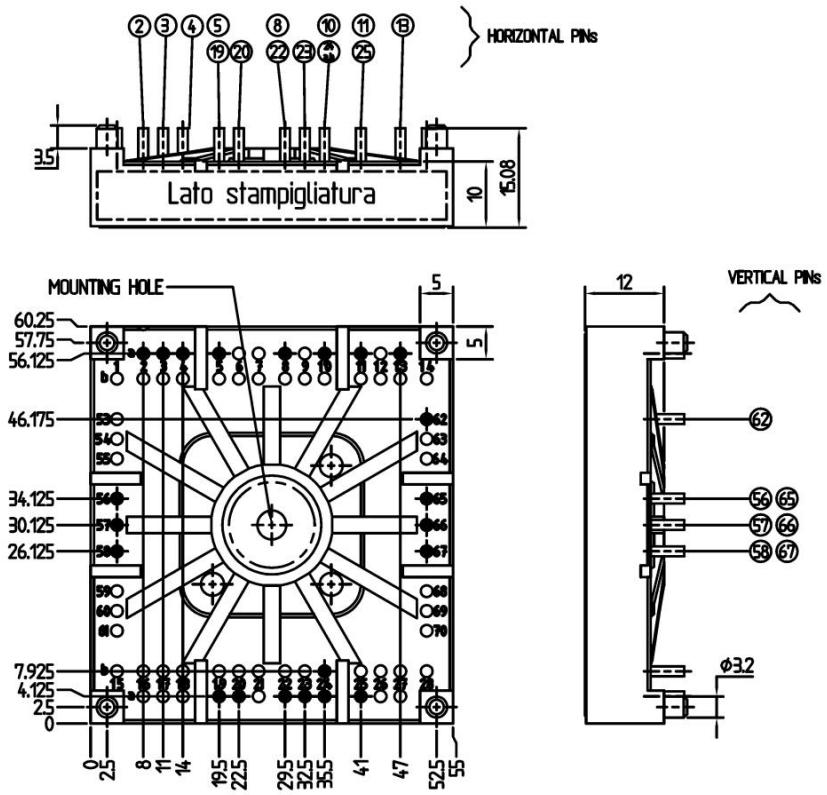
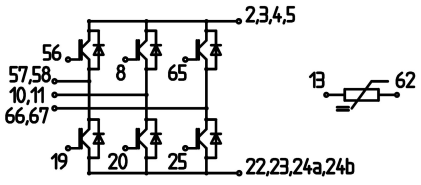


Fig. 10 CAL diode forward characteristic

UL recognized file no. E 63 532



Case T74 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm)



Case T 74 GD-T