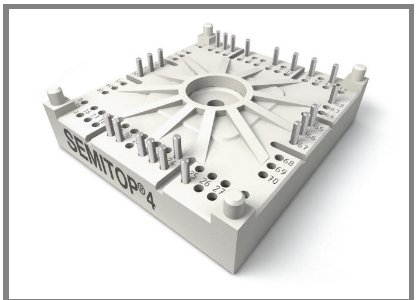
SK 25 DGDL 126 T CONVERTER, INVERTER, BRAKE



SEMITOP®4

3-phase bridge rectifier + brake chopper + 3-phase bridge inverter

SK 25 DGDL 126 T

Preliminary Data

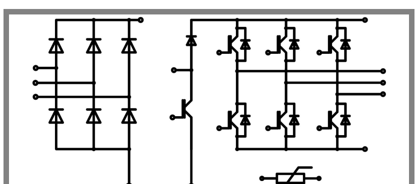
Features

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

Typical Applications*

- Inverter up to 16 kVA
- Typ. motor power 7,5 kW

1) $V_{CE,sat}$, V_F = chip level value



DGDL - T

Absolute Maximum Ratings		Ts = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter,Chopper			
V_{CES}		1200	V
I_C	T_s = 25 (70) °C	41 (31)	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}, t_p = 1 ms	50	A
V_{GES}		± 20	V
T_j		-40 ... +150	°C
Diode - Inverter,Chopper			
I_F	T_s = 25 (70) °C	30 (22)	A
I_{FRM}	I_{FRM} = 2xI_{Fnom}, t_p = 1 ms	50	A
T_j		-40 ... +150	°C
Rectifier			
V_{RRM}		1600	V
I_F	T_s = 70 °C	35	A
I_{FSM} / I_{TSM}	t_p = 10 ms , sin 180 ° ,T_j = 25 °C	370	A
I^2_t	t_p = 10 ms , sin 180 ° ,T_j = 25 °C	680	A²s
T_j		-40 ... +150	°C
T_{sol}	Terminals, 10 s	260	°C
T_{stg}		-40 ... +125	°C
V_{isol}	AC, 1 min. / 1 s	2500 / 3000	V

Characteristics		Ts = 25 °C, unless otherwise specified			
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter					
V_{CEsat}	I_C = 25 A, T_j = 25 (125) °C		1,7 (2)	2,1 (2,4)	V
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 1 mA	5	5,8	6,5	V
$V_{CE(TO)}$	T_j = 25 °C (125) °C		1 (0,9)	1,2 (1,1)	V
r_T	T_j = 25 °C (125) °C		28 (44)	36 (52)	mΩ
C_{ies}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		1,8		nF
C_{oes}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		0,095		nF
C_{res}	V_{CE} = 25 V_{GE} = 0 V, f = 1 MHz		0,082		nF
$R_{th(j-s)}$	per IGBT		0,9		K/W
$t_{d(on)}$	under following conditions		82		ns
t_r	V_{CC} = 600 V, V_{GE} = ± 15 V		21		ns
$t_{d(off)}$	I_C = 25 A, T_j = 125 °C		426		ns
t_f	R_{Gon} = R_{Goff} = 16 Ω		78		ns
E_{on}	inductive load		2,8		mJ
E_{off}			3,1		mJ
Diode - Inverter,Chopper					
V_F = V_{EC}	I_F = 20 A, T_j = 25(125) °C		1,5 (1,55)	1,65 (1,7)	V
$V_{(TO)}$	T_j = 25 °C (125) °C		1,15 (1,1)	1,25 (1,2)	V
r_T	T_j = 25 °C (125) °C		17,5 (22,5)	20 (25)	mΩ
$R_{th(j-s)}$	per diode		1,7		K/W
I_{RRM}	under following conditions		25		A
Q_{rr}	I_F = 25 A, V_R = 300 V		5		µC
E_{rr}	V_{GE} = 0 V, T_j = 125 °C		2		mJ
	$di_{F/dt}$ = 2100 A/µs				
Diode - Rectifier					
V_F	I_F = 25 A, T_j = 25() °C		1,1		V
$V_{(TO)}$	T_j = 150 °C		0,8		V
r_T	T_j = 150 °C		13		mΩ
$R_{th(j-s)}$	per diode		1,5		K/W
Temperatur sensor					
R_{ts}	5 %, T_r = 25 (100) °C		5000(493)		Ω
Mechanical data					
w			60		g
M_s	Mounting torque	2,5		2,75	Nm

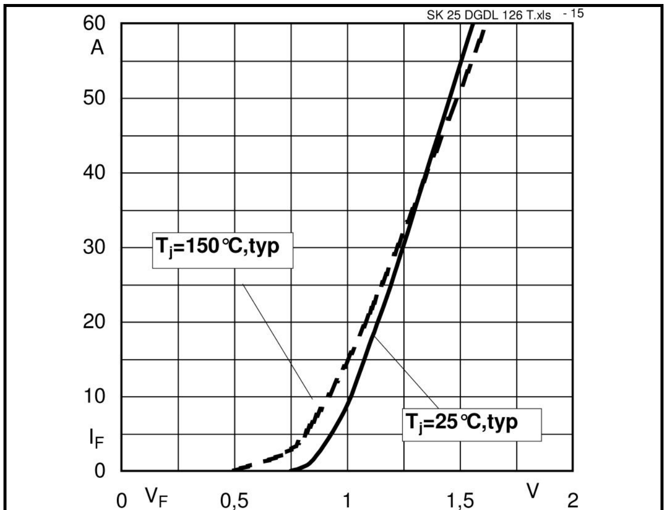


Fig.15 Input bridge Diode forward characteristic

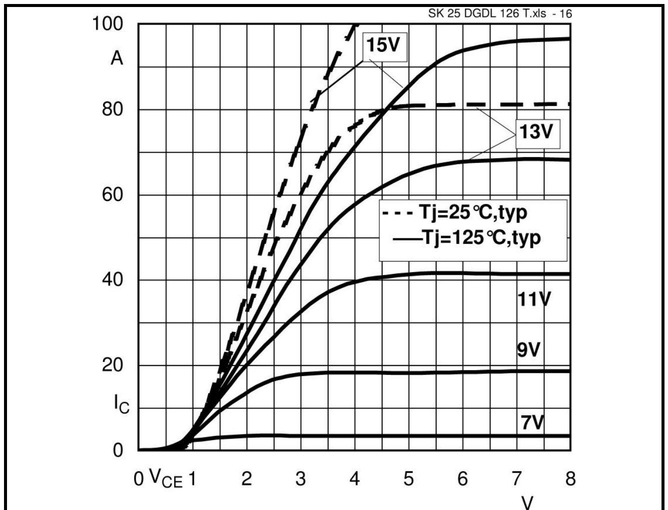


fig.16 Typical Output characteristic

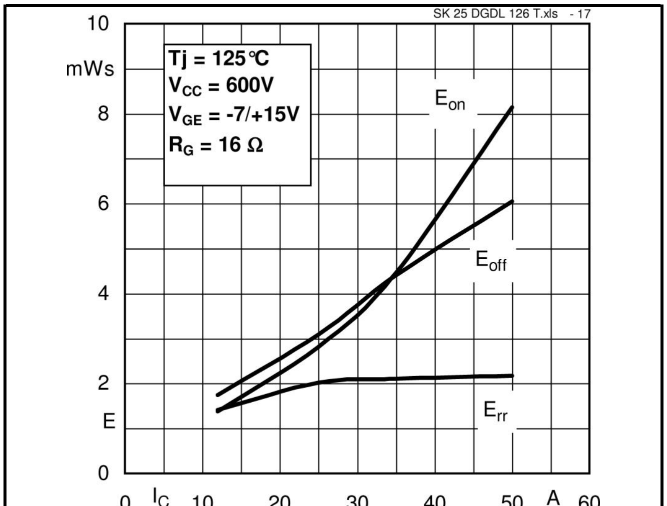


Fig.17 Turn-on/-off energy=f(Ic)

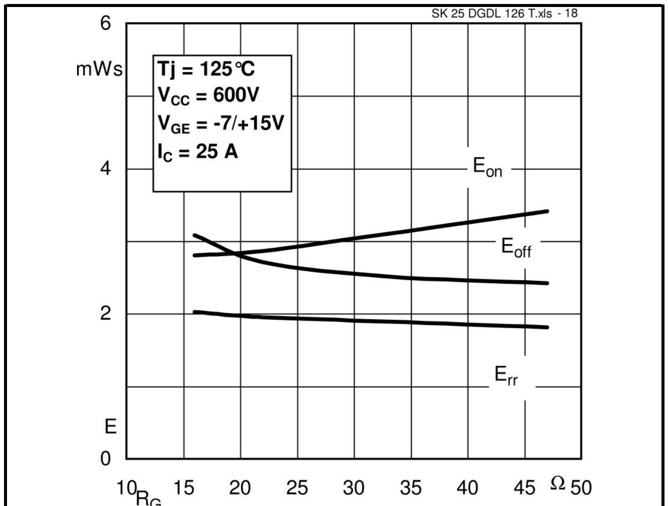


Fig.18 Turn-on/-off energy=f(Rg)

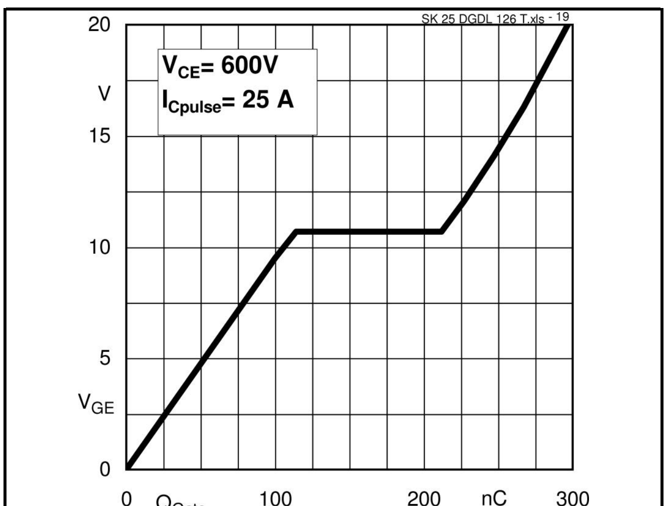


Fig.19 Typical gate charge characteristic

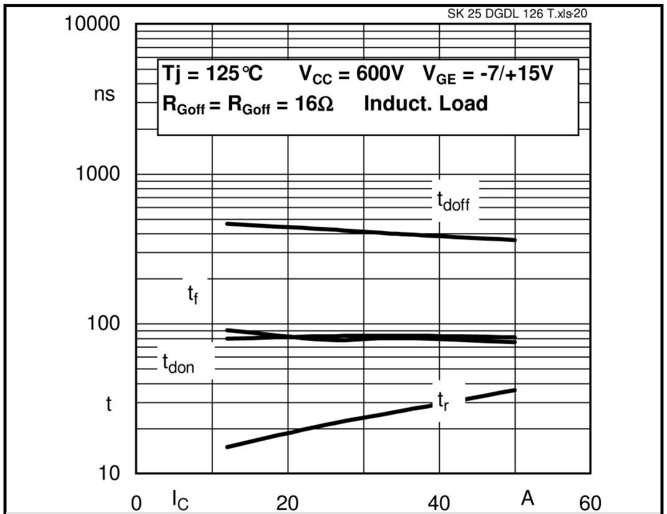


Fig.21 Typical switching times vs.Ic

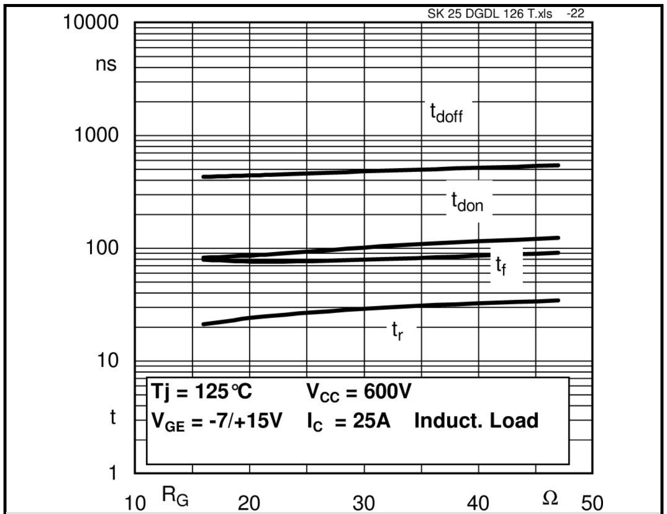


Fig.22 Typical switching times vs.Rg

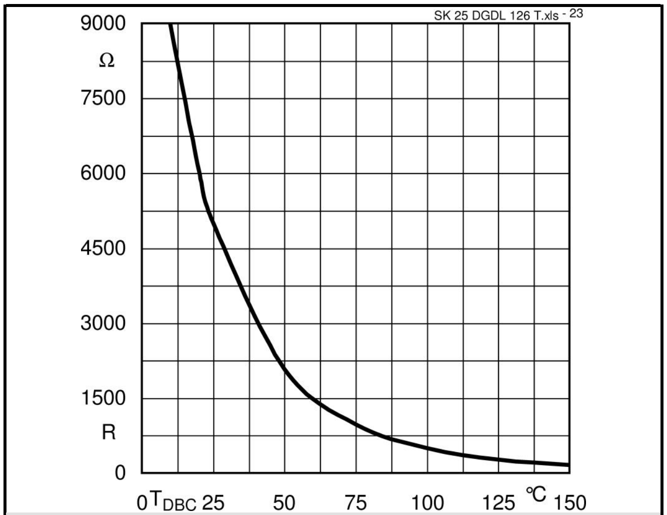
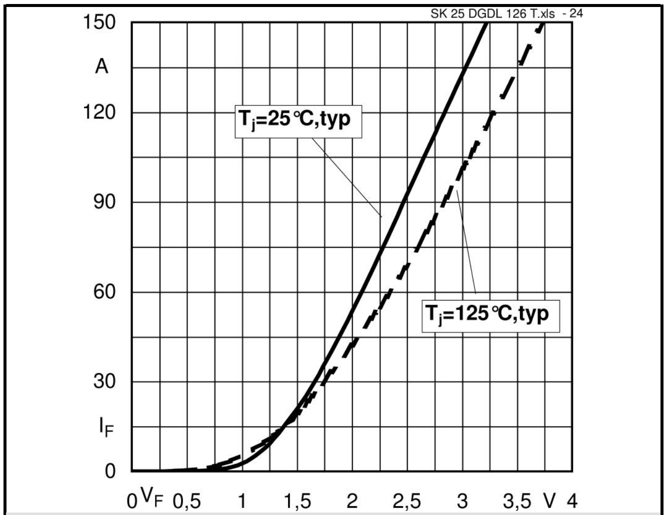


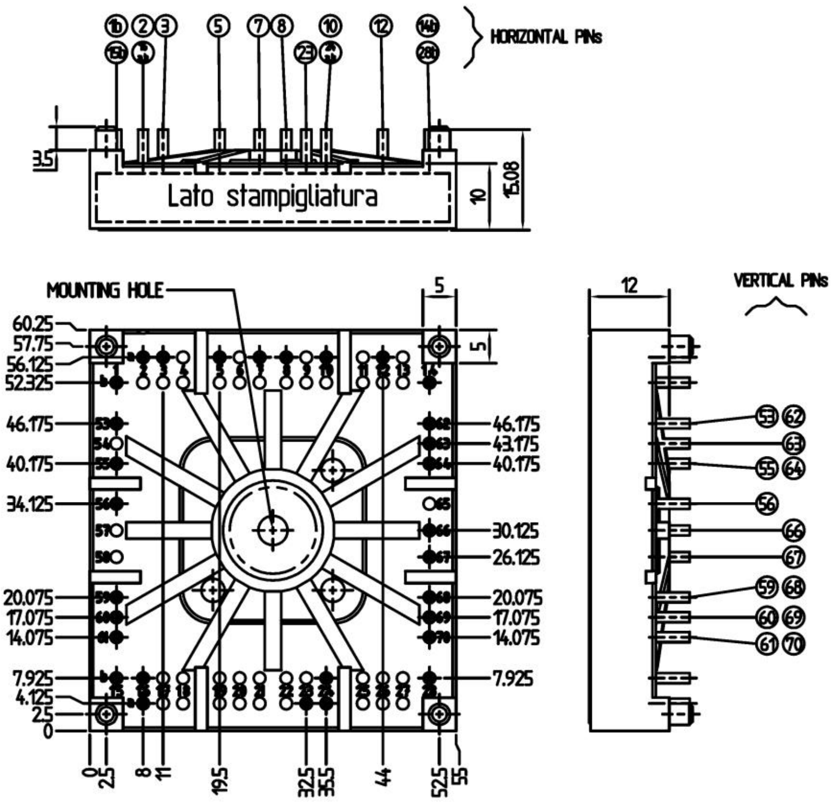
Fig.23 Typical NTC characteristic



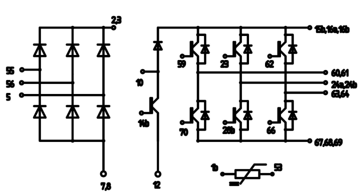
Fgi.24 Typical FWD forward characteristic

UL recognized
file no. E 63 532

Dimensions in mm



Case T 75 (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 75 (pin without letter refers to row "a", unless otherwise specified)

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.