

SEMITOP[®]4

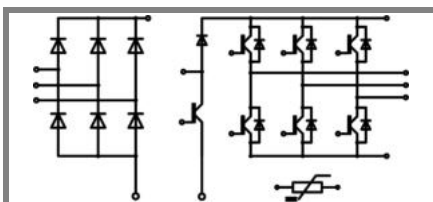
3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter

SK 50 DGDL 12T4 T

Features

- One screw mounting module
- Fully compatible with SEMITOP[®]1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench4 IGBT technology
- CAL4 technology free-wheeling diode
- Integrated NTC temperature sensor

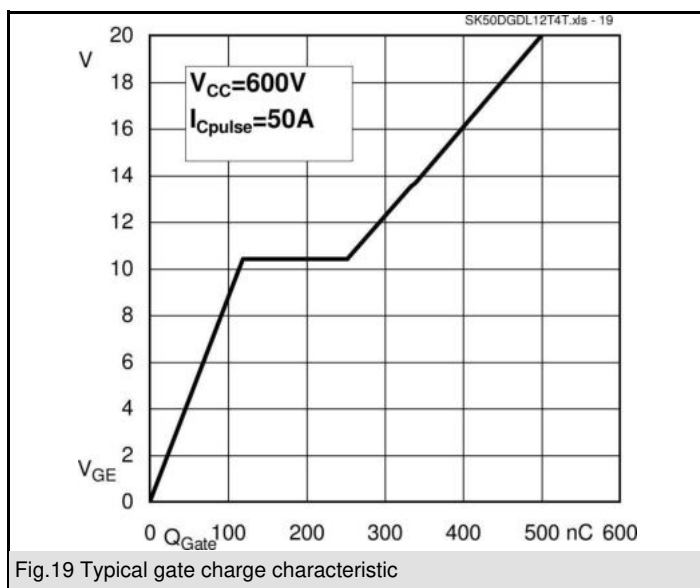
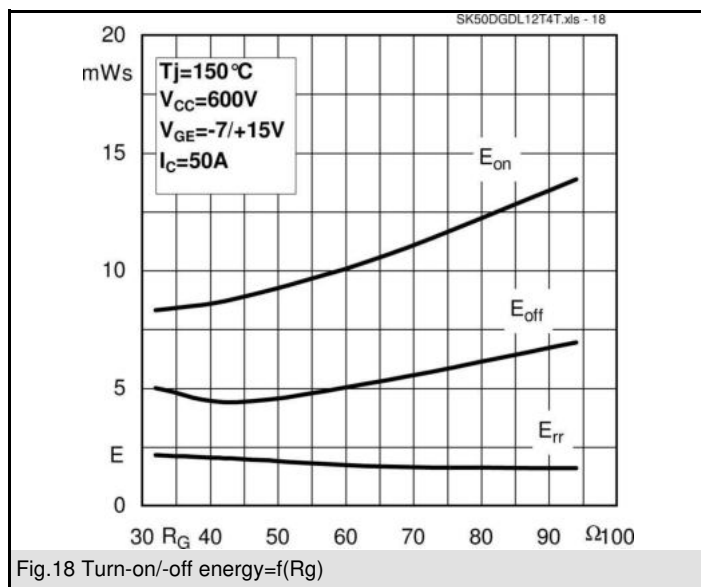
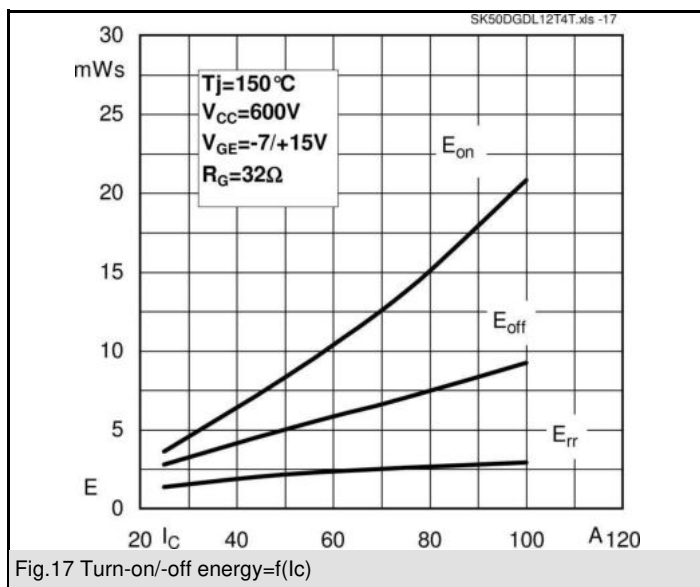
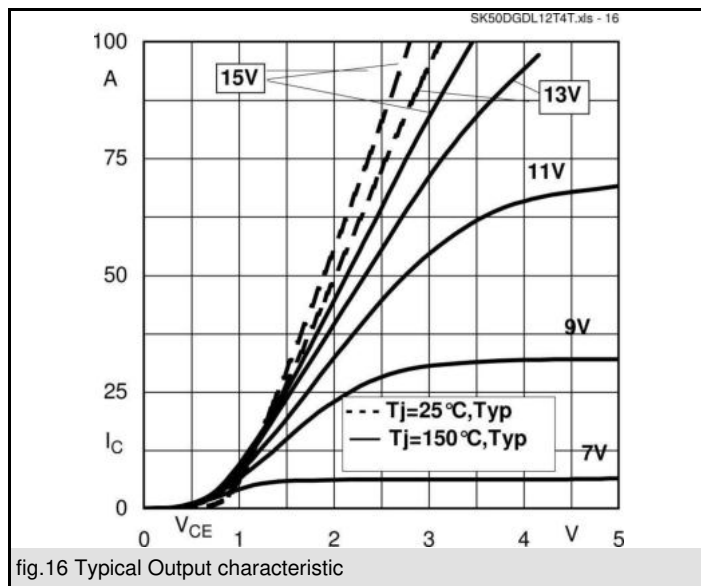
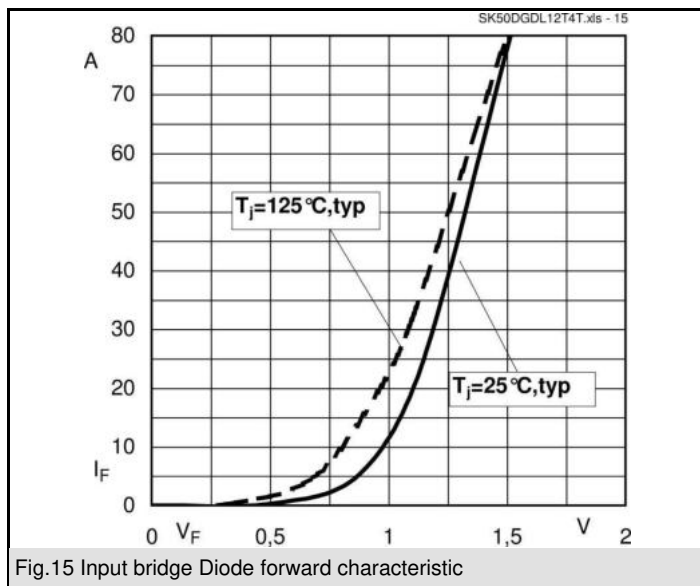
1) $V_{CE,sat}$, V_F = chip level value

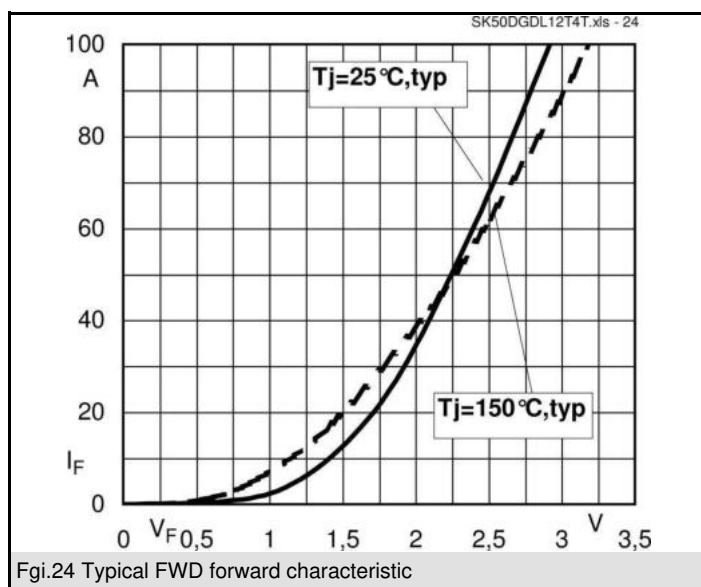
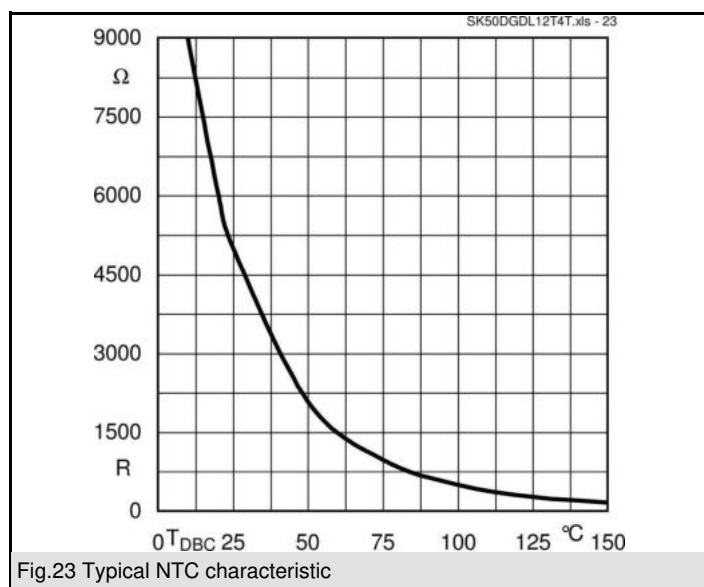
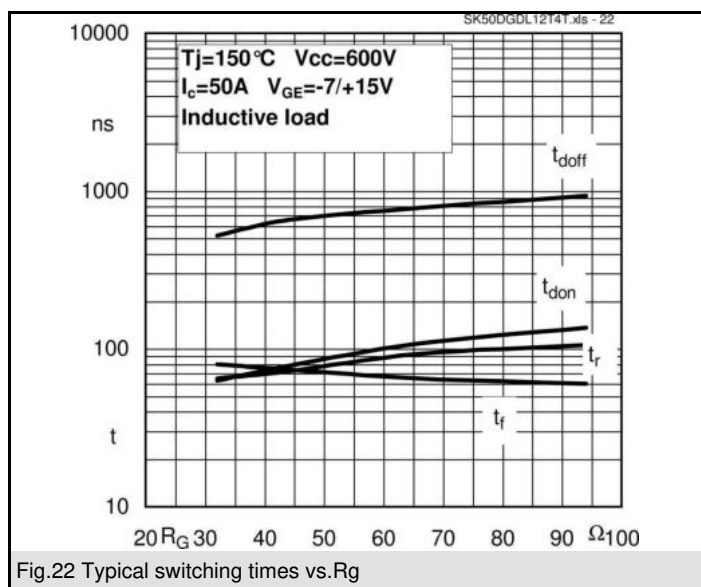
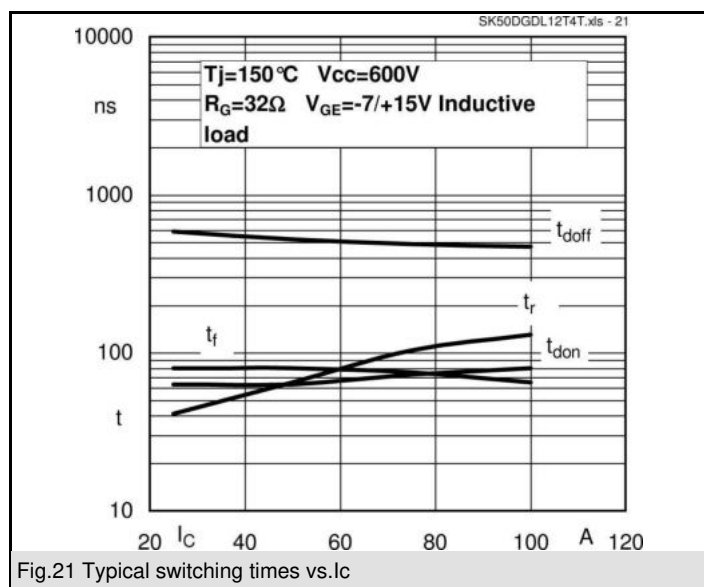


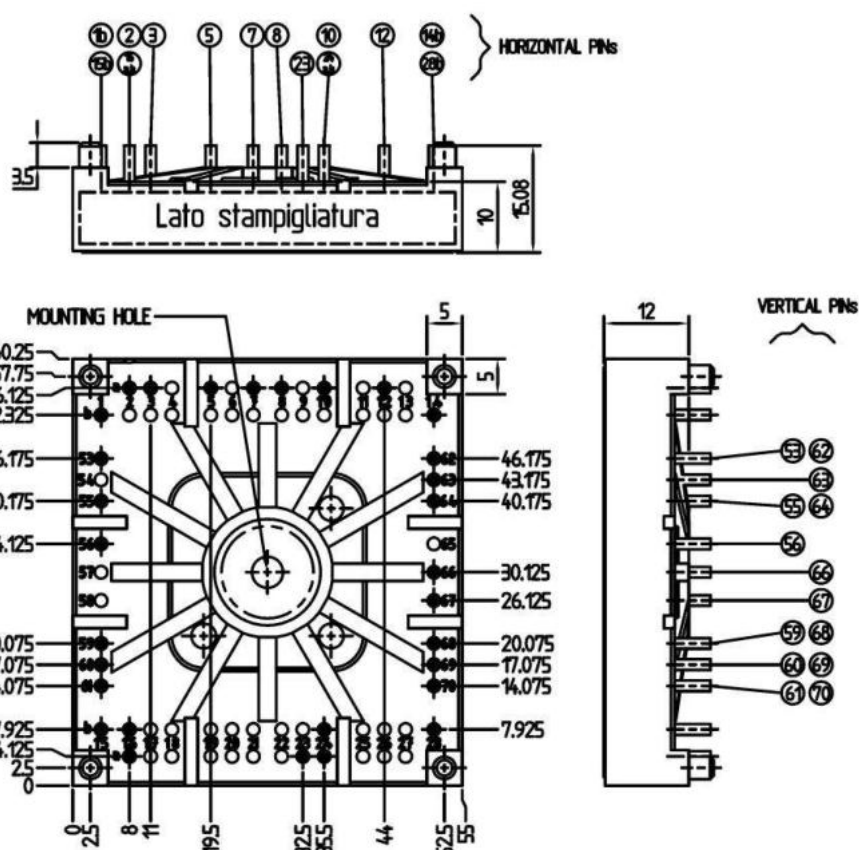
DGD L - T

Absolute Maximum Ratings		Ts = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter. For IGBT chopper maximum ratings, please refer to SK35DGDL12T4T			
V_{CES}		1200	V
I_C	$T_s = 25 (70) ^\circ C$	75 (60)	A
I_{CRM}	$I_{CRM} = 3 \times I_{Cnom}$, $t_p = 1 \text{ ms}$	150	A
V_{GES}		± 20	V
T_j		-40 ... +175	$^\circ C$
Diode - Inverter, Chopper			
I_F	$T_s = 25 (70) ^\circ C$	60 (45)	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$, $t_p = 1 \text{ ms}$	150	A
T_j		-40 ... +150	$^\circ C$
Rectifier			
V_{RRM}		1600	V
I_F	$T_s = 70 ^\circ C$	61	A
I_{FSM} / I_{TSM}	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 25 ^\circ C$	700	A
I_t^2	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 25 ^\circ C$	2400	A ² s
T_j		-40 ... +175	$^\circ C$
T_{sol}	Terminals, 10 s	260	$^\circ C$
T_{stg}		-40 ... +125	$^\circ C$
V_{isol}	AC, 1 min. / 1 s	2500 / 3000	V

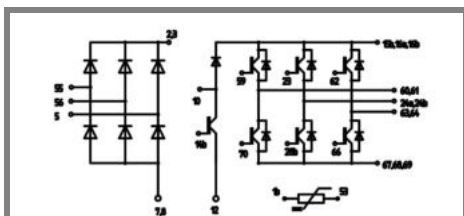
Characteristics		Ts = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter. For IGBT chopper electrical characteristics, please refer to SK35DGDL12T4T					
V_{CEsat}	$I_C = 50 \text{ A}$, $T_j = 25 (150) ^\circ C$		1,85 (2,2)	2,05 (2,45)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,7 \text{ mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25 ^\circ C (150) ^\circ C$		1,1 (1)	1,3 (1,2)	V
r_T	$T_j = 25 ^\circ C (150) ^\circ C$		15 (24)		mΩ
C_{ies}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		2,77		nF
C_{oes}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		0,2		nF
C_{res}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		0,16		nF
$R_{th(j-s)}$	per IGBT		0,65		K/W
$t_{d(on)}$	under following conditions		63		ns
t_r	$V_{CC} = 600 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$		65		ns
$t_{d(off)}$	$I_C = 50 \text{ A}$, $T_j = 150 ^\circ C$		521		ns
t_f	$R_{Gon} = R_{Goff} = 32 \Omega$		80		ns
E_{on}	inductive load		8,3		mJ
E_{off}			5		mJ
Diode - Inverter, Chopper					
$V_F = V_{EC}$	$I_F = 50 \text{ A}$, $T_j = 25 (150) ^\circ C$		2,22 (2,18)	2,54 (2,5)	V
$V_{(TO)}$	$T_j = 25 ^\circ C (150) ^\circ C$		1,3 (0,9)	1,5 (1,1)	V
r_T	$T_j = 25 ^\circ C (150) ^\circ C$		18,4 (25,6)	20,8 (28)	mΩ
$R_{th(j-s)}$	per diode		0,97		K/W
I_{RRM}	under following conditions		30		A
Q_{rr}	$I_F = 50 \text{ A}$, $V_R = 300 \text{ V}$		7,2		μC
E_{rr}	$V_{GE} = 0 \text{ V}$, $T_j = 150 ^\circ C$		2,15		mJ
	$di_F/dt = 920 \text{ A/μs}$				
Diode - Rectifier					
V_F	$I_F = 50 \text{ A}$, $T_j = 25 (150) ^\circ C$		1,1		V
$V_{(TO)}$	$T_j = 150 ^\circ C$		0,8		V
r_T	$T_j = 150 ^\circ C$		6		mΩ
$R_{th(j-s)}$	per diode		0,9		K/W
Temperatur sensor					
R_{ts}	5 %, $T_r = 25 (100) ^\circ C$		5000(493)		Ω
Mechanical data					
w			60		g
M_s	Mounting torque		2,6		Nm







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.

*IMPORTANT INFORMATION AND WARNINGS

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