

SEMITOP® 3

3-phase bridge inverter

SK 25 GD 126 ET

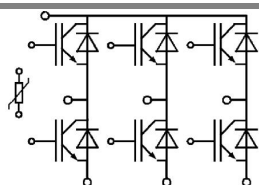
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminum oxide ceramic (DCB)
- Trench technology IGBT
- CAL High Density FWD
- Integrated NTC temperature sensor

Typical Applications

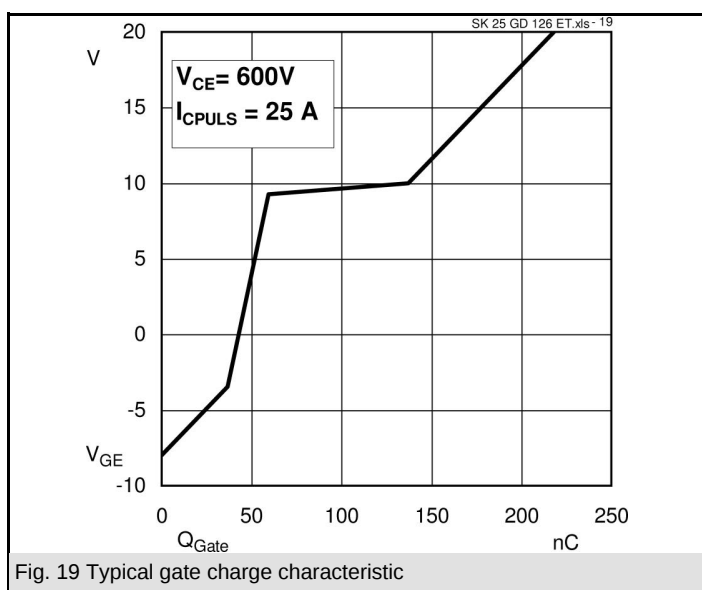
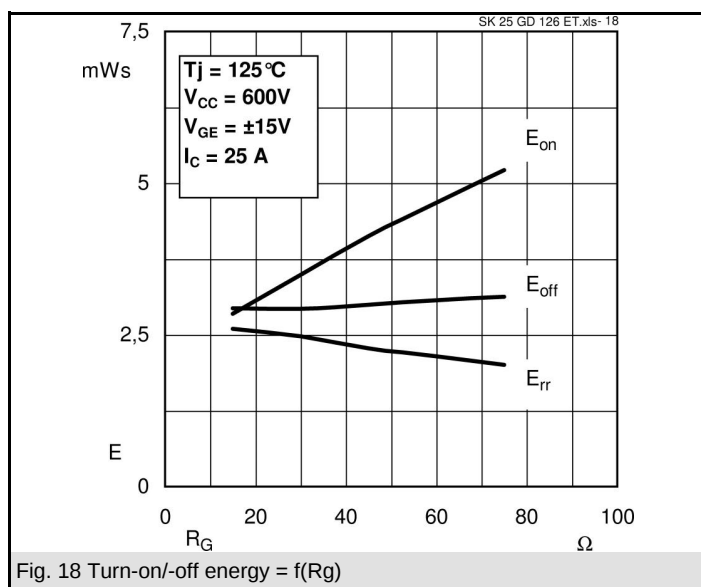
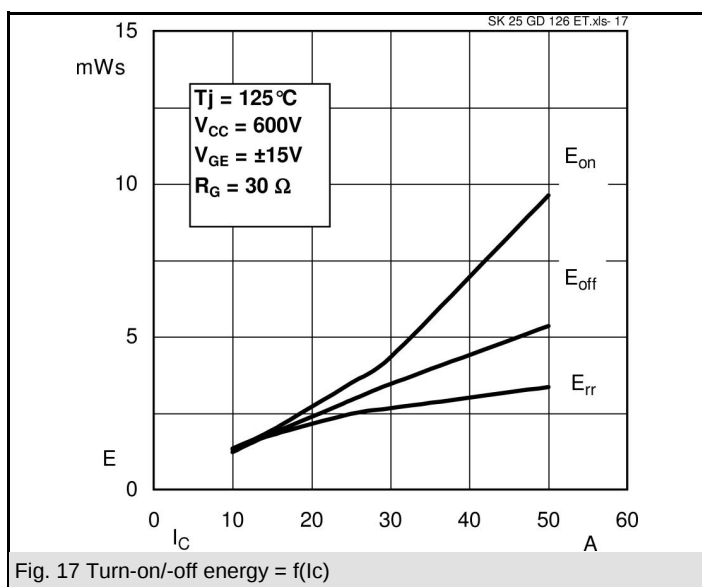
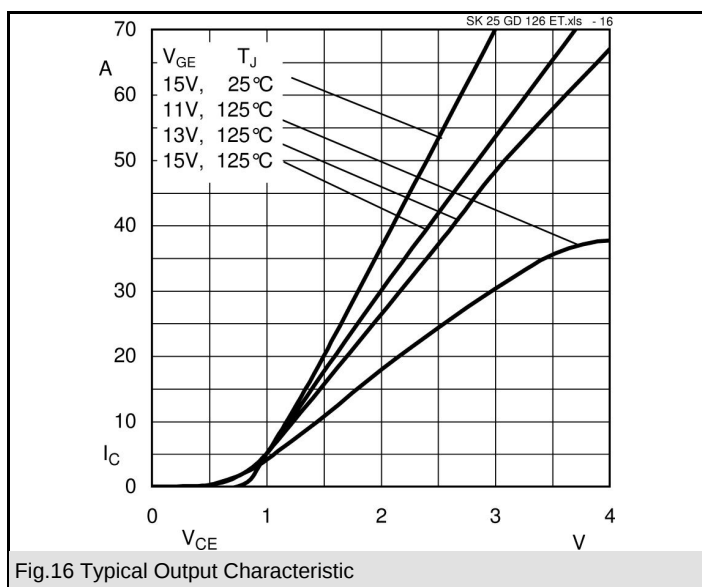
- Inverter

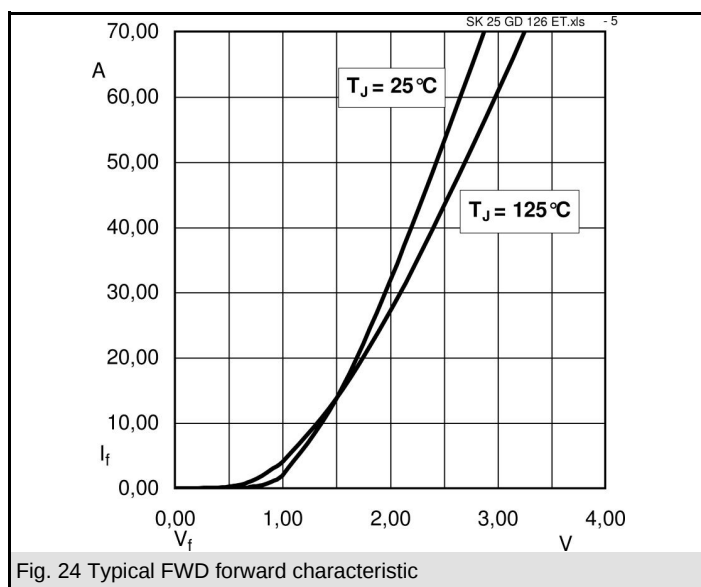
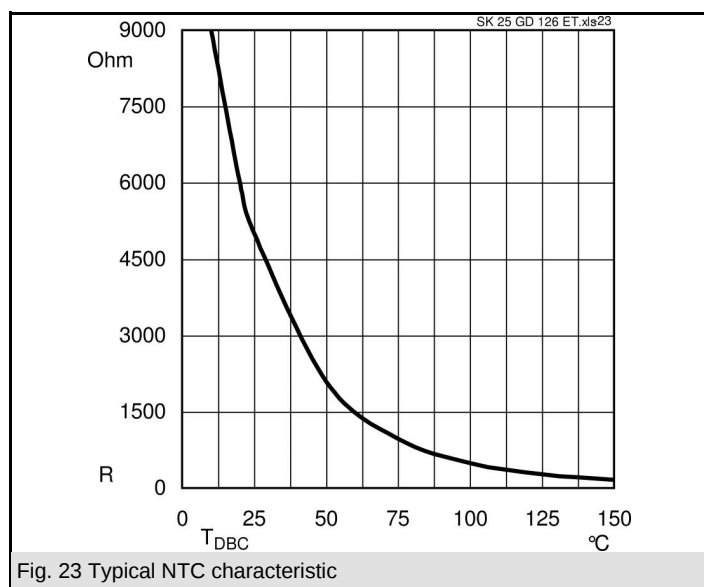
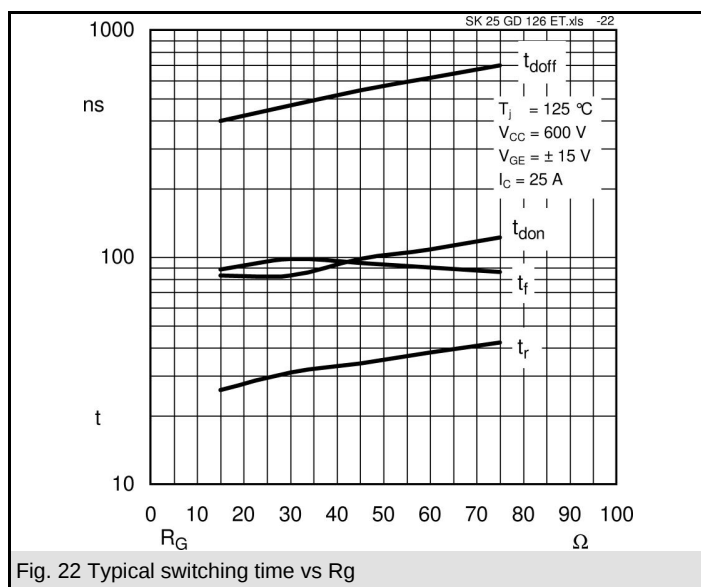
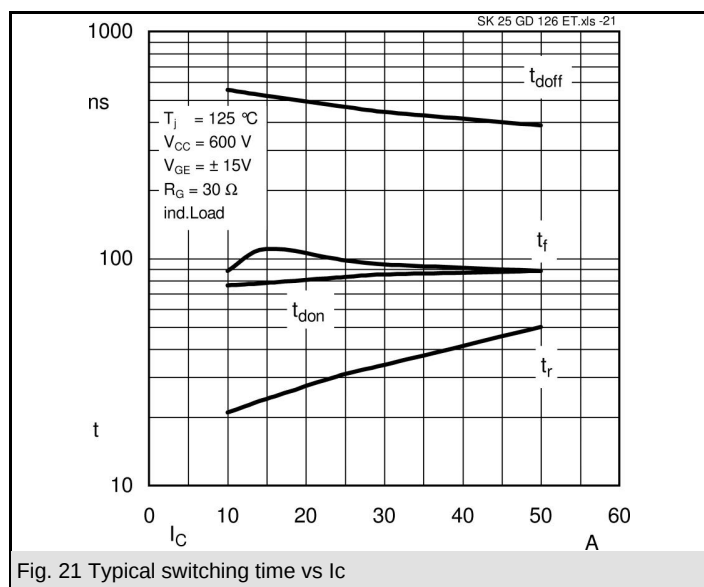


GD - ET

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter, Chopper			
V_{CES}	$T_s = 25\ (80)^\circ\text{C}$, $t_p = 1\ \text{ms}$	1200	V
I_C		32 (23)	A
I_{CRM}		64	A
V_{GES}		± 20	V
T_j		-40 ... +150	$^\circ\text{C}$
Diode - Inverter, Chopper			
I_F	$T_s = 25\ (80)^\circ\text{C}$	28 (19)	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$, $t_p = 1\ \text{ms}$	62	A
T_j		-40 ... +150	$^\circ\text{C}$
Rectifier			
V_{RRM}	$T_s = ^\circ\text{C}$ $t_p = \text{ms}$, $\sin^\circ$, $T_j = ^\circ\text{C}$ $t_p = \text{ms}$, $\sin^\circ$, $T_j = ^\circ\text{C}$		V
I_F			A
I_{FSM} / I_{TSM}			A
I_t^2			A^2s
T_j			$^\circ\text{C}$
T_{sol}	Terminals, 10s	260	$^\circ\text{C}$
T_{stg}		-40 ... +125	$^\circ\text{C}$
V_{isol}	AC, 1 min. / 1s	2500 / 3000	V

Characteristics		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter, Chopper					
V_{CEsat}	$I_C = 25\ \text{A}$, $T_j = 25\ (125)^\circ\text{C}$		1,7 (2,2)	2,1	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1\ \text{mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25^\circ\text{C}\ (125)^\circ\text{C}$		1 (0,9)	1,2	V
r_T	$T_j = 25^\circ\text{C}\ (125)^\circ\text{C}$		28 (44)	36	$\text{m}\Omega$
C_{ies}	$V_{CE} = 25\ \text{V}$, $V_{GE} = 0\ \text{V}$, $f = 1\ \text{MHz}$		1,9		nF
C_{oes}	$V_{CE} = 25\ \text{V}$, $V_{GE} = 0\ \text{V}$, $f = 1\ \text{MHz}$		0,4		nF
C_{res}	$V_{CE} = 25\ \text{V}$, $V_{GE} = 0\ \text{V}$, $f = 1\ \text{MHz}$		0,4		nF
$R_{th(j-s)}$	per IGBT			1,2	K/W
$t_{d(on)}$	under following conditions		85		ns
t_r	$V_{CC} = 600\ \text{V}$, $V_{GE} = \pm 15\ \text{V}$		30		ns
$t_{d(off)}$	$I_C = 25\ \text{A}$, $T_j = 125^\circ\text{C}$		430		ns
t_f	$R_{Gon} = R_{Goff} = 25\ \Omega$		90		ns
E_{on}	inductive load		3,3		mJ
E_{off}			3,1		mJ
Diode - Inverter, Chopper					
$V_F = V_{EC}$	$I_F = 25\ \text{A}$, $T_j = 25\ (125)^\circ\text{C}$		1,8 (1,8)		V
$V_{(TO)}$	$T_j = 25^\circ\text{C}\ (125)^\circ\text{C}$		1 (0,8)	1,1	V
r_T	$T_j = 25^\circ\text{C}\ (125)^\circ\text{C}$		32 (40)	42	$\text{m}\Omega$
$R_{th(j-s)}$	per diode			1,9	K/W
I_{RRM}	under following conditions		31		A
Q_{rr}	$I_F = 25\ \text{A}$, $V_R = 600\ \text{V}$		5		μC
E_{rr}	$V_{GE} = 0\ \text{V}$, $T_j = 125^\circ\text{C}$ $di_F/dt = 950\ \text{A}/\mu\text{s}$		2,1		mJ
Diode rectifier					
V_F	$I_F = \text{A}$, $T_j = 25^\circ\text{C}$				V
$V_{(TO)}$	$T_j = ^\circ\text{C}$				V
r_T	$T_j = ^\circ\text{C}$				$\text{m}\Omega$
$R_{th(j-s)}$	per diode				K/W
Temperatur sensor					
R_{ts}	5 %, $T_r = 25\ (100)^\circ\text{C}$		5000(493)		Ω
Mechanical data					
w			30		g
M_s	Mounting torque			2,5	Nm

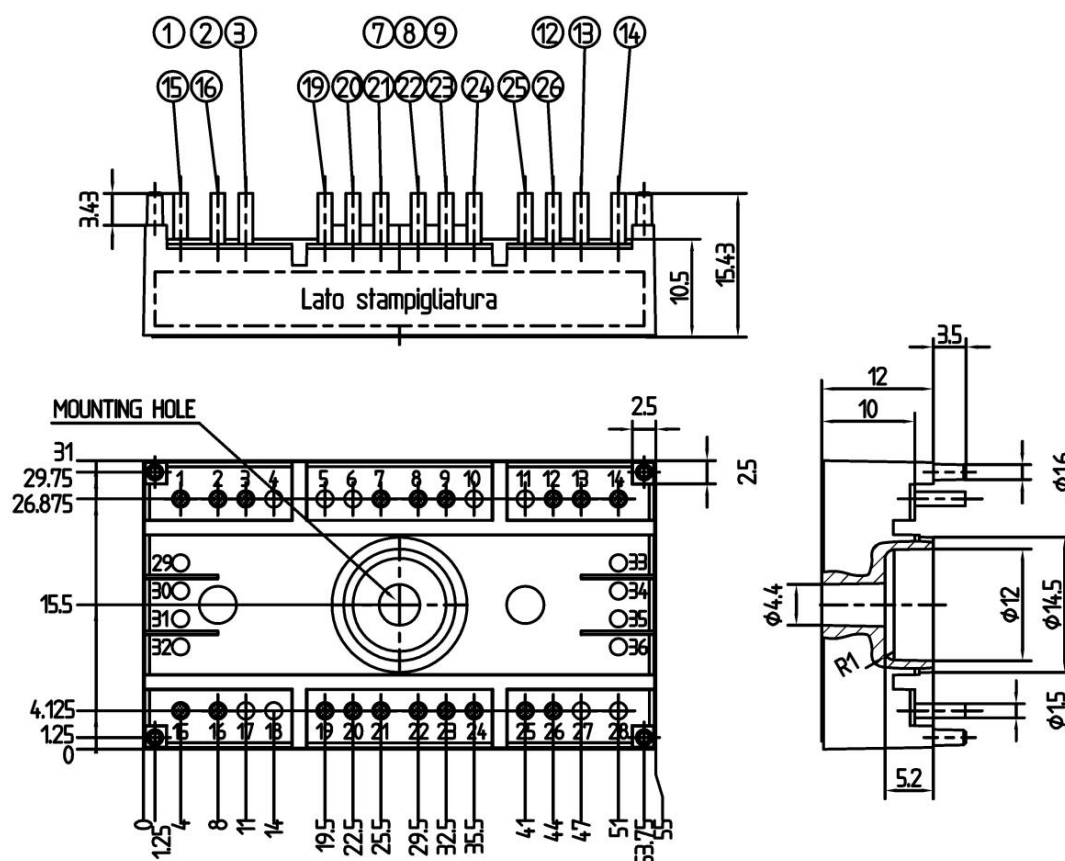




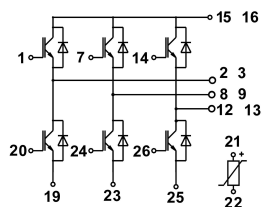
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UL Recognized
File no. E63 532

Dimensions in mm



Case T 52 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 52

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

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