

SEMITOP® 3

IGBT Module

SK50GD066ET

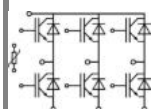
Target Data

Features

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

Typical Applications*

- Inverter up to 12,5 kVA
- Typ. motor power 5,5 kW

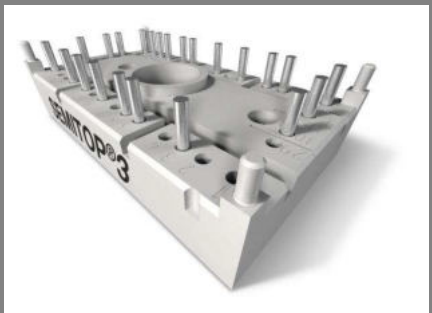


GD-ET

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V _{CES}	T _J = 25 °C	600	V	
I _C	T _J = 175 °C	T _s = 25 °C	60	A
		T _s = 70 °C	50	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}	100	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 360 V; V _{GE} ≤ 20 V; T _J = 150 °C V _{CES} < 600 V	6	µs	
Inverse Diode				
I _F	T _J = 175 °C	T _s = 25 °C	56	A
		T _s = 70 °C	44	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}	60	A	
I _{FSM}	t _p = 10 ms; half sine wave T _J = 150 °C	320	A	
Module				
I _{t(RMS)}			A	
T _{vj}		-40 ... +175	°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 = 0,8 mA		5	5,8	6,5	V	
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES}	T _J = 25 °C				mA	
		T _J = 150 °C				mA	
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V	T _J = 25 °C	600			nA	
		T _J = 150 °C				nA	
V _{CE0}		T _J = 25 °C	0,9			1,1	V
		T _J = 150 °C				0,8	1
r _{CE}	V _{GE} = 15 V	T _J = 25°C	11			15	mΩ
		T _J = 150°C				17	21
V _{CE(sat)}	I _{Cnom} = 50 A, V _{GE} = 15 V	T _J = 25°C _{chiplev.}	1,45			1,85	V
		T _J = 150°C _{chiplev.}				1,65	2,05
C _{ies}	V _{CE} = 25, V _{GE} = 0 V	f = 1 MHz	3,1				nF
C _{oes}						0,2	nF
C _{res}						0,093	nF
Q _G	V _{GE} = -7V...+15V		250				nC
t _{d(on)}	R _{Gon} = 16 Ω di/dt = 2438 A/μs	V _{CC} = 300V I _C = 50A T _J = 150 °C V _{GE} = -7/+15V	28				ns
t _r			32				ns
E _{on}			2,2				mJ
t _{d(off)}	301				ns		
t _f	45				ns		
E _{off}	1,73				mJ		
R _{th(j-s)}	per IGBT		1,11				K/W

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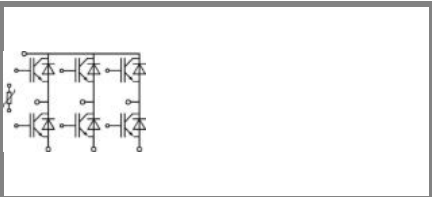
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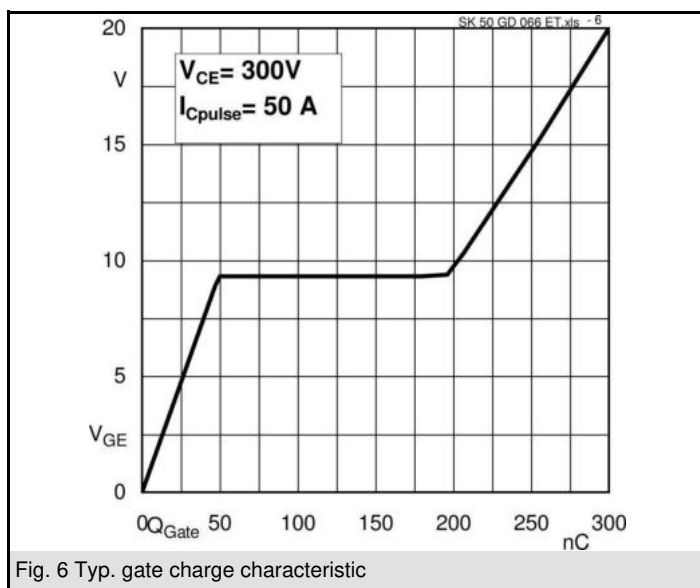
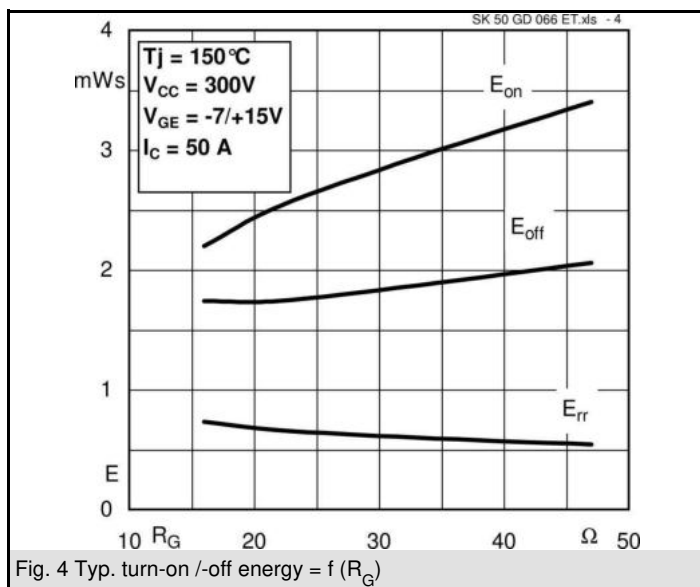
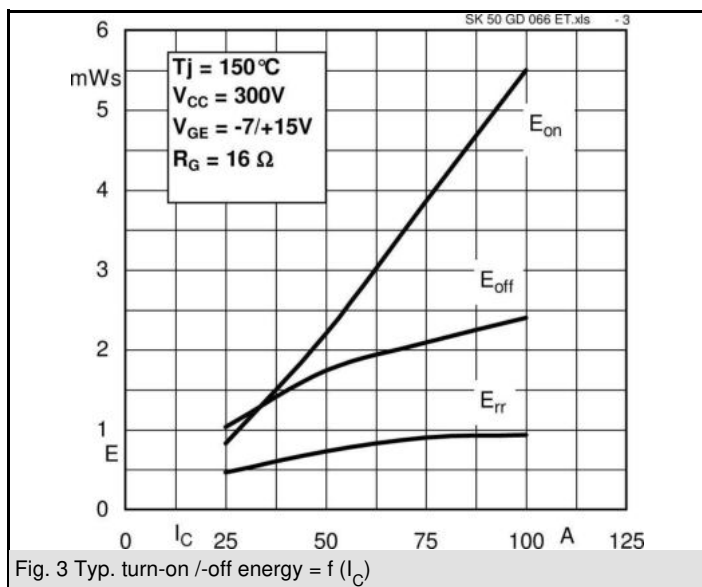
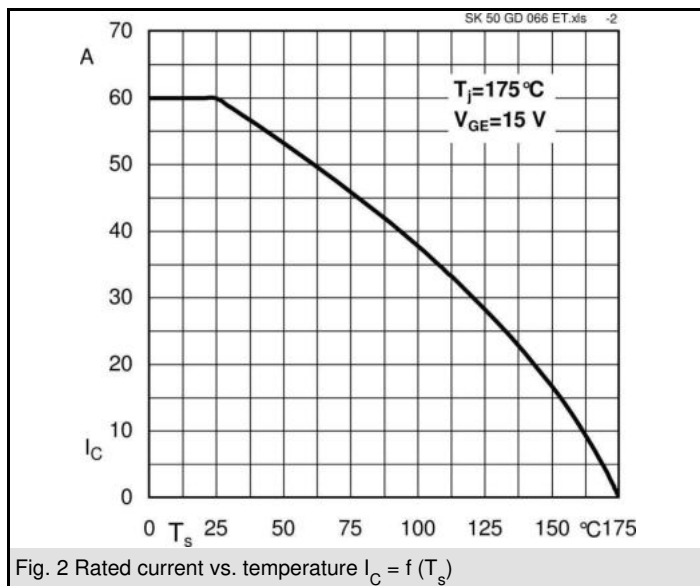
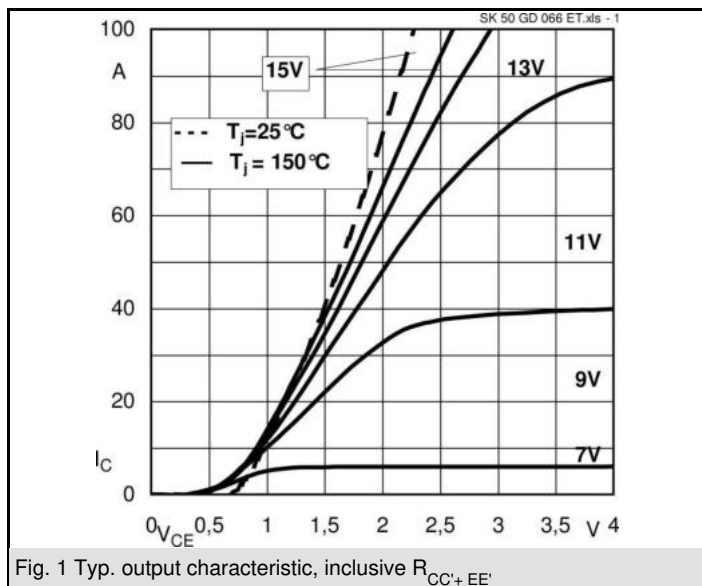


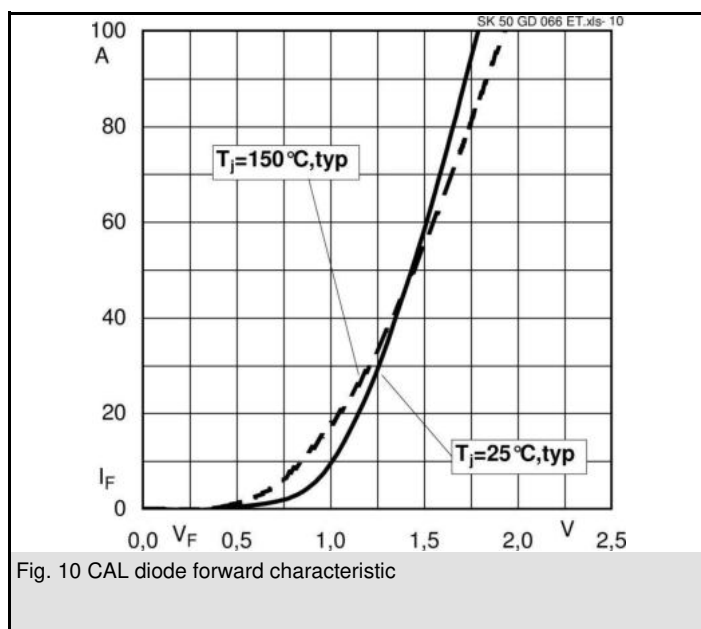
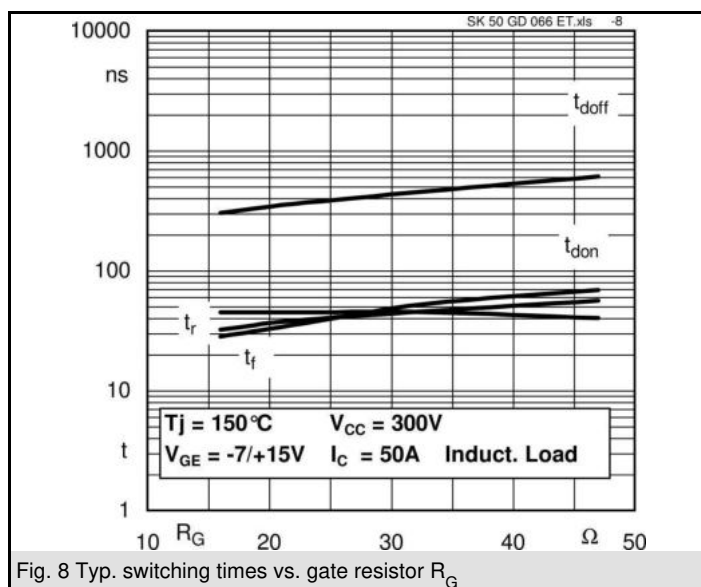
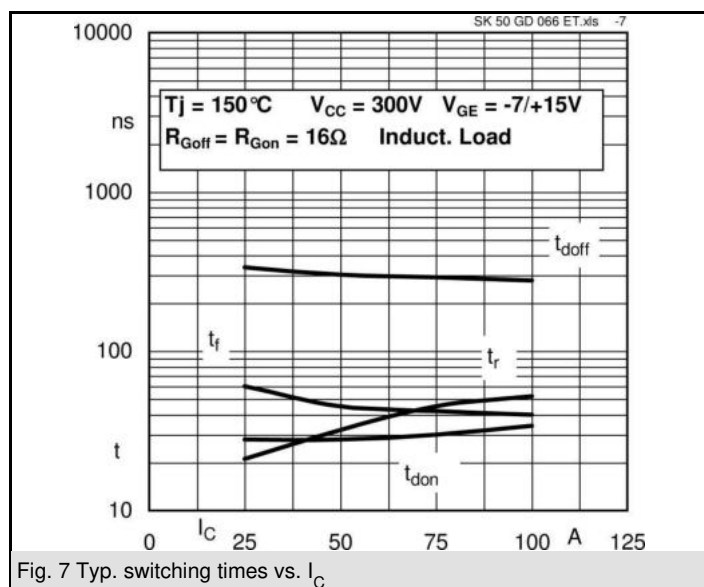
GD-ET

Characteristics		min.	typ.	max.	Units
Symbol	Conditions				
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50\text{ A}; V_{GE} = 0\text{ V}$				
	$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$		1,5		V
	$T_j = 150\text{ }^{\circ}\text{C}_{chiplev.}$		1,5		V
V_{F0}					
	$T_j = 25\text{ }^{\circ}\text{C}$		1	1,1	V
	$T_j = 150\text{ }^{\circ}\text{C}$		0,9	1	V
r_F					
	$T_j = 25\text{ }^{\circ}\text{C}$		10	12	mΩ
	$T_j = 150\text{ }^{\circ}\text{C}$		12	14	mΩ
I_{RRM}	$I_F = 50\text{ A}$		44		A
Q_{rr}	$di/dt = 2438\text{ A}/\mu\text{s}$		4,8		μC
E_{rr}	$V_{CC} = 300\text{ V}$		0,72		mJ
$R_{th(j-s)D}$	per diode		1,7		K/W
M_s	to heat sink	2,25		2,5	Nm
w			30		g
Temperature sensor					
R_{100}	$T_s = 100^{\circ}\text{C}$ ($R_{25} = 5\text{ k}\Omega$)		493±5%		Ω

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

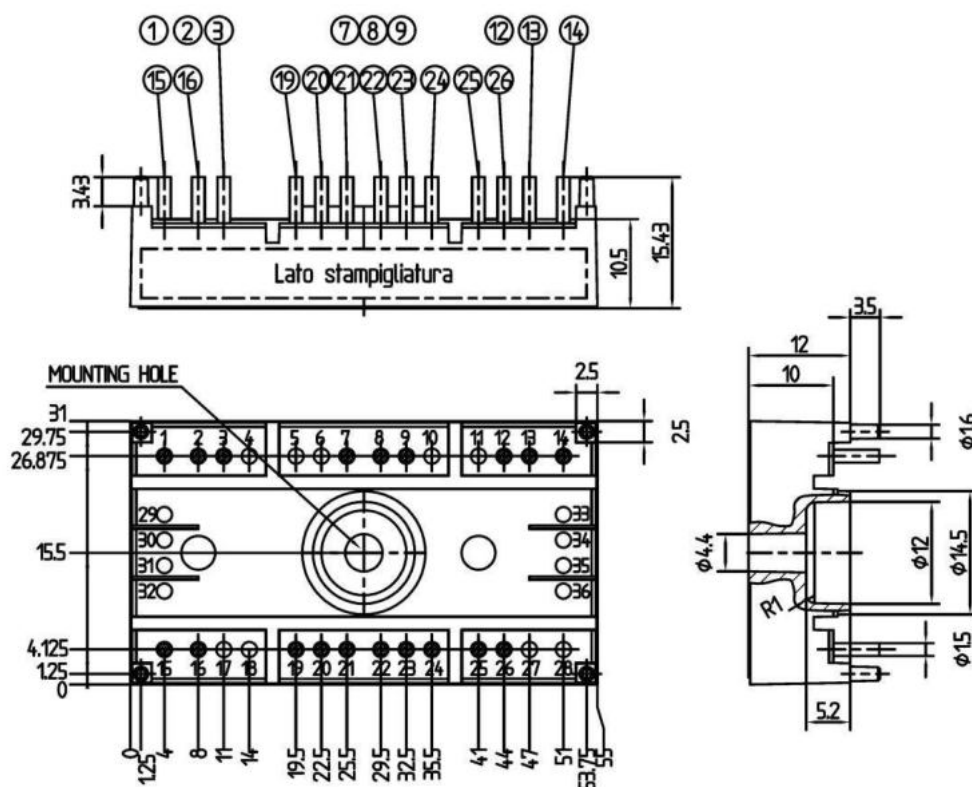
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



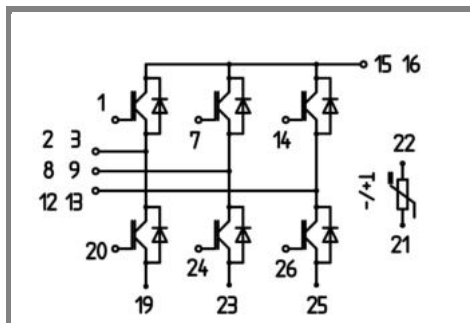


UL recognized

file no. E63 532



Case T52 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 52

GD-ET