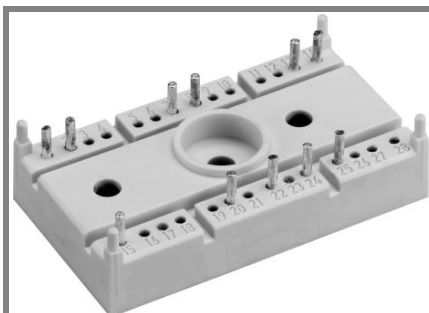


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SEMITOP® 3

IGBT Module

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Preliminary Data

Features

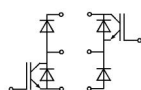
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- High short circuit capability
- Low tail current with low temperature dependence

Typical Applications

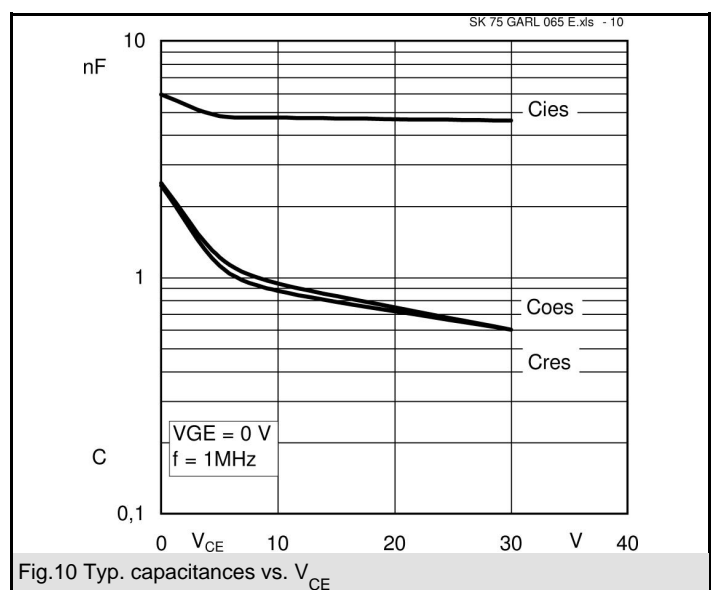
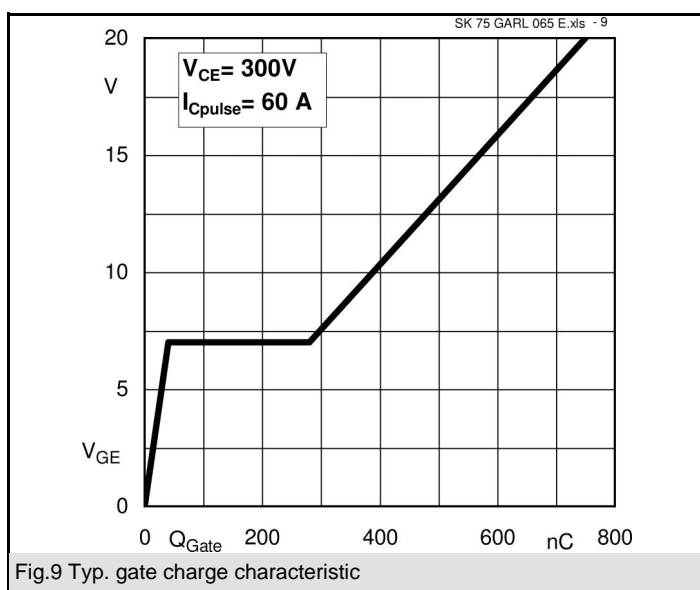
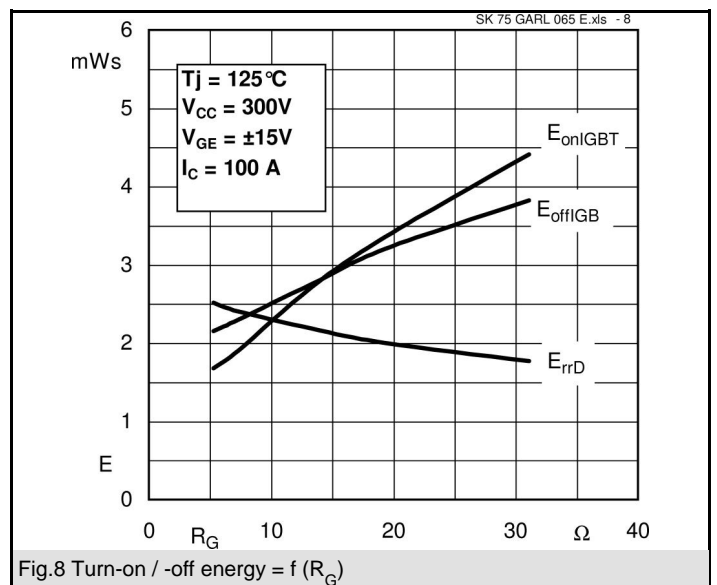
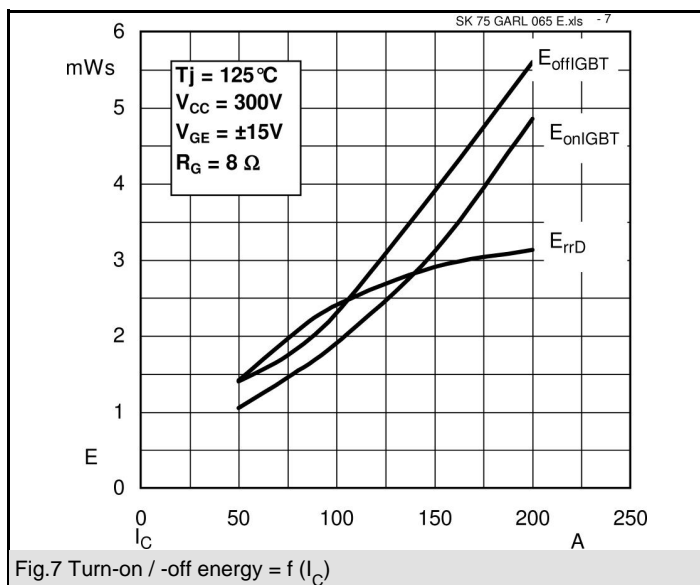
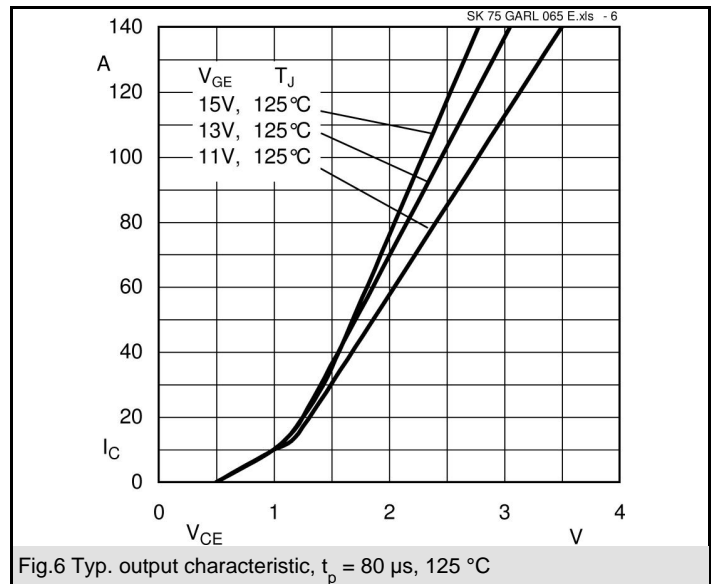
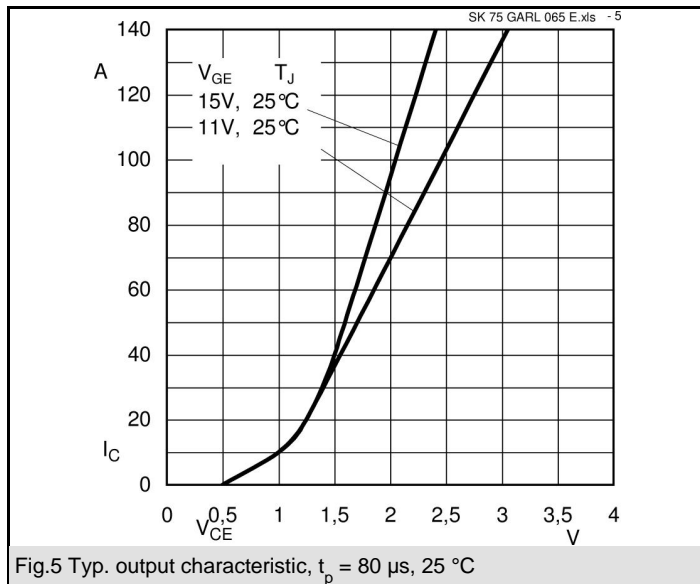
- Switching (not for linear use)
- Switched mode power supplies
- UPS
- Double PFC
- Multilevel Inverter

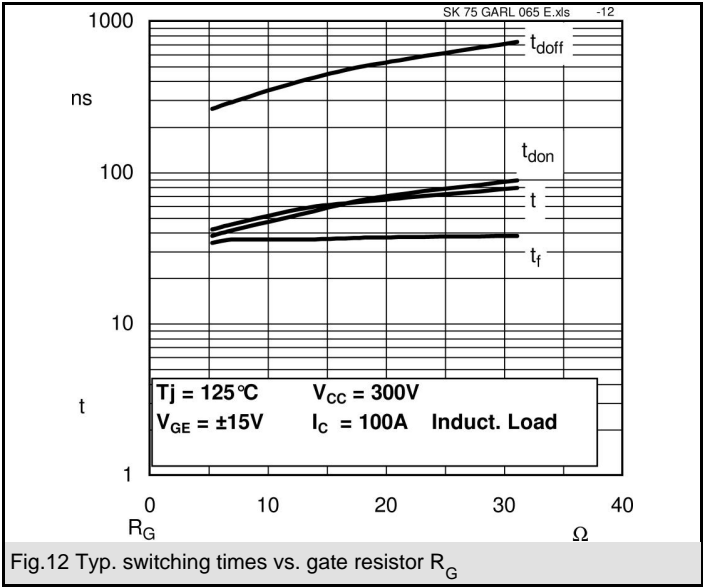
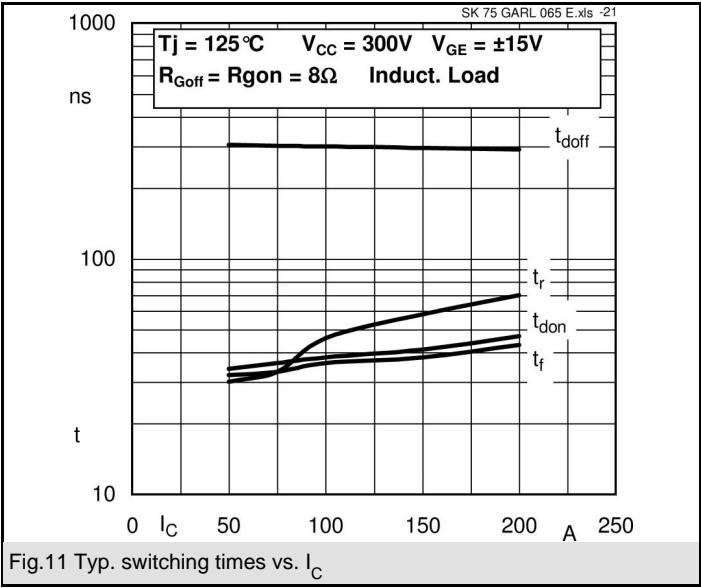
Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		600	V
V_{GES}		± 20	V
I_C	$T_s = 25\text{ (80) °C}$;	80 (55)	A
I_{CM}	$t_p < 1\text{ ms}$; $T_s = 25\text{ (80) °C}$;	160 (110)	A
T_j		- 40 ... + 150	°C
Freewheeling CAL diode			
I_F	$T_s = 25\text{ (80) °C}$;	103 (69)	A
$I_{FM} = -I_{CM}$	$t_p < 1\text{ ms}$; $T_s = 25\text{ (80) °C}$;	206 (138)	A
T_j		- 40 ... + 150	°C
T_{stg}		- 40 ... + 125	°C
T_{sol}	Terminals, 10 s	260	°C
V_{isol}	AC 50 Hz, r.m.s. 1 min. / 1 s	2500 / 3000	V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{CE(sat)}$	$I_C = 60\text{ A}$, $T_j = 25\text{ (125) °C}$		1,8 (1,9)		V
$V_{GE(th)}$	$V_{CE} = V_{GE}$; $I_C = 0,0021\text{ A}$	4,5	5,5	6,5	V
C_{res}	$V_{CE} = 25\text{ V}$; $V_{GE} = 0\text{ V}$; 1 MHz		4,5		nF
$R_{th(j-s)}$	per IGBT per module			0,6	K/W K/W
$t_{d(on)}$	under following conditions: $V_{CC} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$		54		ns
t_r	$I_C = 100\text{ A}$, $T_j = 125\text{ °C}$		58		ns
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 13\text{ }\Omega$		410		ns
t_f			36		ns
$E_{on} + E_{off}$	Inductive load		5,45		mJ
Freewheeling CAL diode					
$V_F = V_{EC}$	$I_F = 60\text{ A}$; $T_j = 25\text{ (125) °C}$		1,45 (1,4)		V
$V_{(TO)}$	$T_j = 125\text{ °C}$		0,9		V
r_T	$T_j = 125\text{ () °C}$		5	9	mΩ
$R_{th(j-s)}$				0,6	K/W
I_{RRM}	under following conditions: $I_F = 100\text{ A}$; $V_R = 300\text{ V}$		92		A
Q_{rr}	$di_F/dt = -9200\text{ A/}\mu\text{s}$		9,1		μC
E_{off}	$V_{GE} = 0\text{ V}$; $T_j = 125\text{ °C}$		1,85		mJ
Mechanical data					
M1	mounting torque			2,5	Nm
w			30		g
Case	SEMITOP® 3		T55		

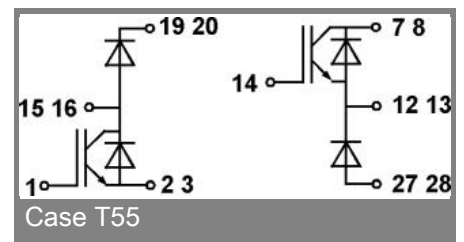
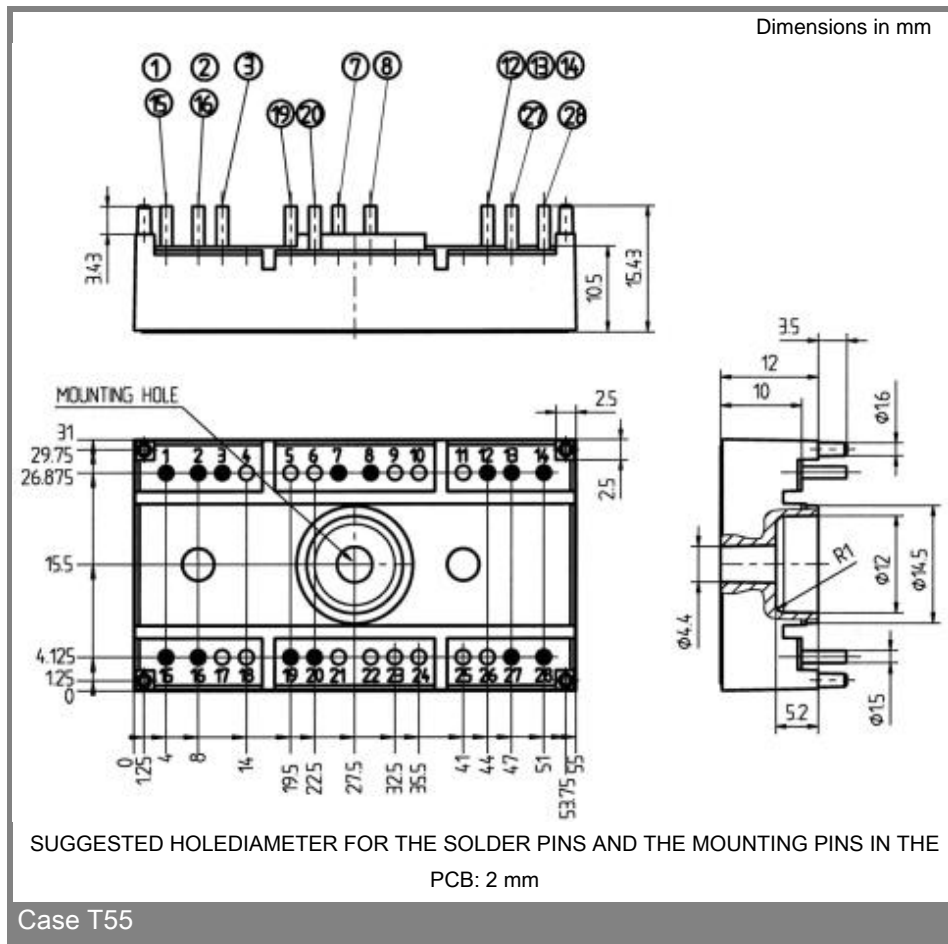


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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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