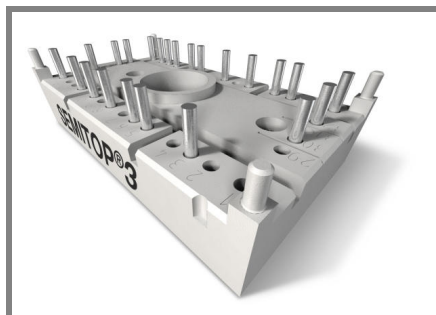




SEMITOP® 3

IGBT Module

SK75GARL065E

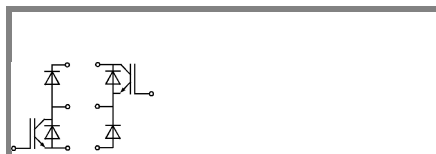
Preliminary Data

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

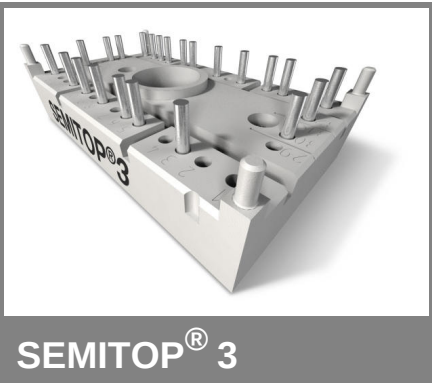


GARL-E

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 = 125 °C	T _s = 25 °C	80	A
		T _s = 80 °C	55	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}		180	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 300 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 600 V		10	μs
Inverse Diode				
I _F	T _j = 150 °C	T _s = 25 °C	57	A
		T _s = 80 °C	38	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}			A
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C		440	A
Freewheeling Diode				
I _F	T _j = 150 °C	T _{case} = 25 °C	103	A
		T _{case} = 80 °C	69	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}			A
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C		880	A
Module				
I _{t(RMS)}				A
T _{vj}			-40 ... +150	°C
T _{stg}			-40 ... +125	°C
V _{isol}	AC, 1 min.		2500	V

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 2,1\text{ mA}$	3	4	5	V
I_{CES}	$V_{GE} = 600\text{ V}$, $V_{CE} = V_{CES}$ $T_j = 25\text{ °C}$			0,0066	mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$ $T_j = 25\text{ °C}$			360	nA
V_{CE0}				$T_j = 25\text{ °C}$	1,2
				$T_j = 125\text{ °C}$	1,1
r_{CE}	$V_{GE} = 15\text{ V}$			$T_j = 25\text{ °C}$	7,7
				$T_j = 125\text{ °C}$	14
$V_{CE(sat)}$	$I_{Cnom} = 90\text{ A}$, $V_{GE} = 15\text{ V}$			$T_j = 25\text{ °C}_{chiplev.}$	1,7
				$T_j = 125\text{ °C}_{chiplev.}$	2,2
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$ $f = 1\text{ MHz}$		4,8		nF
C_{oes}			0,45		nF
C_{res}			0,27		nF
Q_G	$V_{GE} = 0 \dots 20\text{ V}$		750		nC
$t_{d(on)}$	$R_{Gon} = 13\text{ }\Omega$	$V_{CC} = 300\text{ V}$ $I_C = 100\text{ A}$	54		ns
t_r			58		ns
E_{on}	$R_{Goff} = 13\text{ }\Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	2,71		mJ
$t_{d(off)}$			410		ns
t_f			36		ns
E_{off}			2,75		mJ
$R_{th(j-s)}$	per IGBT			0,6	K/W

SK75GARL065E



IGBT Module

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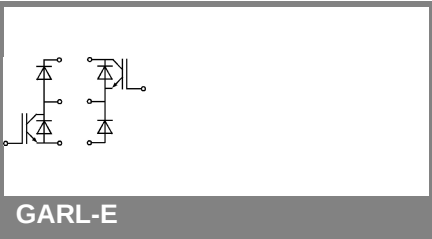
Preliminary Data

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

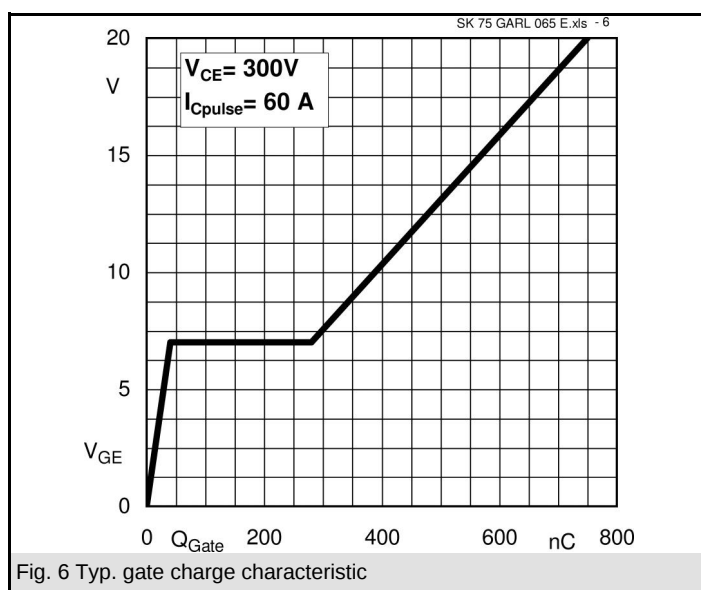
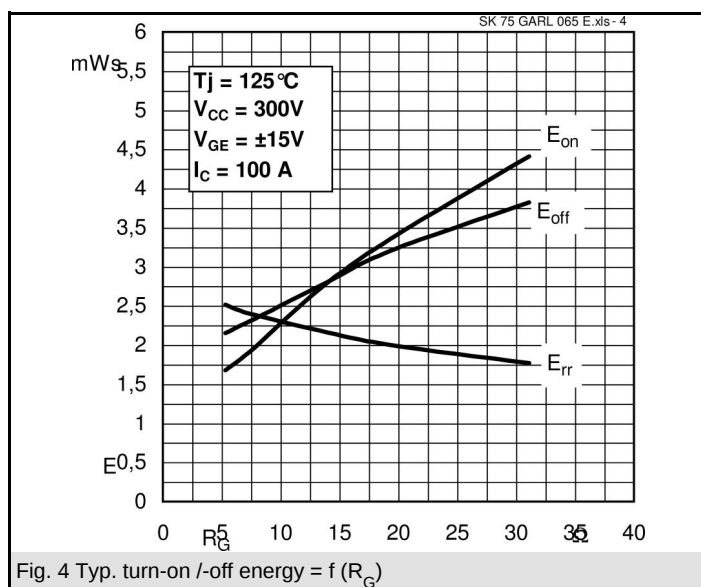
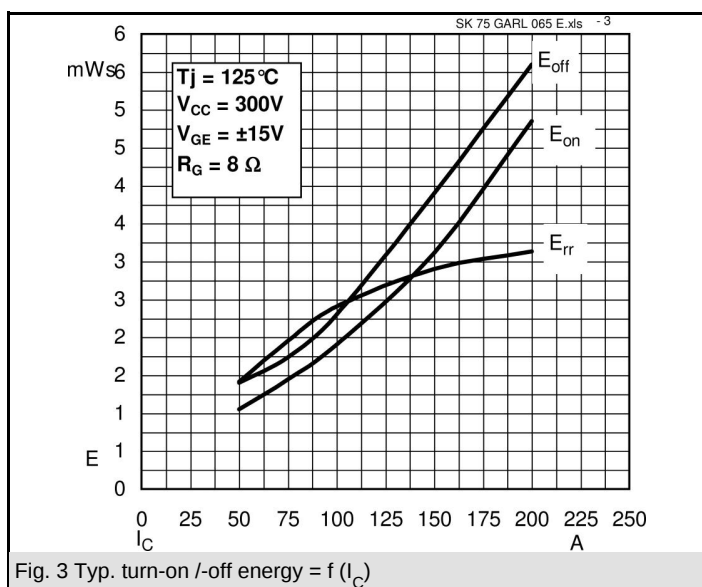
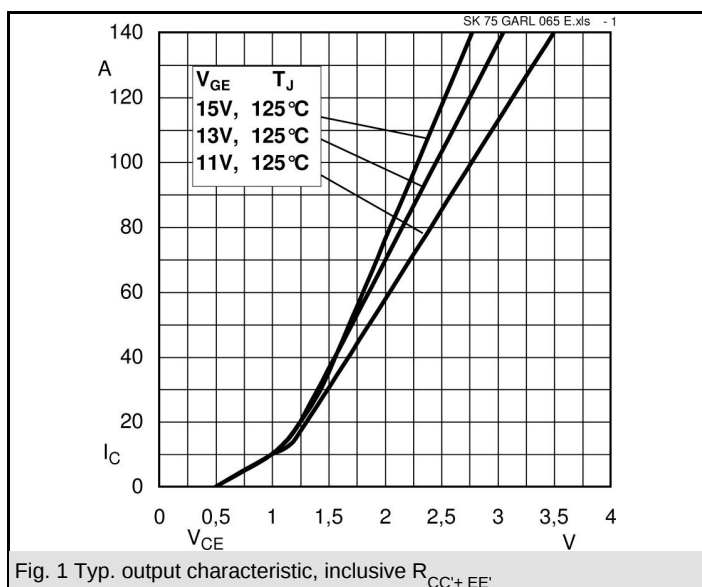
- Switching (not for linear use)
- Switched mode power supplies
- UPS
- Double PFC
- Multilevel inverter

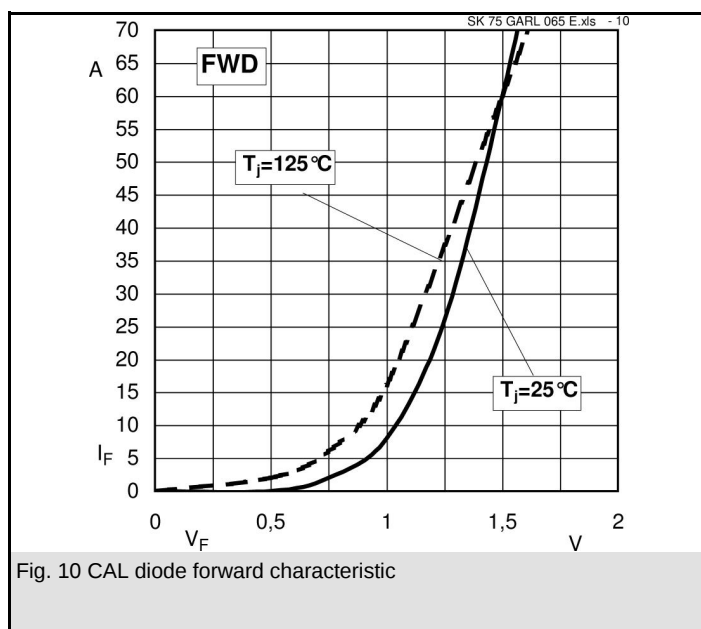
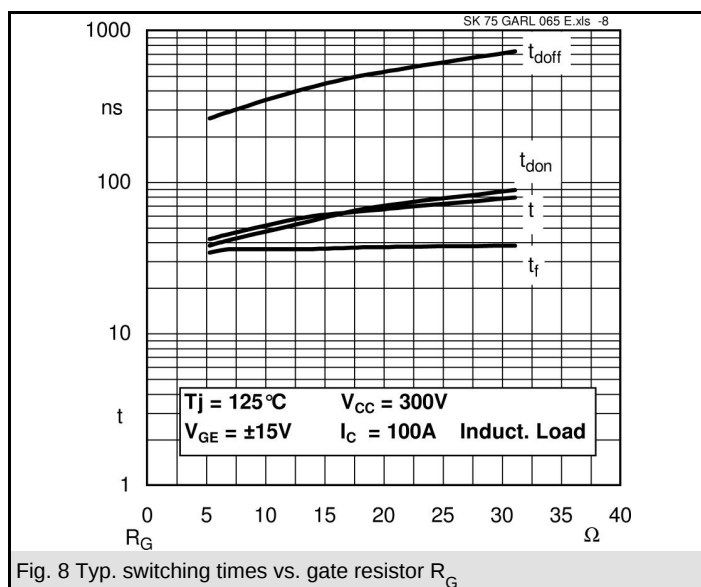
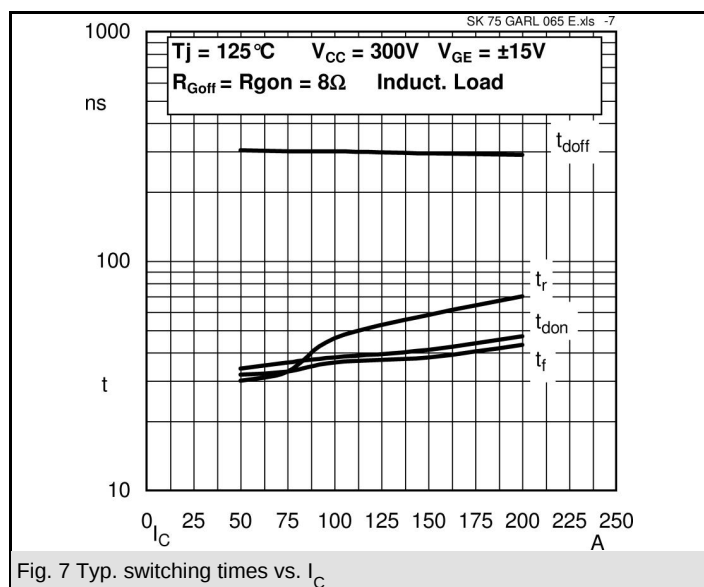


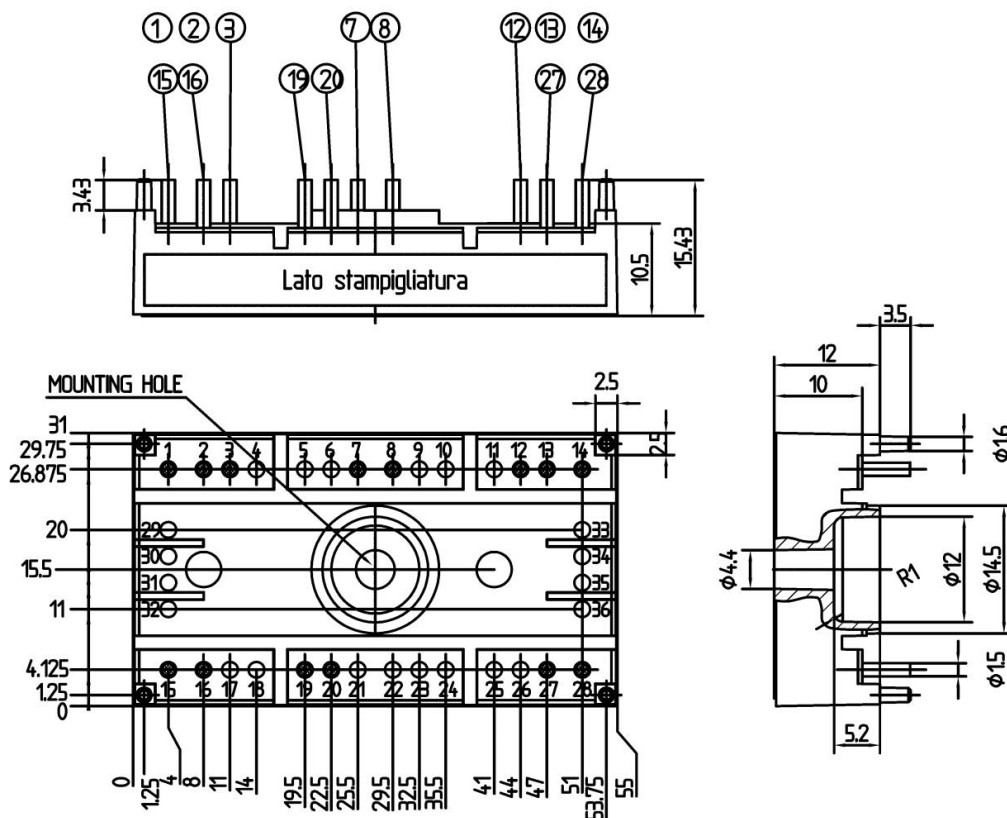
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 30\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$	1,3	V
			$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$	1,2	V
V_{F0}			$T_j = 125\text{ }^{\circ}\text{C}$	0,85	V
r_F			$T_j = 125\text{ }^{\circ}\text{C}$	9	mΩ
I_{RRM}	$I_F = 30\text{ A}$		$T_j = 125\text{ }^{\circ}\text{C}$	22	A
Q_{rr}	$di/dt = -500\text{ A/}\mu\text{s}$			2,2	μC
E_{rr}	$V_{CC}=300\text{ V}$			0,2	mJ
$R_{th(j-s)D}$	per diode			1,2	K/W
Freewheeling diode					
$V_F = V_{EC}$	$I_{Fnom} = 60\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$	1,45	V
			$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$	1,4	V
V_{F0}			$T_j = 125\text{ }^{\circ}\text{C}$	0,85	V
r_F			$T_j = 125\text{ }^{\circ}\text{C}$	5	V
I_{RRM}	$I_F = 100\text{ A}$		$T_j = 125\text{ }^{\circ}\text{C}$	92	A
Q_{rr}	$di/dt = -9200\text{ A/}\mu\text{s}$			39,1	μC
E_{rr}	$V_R=300\text{ V}$			1,85	mJ
$R_{th(j-s)D}$	per diode			0,6	K/W
M_s	to heat sink	2,25		2,5	Nm
w			30		g

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

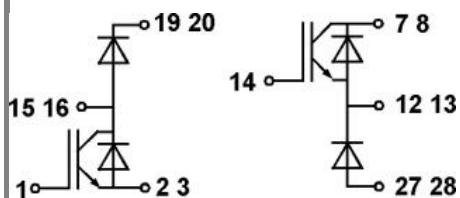
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Case T55 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T55

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