



SEMITOP[®] 2

IGBT Module

SK30GB128

SK30GAL128

SK30GAR128

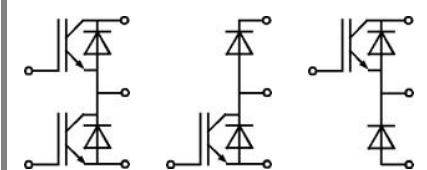
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- High short circuit capability
- SPT= Soft Punch Through technology
- $V_{ce,sat}$ with positive coefficient

Typical Applications

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



GB

GAL

GAR

Absolute Maximum Ratings				$T_s = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions			Values	Units
IGBT					
V_{CES}	$T_j = 25\text{ °C}$			1200	V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$		35	A
		$T_s = 80\text{ °C}$		25	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$			50	A
V_{GES}				± 20	V
t_{psc}	$V_{CC} = 600\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 125\text{ °C}$ $V_{CES} < 1200\text{ V}$			10	μs
Inverse Diode					
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$		37	A
		$T_s = 80\text{ °C}$		25	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$				A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			350	A
Freewheeling Diode					
I_F	$T_j = 150\text{ °C}$	$T_{case} = 25\text{ °C}$		37	A
		$T_{case} = 80\text{ °C}$		25	A
I_{FRM}					A
I_{FSM}	$t_p = 10\text{ ms}$; half sine wave $T_j = 150\text{ °C}$			350	A
Module					
$I_{t(RMS)}$					A
T_{vj}				-40 ... +150	$^{\circ}\text{C}$
T_{stg}				-40 ... +125	$^{\circ}\text{C}$
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 = 1 mA		4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _J = 25 °C T _J = 125 °C			0,1	0,1	mA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = 20 V T _J = 25 °C T _J = 125 °C				200	nA nA
V _{CE0}	T _J = 25 °C T _J = 125 °C			1,1 1		V V
r _{CE}	V _{GE} = 15 V T _J = 25°C T _J = 125°C			36 48		mΩ mΩ
V _{CE(sat)}	I _{Cnom} = 25 A, V _{GE} = 15 V T _J = 25°C _{chiplev.} T _J = 125°C _{chiplev.}		1,7	2 2,2	2,3 3,7	V V
C _{ies} C _{oes} C _{res}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz			1,9 0,16 0,09		nF nF nF
t _{d(on)} t _r E _{on}	R _{Gon} = 15 Ω	V _{CC} = 600V I _C = 30A		55 26 2,8		ns ns mJ
t _{d(off)} t _f E _{off}	R _{Goff} = 15 Ω	T _J = 125 °C V _{GE} =±15V		284 40 2,19		ns ns mJ
R _{th(j-s)}	per IGBT				1	K/W



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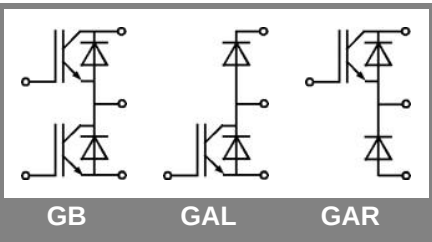
Preliminary Data

Features

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- SPT= Soft Punch Through technology
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Typical Applications

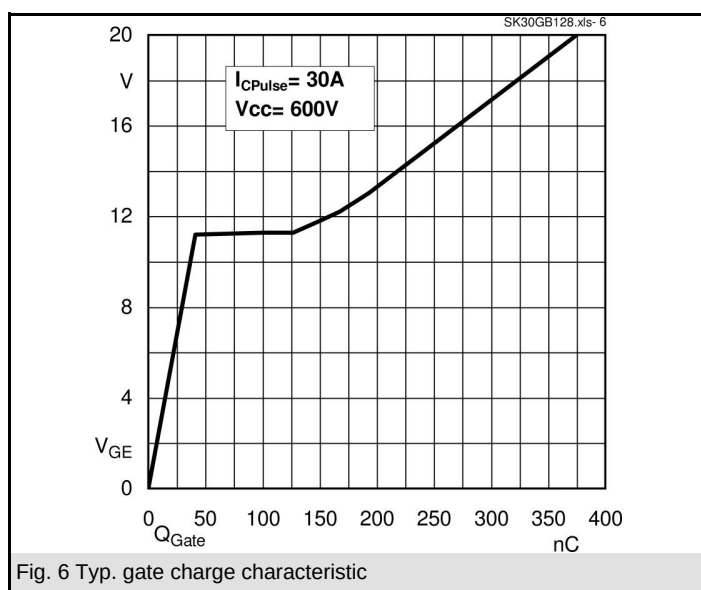
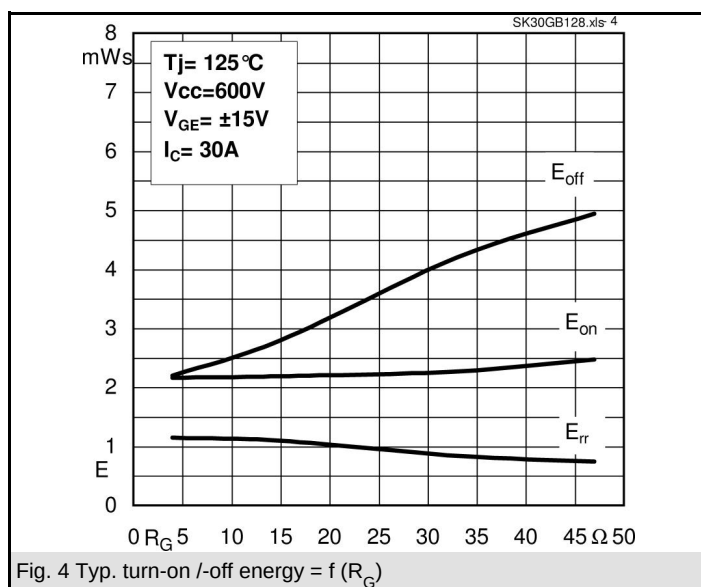
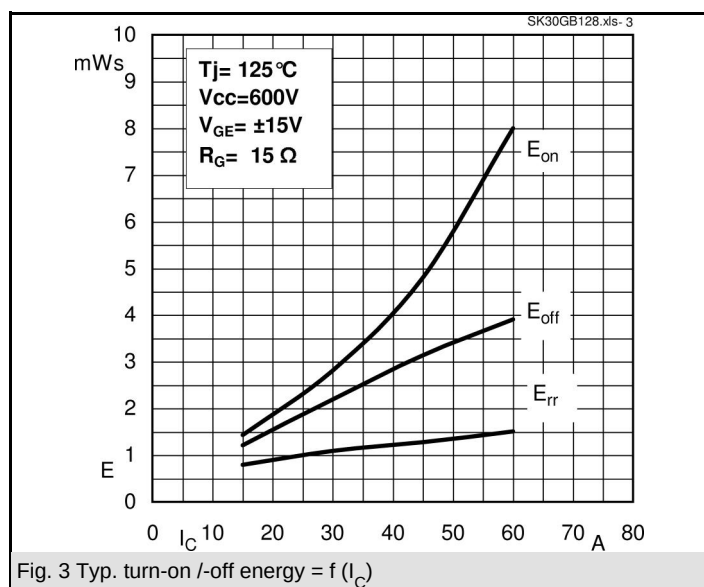
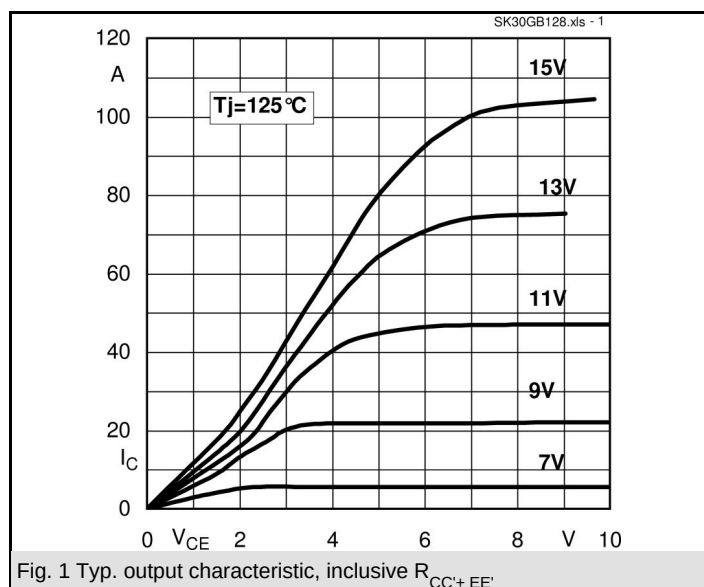
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS

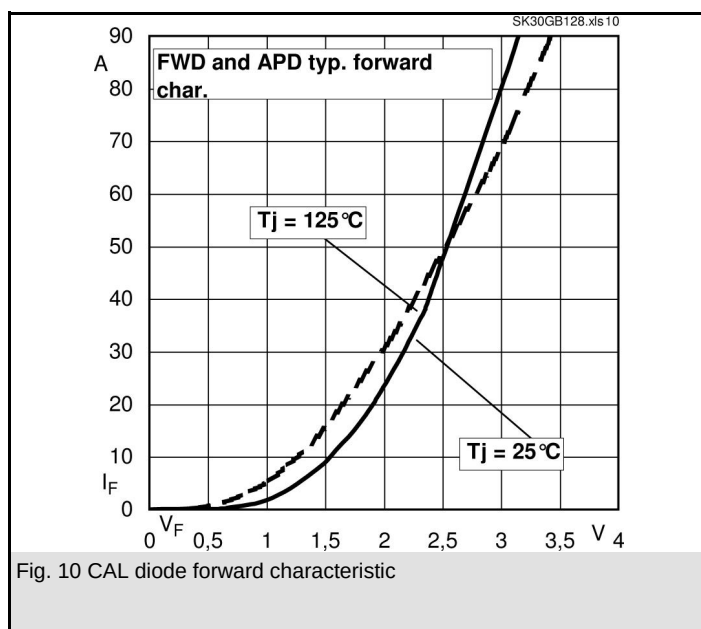
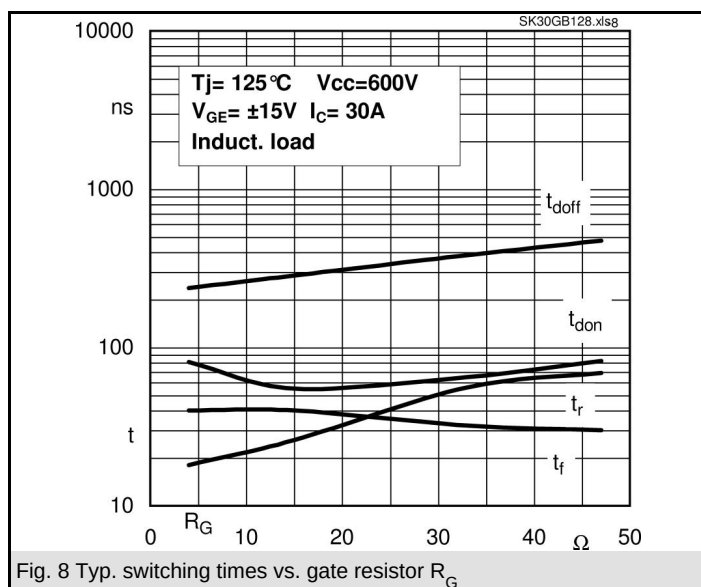
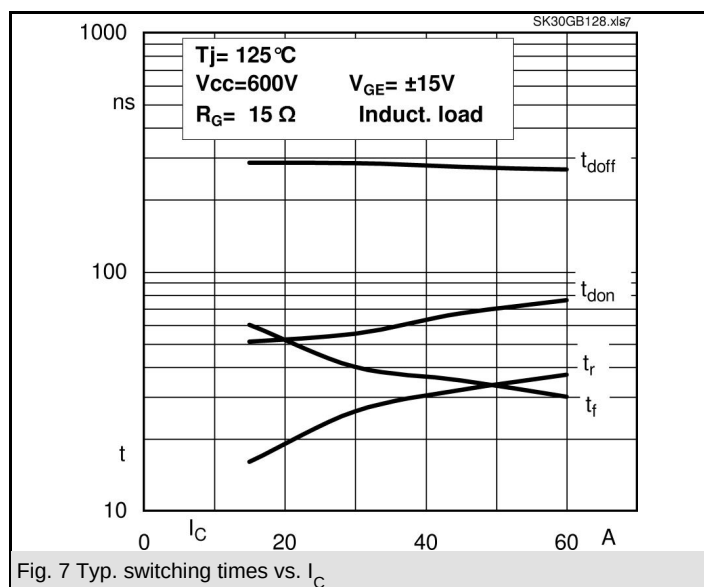


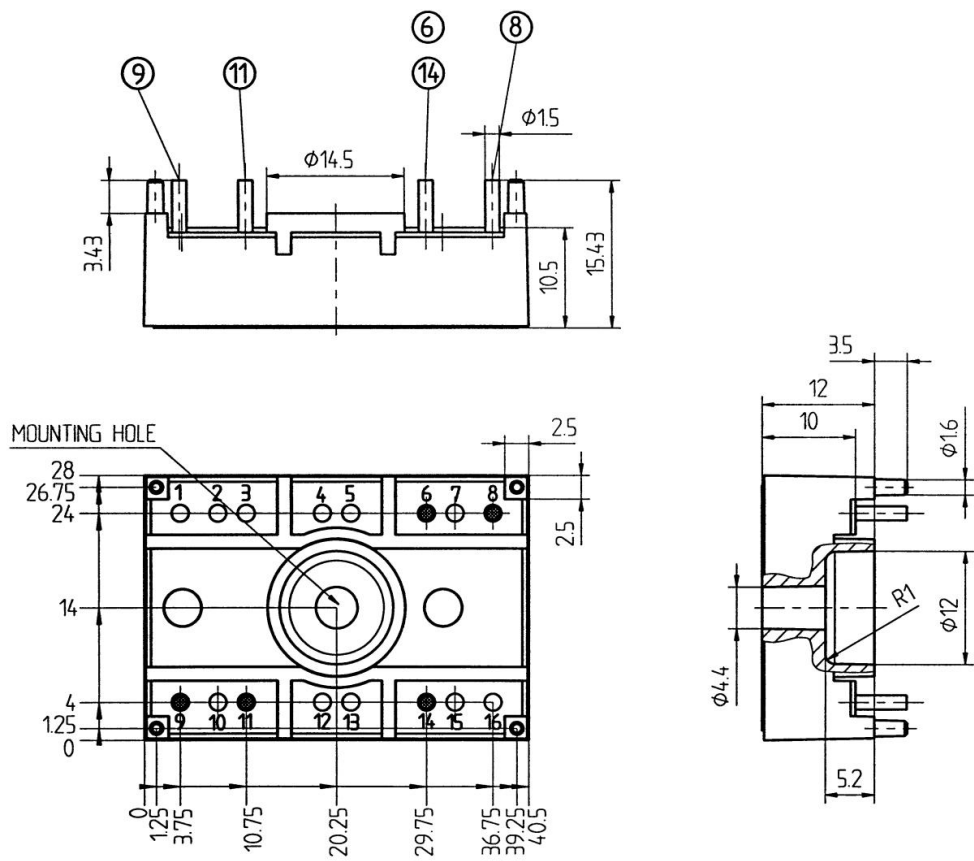
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 25\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$	2	V
			$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$	1,8	V
V_{F0}			$T_j = 125\text{ }^{\circ}\text{C}$	1	V
r_F			$T_j = 125\text{ }^{\circ}\text{C}$	32	mΩ
I_{RRM}	$I_F = 22\text{ A}$ $di/dt = -500\text{ A/}\mu\text{s}$ $V_{CC} = 600\text{ V}$		$T_j = 125\text{ }^{\circ}\text{C}$	25	A
Q_{rr}				4,5	μC
E_{rr}				1	mJ
$R_{th(j-s)D}$	per diode			1,2	K/W
Freewheeling Diode					
$V_F = V_{EC}$	$I_{Fnom} = 25\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$	2	V
			$T_j = 125\text{ }^{\circ}\text{C}_{chiplev.}$	1,8	V
V_{F0}			$T_j = 125\text{ }^{\circ}\text{C}$	1	V
r_F			$T_j = 125\text{ }^{\circ}\text{C}$	32	V
I_{RRM}	$I_F = 22\text{ A}$ $di/dt = -500\text{ A/}\mu\text{s}$ $V_R = 600\text{ V}$		$T_j = 125\text{ }^{\circ}\text{C}$	253	A
Q_{rr}				4,5	μC
E_{rr}				1	mJ
	per diode			1,2	K/W
M_s	to heat sink M1			2	Nm
w				19	g

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

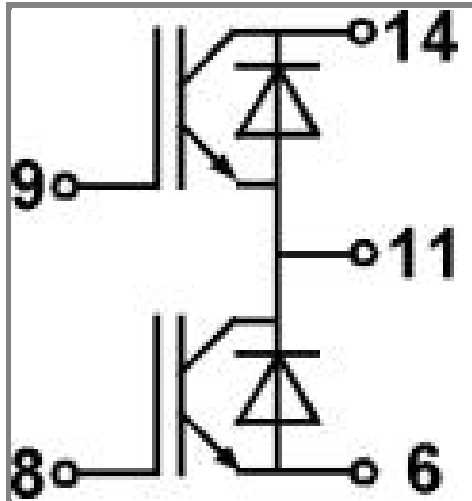
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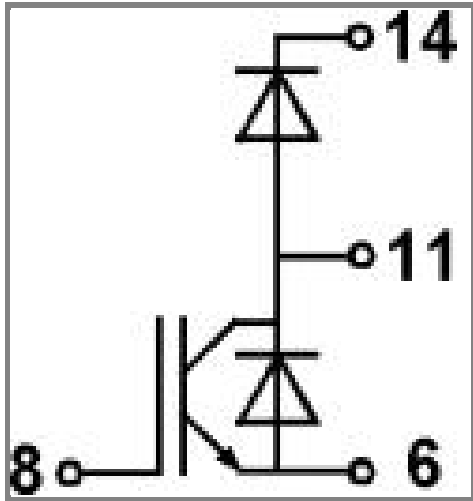


Case T8 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



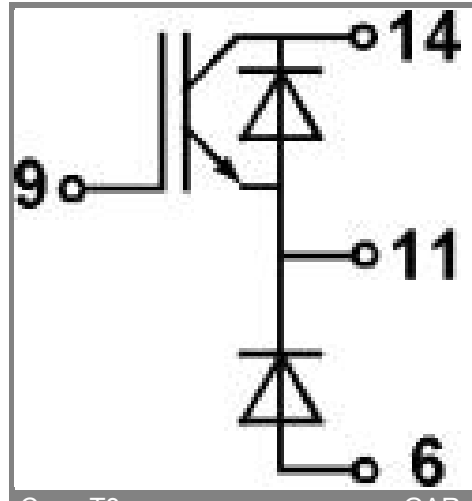
Case T8

GB



Case T8

GAL



Case T8

GAR