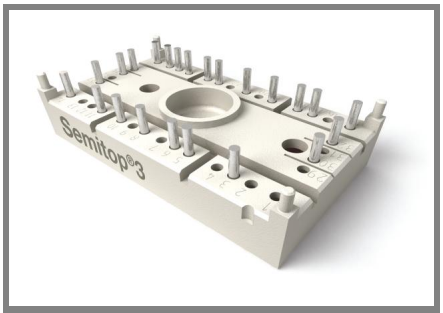
SK30GAD066T



SEMITOP® 3

IGBT Module

SK30GAD066T

Target Data

Features

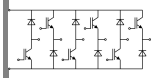
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Trench silicon structure
- High short circuit capability
- Low tail current with low temperature dependence
- Integrated PTC temperature sensor

Typical Applications

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

Remarks

- PTC temp sensor test conditions: measuring current:1 mA max measuring current value: 3 mA

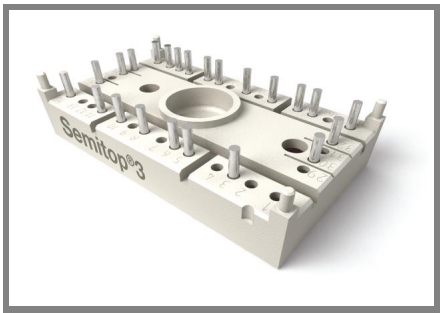


GAD

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	38	A
		T_s = 70 °C	31	A
I_{CRM}	I_{CRM}= 2 x I_{Cnom}		60	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 360 V; $V_{GE} \leq$ 20 V; V_{CES} < 600 V	T_j = 125 °C	6	µs
Inverse Diode				
I_F	T_j = 150 °C	T_s = 25 °C		A
		T_s = 80 °C		A
I_{FRM}	I_{FRM}= 2 x I_{Fnom}			A
Freewheeling Diode				
I_F	T_j = 175 °C	T_{case} = 25 °C	65	A
		T_{case} = 70 °C	51	A
I_{FRM}	I_{FRM} = 2 x I_{Fnom}		200	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 °C, unless otherwise specified				
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 0,43 mA		5	5,8	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,08	mA
		T_j = 125 °C				mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 30 V	T_j = 25 °C			300	nA
		T_j = 125 °C				nA
V_{CE0}		T_j = 25 °C		0,9	1	V
		T_j = 150 °C		0,85	0,9	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		18	28	mΩ
		T_j = 150°C		27	38	mΩ
$V_{CE(sat)}$	I_{Cnom} = 30 A, V_{GE} = 15 V	T_j = 25°C$_{chiplev.}$		1,45	1,85	V
		T_j = 150°C$_{chiplev.}$		1,65	2,05	V
C_{ies}						nF
C_{oes}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz				nF
C_{res}						nF
$t_{d(on)}$						ns
t_r	R_{Gon} = 22 Ω	V_{CC} = 300V				ns
E_{on}		I_{Cnom}= 30A		1,24		mJ
$t_{d(off)}$	R_{Goff} = 22 Ω	T_j = 150 °C				ns
t_f		V_{GE}=±15V				ns
E_{off}				1,48		mJ
$R_{th(j-s)}$	per IGBT			1,8		K/W

SK30GAD066T



SEMITOP® 3

IGBT Module

SK30GAD066T

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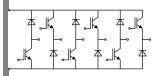

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Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
Freewheeling Diode						
$V_F = V_{EC}$	I_{Fnom} = 30 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,3	1,5	V
		T_j = 125 °$C_{chiplev.}$		1,2	1,45	V
V_{F0}		T_j = 125 °C		0,85	0,9	V
r_F		T_j = 125 °C		9	16	mΩ
I_{RRM}	I_{Fnom} = 30 A	T_j = 125 °C		3		A
Q_{rr}	di/dt = -500 A/µs			3		µC
E_{rr}	V_{CC}= 300V			0,44		mJ
$R_{th(j-s)FD}$	per diode				1,2	K/W
M_s	to heat sink M1		2,25		2,5	Nm
w				30		g
Temperature sensor						
R_{ts}	3%, T_r = 25 (100)°C			1000 (1670)		Ω

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

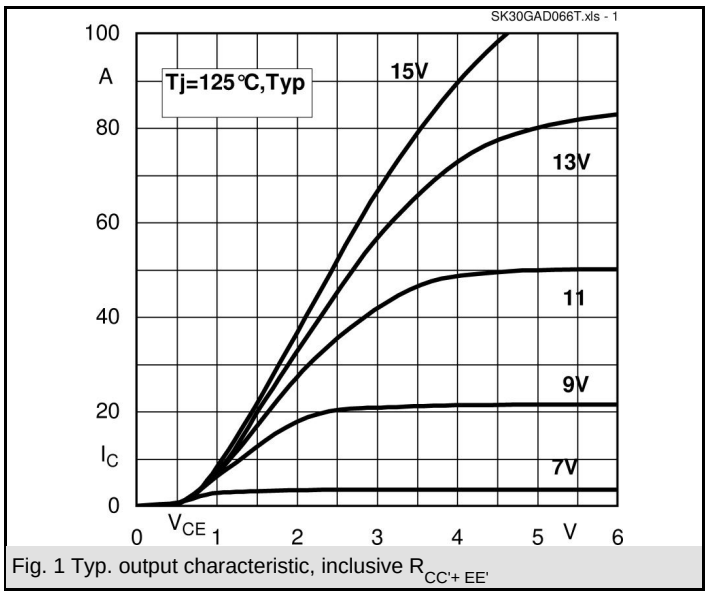


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

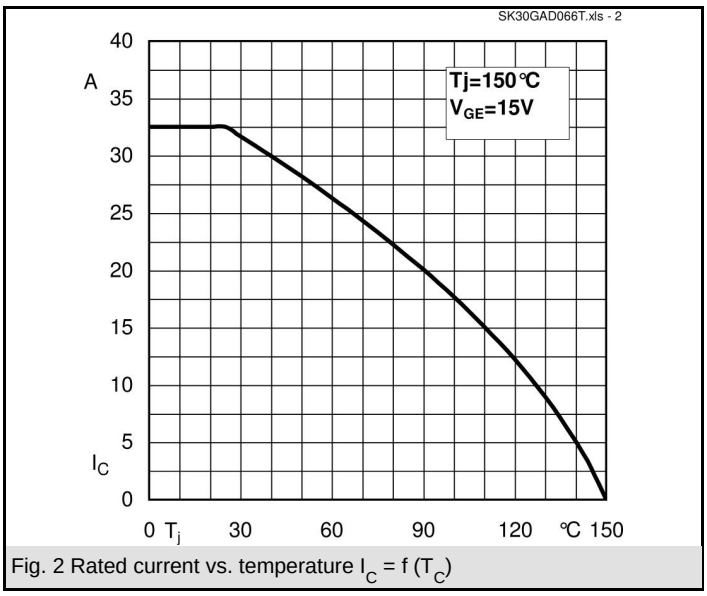


Fig. 2 Rated current vs. temperature $I_C = f(T_C)$

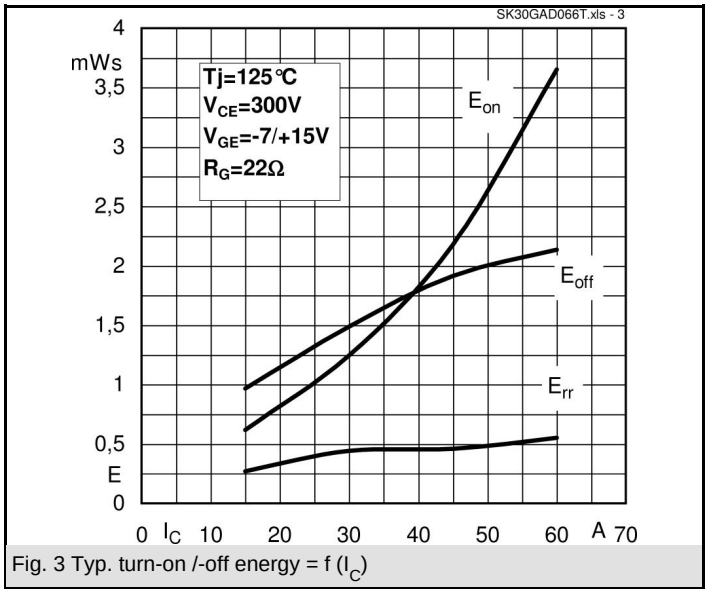


Fig. 3 Typ. turn-on /-off energy = f (I_C)

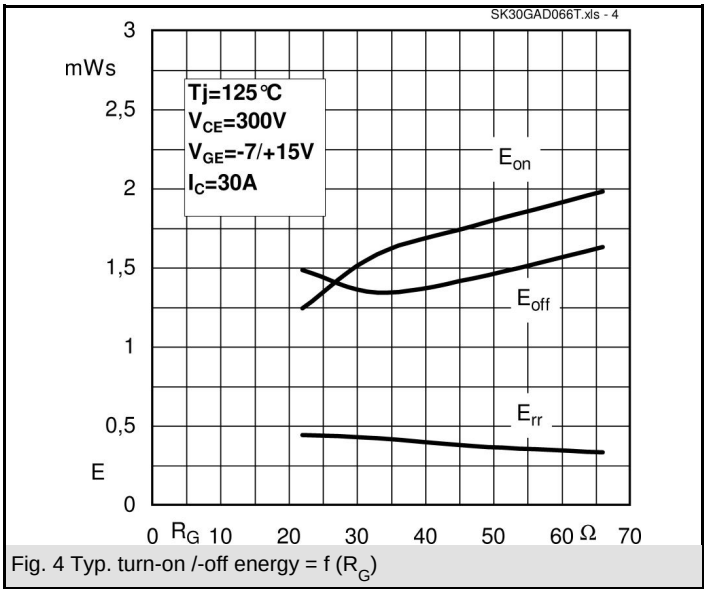


Fig. 4 Typ. turn-on /-off energy = f (R_G)

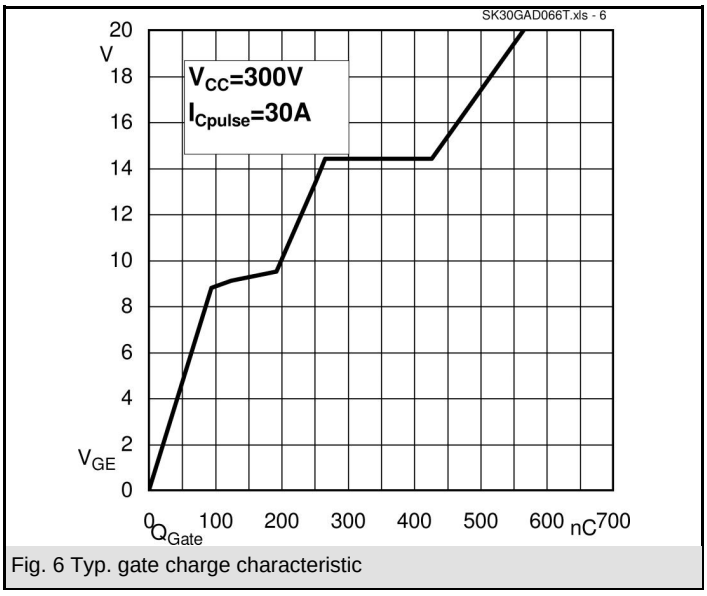


Fig. 6 Typ. gate charge characteristic

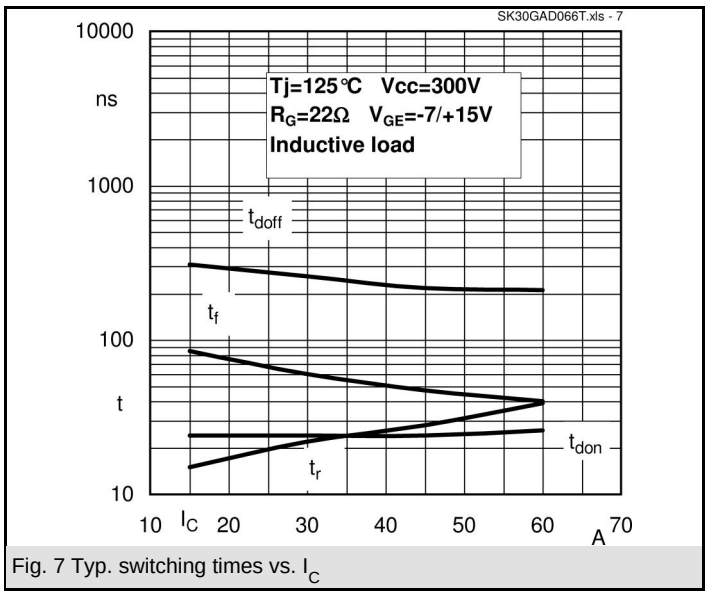


Fig. 7 Typ. switching times vs. I_C

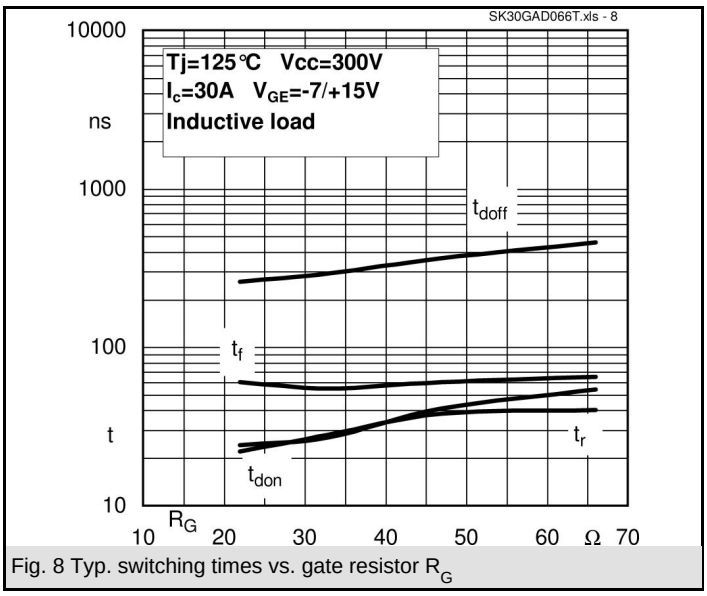


Fig. 8 Typ. switching times vs. gate resistor R_G

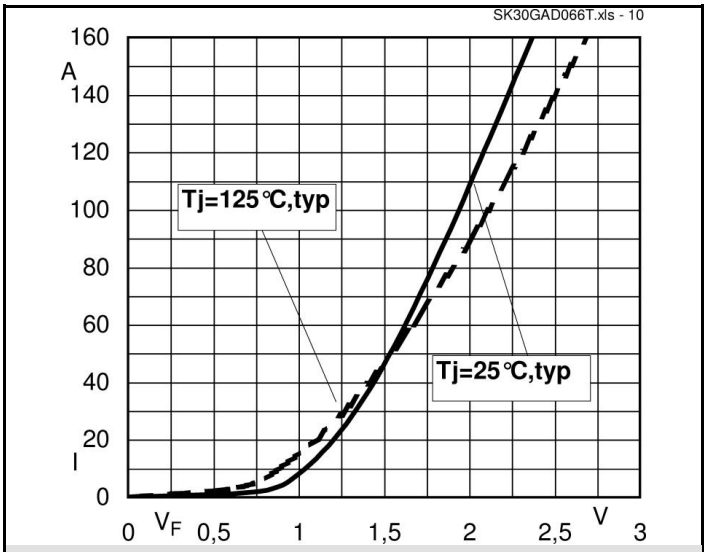
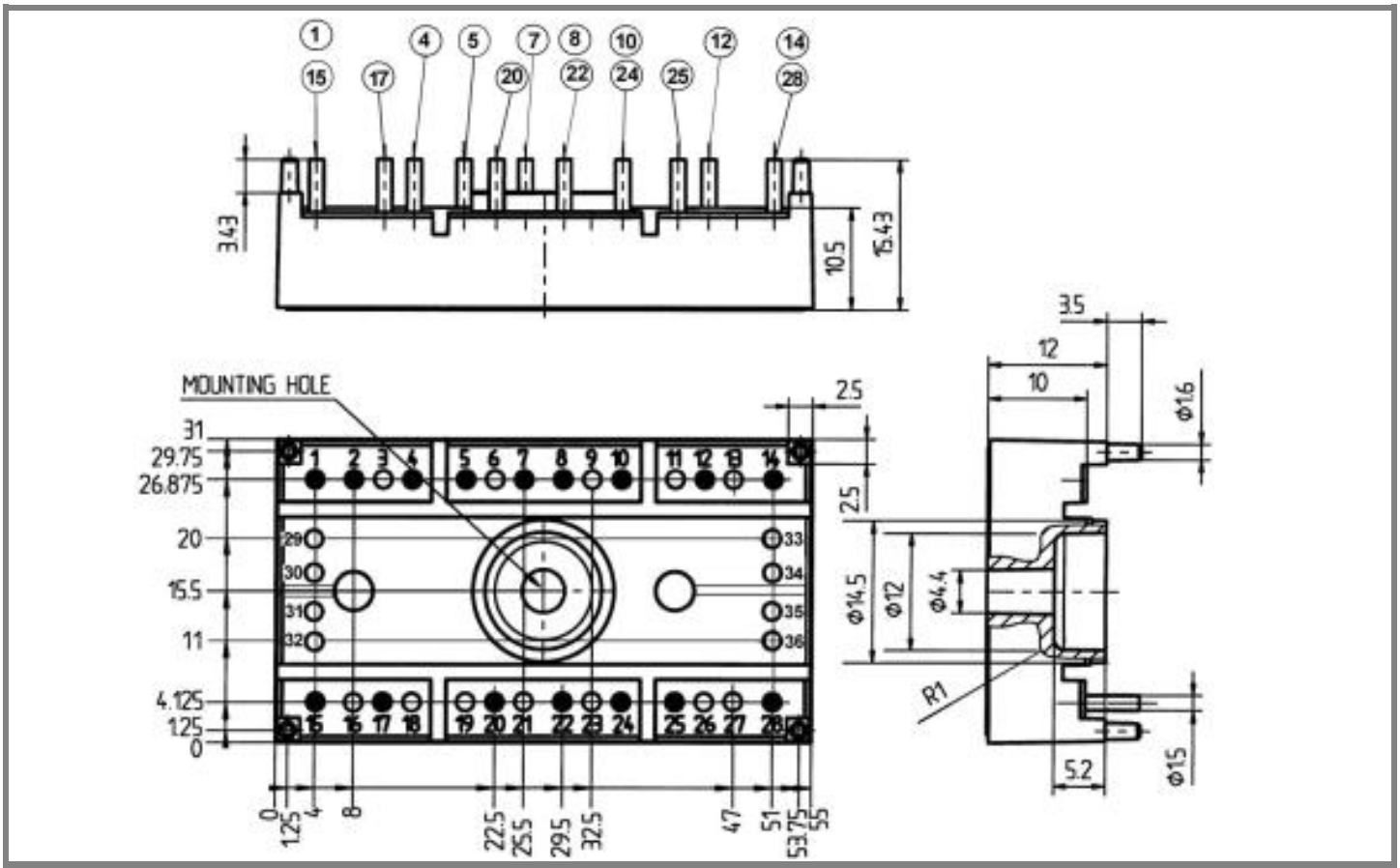
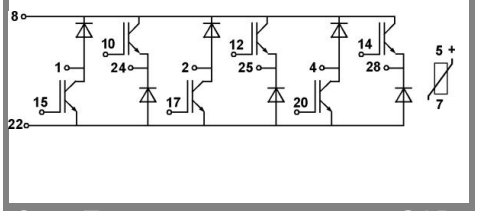


Fig. 10 CAL diode forward characteristic



Case T57 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 57 GAD

