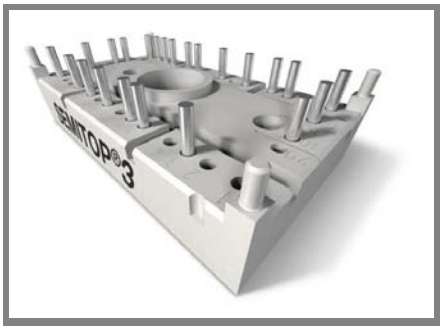
SK30GAD066T



SEMITOP® 3

IGBT Module

SK30GAD066T

Target Data

Features

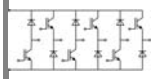
- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- Trench silicon structure
- High short circuit capability
- Low tail current with low temperature dependence
- Integrated PTC temperature sensor

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

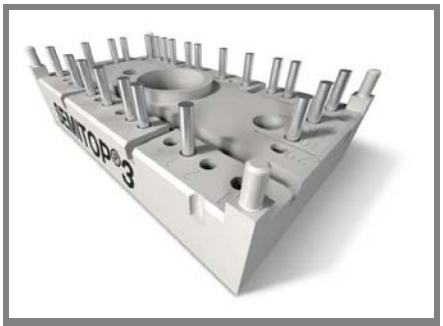


GAD

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 ... +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 = 0,43 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_C= 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

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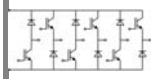


GAD

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_F = 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.

* 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.

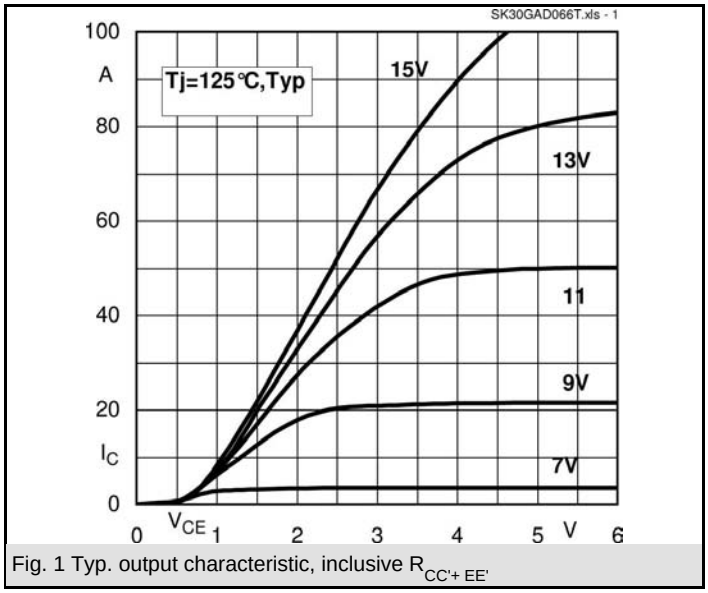


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

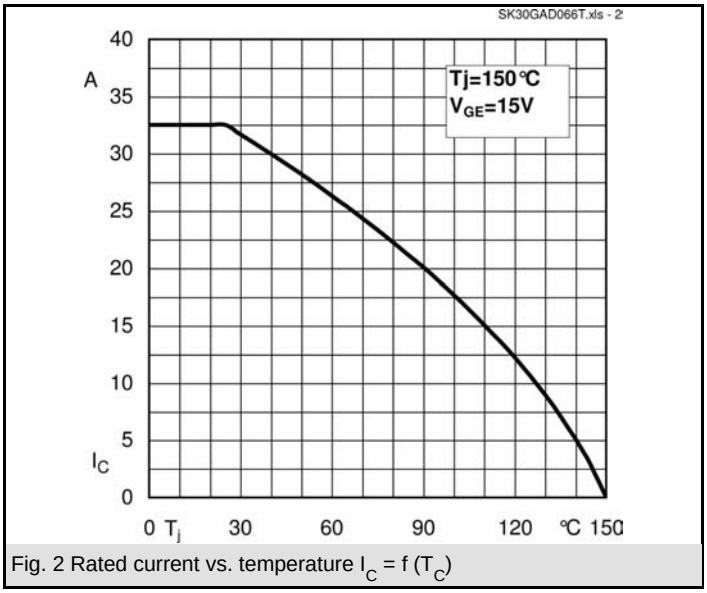


Fig. 2 Rated current vs. temperature $I_C = f(T_C)$

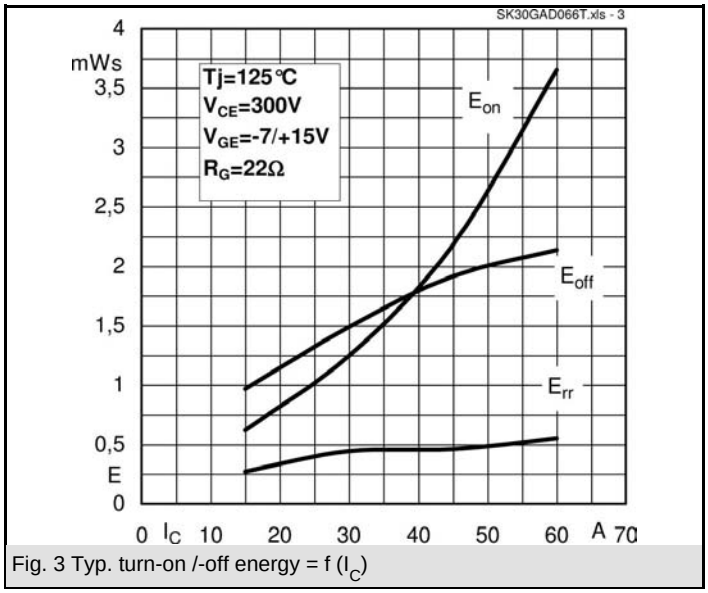


Fig. 3 Typ. turn-on /-off energy = f (I_C)

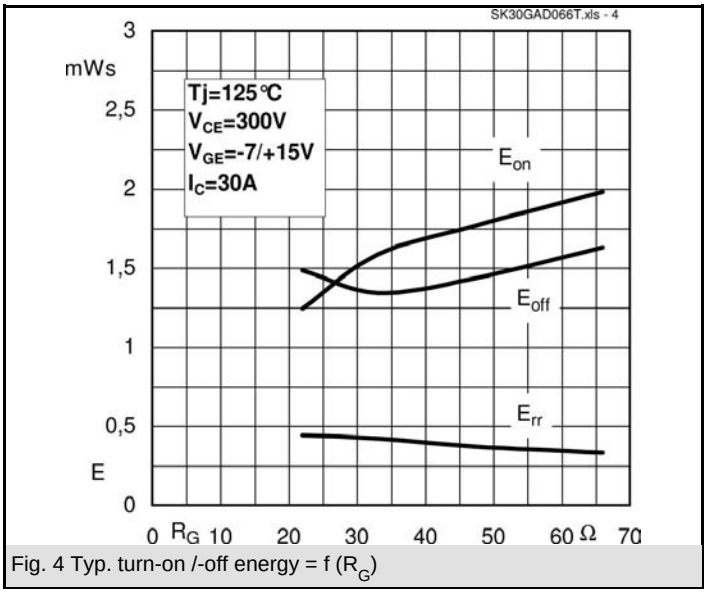


Fig. 4 Typ. turn-on /-off energy = f (R_G)

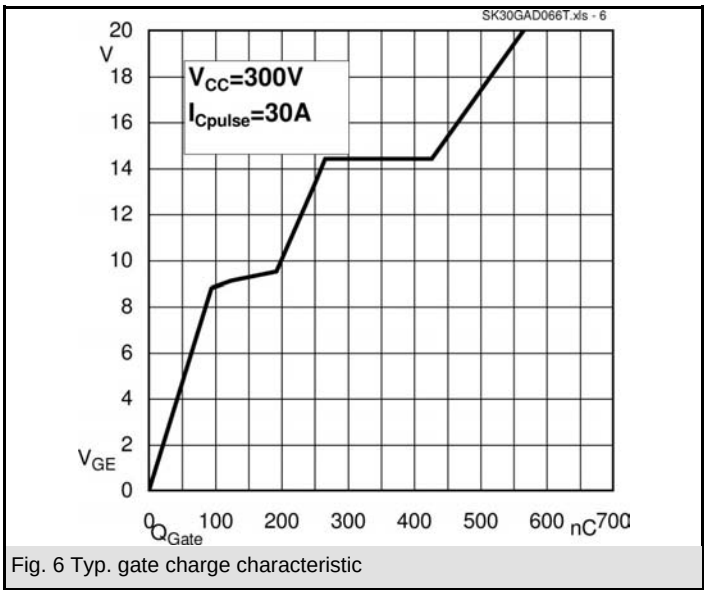


Fig. 6 Typ. gate charge characteristic

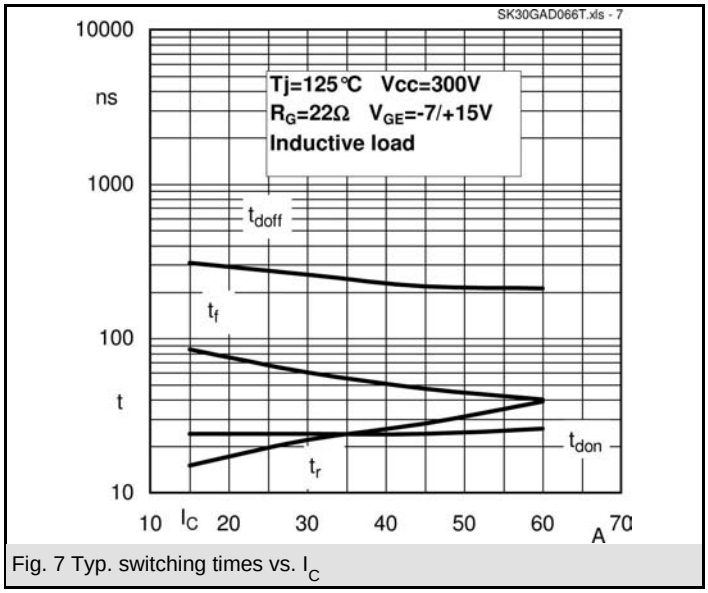


Fig. 7 Typ. switching times vs. I_C

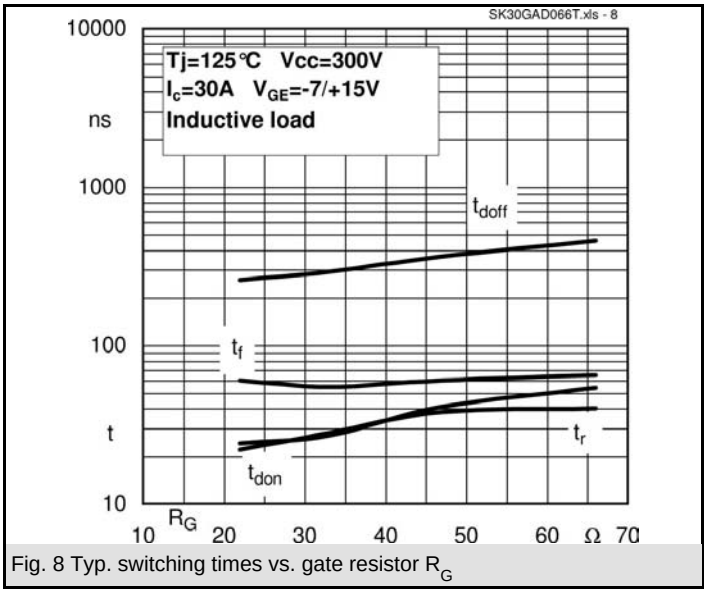


Fig. 8 Typ. switching times vs. gate resistor R_G

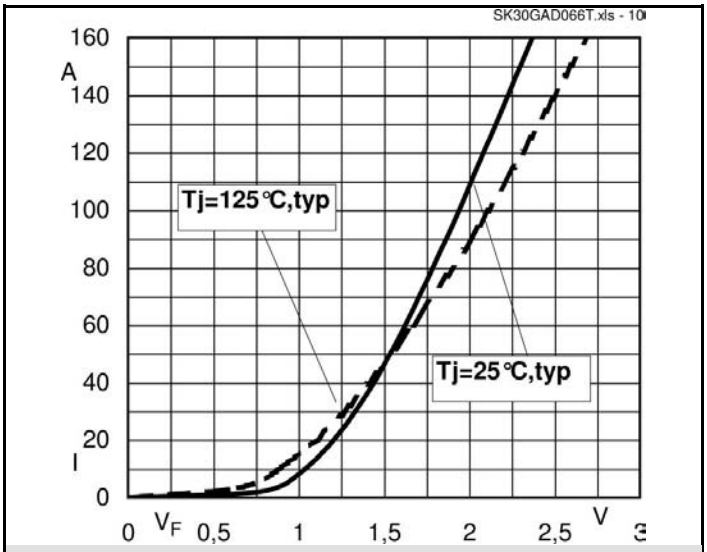
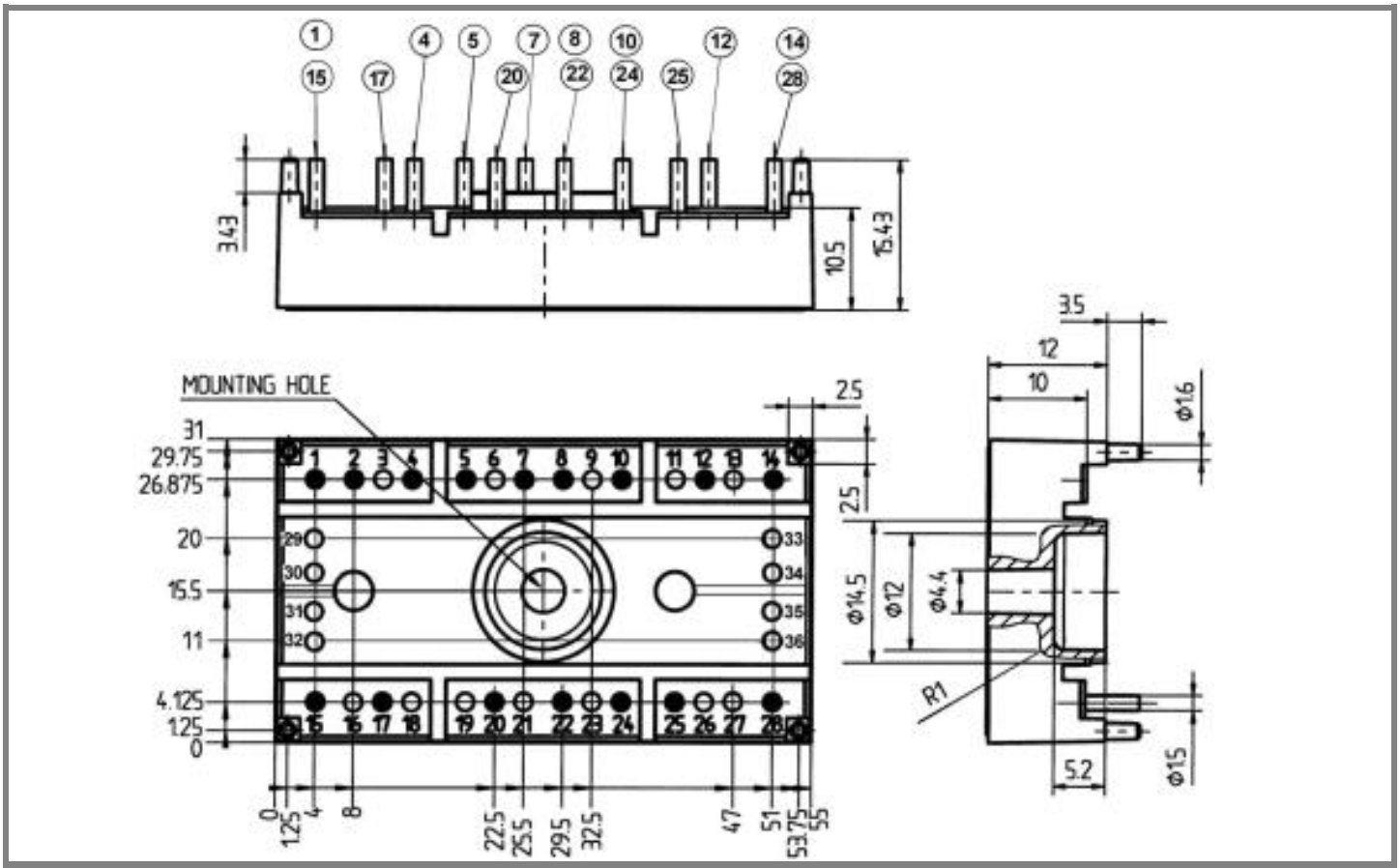
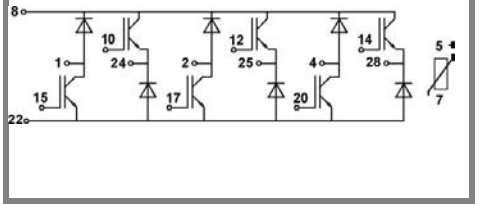


Fig. 10 CAL diode forward characteristic



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



Case T 57 GAD

