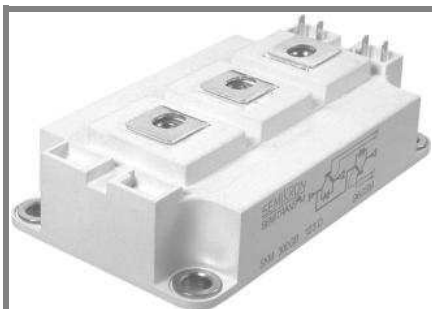


SKM 200GB176D



SEMITRANS® 3

Trench IGBT Modules

SKM 200GB176D

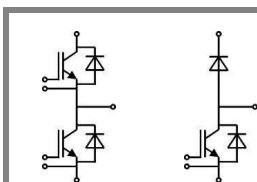
SKM 200GAL176D

Features

- Homogeneous Si
- Trench = Trenchgate technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications*

- AC inverter drives mains 575 - 750 V AC
- Public transport (auxiliary syst.)



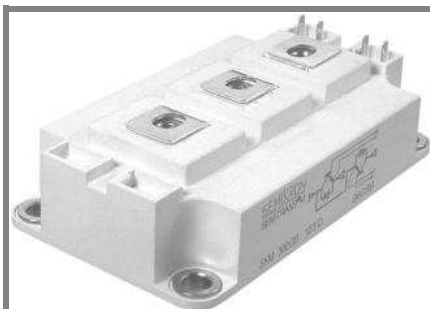
GB

GAL

Absolute Maximum Ratings			T _c = 25 °C, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1700	V
I _C	T _j = 150 °C	T _c = 25 °C	260	A
		T _c = 80 °C	180	A
I _{CRM}	I _{CRM} =2xI _{Cnom}		300	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 1200 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1700 V		10	μs
Inverse Diode				
I _F	T _j = 150 °C	T _c = 25 °C	210	A
		T _c = 80 °C	140	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		300	A
I _{FSM}	t _p = 10 ms; sin.	T _j = 150 °C	1100	A
Freewheeling Diode				
I _F	T _j = 150 °C	T _{case} = 25 °C	210	A
		T _{case} = 80 °C	140	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		300	A
I _{FSM}	t _p = 10 ms; sin.	T _j = 150 °C	1100	A
Module				
I _{t(RMS)}			500	A
T _{vj}			- 40 ... + 150	°C
T _{stg}			-40...+125	°C
V _{isol}	AC, 1 min.		4000	V

Characteristics			T _c = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 6 mA		5,2	5,8	6,4	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _j = 25 °C		3			mA
V _{CE0}	T _j = 25 °C		1			V
	T _j = 125 °C		0,9			V
r _{CE}	V _{GE} = 15 V T _j = 25°C		6,7			mΩ
	T _j = 125°C		10			mΩ
V _{CE(sat)}	I _{Cnom} = 150 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}		2			V
	T _j = 125°C _{chiplev.}		2,4			V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz		11,4			nF
C _{oes}			0,55			nF
C _{res}			0,44			nF
Q _G	V _{GE} = -8V...+15V		1200			nC
R _{Gint}	T _j = 25 °C		4,25			Ω
t _{d(on)}	R _{Gon} = 5 Ω	V _{CC} = 1200V I _C = 150A	360			ns
t _r			45			ns
E _{on}			93			mJ
t _{d(off)}	R _{Goff} = 5 Ω	T _j = 125 °C V _{GE} = ± 15V	760			ns
t _f			140			ns
E _{off}			58			mJ
R _{th(j-c)}	per IGBT		0,12			K/W

SKM 200GB176D



SEMITRANS® 3

Trench IGBT Modules

SKM 200GB176D

SKM 200GAL176D

Features

- Homogeneous Si
- Trench = Trenchgate technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_c$

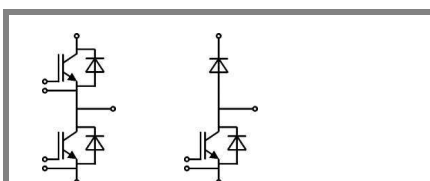
Typical Applications*

- AC inverter drives mains 575 - 750 V AC
- Public transport (auxiliary syst.)

Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 150 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,7	1,9	V
		T _j = 125 °C _{chiplev.}		1,7	1,9	V
V _{F0}		T _j = 25 °C		1,1	1,3	V
		T _j = 125 °C		0,9	1,1	V
r _F		T _j = 25 °C		4	4	mΩ
		T _j = 125 °C		5,3	5,3	mΩ
I _{RRM}	I _F = 150 A	T _j = 125 °C		195		A
Q _{rr}	di/dt = 3700 A/μs			52		μC
E _{rr}	V _{GE} = -15 V; V _{CC} = 1200 V			31		mJ
R _{th(j-c)D}	per diode				0,25	K/W
FWD						
V _F = V _{EC}	I _{Fnom} = 150 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,7	1,9	V
		T _j = 125 °C _{chiplev.}		1,7	1,9	V
V _{F0}		T _j = 25 °C		1,1	1,3	V
		T _j = 125 °C		0,9	1,1	V
r _F		T _j = 25 °C		4	4	V
		T _j = 125 °C		5,3	5,3	V
I _{RRM}	I _F = 150 A	T _j = 125 °C		195		A
Q _{rr}	di/dt = 3700 A/μs			52		μC
E _{rr}	V _{GE} = -15 V; V _{CC} = 1200 V			31		mJ
R _{th(j-c)FD}	per diode				0,25	K/W
Module						
L _{CE}				15	20	nH
R _{CC'+EE'}	res., terminal-chip	T _{case} = 25 °C		0,35		mΩ
		T _{case} = 125 °C		0,5		mΩ
R _{th(c-s)}	per module				0,038	K/W
M _s	to heat sink M6		3		5	Nm
M _t	to terminals M6		2,5		5	Nm
w					325	g

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

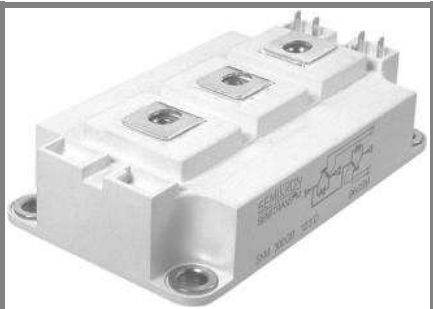
* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



GB

GAL

SKM 200GB176D



SEMITRANS® 3

Trench IGBT Modules

SKM 200GB176D

SKM 200GAL176D

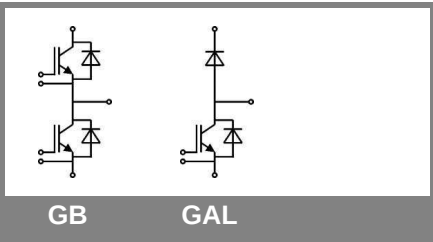
Features

- Homogeneous Si
- Trench = Trenchgate technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_c$

Typical Applications*

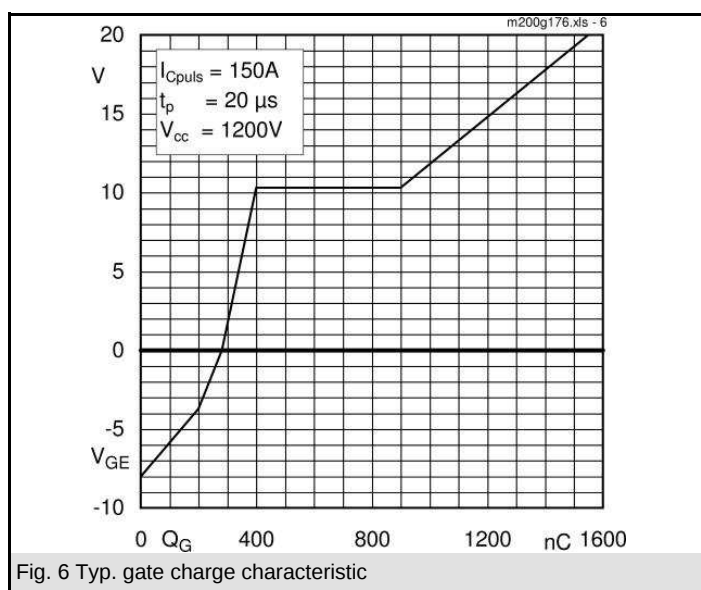
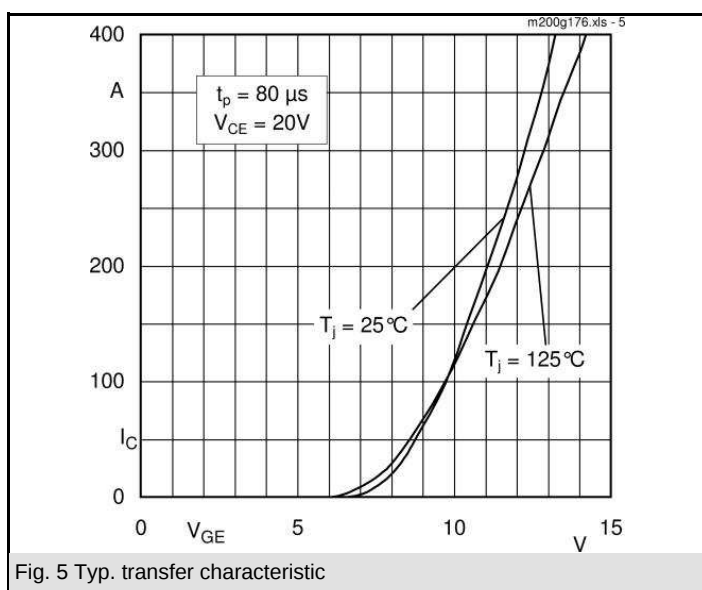
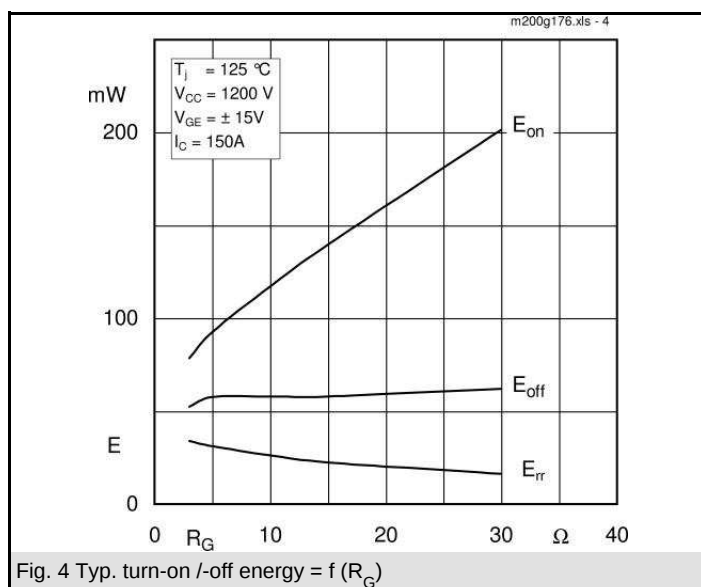
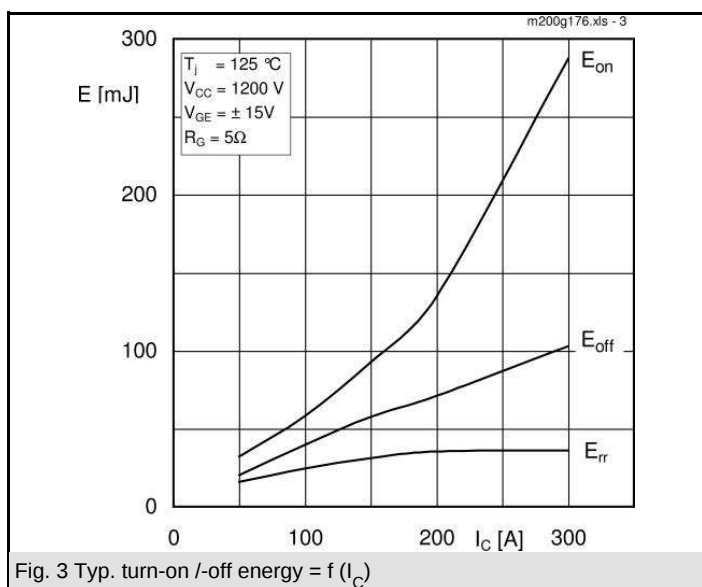
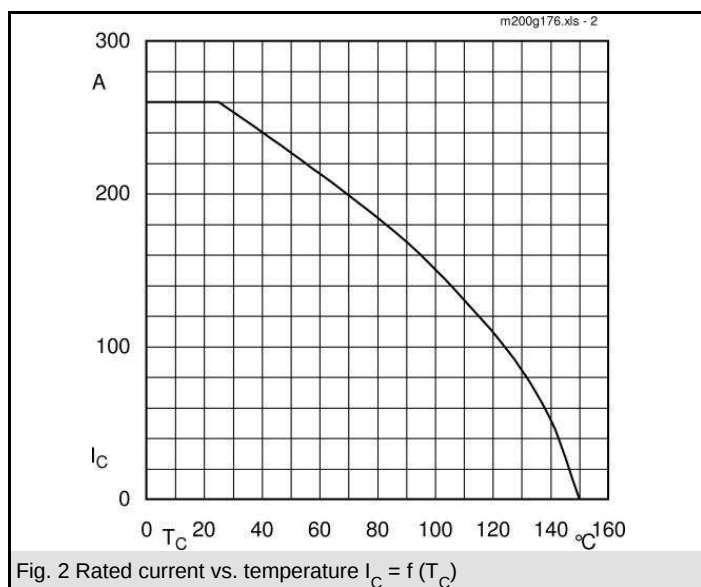
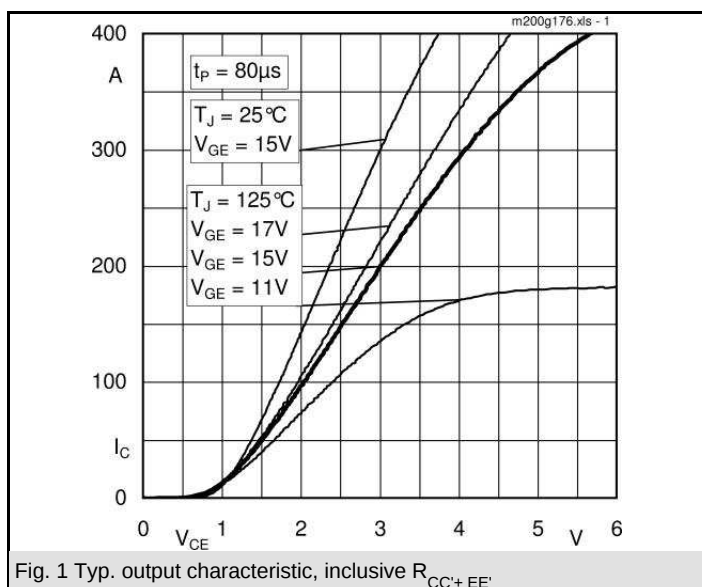
- AC inverter drives mains 575 - 750 V AC
- Public transport (auxiliary syst.)

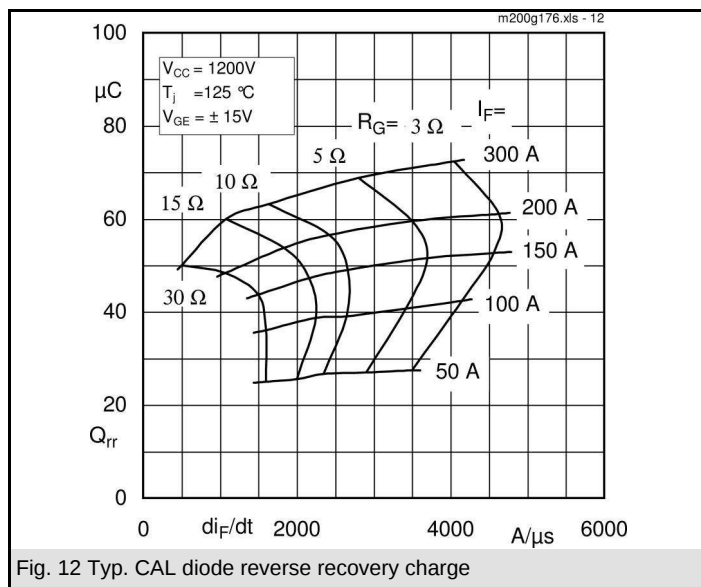
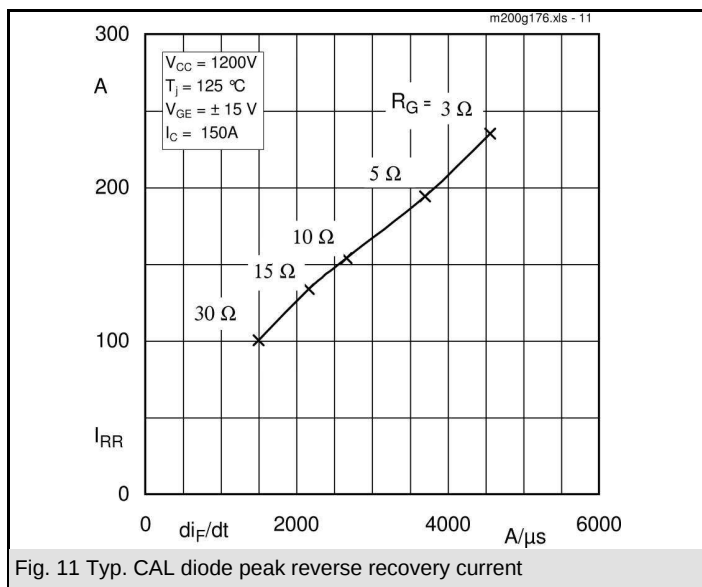
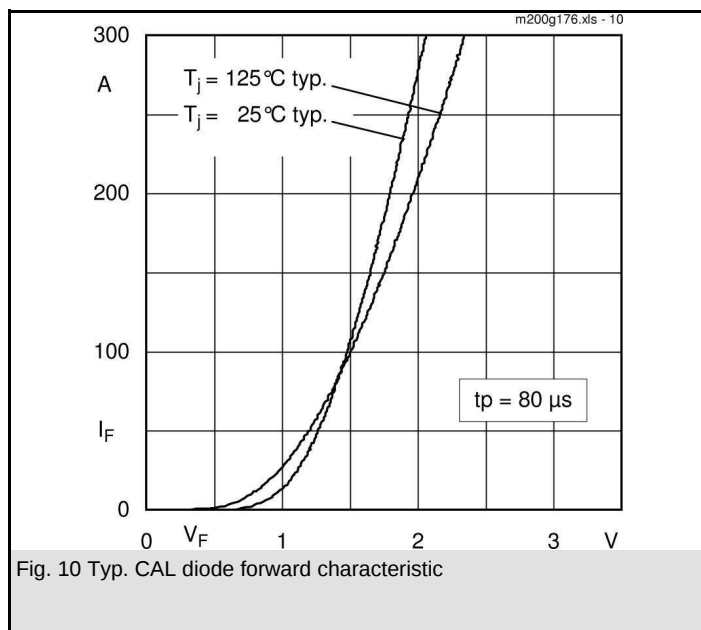
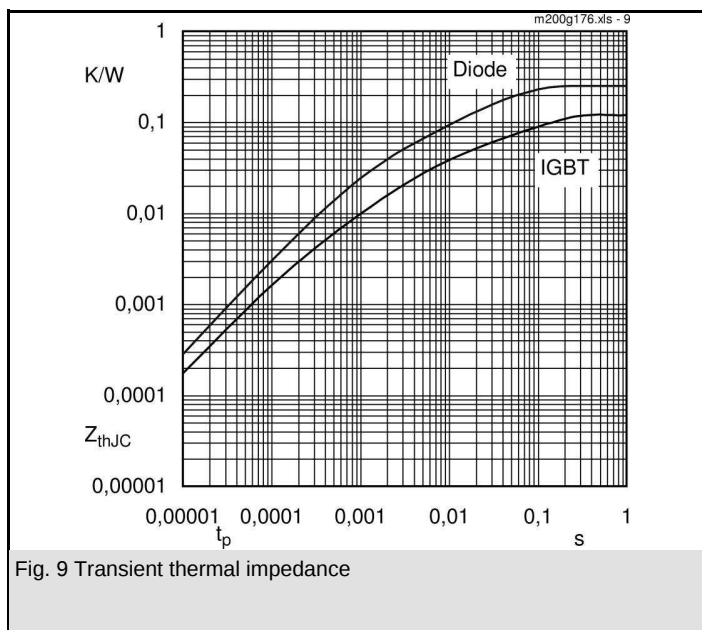
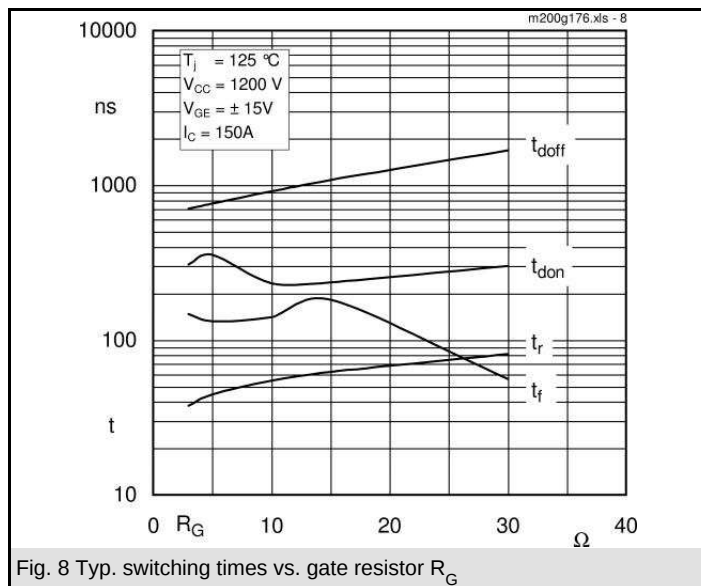
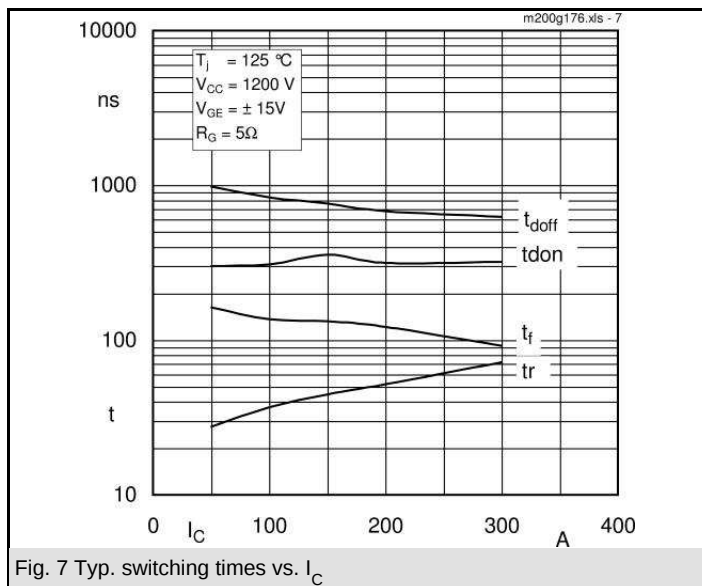
Z_{th}			
Symbol	Conditions	Values	Units
$Z_{th(j-c)I}$			
R_i	$i = 1$	80	mk/W
R_i	$i = 2$	30	mk/W
R_i	$i = 3$	8,2	mk/W
R_i	$i = 4$	1,8	mk/W
τ_{ui}	$i = 1$	0,0753	s
τ_{ui}	$i = 2$	0,01	s
τ_{ui}	$i = 3$	0,0008	s
τ_{ui}	$i = 4$	0,0003	s
$Z_{th(j-c)D}$			
R_i	$i = 1$	160	mk/W
R_i	$i = 2$	67	mk/W
R_i	$i = 3$	20	mk/W
R_i	$i = 4$	3	mk/W
τ_{ui}	$i = 1$	0,0382	s
τ_{ui}	$i = 2$	0,009	s
τ_{ui}	$i = 3$	0,0009	s
τ_{ui}	$i = 4$	0,005	s



GB

GAL



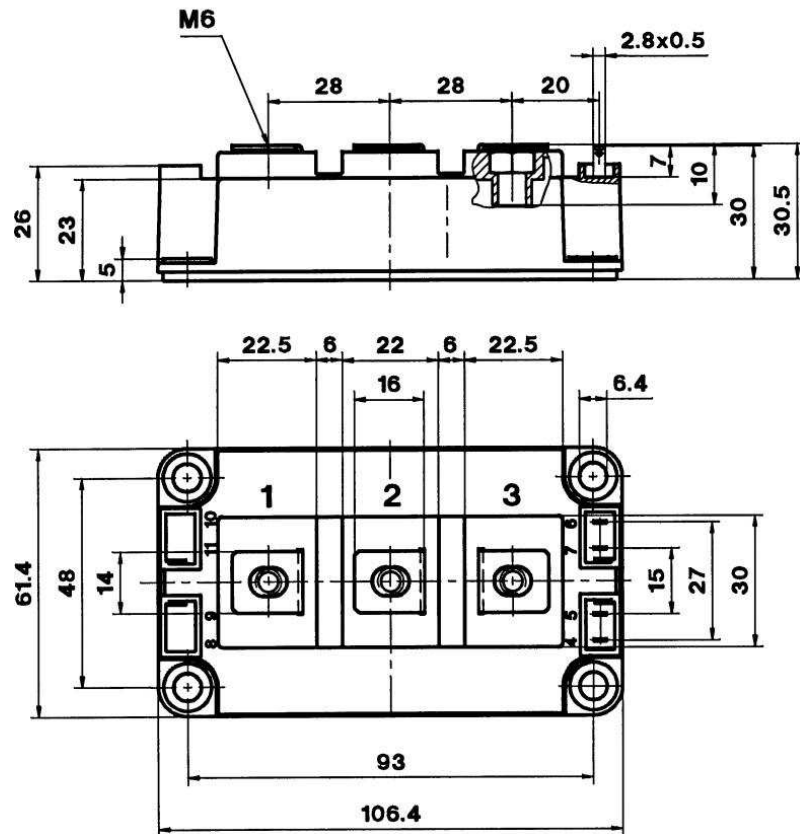


SKM 200GB176D

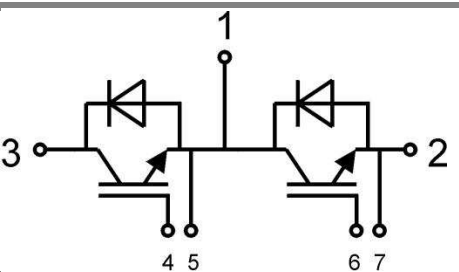
UL Recognized

CASED56

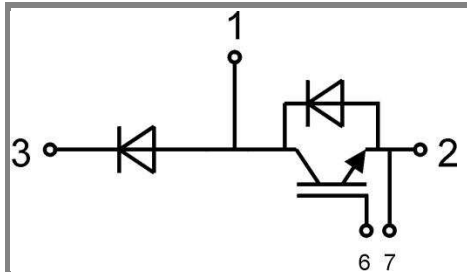
File no. E 63 532



Case D 56



GB Case D 56



GAL Case D 57