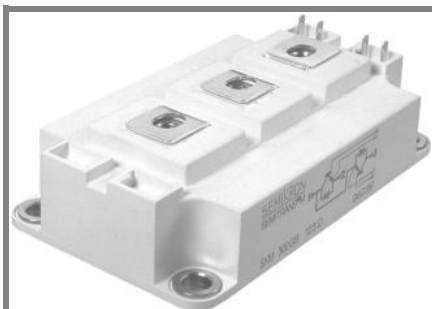




SEMITRANS® 3

Trench IGBT Modules

SKM 600GB066D

Preliminary Data

Features

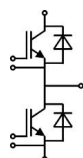
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications

- AC inverter drives
- UPS
- Electronic welders

Remarks

- Case temp. limited. to $T = 125^\circ\text{C}$, recomm. $T_{op} = -40 \dots +150^\circ\text{C}$, product rel. results valid for $T_{j \leq 150^\circ\text{C}}$
- SC data: $t_p \leq 6\mu\text{s}$; $V_{GE} \leq 15\text{V}$; $T_j = 150^\circ\text{C}$; $V_{CC} \leq 360\text{V}$, use of soft R_G necessary !
- Take care of over-voltage caused by stray induct.
- $I_{DC} \leq 500\text{A}$ for $T_{Terminal} = 100^\circ\text{C}$

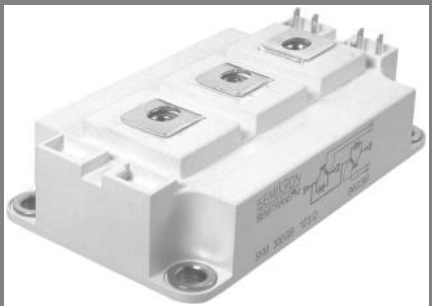


GB

Absolute Maximum Ratings				$T_{case} = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions			Values	Units
IGBT					
V_{CES}	$T_j = 25^\circ\text{C}$			600	V
I_C	$T_j = 175^\circ\text{C}$	$T_c = 25^\circ\text{C}$		760	A
		$T_c = 80^\circ\text{C}$		570	A
I_{CRM}	$I_{CRM} = 1,33 \times I_{Cnom}$			800	A
V_{GES}				± 20	V
t_{psc}	$V_{CC} = 360\text{V}$; $V_{GE} \leq 15\text{V}$; $T_j = 150^\circ\text{C}$ $V_{CES} < 600\text{V}$			6	μs
Inverse Diode					
I_F	$T_j = 175^\circ\text{C}$	$T_c = 25^\circ\text{C}$		700	A
		$T_c = 80^\circ\text{C}$		510	A
I_{FRM}	$I_{FRM} = 1,33 \times I_{Fnom}$			800	A
Module					
$I_{t(RMS)}$				500	A
T_{vj}				- 40 + 175	$^\circ\text{C}$
T_{stg}				- 40 + 125	$^\circ\text{C}$
V_{isol}	AC, 1 min.			4000	V

Characteristics			T _{case} = 25°C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 9,6 mA		5	5,8	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _j = 25 °C			0,3	0,9	mA
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			0,9	1,5	mΩ
	T _j = 150°C			1,4	2	mΩ
V _{CE(sat)}	I _{Cnom} = 600 A, V _{GE} = 15 V T _j = 25°C _{chiplev.}			1,45	1,9	V
	T _j = 150°C _{chiplev.}			1,7	2,1	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz			37		nF
C _{oes}				2,3		nF
C _{res}				1,1		nF
Q _G	V _{GE} = -8V...+15V			4400		nC
R _{Gint}	T _j = °C			0,5		Ω
t _{d(on)}	R _{Gon} = 1,5 Ω	V _{CC} = 300V I _C = 600A		270		ns
t _r				77		ns
E _{on}	R _{Goff} = 1,5 Ω	T _j = 150 °C		7,5		mJ
t _{d(off)}		V _{GE} = -8V/+15V		670		ns
t _f				77		ns
E _{off}				29,5		mJ
R _{th(j-c)}	per IGBT				0,08	K/W

SKM 600GB066D



SEMITRANS® 3

Trench IGBT Modules

SKM 600GB066D

Preliminary Data

Features

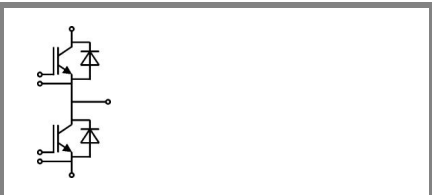
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications

- AC inverter drives
- UPS
- Electronic welders

Remarks

- Case temp. limited. to $T = 125^{\circ}\text{C}$, recomm. $T_{op} = -40 \dots +150^{\circ}\text{C}$, product rel. results valid for $T_{j \leq 150^{\circ}\text{C}}$
- SC data: $t_p \leq 6\mu\text{s}$; $V_{GE} \leq 15\text{V}$; $T_j = 150^{\circ}\text{C}$; $V_{cc} \leq 360\text{V}$, use of soft R_G necessary !
- Take care of over-voltage caused by stray induct.
- $I_{DC} \leq 500\text{A}$ for $T_{Terminal} = 100^{\circ}\text{C}$



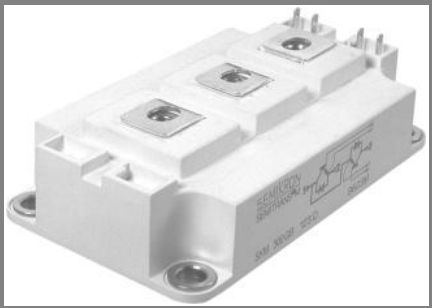
GB

Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 600\text{ A}$; $V_{GE} = 0\text{ V}$ $T_j = 25^{\circ}\text{C}_{chiplev.}$		1,4	1,6	V
V_{F0}	$T_j = 25^{\circ}\text{C}$		0,95	1	V
r_F	$T_j = 25^{\circ}\text{C}$		0,8	1	mΩ
I_{RRM}	$I_F = 600\text{ A}$ $T_j = 150^{\circ}\text{C}$		580		A
Q_{rr}	$di/dt = 8600\text{ A}/\mu\text{s}$		105		μC
E_{rr}	$V_{GE} = -8\text{ V}$; $V_{CC} = 300\text{ V}$		25		mJ
$R_{th(j-c)D}$	per diode			0,125	K/W
Module					
L_{CE}			15	20	nH
$R_{CC'+EE'}$	res., terminal-chip $T_{case} = 25^{\circ}\text{C}$		0,35		mΩ
	$T_{case} = 125^{\circ}\text{C}$		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.

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

SKM 600GB066D



SEMITRANS® 3

Trench IGBT Modules

SKM 600GB066D

Preliminary Data

Features

- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications

- AC inverter drives
- UPS
- Electronic welders

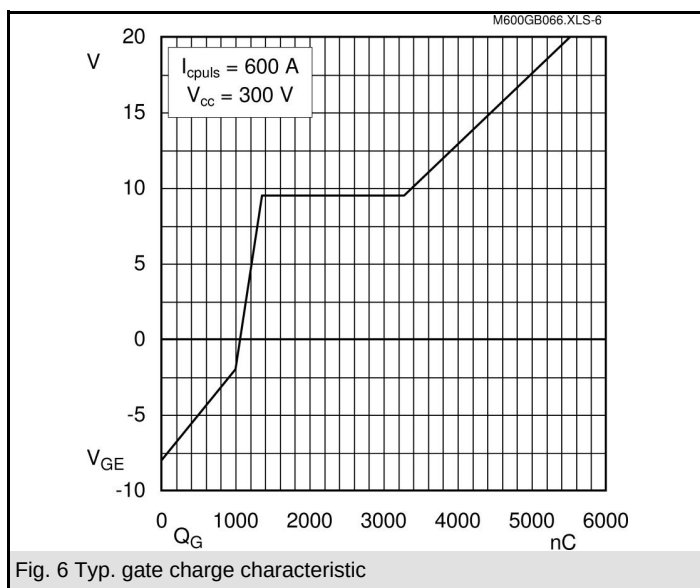
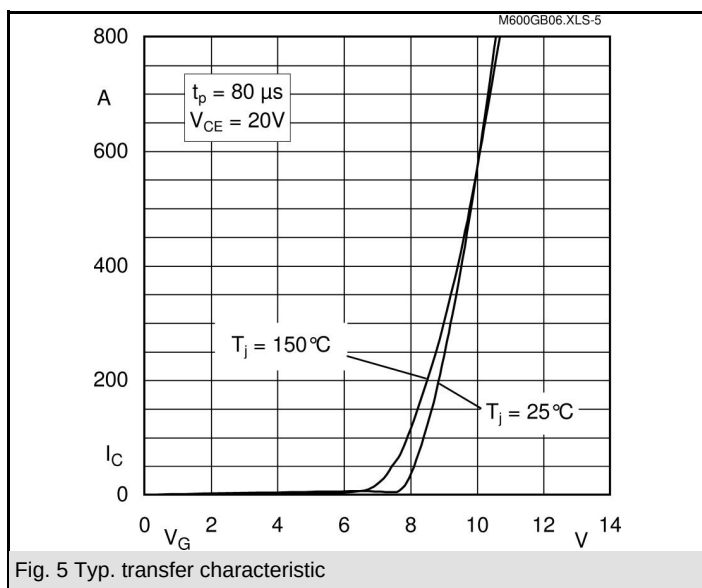
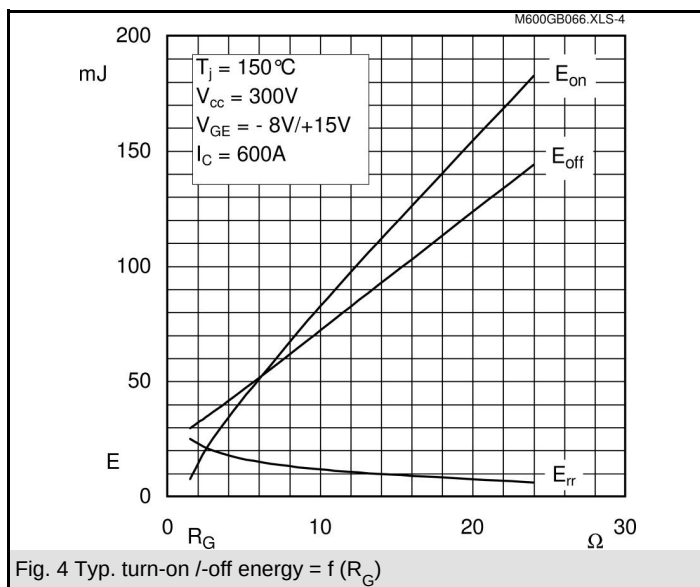
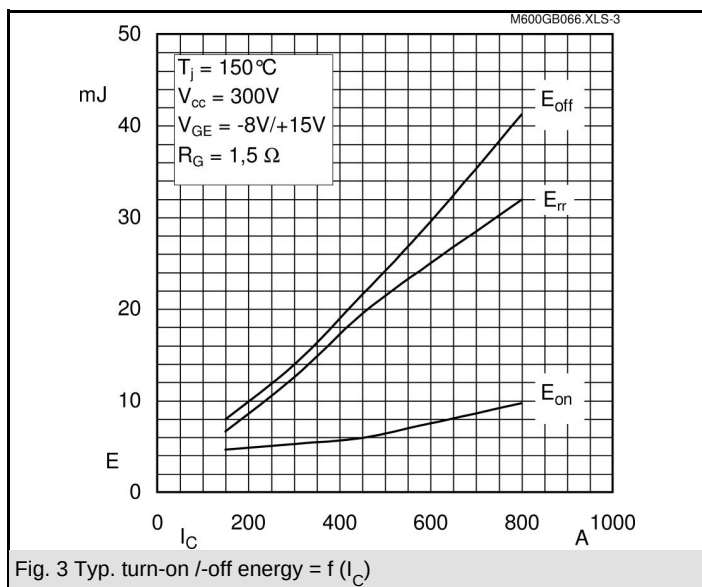
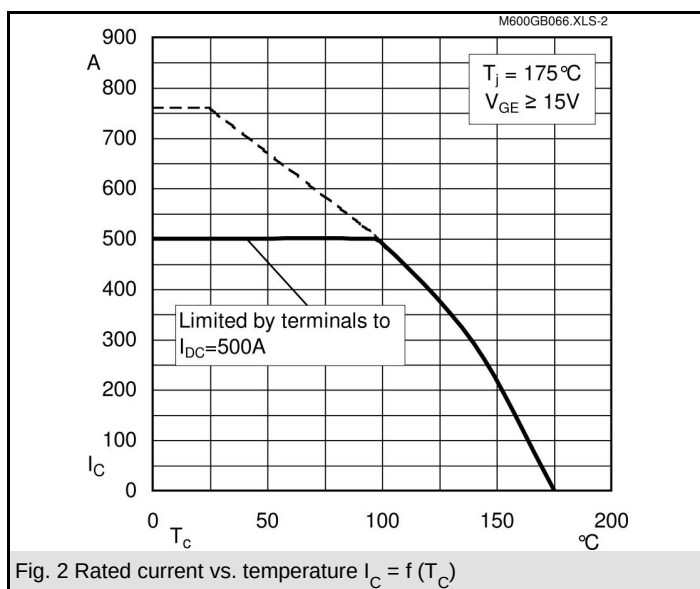
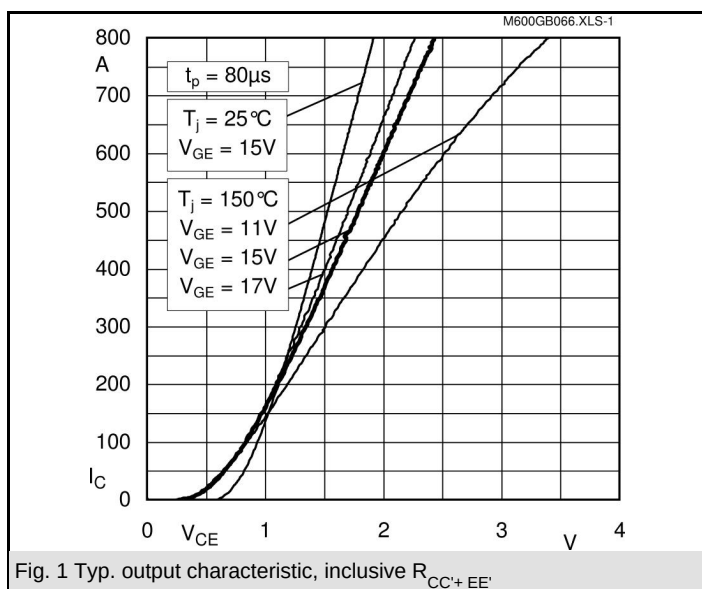
Remarks

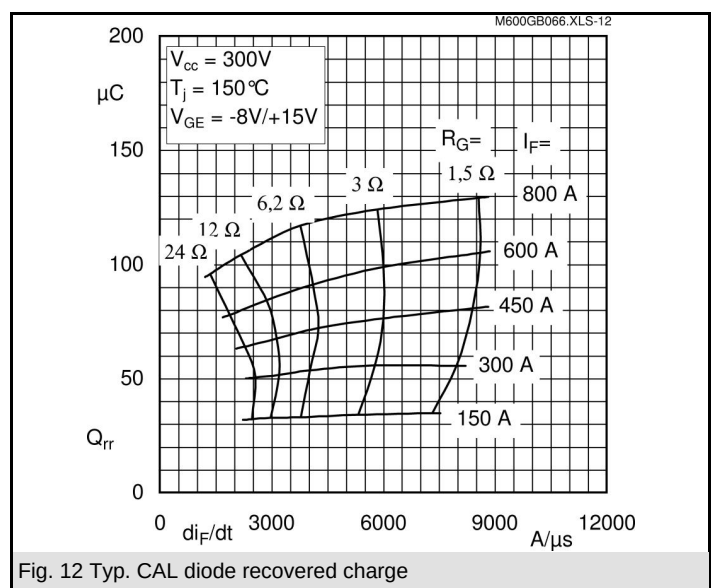
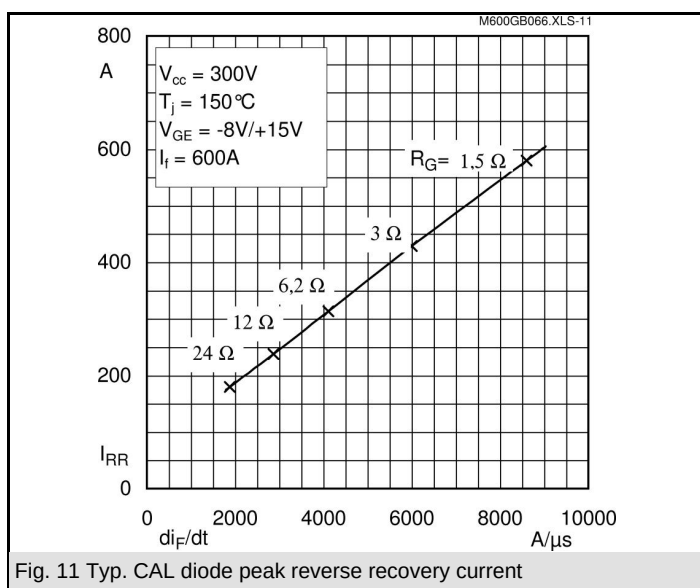
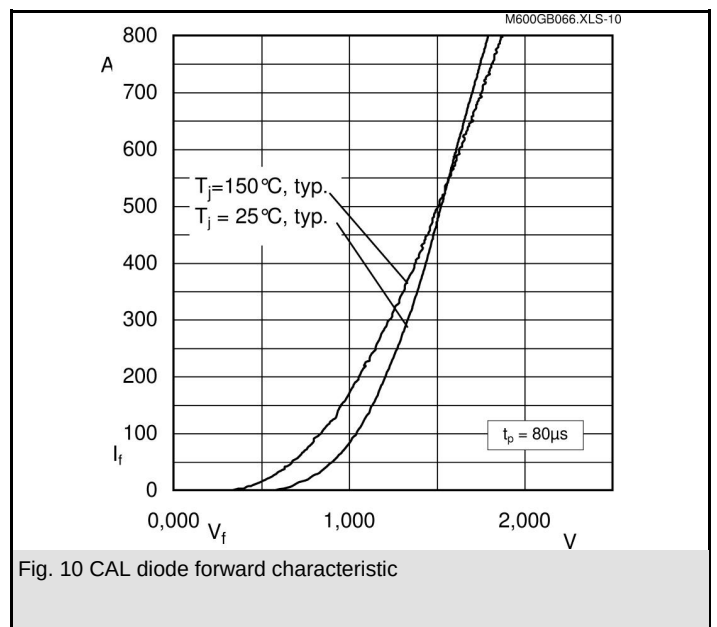
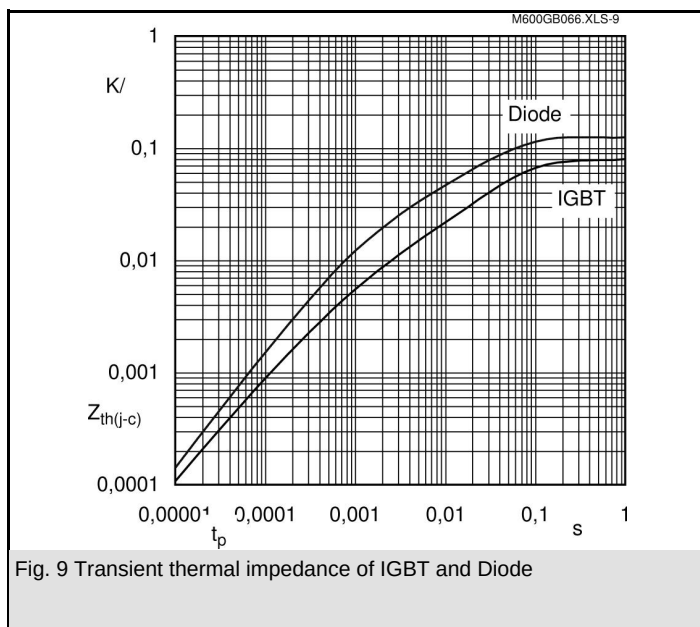
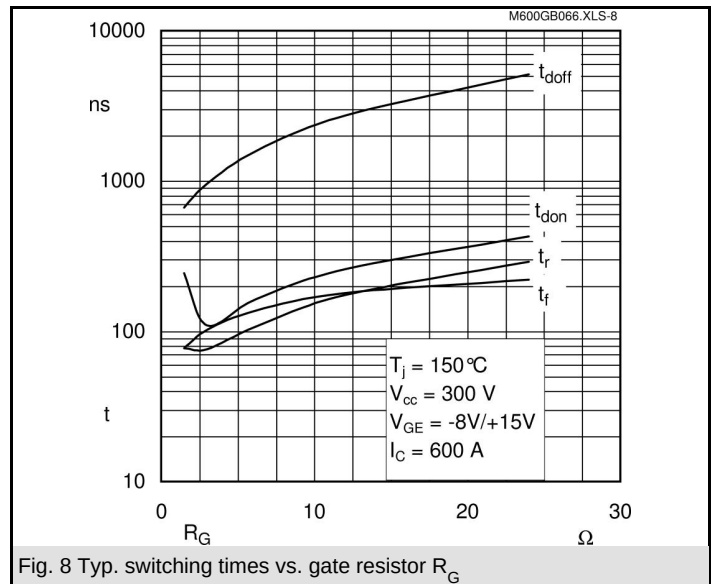
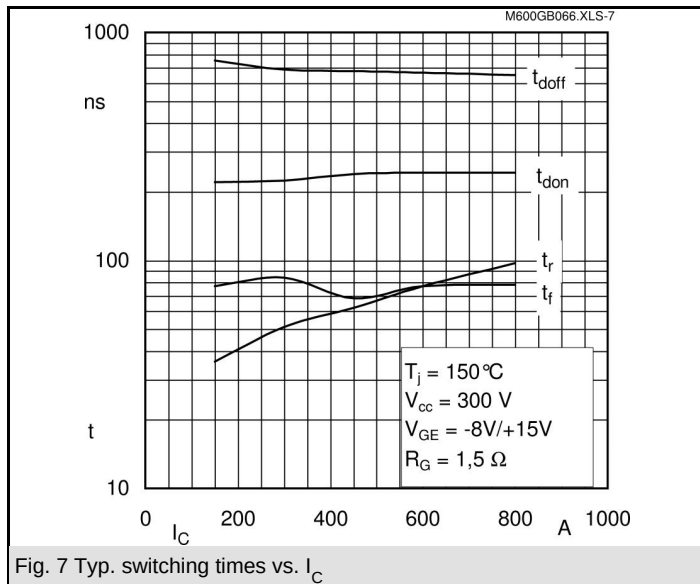
- Case temp. limited. to $T = 125^{\circ}\text{C}$, recomm. $T_{op} = -40 \dots +150^{\circ}\text{C}$, product rel. results valid for $T_j \leq 150^{\circ}\text{C}$
- SC data: $t_p \leq 6\mu\text{s}$; $V_{GE} \leq 15\text{V}$; $T_j = 150^{\circ}\text{C}$; $V_{cc} \leq 360\text{V}$, use of soft R_G necessary !
- Take care of over-voltage caused by stray induct.
- $I_{DC} \leq 500\text{A}$ for $T_{Terminal} = 100^{\circ}\text{C}$

Z_{th}			
Symbol	Conditions	Values	Units
$Z_{th(j-c)I}$			
R_i	$i = 1$	48,4	mk/W
R_i	$i = 2$	19,5	mk/W
R_i	$i = 3$	3,1	mk/W
R_i	$i = 4$	4	mk/W
τ_{u_i}	$i = 1$	0,054	s
τ_{u_i}	$i = 2$	0,0144	s
τ_{u_i}	$i = 3$	0,0012	s
τ_{u_i}	$i = 4$	0,0026	s
$Z_{th(j-c)D}$			
R_i	$i = 1$	80	mk/W
R_i	$i = 2$	33	mk/W
R_i	$i = 3$	10,5	mk/W
R_i	$i = 4$	1,5	mk/W
τ_{u_i}	$i = 1$	0,054	s
τ_{u_i}	$i = 2$	0,01	s
τ_{u_i}	$i = 3$	0,0007	s
τ_{u_i}	$i = 4$	0,0019	s



GB

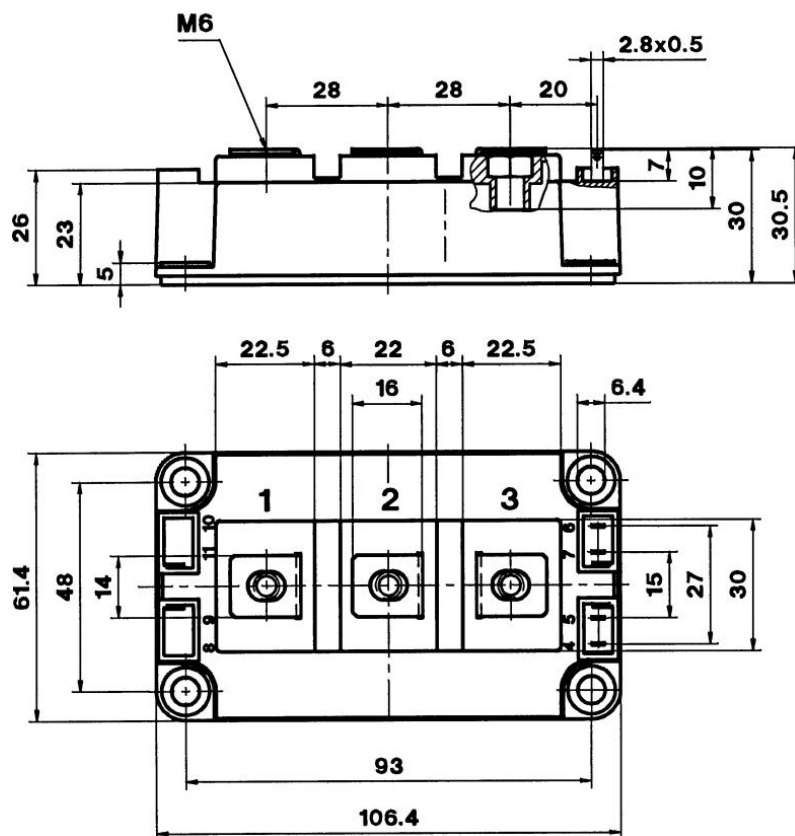




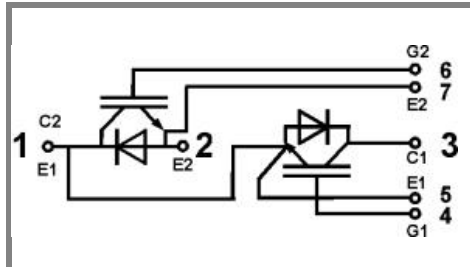
SKM 600GB066D

UL recognized, file no. E 63 532

CASED56



Case D 56



GB

Case D56