

SKM 75GB173D



SEMITRANS® 2

IGBT Modules

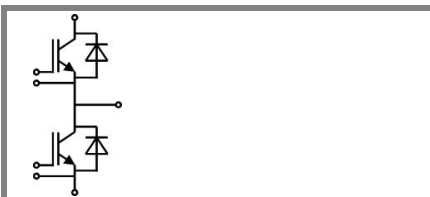
SKM 75GB173D

Features

- N channel, Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{Cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding
- Large clearance (10 mm) and creepage distance (20 mm)

Typical Applications

- AC inverter drives on mains 575 - 750 V_{AC}
- DC bus voltage 750 - 1200 V_{DC}
- Public transport (auxiliary syst.)
- Switching (not for linear use)

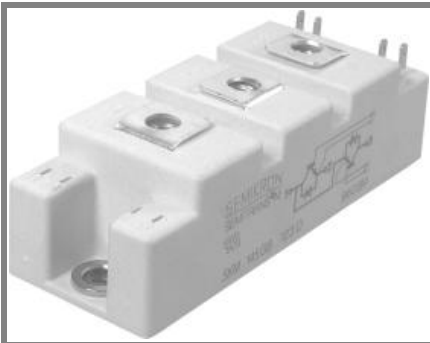


GB

Absolute Maximum Ratings		$T_c = 25\text{ }^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ }^\circ\text{C}$	1700		V
I_C	$T_j = 150\text{ }^\circ\text{C}$	$T_{case} = 25\text{ }^\circ\text{C}$	75	A
		$T_{case} = 80\text{ }^\circ\text{C}$	50	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	100		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 1200\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ }^\circ\text{C}$ $V_{CES} < 1700\text{ V}$	10		μs
Inverse Diode				
I_F	$T_j = 150\text{ }^\circ\text{C}$	$T_{case} = 25\text{ }^\circ\text{C}$	60	A
		$T_{case} = 80\text{ }^\circ\text{C}$	40	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	100		A
I_{FSM}	$t_p = 10\text{ ms}; \text{sin.}$	$T_j = 150\text{ }^\circ\text{C}$	550	A
Module				
$I_{t(RMS)}$		200		A
T_{vj}		- 40 ... + 150		$^\circ\text{C}$
T_{stg}		-40...+125		$^\circ\text{C}$
V_{isol}	AC, 1 min.	4000		V

Characteristics		$T_c = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}; I_C = 4\text{ mA}$	4,8	5,5	6,2	V
I_{CES}	$V_{GE} = 0\text{ V}; V_{CE} = V_{CES}$	$T_j = 25\text{ }^\circ\text{C}$	0,1	0,3	mA
		$T_j = 125\text{ }^\circ\text{C}$	1,65	1,9	V
V_{CE0}			1,9	2,15	V
r_{CE}	$V_{GE} = 20\text{ V}$	$T_j = 25\text{ }^\circ\text{C}$	35	40	$\text{m}\Omega$
		$T_j = 125\text{ }^\circ\text{C}$	46	57	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}; V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$	3,4	3,9	V
		$T_j = 125\text{ }^\circ\text{C}_{chiplev.}$	4,2	5	V
C_{res}	$V_{CE} = 25; V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	8		nF
C_{oes}			0,64		nF
C_{res}			0,25		nF
Q_G	$V_{GE} = -8\text{V}...+15\text{V}$	650		nC	
$t_{d(on)}$	$R_{Gon} = 12\ \Omega$	$V_{CC} = 1200\text{V}$ $I_{Cnom} = 50\text{A}$	40		ns
t_r			35		ns
E_{on}	$R_{Goff} = 12\ \Omega$	$T_j = 125\text{ }^\circ\text{C}$ $V_{GE} = \pm 15\text{V}$	18		mJ
$t_{d(off)}$			400		ns
t_f			58		ns
E_{ff}			13		mJ
$R_{th(j-c)}$	per IGBT	0,25		K/W	

SKM 75GB173D



SEMITRANS® 2

IGBT Modules

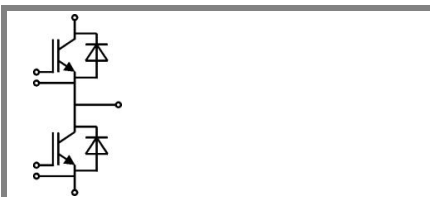
SKM 75GB173D

Features

- N channel, Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding
- Large clearance (10 mm) and creepage distance (20 mm)

Typical Applications

- AC inverter drives on mains 575 - 750 V_{AC}
- DC bus voltage 750 - 1200 V_{DC}
- Public transport (auxiliary syst.)
- Switching (not for linear use)



GB

Characteristics

Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50 \text{ A}; V_{GE} = 0 \text{ V}$		2,2	2,7	V
			2	2,4	V
					V
V_{F0}			1,3	1,5	V
r_F			12	18	mΩ
I_{RRM}	$I_{Fnom} = 50 \text{ A}$		43		A
Q_{rr}	$di/dt = 800 \text{ A}/\mu\text{s}$		15		μC
E_{rr}	$V_{GE} = -15 \text{ V}; V_{CC} = 1200 \text{ V}$				mJ
$R_{th(j-c)D}$	per diode			0,75	K/W
Module					
L_{CE}				30	nH
R_{CC+EE}	res., terminal-chip	$T_{case} = 25 \text{ °C}$	0,75		mΩ
		$T_{case} = 125 \text{ °C}$	1		mΩ
$R_{th(c-s)}$	per module			0,05	K/W
M_s	to heat sink M6		3	5	Nm
M_t	to terminals M5		2,5	5	Nm
w				160	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 75GB173D



SEMITRANS® 2

IGBT Modules

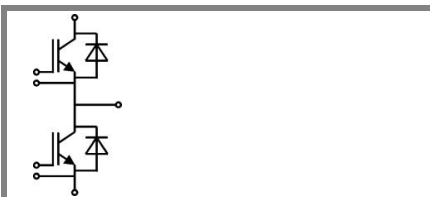
SKM 75GB173D

Features

- N channel, Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding
- Large clearance (10 mm) and creepage distance (20 mm)

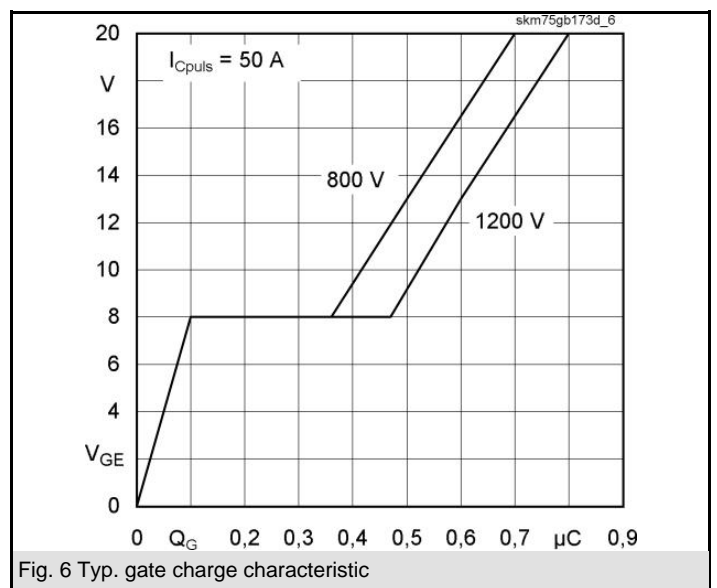
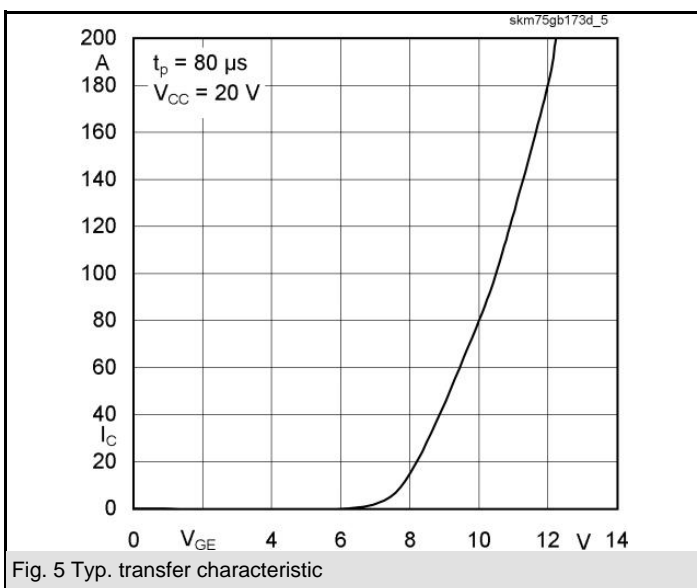
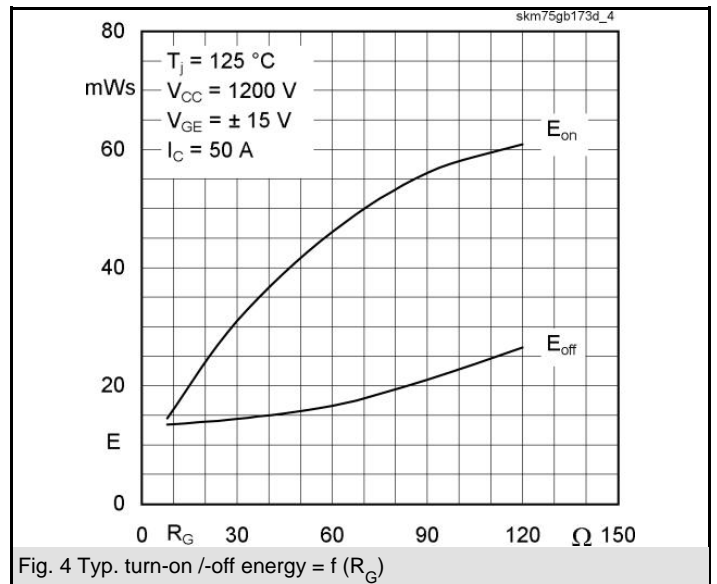
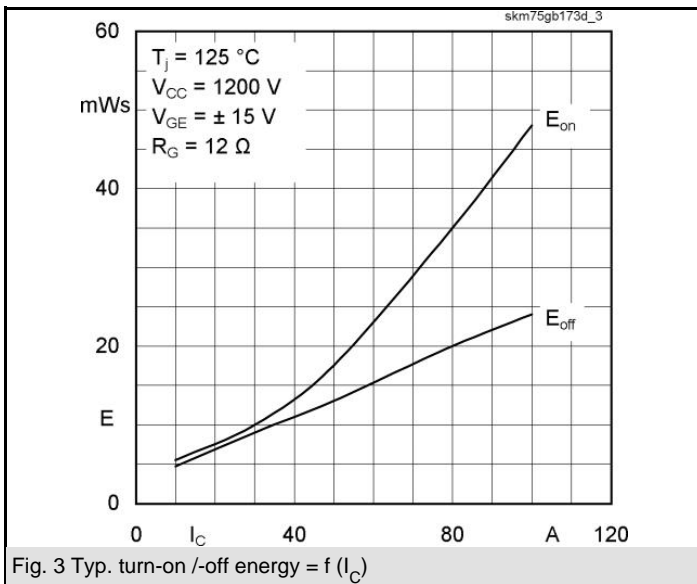
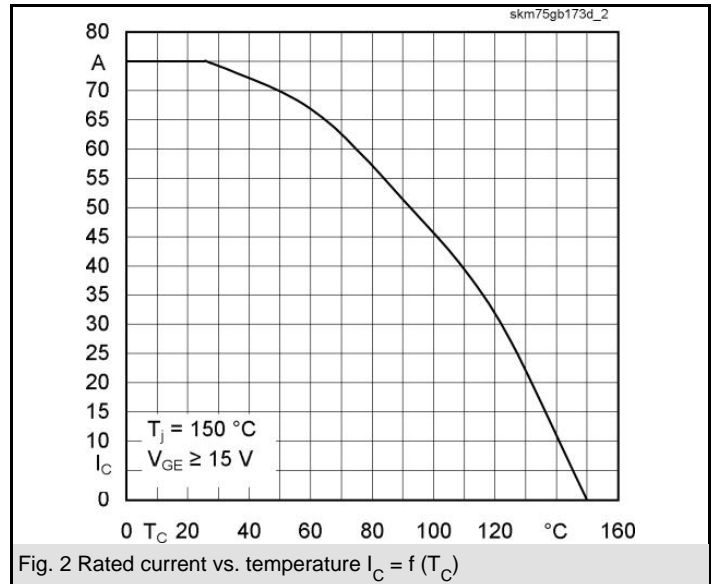
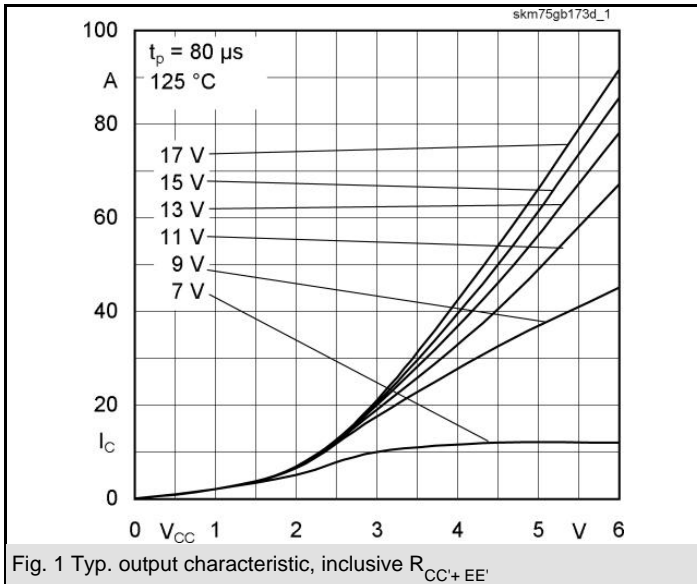
Typical Applications

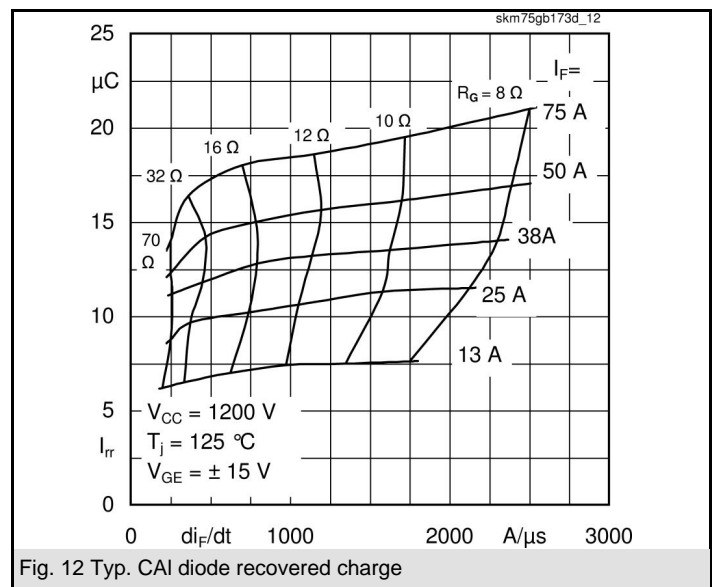
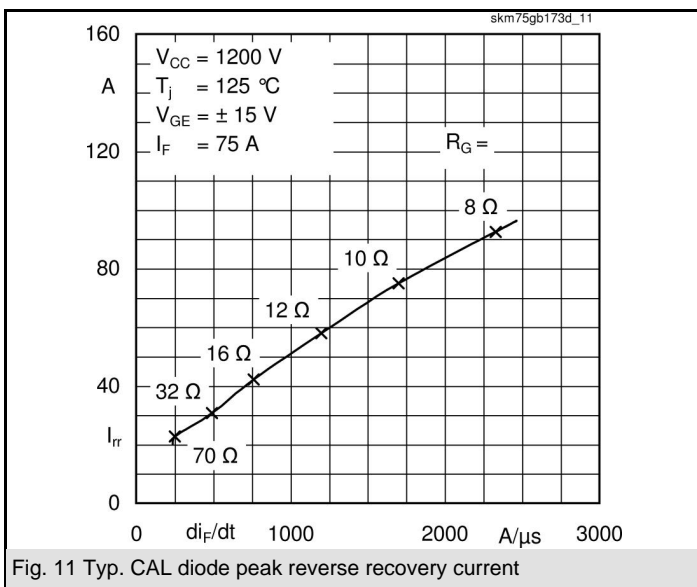
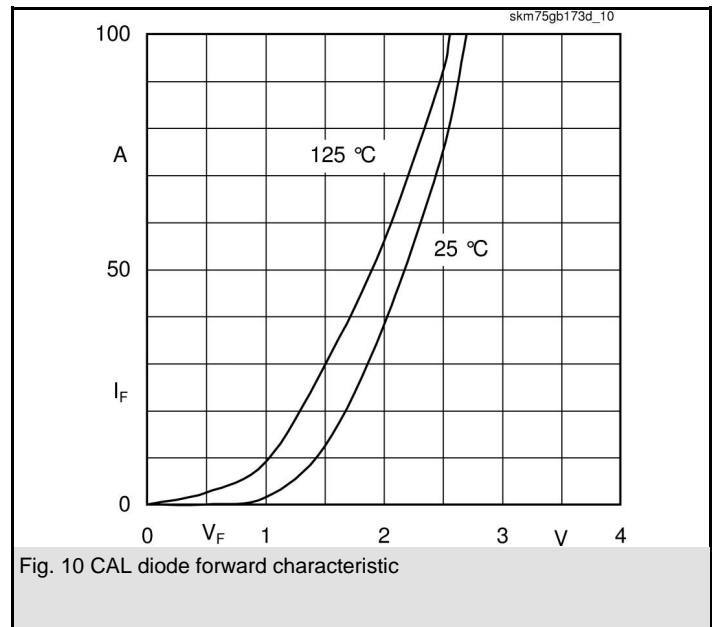
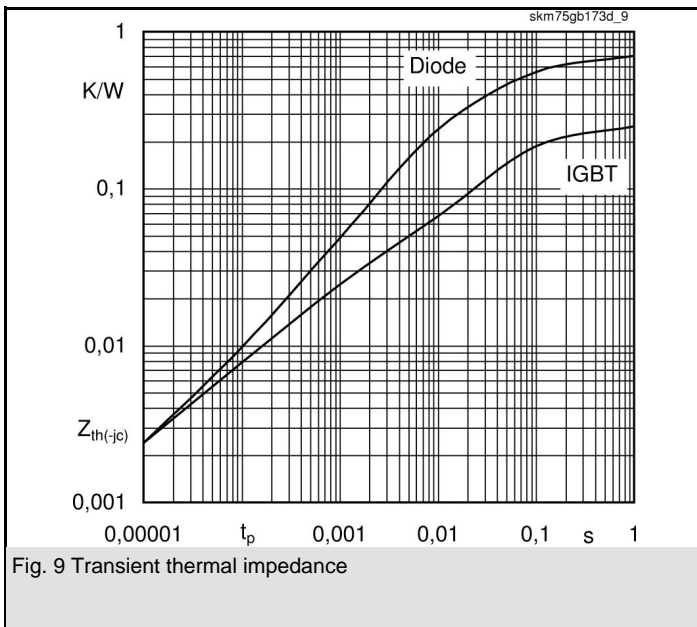
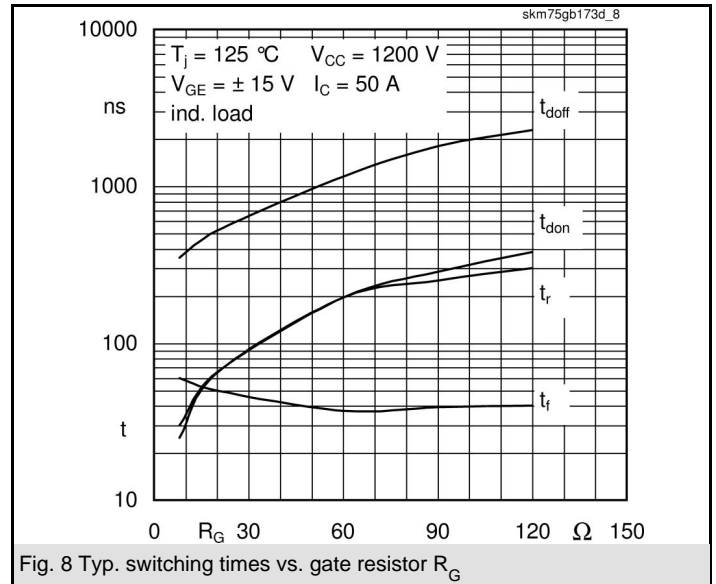
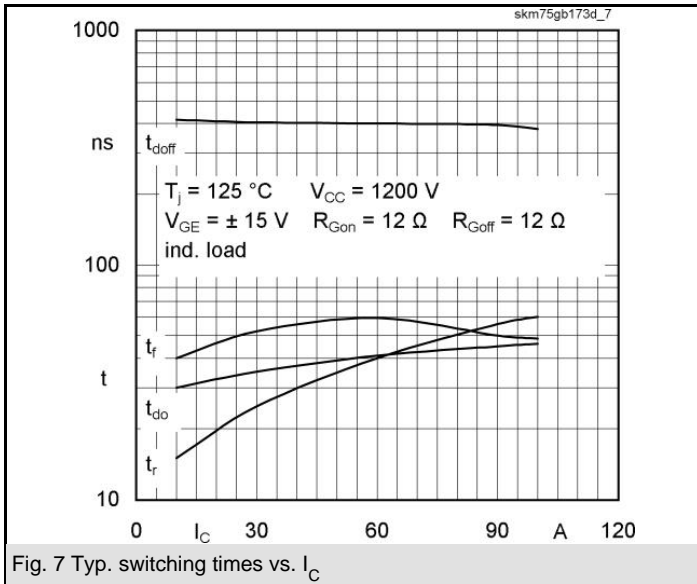
- AC inverter drives on mains 575 - 750 V_{AC}
- DC bus voltage 750 - 1200 V_{DC}
- Public transport (auxiliary syst.)
- Switching (not for linear use)



GB

Z_{th}			
Symbol	Conditions	Values	Units
Z_{th(j-c)I}			
R _f	i = 1	190	mk/W
R _f	i = 2	35	mk/W
R _f	i = 3	17	mk/W
R _f	i = 4	8	mk/W
tau _i	i = 1	0,1319	s
tau _i	i = 2	0,0042	s
tau _i	i = 3	0,0018	s
tau _i	i = 4	0,0003	s
Z_{th(j-c)D}			
R _f	i = 1	530	mk/W
R _f	i = 2	170	mk/W
R _f	i = 3	45	mk/W
R _f	i = 4	5	mk/W
tau _i	i = 1	0,0839	s
tau _i	i = 2	0,0069	s
tau _i	i = 3	0,0069	s
tau _i	i = 4	0,0005	s



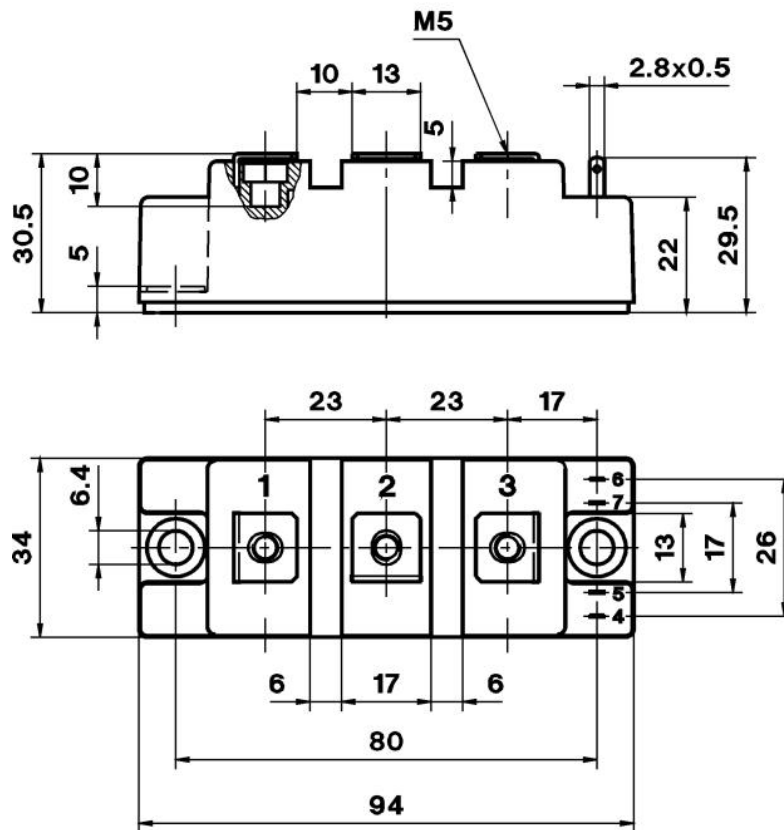


SKM 75GB173D

UL Recognized
File no. E 63 532

Dimensions in mm

CASED61



Case D 61

