

SKM 75GD123D



SEMITRANS® 6

IGBT Modules

SKM 75GD123DL

SKM 75GD123D

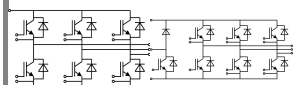
SKM 75GDL123D

Features

- MOS input (voltage controlled)
- 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 Bonding Technology
- Large clearance (9 mm) and creepage distance (13 mm)

Typical Applications

- Switched mode power supplies
- DC servo and robot drives
- Three phase inverters for AC motor speed control
- Switching (not for linear use)



GD

GDL

Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified		
Symbol	Conditions		Values	Units
IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	T _j = 150 °C	T _{case} = 25 °C	75	A
		T _{case} = 80 °C	50	A
I _{CRM}	I _{CRM} =2xI _{Cnom}		100	A
V _{GES}			± 20	V
t _{psc}	V _{CC} = 600 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 1200 V		10	µs
Inverse Diode				
I _F	T _j = 150 °C	T _{case} = 25 °C	75	A
		T _{case} = 80 °C	50	A
I _{FRM}	I _{FRM} =2xI _{Fnom}		100	A
I _{FSM}	t _p = 10 ms; sin. T _j = 150 °C		550	A
Module				
I _{t(RMS)}			100	A
T _{vj}			- 40 ...+ 150	°C
T _{stg}			- 40 ...+ 125	°C
V _{isol}	AC, 1 min.		2500	V

Characteristics		$T_c = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 2\text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$		0,4	1,2	mA
V_{CE0}		$T_j = 25^\circ\text{C}$	1,4	1,6	V
		$T_j = 125^\circ\text{C}$	1,6	1,8	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}$	22	28	m Ω
		$T_j = 125^\circ\text{C}$	30	38	m Ω
$V_{CE(sat)}$	$I_{Cnom} = 50\text{ A}, V_{GE} = 15\text{ V}$	$T_j = ^\circ\text{C}_{chiplev.}$	2,5	3	V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	3,3	4,3	nF
C_{oes}			0,5	0,6	nF
C_{res}			0,22	0,3	nF
$t_{d(on)}$	$R_{Gon} = 22\ \Omega$	$V_{CC} = 600\text{ V}$ $I_C = 50\text{ A}$	44	100	ns
t_r			56	100	ns
E_{on}	$R_{Goff} = 22\ \Omega$	$T_j = 125^\circ\text{C}$ $V_{GE} = \pm 15\text{ V}$	8		mJ
$t_{d(off)}$			380	500	ns
t_f			70	100	ns
E_{off}			5		mJ
$R_{th(j-c)}$				0,32	K/W

SKM 75GD123D



SEMITRANS® 6

IGBT Modules

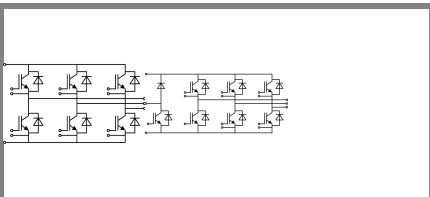
SKM 75GD123DL
SKM 75GD123D
SKM 75GDL123D

Features

- MOS input (voltage controlled)
- 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 Bonding Technology
- Large clearance (9 mm) and creepage distance (13 mm)

Typical Applications

- Switched mode power supplies
- DC servo and robot drives
- Three phase inverters for AC motor speed control
- Switching (not for linear use)



GD GDL

Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 50\text{ A}; V_{GE} = 0\text{ V}$		$T_j = 25\text{ °C}_{chiplev.}$ $T_j = 125\text{ °C}_{chiplev.}$	2 2,5	V V
V_{F0}			$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$	1,1 1,2	V V
r_F			$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$	18 26	mΩ mΩ
I_{RRM}	$I_F = 50\text{ A}$		$T_j = 125\text{ °C}$	35	A
Q_{rr}	$di/dt = 800\text{ A/μs}$			7	μC
E_{rr}	$V_{GE} = 0\text{ V}; V_{CC} = 600\text{ V}$			2,2	mJ
$R_{th(j-c)D}$	per diode			0,6	K/W
Module					
L_{CE}				60	nH
$R_{th(c-s)}$	per module			0,05	K/W
M_s	to heat sink M5				Nm
M_t	to terminals	4		5	Nm
w				175	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 75GD123D



SEMITRANS® 6

IGBT Modules

SKM 75GD123DL

SKM 75GD123D

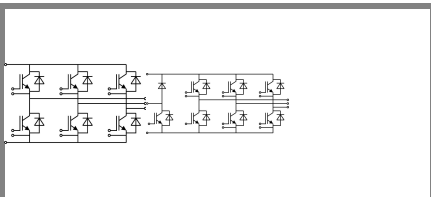
SKM 75GDL123D

Features

- MOS input (voltage controlled)
- 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 Bonding Technology
- Large clearance (9 mm) and creepage distance (13 mm)

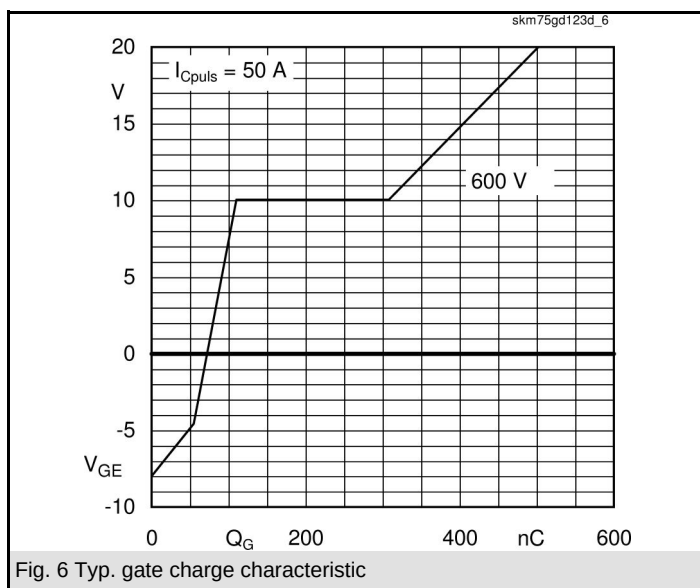
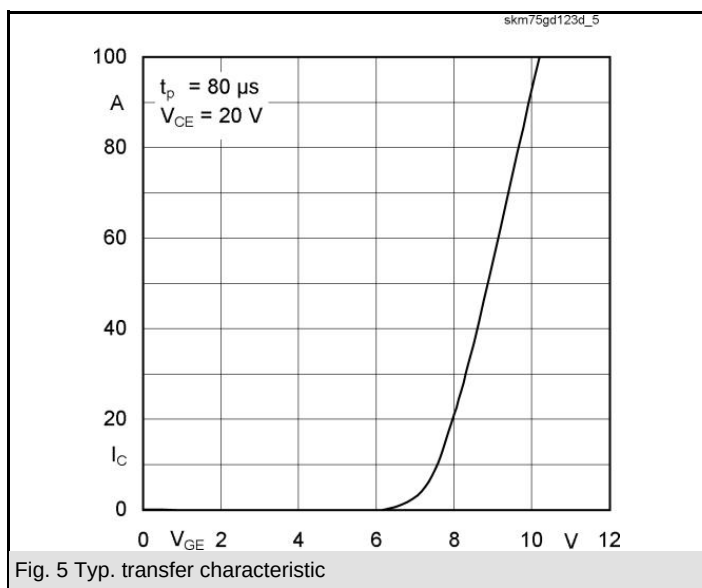
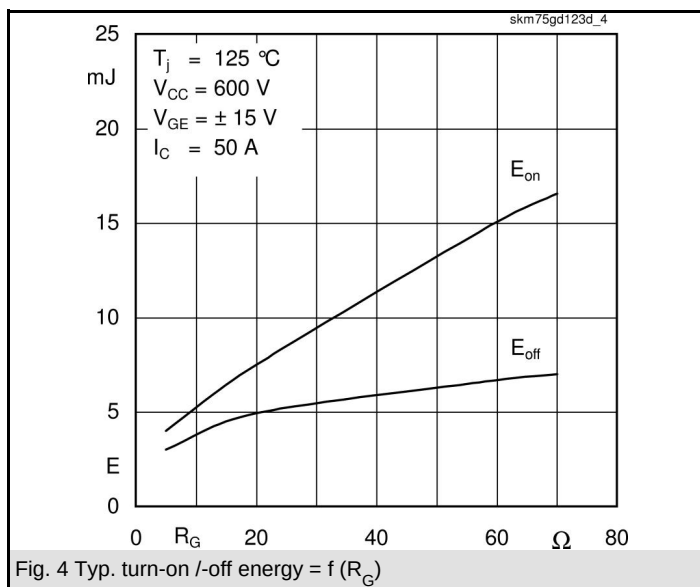
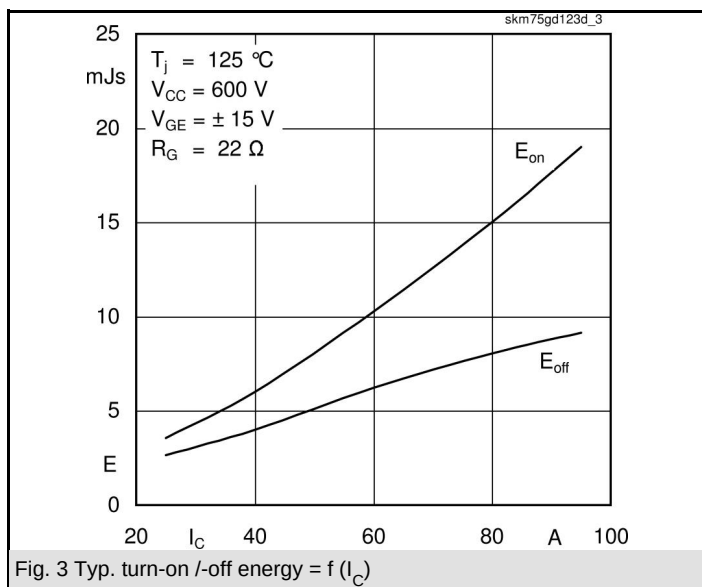
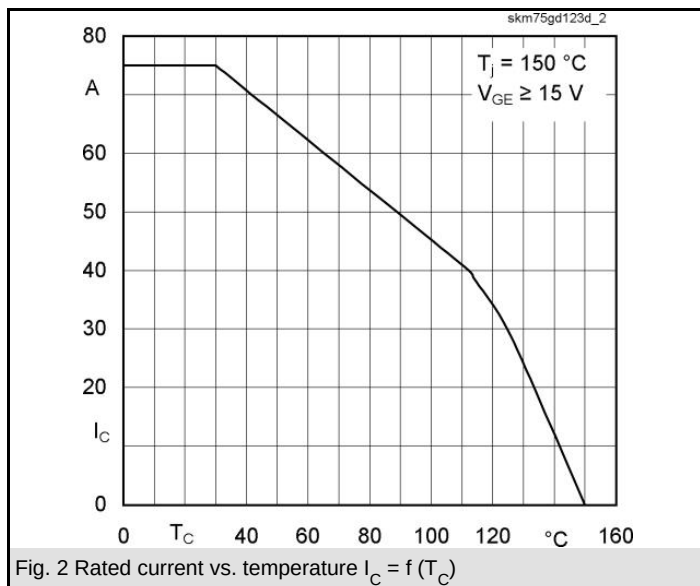
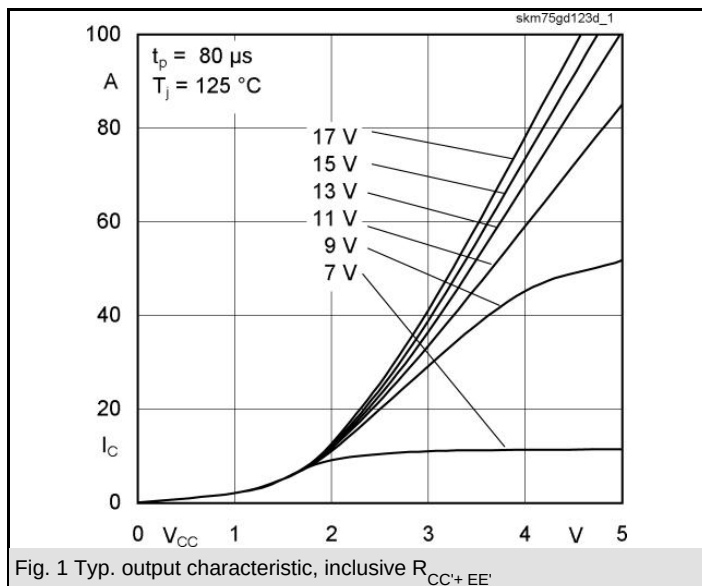
Typical Applications

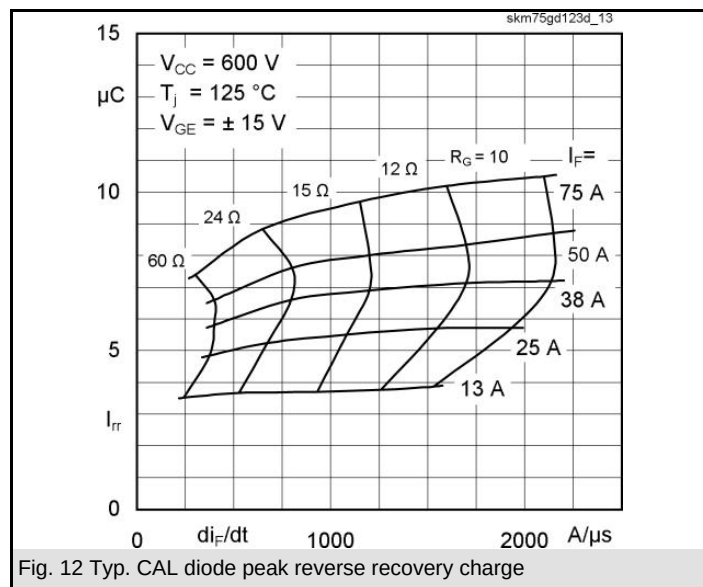
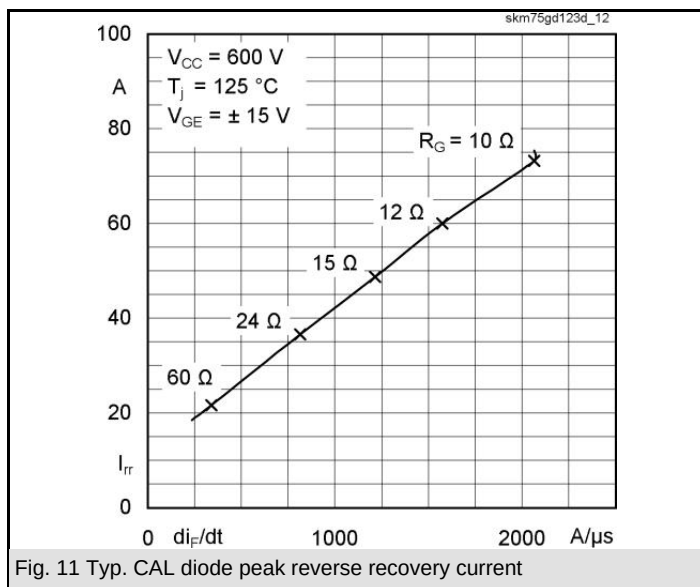
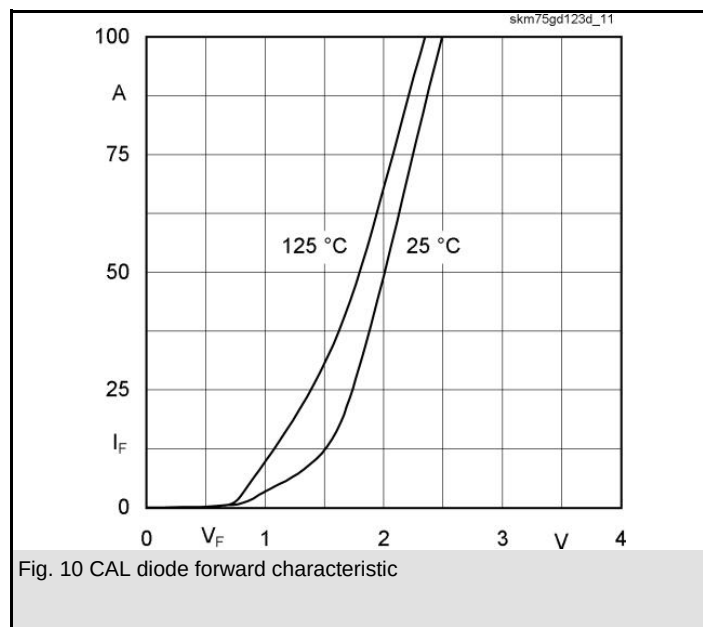
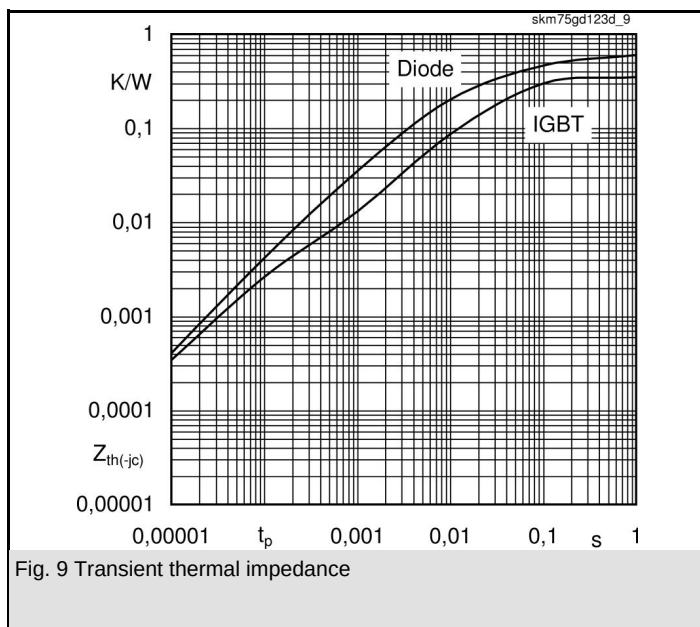
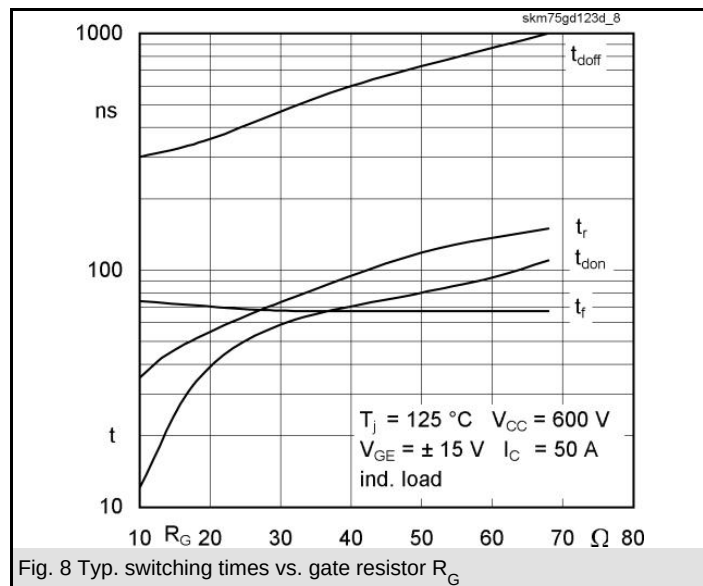
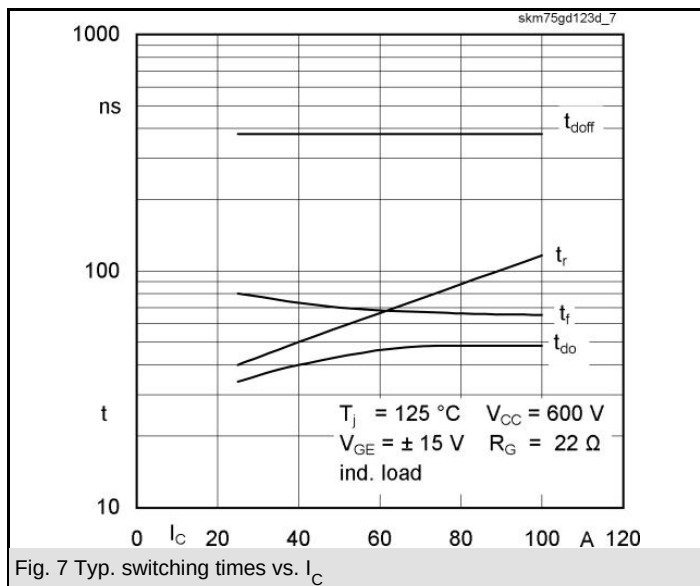
- Switched mode power supplies
- DC servo and robot drives
- Three phase inverters for AC motor speed control
- Switching (not for linear use)



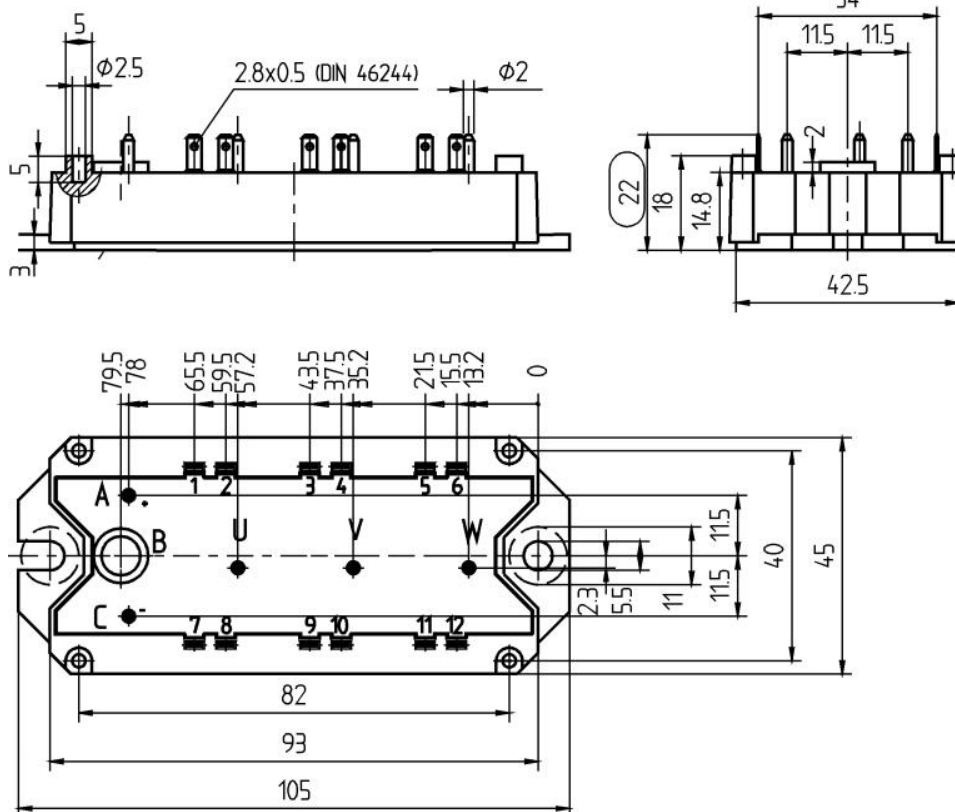
GD GDL

Z_{th}			
Symbol	Conditions	Values	Units
$Z_{th(j-c)I}$			
R_i	$i = 1$	240	mk/W
R_i	$i = 2$	68	mk/W
R_i	$i = 3$	9,2	mk/W
R_i	$i = 4$	2,8	mk/W
τ_{ui}	$i = 1$	0,06	s
τ_{ui}	$i = 2$	0,0228	s
τ_{ui}	$i = 3$	0,0013	s
τ_{ui}	$i = 4$	0,0002	s
$Z_{th(j-c)D}$			
R_i	$i = 1$	400	mk/W
R_i	$i = 2$	168	mk/W
R_i	$i = 3$	28	mk/W
R_i	$i = 4$	4	mk/W
τ_{ui}	$i = 1$	0,0831	s
τ_{ui}	$i = 2$	0,0112	s
τ_{ui}	$i = 3$	0,0013	s
τ_{ui}	$i = 4$	0,08	s

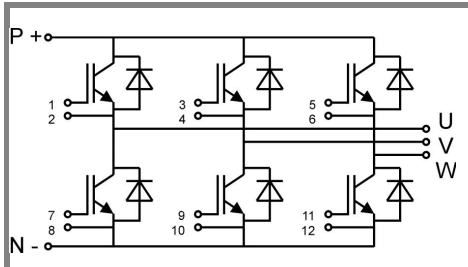




CASED68

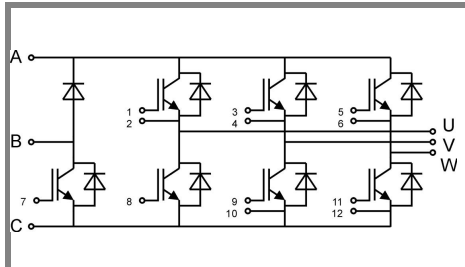


Case D 56a



Case D 67

GD



Case D 73

GDL