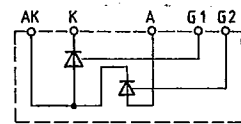


# Circuit Configurations Available

MTT 40 A ... MTT 95 A,  
 MTD 40 A ... MTD 95 A  
 MDT 40 A ... MDT 95 A

### Fully controlled version

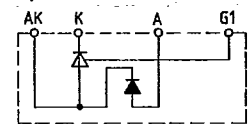
**MTT**



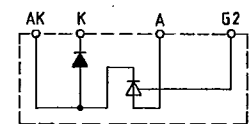
MTT 100 A ... MTT 120 A,  
 MTD 100 A ... MTD 120 A,  
 MDT 100 A ... MDT 120 A,

### Half-controlled version

**MTD**



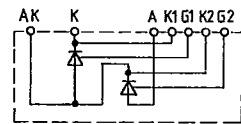
**MDT**



Thy L 75 A ... Thy M 77 A .. V  
 Thy DM 77 A .. V1  
 Thy DM 77 A .. V2

### Fully controlled version

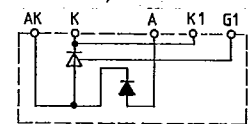
**V circuit**



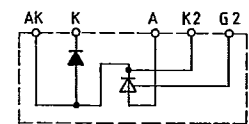
MDD 55 A ... MDD 95 A  
 DiL 74 A ... DiL 78 A

### Half-controlled version

**V1 circuit**

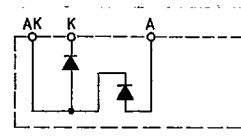


**V2 circuit**

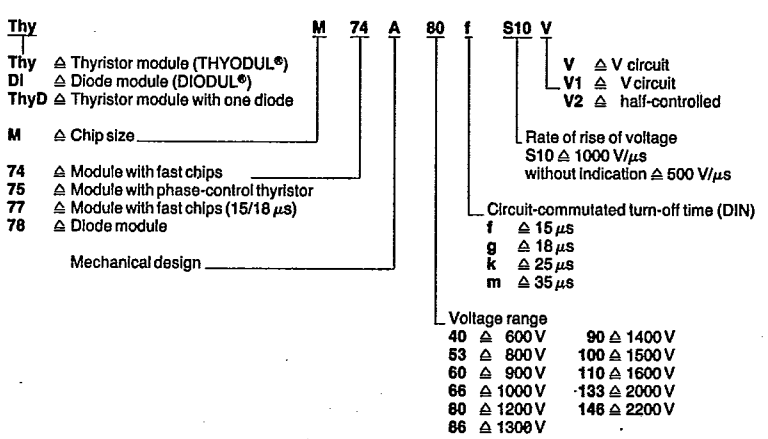
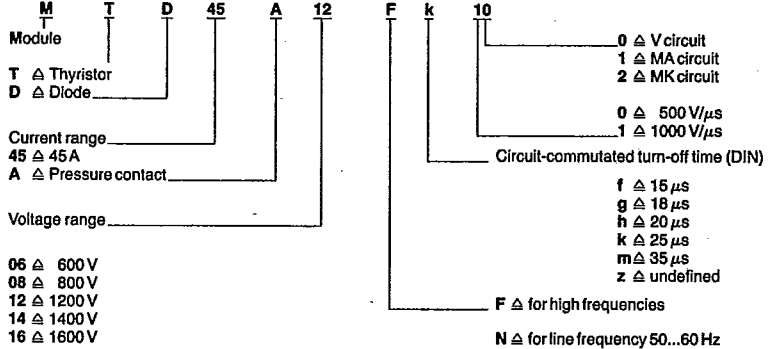


### Uncontrolled version

**V circuit**



### Examples for new type designations



All modules mentioned have the test symbol (File No. E 78437 (N))

### Electrical and thermal characteristics per diode/thyristor

Max. repetitive peak off-state or reverse voltage  $V_{DRM}$   
 $V_{FRM}$

### Maximum ratings

Mean on-state or forward current	$I_{TAV}, I_{FAV}$
RMS on-state or forward current	$I_{TRMS}, I_{FRMS}$
Max. single cycle surge current (t = 10 ms, 25°C)	$I_{TSM}, I_{FSM}$
$i^2$ value (for fusing) (t = 10 ms, 25°C)	$i^2 t$
Critical rate of rise of on-state current (DIN 41787)	$(di/dt)_{cr}$
Critical rate of rise of off-state voltage normal version (DIN 41787)	$(dv/dt)_{cr}$
	special version

### Characteristics

Max. off-state or reverse current ( $T_{jmax}$ )	$I_D, I_R$
Threshold voltage	$V_{(TO)}$
Slope resistance	$r_T$
Circuit-commutated turn-off time (DIN 41787)	$t_q$
<b>Gate circuit characteristics</b>	
Min. gate trigger voltage ( $T_j = 25^\circ C$ )	$V_{GT}$
Min. gate trigger current ( $T_j = 25^\circ C$ )	$I_{GT}$
Max. gate non-trigger current ( $T_{jmax}, 0.5 V_{DRM}$ )	$I_{GD}$
Max. gate non-trigger voltage ( $T_{jmax}, 0.5 V_{DRM}$ )	$V_{GD}$
Max. permissible gate power dissipation	$P_{GAV}$

### Thermal characteristics

Junction temperature	$T_{j0}$
Operating temperature range	$T_j$
Storage temperature range	$T_{stg}$
Thermal resistance, junction to case	$R_{thJC}$
Thermal resistance, case to heat sink	$R_{thCH}$

### Mechanical and other characteristics

Mounting torque	$M_d$
Leakage path	
Weight	
Isolation voltage	$V_{ISO}$

Outlines  
 1) Thyristor peak reverse voltage  
 2) Diode peak reverse voltage  
 3)  $V_D = 6 V, R_A = 5 \Omega$

# Modules for line-commutated converters

	MTT 40A MTD 40A MDT 40A	MTT 50A MTD 50A MDT 50A	MTT 65A MTD 65A MDT 65A	MTT 95A MTD 95A MDT 95A	MTT 120A MTD 120A MDT 120A	Thy L75A...V	Thy M 75A...V Thy DM 75A...V1 Thy DM 75A...V2	MDD 55A	MDD 95A	DIL 78A
V	600	600	600	600	600	600	600	600	600	600
V	800	800	800	800	800	800	800	800	800	800
V	—	—	—	—	—	—	—	—	—	—
V	—	—	—	—	—	—	—	—	—	—
V	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
V	—	—	—	—	—	—	—	—	—	—
V	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
V	—	—	—	—	—	—	—	—	—	—
V	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
A	40	50	65	95	120	135	160	55	95	160
A	75	105	120	150	200	210	250	105	150	250
A	850	1100	1500	1900	2600	3500	5100	1000	3600	6700
A <sup>2</sup> s	3600	6000	11250	18000	33800	61000	130000	5000	65000	224500
A/μs	100	100	100	100	150	100	100	—	—	—
V/μs	500	500	500	500	500	500	500	—	—	—
V/μs	1000	1000	1000	1000	1000	1000	1000	—	—	—
mA	15	15	15	20	25	25	25	10	15	25
V	0.85	0.84	0.82	0.85	0.85	0.98	0.97	0.784	0.748	0.85
mΩ	6.65	5.17	3.33	2.7	2.0	1.41	1.2	5.4	1.72	0.77
μs	typ. 150	typ. 150	typ. 150	typ. 150	typ. 180	typ. 200	typ. 200	—	—	—
V	1.5	1.5	1.5	1.5	1.4	1.5	1.5	—	—	—
mA	150	150	150	150	150	250	250	—	—	—
mA	4	4	4	4	5	10	10	—	—	—
V	0.25	0.25	0.25	0.25	0.2	0.2	0.2	—	—	—
W	20	20	20	20	—	20	20	—	—	—
°C	125	125	125	140	125	125	125	150	150	150
°C	-40...+125	-40...+125	-40...+125	-40...+140	-40...+125	-40...+125	-40...+125	-40...+150	-40...+150	-40...+150
°C	-40...+130	-40...+130	-40...+130	-40...+140	-40...+130	-40...+130	-40...+130	-40...+150	-40...+150	-40...+150
K/W	0.6	0.6	0.5	0.36	0.107	0.21	0.16	0.7	0.45	0.230
K/W	0.08	0.08	0.08	0.08	0.06	0.04	0.04	0.08	0.08	0.04
Nm	2.5...3.5	2.5...3.5	2.5...3.5	2.5...3.5	4...5	4...5	4...5	2.5...3.5	2.5...3.5	4...5
mm	13	13	13	13	14	13	13	13	13	13
g	120	120	120	120	400	500	500	120	120	500
V <sub>eff</sub>	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Fig	1	1	1	1	2	4	4	3	3	5

B

# Modules for inverters

# Modules for self-commutated converters

MTD 61A MDT 61A	MTD 91A MDT 91A	Thy DM 75A...V1 Thy DM 75A...V2	MTT 45A MTD 45A MDT 45A	MTT 46A MTD 46A MDT 46A	MTT 100A MTD 100A MDT 100A	MTT 110A MTD 110A MDT 110A	Thy M74A...V Thy DM 74A...V1 Thy DM 74A...V2	Thy M77A...V Thy DM 77A...V1 Thy DM 77A...V2	MDD 72A	DIL 74A
-	-	-	600	600	600	600	600	600	600	600
-	-	-	800	800	800	800	800	800	800	800
-	-	-	-	900	-	900	-	900	900	900
-	-	-	-	1000	-	1000	-	1000	1000	1000
-	-	-	1200	-	1200	-	1200	-	1200	1200
-	-	-	1300	-	1300	-	1300	-	1300	1300
1400 <sup>1</sup> /2000 <sup>2</sup>	1400/2000	1400 <sup>1</sup> /2000 <sup>2</sup>	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	1500	1500
1600 <sup>1</sup> /2500 <sup>2</sup>	1600 <sup>1</sup> /2500 <sup>2</sup>	1600 <sup>1</sup> /2200 <sup>2</sup>	-	-	-	-	-	-	-	-
65	95	160	-	-	-	-	-	-	-	-
120	150	250	120	120	200	200	250	250	150	250
1500	1900	5100	1200	1300	2750	3000	5100	5400	2410	4700
11250	18000	130000	7200	8500	37800	45000	130000	146000	29000	110500
100	100	100	100	100	160	200	200	200	-	-
500	500	500	500	500	500	500	500	500	-	-
1000	1000	1000	-	-	-	-	-	-	-	-
15	20	25	15	15	30	30	40	40	40	60
0.82	0.85	0.97	1.4	1.35	1.2	1.2	1.36	1.28	1.395	1.3
3.33	2.7	1.2	3.43	3.16	2.1	1.4	1.29	1.26	1.53	1.1
typ. 150	typ. 150	typ. 200	k:25/m:35	f:15/g:18	g:18/h:20/k:25	e:12/f:15	k:25/m:35	f:15/g:18	-	-
1.5	1.5	1.5	1.5	1.5	2	2	2.5	2.5	-	-
150	150	250	250	250	150	150	250	250	-	-
4	4	10	6	6	10 <sup>3)</sup>	10 <sup>3)</sup>	10	10	-	-
0.25	0.25	0.2	0.2	0.2	0.25 <sup>3)</sup>	0.25 <sup>3)</sup>	0.2	0.2	-	-
20	20	20	20	20	-	-	20	20	-	-
125	140	125	125	125	125	125	125	125	140	140
-40...+125	-40...+140	-40...+125	-40...+125	-40...+125	-40...+125	-40...+125	-40...+125	-40...+125	-40...+140	-40...+140
-40...+130	-40...+140	-40...+130	-40...+130	-40...+130	-40...+130	-40...+130	-40...+130	-40...+130	-40...+140	-40...+140
0.5	0.36	0.16	0.5	0.5	0.214	0.214	0.2	0.2	0.45	0.23
0.08	0.08	0.04	0.08	0.08	0.06	0.06	0.04	0.04	0.08	0.04
2.5...3.5	2.5...3.5	4...5	2.5...3.5	2.5...3.5	4...5	4...5	4...5	4...5	2.5...3.5	4...5
13	13	13	13	13	14	14	13	13	13	13
120	120	500	120	120	400	400	500	500	120	500
3000	3000	3000	2500	2500	2500	2500	2500	2500	2500	2500
1	1	4	1	1	2	2	4	4	3	5

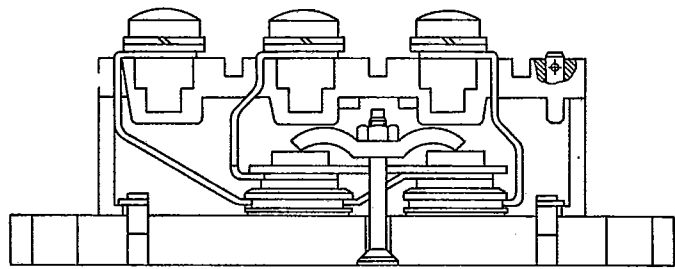
# Thyristor and Diode Modules – Ideal for Compact Converters

THYODUL® units make the design of converters more compact and economic as well as much simpler. Owing to their potential-free design no additional isolation parts are necessary for installation.

Advantages in construction, simple assembly and favorable prices justify in most cases a new-construction of converters in the low and middle capacity ranges.

The following survey shows all THYODUL® units available at present and their most important technical characteristics. Full technical details, curves and circuit information are provided in the Data Book "Leistungshalbleiter-Module für potential-freien Aufbau", Ordering code: B3-B3000 (at present only German edition).

### Pressure contact system:



### Outlines:

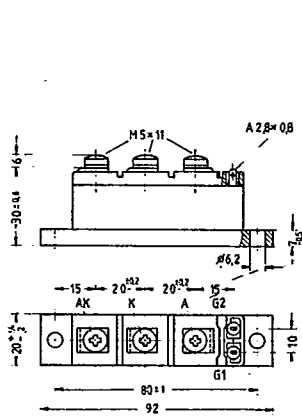


Fig. 1

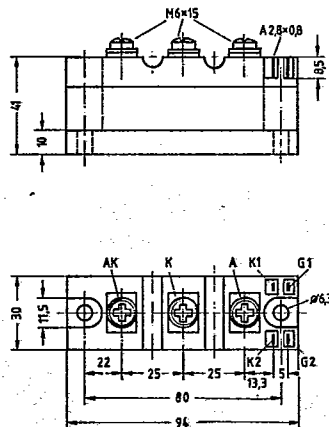


Fig. 2

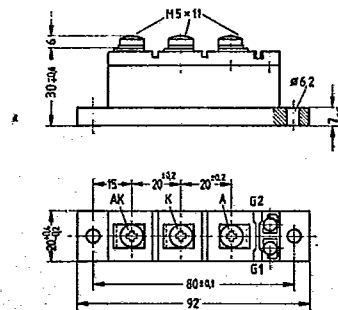


Fig. 3

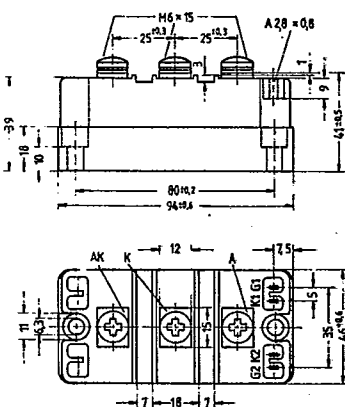


Fig. 4

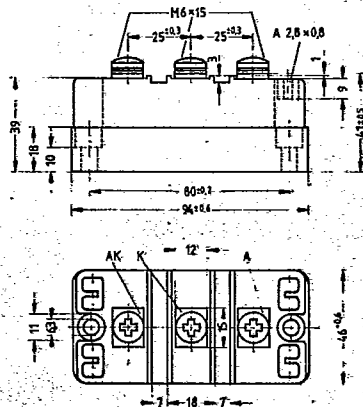


Fig. 5

Dimensions in mm