

**Hind Rectifiers' High frequency 'S' series capsule thyristors have interdigitated gate structure. These devices have low switching losses and high di/dt performance.**

### Ordering information

**Example : HF600CH13DHO**

HF	600	CH	13	D	H	0
1	2	3	4	5	6	7

- 1) HF : Fast Turn off thyristors  
OR  
HS : Fast turn off thyristors with interdigitated gate structure
- 2) 600\* : Average forward current rating at Tcase = 85°C  
(\* incase of capsules with double sided cooling)
- 3) TB : Tophat types  
CH : Capsule Types
- 4) 13 : Voltage grade code from Table 1
- 5) D : Reapplied dv/dt code from Table 2
- 6) H : Turn off code from Table 3
- 7) O : Extra for any special application.

**Table No.: 1**

Code	02	04	06	08	10	12	13	14	16	20
V <sub>DRM</sub> V <sub>RRM</sub> Volts	200	400	600	800	1000	1200	1300	1400	1600	2000

**Table No.: 2**

Code	D	H
reapplied dv/dt V/ $\mu$ Sec.	50	400

**Table No.: 3**

Code	N	C	L	S	K	J	H	G	2K	F	2H
T <sub>q</sub> $\mu$ Sec.	10	12	15	18	20	25	30	35	40	50	60

Turn off times and recovered charges given in the table are measured at 125°C and under the conditions given below.

- 1) ON STATE CURRENT  $I_{TM} = I_{TAVM}$
- 2) Rate of decay of on state current when passing through zero  $di/dt = 20A/\mu\text{sec}$ .
- 3) Reverse Voltage = 100 Volts.
- 4) Rate of rise of OFF state voltage as per 5th code letter.
- 8) Forward off state voltage  $V_{DM} = 0.67 V_{DRM}$

### FAST TURN - OFF : TOP HAT TYPES

Thyristor Type	$V_{DRM}/V_{RRM}$	$T_q$	$I_T$ (av) at $T_{case}$		$I_T$ (RMS)	$I_{TSM}$	$I^2t$	di/dt NONREP/REP	$Q_{RR}$ at $dir/dt=20$ A/ $\mu$ Sec.		$V_{peak}$ at $I_{peak}$ $T_j$ max		$R_{th(j-c)}$ $^{\circ}C/W$		$R_{th(c-h/s)}$	$V_C$
	Volts	$\mu$ Sec	Amps.	$^{\circ}C$	Amps.	Amps.	$A^2sec \times 10^3$	Amps/ $\mu$ Sec	$\mu C$ at $I_{TM}$	Volts	Amps.	180 $^{\circ}$ Sine	120 $^{\circ}$ Rect	$^{\circ}C/W$	Volts	
HF36TB	200-1200	15 - 25	41 36	78 85	65	850	3.6	600/120	55 50	2.2	150	0.62	0.72	0.1	1.5	
HF46TB	200-1200	15 - 25	51 46	78 85	80	1000	5.0	600/120	55 50	1.92	150	0.53	0.63	0.1	1.2	
HF80TB	200-1400	20 - 25	127 80	52 85	200	2450	30	800/160	154 150	2.4	400	0.28	0.32	0.08	1.5	
HF120TB	200-1400	20 - 25	152 120	70 85	240	2900	42	800/160	154 150	2.2	500	0.2	0.23	0.08	1.5	
HF195TB	200-1300	20 - 25	287 195	59 85	450	6000	180	1000/200	198 300	2.05	800	0.12	0.142	0.02	1.5	
HF290TB	200-1300	20 - 25	350 290	73 85	550	6400	205	1000/200	198 300	2.1	1000	0.08	0.104	0.02	1.5	

### FAST TURN - OFF : CAPSULE TYPES

Thyristor Type	$V_{DRM}/V_{RRM}$	$T_q$	$I_T$ (av) at $T_{case}$		$I_T$ (RMS)	$I_{TM}$ at $T_C=60^{\circ}C$ Sine wave, $V_{RM}=50V$ $V_{DM}=0.67 V_{DRM}$			$I_{TSM}$	$I^2t$	di/dt NONREP/REP	$Q_{RR}$ at $dir/dt=20A/\mu$ sec.		$V_{peak}$ at $I_{peak}$ $T_j$ max		$R_{th(j-c)}$ $^{\circ}C/W$ double sided	
	Volts	$\mu$ Sec	Amps.	$^{\circ}C$	Amps.	50Hz	400Hz	2KHz 10KHz	Amps.	$A^2sec. \times 10^3$	Amps/ $\mu$ Sec	$\mu C$ at $I_{TM}$		Volts	Amps.	180 $^{\circ}$ Sine	120 $^{\circ}$ Rect
HF128CH	200-1400	20 - 25	191 128	54 85	300	575	575	575	2450	30	800/160	165	200	2.60	600	0.163	0.2
HF188CH	200-1400	20 - 25	254 188	64 85	400	800	800	800	2900	42	800/160	169	250	2.44	800	0.117	0.1
HF318CH	200-1300	20 - 25	446 318	62 85	700	1400	1400	1300	6000	180	1000/200	198	400	2.25	1200	0.068	0.06
HF408CH	200-1300	20 - 25	477 408	76 85	750	1500	1500	1500	6400	205	1000/200	209	500	2.20	1400	0.053	0.07
HF600CH	200-1300	20 - 30	960 600	47 85	1500	2600	2600	1680	10000	500	900/200	286	800	2.35	2500	0.038	0.04
HF670CH	200-2000	40 - 60	960 670	57 85	1500	2950	2900	1690	11500	661	900/200	440	1000	2.80	3000	0.029	0.04

### FAST TURN - OFF : HIGH FREQUENCY CAPSULE TYPES

Thyristor Type	$V_{DRM}/V_{RRM}$	$T_q$	$I_T$ (av) at $T_{case}$		$I_T$ (RMS)	$I_{TM}$ at $T_C=60^{\circ}C$ Sine wave, $V_{RM}=50V$ $V_{DM}=0.67 V_{DRM}$			$I_{TSM}$	$I^2t$	di/dt NONREP/REP	$Q_{RR}$ at $dir/dt=20A/\mu$ sec		$V_{peak}$ at $I_{peak}$ $T_j$ max		$R_{th(j-c)}$ $^{\circ}C/W$ double sided	
	Volts	$\mu$ Sec	Amps.	$^{\circ}C$	Amps.	50Hz	400Hz	2KHz 10KHz*	Amps.	$A^2sec. \times 10^3$	Amps/ $\mu$ Sec	$\mu C$ at $I_{TM}$		Volts	Amps.	180 $^{\circ}$ Sine	120 $^{\circ}$ Rect.
HS388CH	200-1200	10 - 20	575 388	51 85	900	1650	1650	1650 1000	5600	157	2000/600	88	400	3.05	1500	0.045	0.054
HS510CH	200-1200	10 - 20	960 510	22 85	1500	2200	2200	2200 1300*	8400	353	1500/500	176	800	3.05	2500	0.038	0.045
HS930CH	1600-2000	30 - 60	1274 930	62 85	2000	4000	4000	3400	18000	1620	1000/250	770	1300	2.55	3000	0.021	0.0235
HS1052CH	200-1200	15-25	1400 1052	66 85	2200	4400	4400	4000 2000*	20000	2000	1200/400	117	1400	2.35	3000	0.018	0.0203

r	I <sub>GT</sub> /V <sub>GT</sub>	V <sub>FGM</sub>	I <sub>FGM</sub>	P <sub>GM 0.5</sub> msec. pulse width	I <sub>L</sub>	dv/dt	I <sub>D</sub> /I <sub>R</sub>	T <sub>J max</sub>	Weight	Torque	Fig. No.
m. ohms	mA/V	Volts	Amps.	Watts	mA	V/μSec	mA	°C	Grams	KgM	
5.5	150/2.5	13	10	30**	600	D,H	10	125	50	0.4	1
3.4	150/2.5	13	10	30**	600	D,H	10	125	50	0.4	1
2.4	150/2.0	11	10	60	1000	D,H	30	125	150	2.0	2
1.6	150/2.0	11	10	60	1000	D,H	30	125	150	2.0	3 ***
0.85	250/2.2	11	10	60	1000	D,H	50	125	650	1.65- 2.07	*5
0.75	250/2.2	11	10	60	1000	D,H	50	125	650	1.65- 2.07	5

\* HF195TB is also available in stud base as HF196TB as per figure no.4.

\*\* Pulse width 100 μS

\*\*\* HF120TB also available in 1/2" 20UNF stud as HF121TB as per Fig. No.: 2.

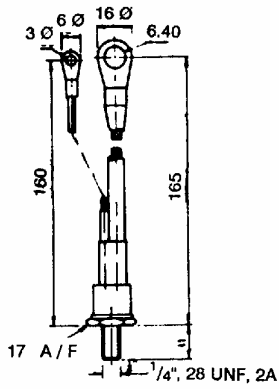
R <sub>th (c-h/s)</sub> double sided	V <sub>O</sub>	r	I <sub>GT</sub> /V <sub>GT</sub>	V <sub>FGM</sub>	I <sub>FGM</sub>	P <sub>GM 0.5</sub> msec. pulse width	I <sub>L</sub>	dv/dt	I <sub>D</sub> /I <sub>R</sub>	T <sub>J max</sub>	Weight	Mount- ing Force	Fig. No.
°C/W	Volts	m.ohms	mA/V	Volts	Amps.	Watts	mA	V/μSec	mA	°C	Grams	KN	
0.015	1.28	2.15	150/2.0	11.5	10	60	1000	D,H	30	125	70	3.4-5	6
0.015	1.20	1.35	150/2.0	11.5	10	60	1000	D,H	30	125	70	3-4.5	6
0.01	1.30	0.70	250/2.2	11.5	10	60	1000	D,H	50	125	110	5.5-8	7
0.01	1.20	0.63	250/2.2	11.5	10	60	1000	D,H	50	125	110	5.5-8	7
0.01	1.15	0.42	250/2.2	11.5	10	60	1000	D,H	100	125	260	12-15	8/9
0.004	1.15	0.55	250/2.2	11.5	10	60	1500	D,H	100	125	600	17-20	10/11

R <sub>th (c-h/s)</sub> double sided	V <sub>O</sub>	r	I <sub>GT</sub> /V <sub>GT</sub>	V <sub>FGM</sub>	I <sub>FGM</sub>	P <sub>GM 0.5</sub> msec. pulse width	I <sub>L</sub>	dv/dt	I <sub>D</sub> /I <sub>R</sub>	T <sub>J max</sub>	Weight	Mount- ing Force	Fig. No.
°C/W	Volts	m.ohms	mA/V	Volts	Amps.	Watts	mA	V/μSec.	mA	°C	Grams	KN	
0.015	1.30	1.10	250/2.2	11.5	10	60	1000	D,H	60	125	110	8-12	12
0.005	1.30	0.65	250/2.2	11.5	10	60	1500	D,H	100	125	270	12-15	9*
0.004	1.35	0.33	250/2.2	11.5	10	60	1500	D,H	200	125	600	25-30	11
0.004	1.30	0.32	300/2.2	9	10	60	1000	D,H	200	125	600	27-30	11

\* Also available in Epoxy Housing as per figure No. 13.

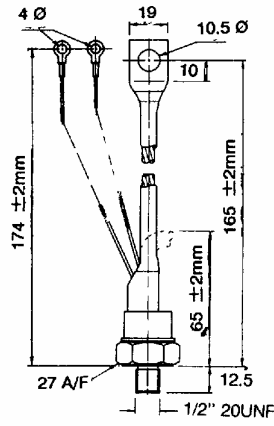
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Figure No. 1



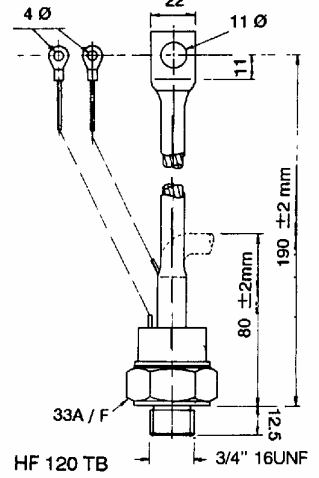
HF36TB  
HF46TB

Figure No. 2



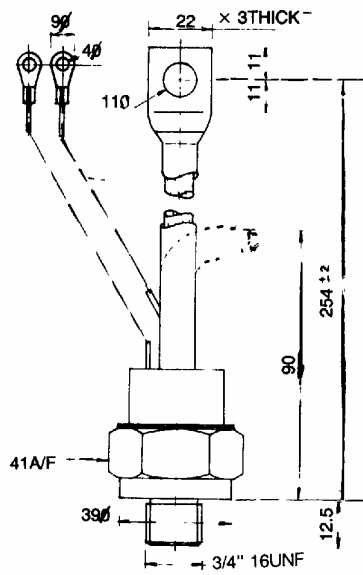
HF80TB  
HF121TB

Figure No. 3



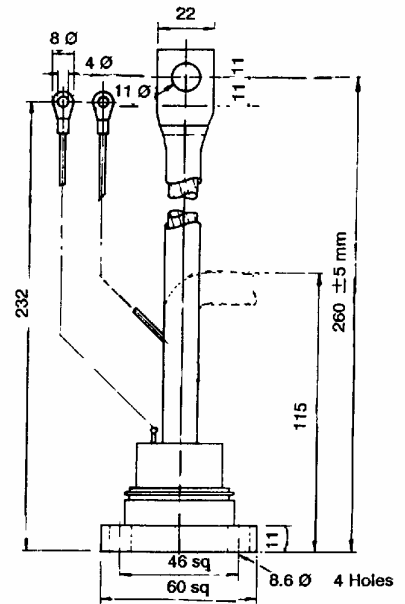
HF 120 TB

Figure No. 4



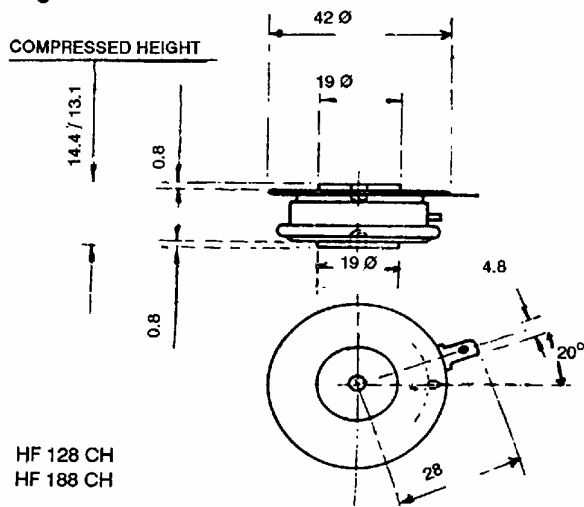
HF 196 TB

Figure No. 5



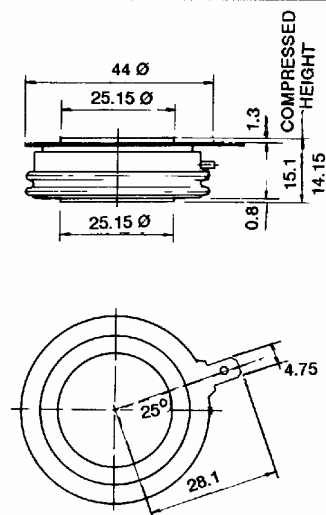
HF 195 TB  
HF 290 TB

Figure No. 6



HF 128 CH  
HF 188 CH

Figure No. 7



HF 318 CH  
HF 408 CH

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Figure No. 8

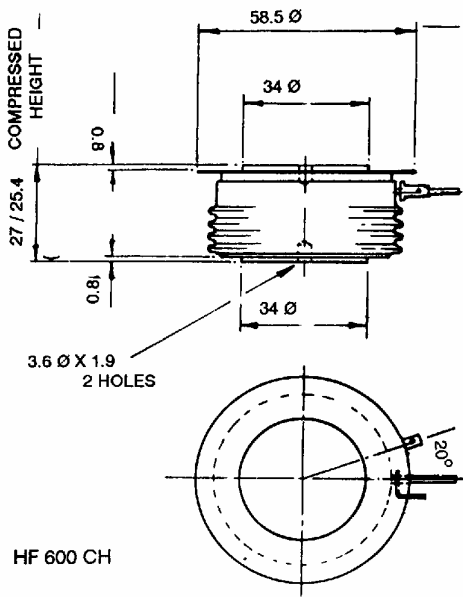


Figure No. 9

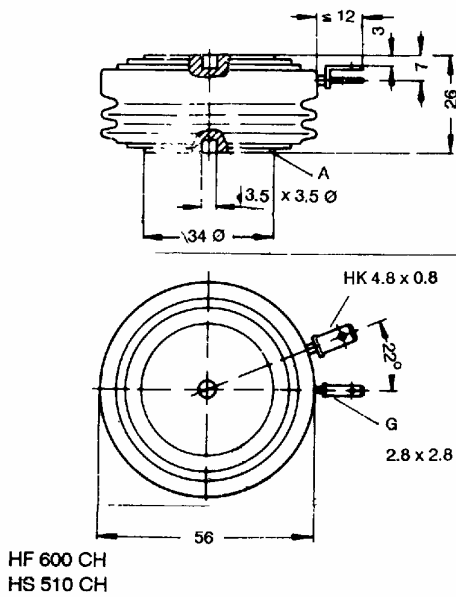


Figure No. 10

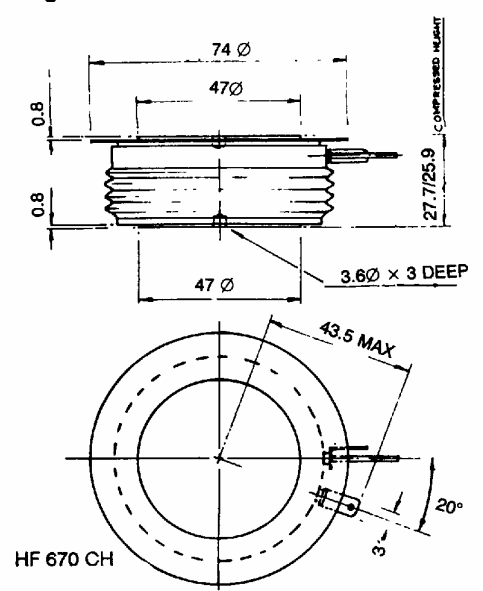


Figure No. 11

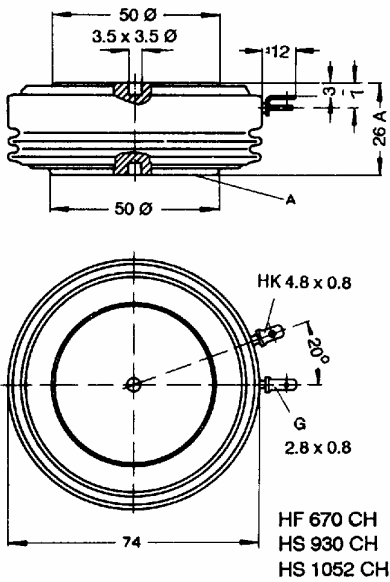


Figure No. 12

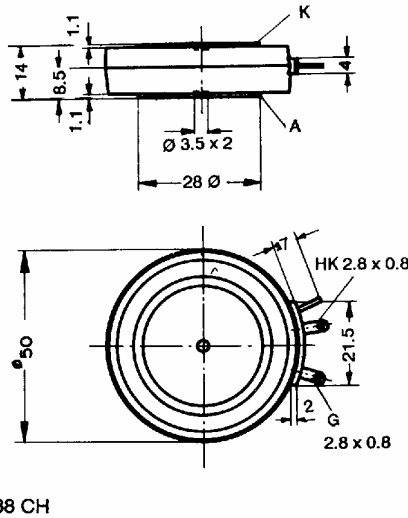
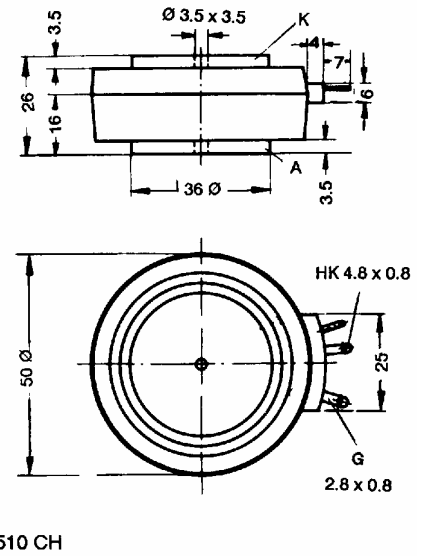


Figure No. 13



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