

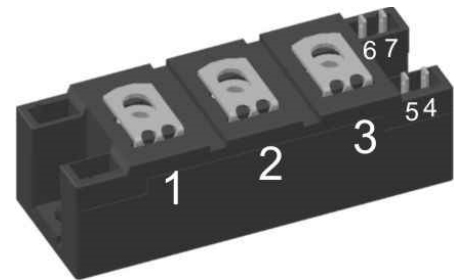
Thyristor Module

$$\begin{aligned} V_{RRM} &= 2 \times 800 \text{ V} \\ I_{TAV} &= 130 \text{ A} \\ V_T &= 1.08 \text{ V} \end{aligned}$$

Phase leg

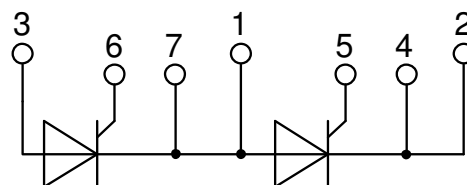
Part number

MCC132-08io1



Backside: isolated

 E72873



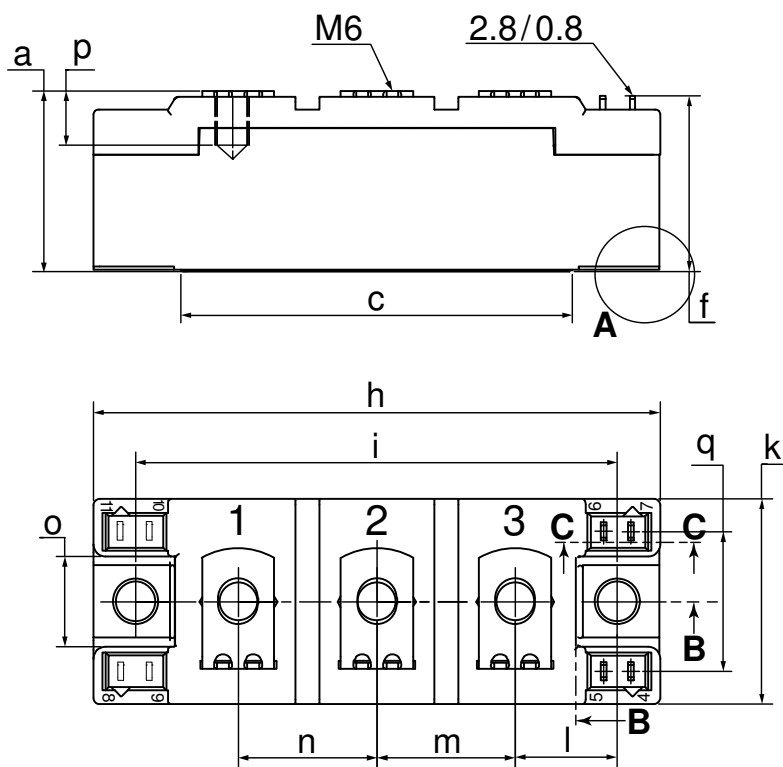
Features / Advantages:

- Thyristor for line frequency
- Planar passivated chip
- Long-term stability
- Direct Copper Bonded Al₂O₃-ceramic

Thyristor				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM/DSM}$	max. non-repetitive reverse/forward blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				900	V
$V_{RRM/DRM}$	max. repetitive reverse/forward blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				800	V
$I_{R/D}$	reverse current, drain current	$V_{R/D} = 800\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			200	μA
		$V_{R/D} = 800\text{ V}$	$T_{VJ} = 125^{\circ}\text{C}$			10	mA
V_T	forward voltage drop	$I_T = 150\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			1.14	V
		$I_T = 300\text{ A}$				1.36	V
		$I_T = 150\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			1.08	V
		$I_T = 300\text{ A}$				1.36	V
I_{TAV}	average forward current	$T_C = 85^{\circ}\text{C}$	$T_{VJ} = 125^{\circ}\text{C}$			130	A

Package Y4				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal				300	A
T_{VJ}	virtual junction temperature			-40		125	°C
T_{op}	operation temperature			-40		100	°C
T_{stg}	storage temperature			-40		125	°C
Weight					150		g
M_D	mounting torque			2.25		2.75	Nm
M_T	terminal torque			4.5		5.5	Nm
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal		14.0	10.0		mm
$d_{Spb/Apb}$		terminal to backside		16.0	16.0		mm
V_{ISOL}	isolation voltage	t = 1 second		3600			V

Outlines Y4



Dim.	MIN [mm]	MAX [mm]	MIN [inch]	MAX [inch]
a	30.0	30.6	1.181	1.205
b	typ. 0.25		typ. 0.010	
c	64.0	65.0	2.520	2.559
d	6.5	7.0	0.256	0.275
e	4.9	5.1	0.193	0.201
f	28.6	29.2	1.126	1.150
g	7.3	7.7	0.287	0.303
h	93.5	94.5	3.681	3.720
i	79.5	80.5	3.130	3.169
j	4.8	5.2	0.189	0.205
k	33.4	34.0	1.315	1.339

Thyristor

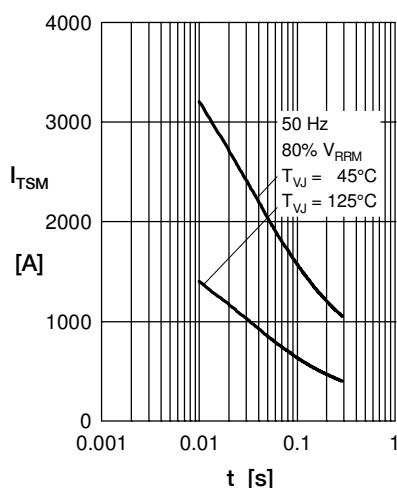


Fig. 1 Surge overload current I_{TSM} ,
 I_{FSM} : Crest value, t : duration

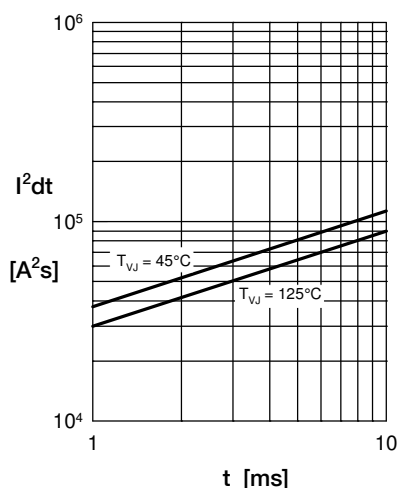


Fig. 2 I^2t versus time (1-10 ms)

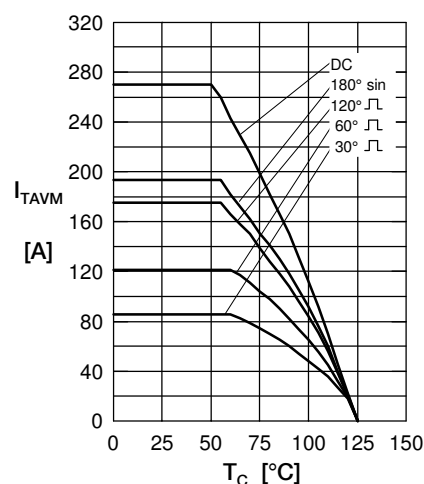


Fig. 3 Max. forward current at case temperature

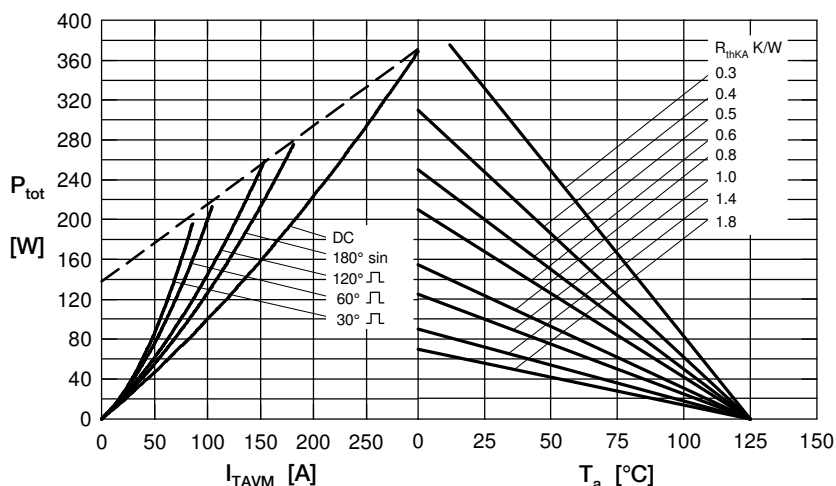


Fig. 4 Power dissipation vs. on-state current &

Thyristor

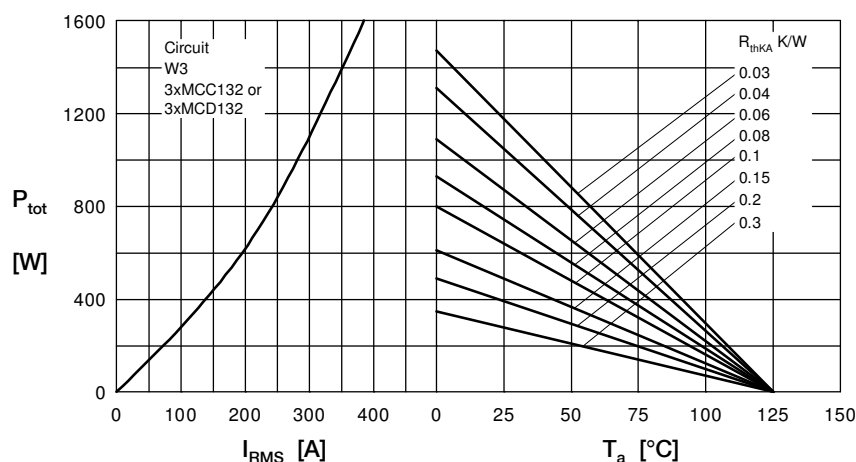


Fig. 8 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

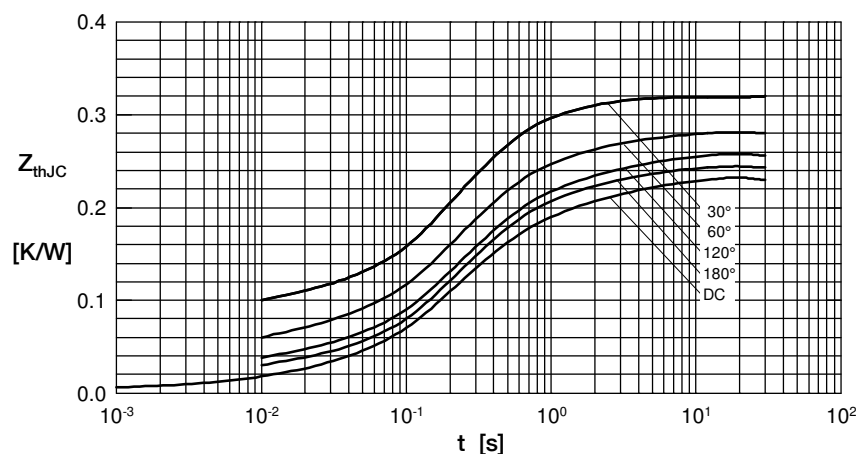


Fig. 9 Transient thermal impedance junction to case (per thyristor/diode)

R_{thJC} for various conduction angles d :

d	R_{thJC} [K/W]
DC	0.230
180°	0.244
120°	0.255
60°	0.283
30°	0.321

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	0.0095	0.001
2	0.0175	0.065

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