

Thyristor Module

$$V_{RRM} = 1600 \text{ V}$$

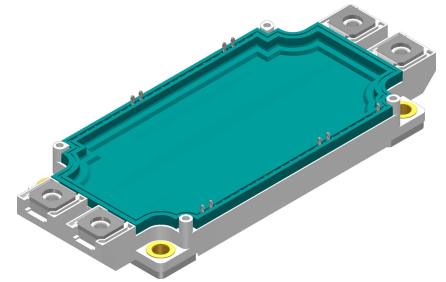
$$I_{TAV} = 150 \text{ A}$$

$$V_T = 1.35 \text{ V}$$

AC Controlling
 2~ full-controlled

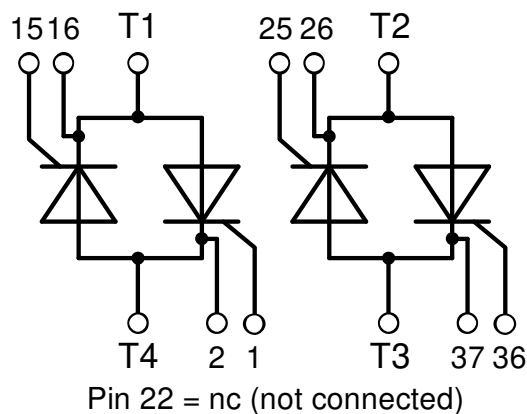
Part number

MCMA300MC1600PSF



Backside: isolated

 E72873



Features / Advantages:

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

Applications:

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Package: SimBus F

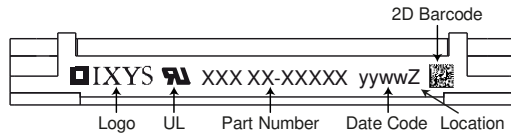
- Isolation Voltage: 4300 V~
- Industry standard outline
- RoHS compliant
- PressFit-Pins for PCB mounting
- Height: 17 mm
- Base plate: Copper internally DCB isolated
- Advanced power cycling
- Phase Change Material available

Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.



Package SimBus F		Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			300	A
T_{VJ}	virtual junction temperature		-40		150	°C
T_{op}	operation temperature		-40		125	°C
T_{stg}	storage temperature		-40		125	°C
Weight				350		g
M_D	mounting torque		3		6	Nm
M_T	terminal torque		3		6	Nm
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	13.3	10.0		mm
$d_{Spb/Apb}$		terminal to backside	10.2	10.2		mm
V_{ISOL}	isolation voltage	t = 1 second		4300		V
		t = 1 minute	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	3600		V



Part description

- M = Module
- C = Thyristor (SCR)
- M = Thyristor
- A = (up to 1800V)
- 300 = Current Rating [A]
- MC = 2~ full-controlled
- 1600 = Reverse Voltage [V]
- P = PressFit-Pin
- SF = SimBus F

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MCMA300MC1600PSF	MCMA300MC1600PSF	Blister	24	525675
Alternative	MCMA300MC1600PSF-PC	MCMA300MC1600PSF	Blister	24	

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^{\circ}C$

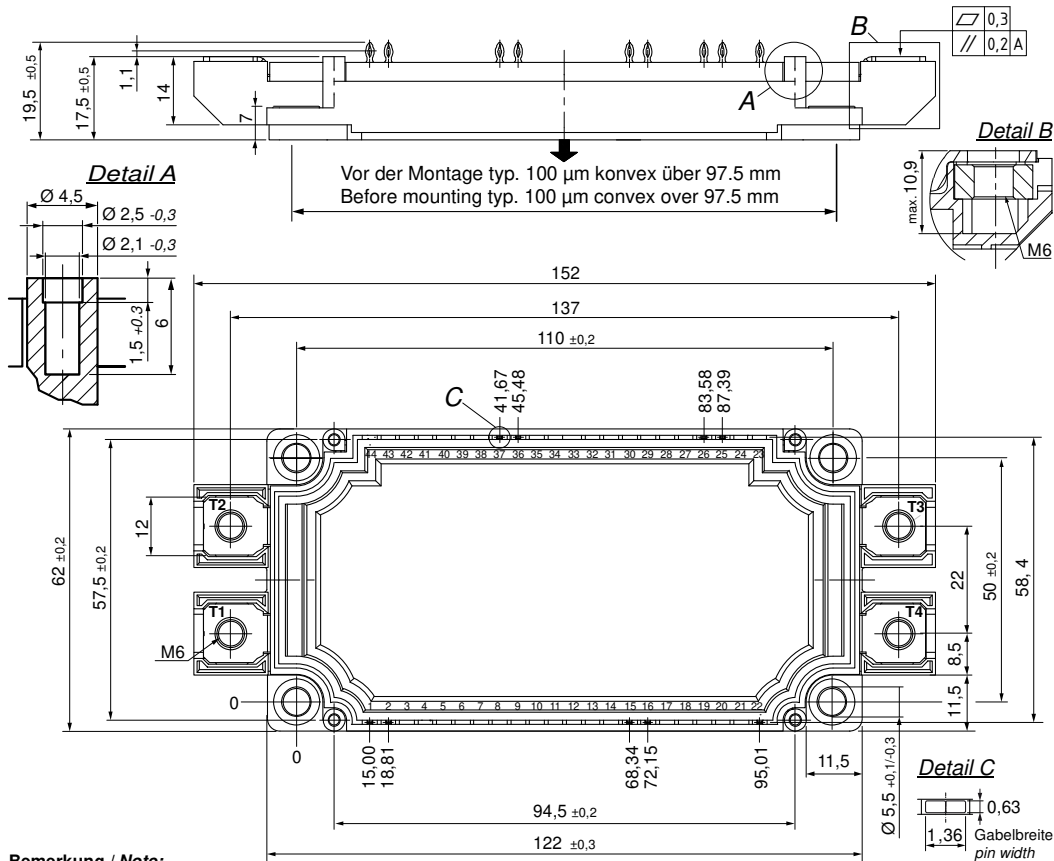


Thyristor

$V_{0\ max}$	threshold voltage	0.9	V
$R_{0\ max}$	slope resistance *	1.48	mΩ



Outlines SimBus F

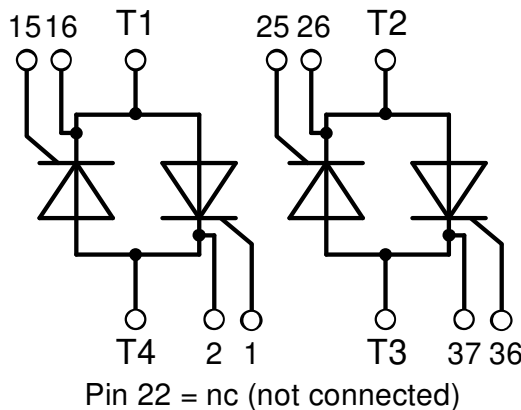


Bemerkung / Note:

- Nichttolerierete Maße nach / Measure w/o tolerances acc. DIN ISO 2768-T1-m
- PCB-Lochmuster / PCB hole pattern: see pin position
- Toleranz Pin-Position und PCB-Lochmuster / Tolerance of pin position and PCB hole pattern: $\oplus 0.1$
- Bohrlochdurchmesser / Diameter of drill: $\varnothing 1.16$ mm
- Endlochdurchmesser / Diameter of plated holes: $\varnothing 1.00 - 1.10$ mm (Cu thickness in via typ. 50 μ m)
- Beschichtung / Plating: chem. Sn max. 15 μ m
- Einpresskraft / Insert Force: per terminal with a typ. insert speed of 1 mm/s: typ. 90 N
- Weitere Angaben / Further information: www.ixys.com Application note IXAN0077
- Montageanleitung / Mounting instruction: www.ixys.com Application note IXAN0024

Detail A: PCB-Montage / Mounting on PCB^L

- Empfohlene, selbstschneidende Schraube / Recommended, self-tapping screw: **EJOT PT®** (Größe / size: **K25**)^L
- Max. Schraubenlänge / Max. screw length: **PCB-Dicke / thickness + 6 mm** (max. Lochtiefe / hole depth)^L
- Empfohlenes Drehmoment / Recommended mounting torque: **1.5 Nm**



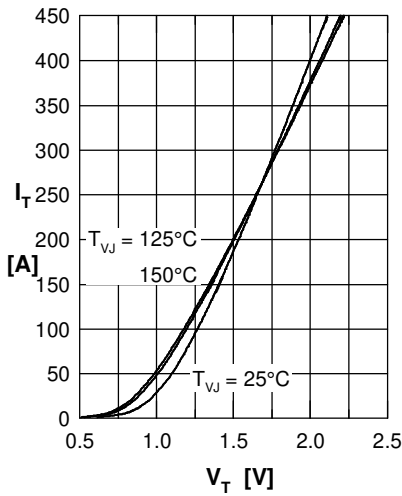
Thyristor


Fig. 1 Forward characteristics

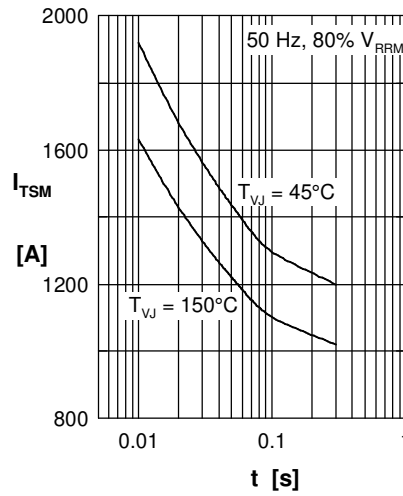
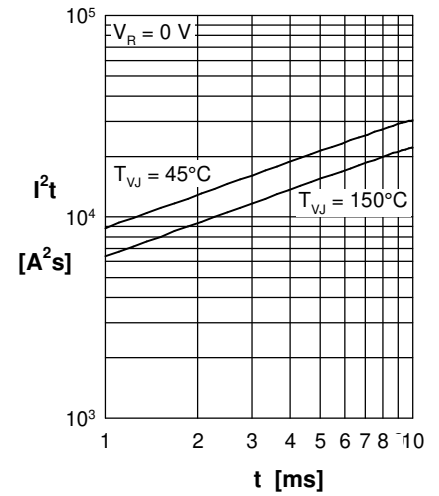
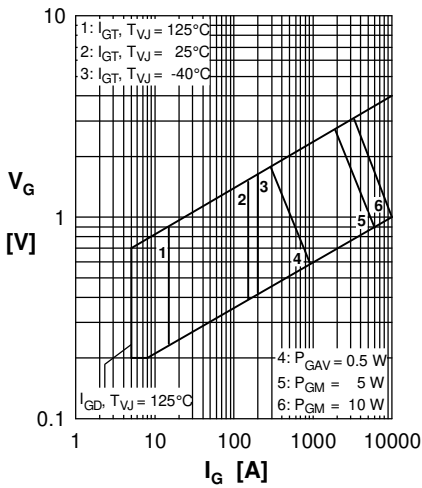

 Fig. 2 Surge overload current
 I_{TSM} : crest value, t : duration

 Fig. 3 I^2t versus time (1-10 s)


Fig. 4 Gate voltage & gate current

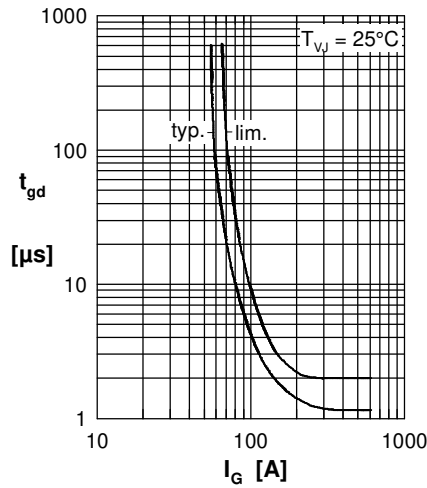
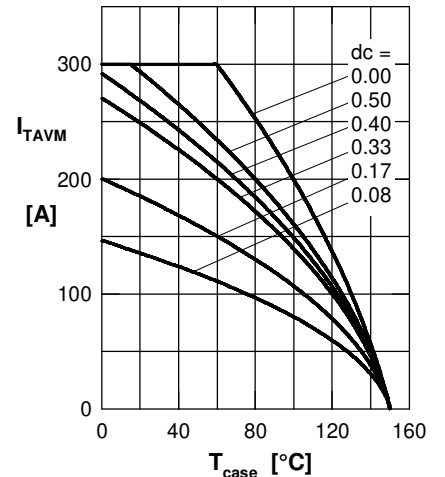

 Fig. 5 Gate controlled delay time t_{gd}


Fig. 6 Max. forward current at case temperature

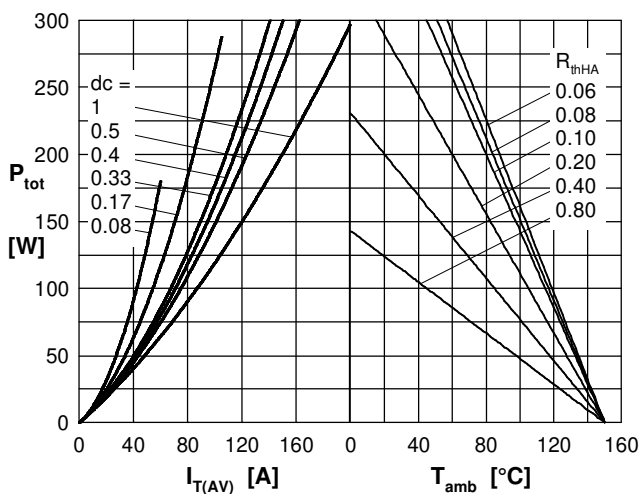
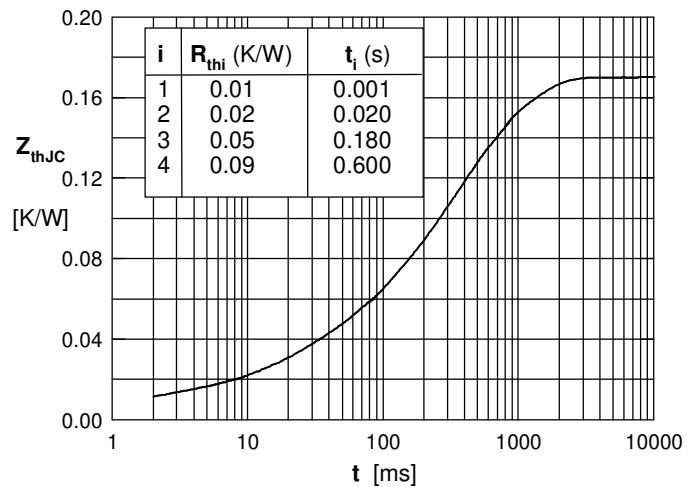

 Fig. 7a Power dissipation versus direct output current
 Fig. 7b and ambient temperature


Fig. 8 Transient thermal impedance junction to case