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With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Thyristor Module

= 2x 1600 V

25 A

 V_{τ} 1.2 V

Phase leg

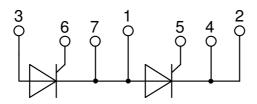
Part number

MCMA25P1600TA



Backside: isolated





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: TO-240AA

- Isolation Voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Soldering pins for PCB mounting
- Base plate: DCB ceramic
- · Reduced weight
- Advanced power cycling

Terms _Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact your local sales office.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

to perform joint risk and quality assessments;
the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

IXYS reserves the right to change limits, conditions and dimensions.

Data according to IEC 60747 and per semiconductor unless otherwise specified

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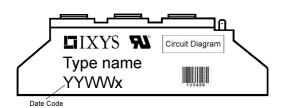


Thyristo				' 1	Ratings	5	1
Symbol	Definition	Conditions		min.	typ.	max.	Uni
V _{RSM/DSM}	max. non-repetitive reverse/forwa	ard blocking voltage	$T_{VJ} = 25^{\circ}C$			1700	١
V _{RRM/DRM}	max. repetitive reverse/forward bl	locking voltage	$T_{VJ} = 25^{\circ}C$			1600	٧
R/D	reverse current, drain current	$V_{\text{R/D}} = 1600 \text{ V}$	$T_{VJ} = 25^{\circ}C$			100	μA
		$V_{R/D} = 1600 \text{ V}$	$T_{VJ} = 140$ °C			4	m <i>P</i>
V _T	forward voltage drop	$I_T = 25 A$	$T_{VJ} = 25^{\circ}C$			1.22	٧
		$I_T = 50 \text{ A}$				1.47	\
		$I_T = 25 A$	T _{VJ} = 125°C			1.20	٧
		$I_T = 50 \text{ A}$				1.52	١
I _{TAV}	average forward current	$T_{C} = 85^{\circ}C$	$T_{VJ} = 140$ °C			25	P
T(RMS)	RMS forward current	180° sine				40	P
V _{T0}	threshold voltage		$T_{VJ} = 140$ °C			0.87	١
r _T	slope resistance	oss calculation only				13	mΩ
R _{thJC}	thermal resistance junction to cas	se				1.2	K/W
R _{thCH}	thermal resistance case to heatsi	nk			0.20		K/W
P _{tot}	total power dissipation		$T_{C} = 25^{\circ}C$			90	W
I _{TSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}C$			400	A
		t = 8.3 ms; (60 Hz), sine	$V_R = 0 V$			430	A
		t = 10 ms; (50 Hz), sine	T _{VJ} = 140°C			340	P
		t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			365	P
²t	value for fusing	t = 10 ms; (50 Hz), sine	$T_{VJ} = 45^{\circ}C$			800	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			770	A ² s
		t = 10 ms; (50 Hz), sine	T _{VJ} = 140°C			580	A ² s
		t = 8,3 ms; (60 Hz), sine	$V_R = 0 V$			555	A ² s
C,	junction capacitance	$V_R = 400 V$ f = 1 MHz	$T_{VJ} = 25^{\circ}C$		16		рF
P _{GM}	max. gate power dissipation	t _P = 30 μs	T _C = 140°C			10	W
		$t_{P} = 300 \mu s$				5	W
P_{GAV}	average gate power dissipation					0.5	W
(di/dt) _{cr}	critical rate of rise of current	$T_{VJ} = 125 ^{\circ}\text{C}; f = 50 \text{Hz}$	epetitive, $I_T = 75 A$			150	A/µs
	$t_P = 200 \mu s; di_G/dt = 0.45 A/\mu s;$						
		$I_G = 0.45 \text{ A}; V = \frac{2}{3} V_{DRM}$ n	on-repet., $I_{T} = 25 \text{ A}$			500	A/μs
(dv/dt) _{cr}	critical rate of rise of voltage	$V = \frac{2}{3} V_{DRM}$	T _{VJ} = 125°C			1000	V/µs
. ,		R _{GK} = ∞; method 1 (linear volta	nge rise)				
V _{GT}	gate trigger voltage	$V_D = 6 \text{ V}$	$T_{VJ} = 25$ °C			1.5	\
.			$T_{VJ} = -40$ °C			1.6	\
I _{GT}	gate trigger current	$V_D = 6 V$	$T_{VJ} = 25^{\circ}C$			55	m/
- 01	0 00		$T_{VJ} = -40$ °C			80	m/
V _{GD}	gate non-trigger voltage	$V_D = \frac{2}{3} V_{DRM}$	T _{VJ} = 140°C			0.2	٧
I _{GD}	gate non-trigger current	יאותט - י ט	VJ			5	m <i>P</i>
I _L	latching current	t _p = 10 μs	T _{VJ} = 25°C			150	m <i>A</i>
'L	ratering current	$I_{\rm G} = 0.45 \text{A}; \text{di}_{\rm G}/\text{dt} = 0.45 \text{A}/\mu \text{s}$				150	1117
ı	holding current	$V_D = 6 \text{ V } R_{GK} = \infty$	$T_{VJ} = 25^{\circ}C$			100	m <i>A</i>
l _н •	gate controlled delay time		$T_{VJ} = 25 \text{C}$ $T_{VJ} = 25 \text{C}$			2	į
t _{gd}	gate controlled delay little	$V_D = \frac{1}{2} V_{DRM}$					με
t _q	turn-off time	$I_{\rm G} = 0.45 \text{A}; di_{\rm G}/dt = 0.45 \text{A/}\mu$			450		-
-	turri-on ume	$V_R = 100 \text{ V}; I_T = 25 \text{ A}; V = \frac{2}{3}$	/з V _{DRM} I _{VI} = 125 °C	1	150		μs



MCMA25P1600TA

Package TO-240AA			Ratings					
Symbol	Definition	Conditions			min.	typ.	max.	Unit
I _{RMS}	RMS current	per terminal					60	Α
T _{VJ}	virtual junction temperature	;			-40		140	°C
T _{op}	operation temperature				-40		125	°C
T _{stg}	storage temperature				-40		125	°C
Weight						81		g
M _D	mounting torque				2.5		4	Nm
\mathbf{M}_{T}	terminal torque				2.5		4	Nm
d _{Spp/App}	araanaga diatanaa an aurfa	ace striking distance through air	terminal to terminal	13.0	9.7			mm
d _{Spb/Apb}	creepage distance on surra	ice Striking distance through an	terminal to backside	16.0	16.0			mm
V _{ISOL}	isolation voltage	t = 1 second	50/00 II 5040 I	4800				٧
1002		t = 1 minute	50/60 Hz, RMS; lisoL ≤ 1 mA		4000			٧



Part description

M = Module

M = Module
C = Thyristor (SCR)
M = Thyristor
A = (up to 1800V)
25 = Current Rating [A]
P = Phase leg
1600 = Reverse Voltage [V]

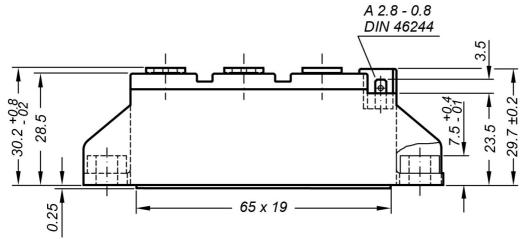
TA = TO-240AA-1B

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MCMA25P1600TA	MCMA25P1600TA	Box	36	514474

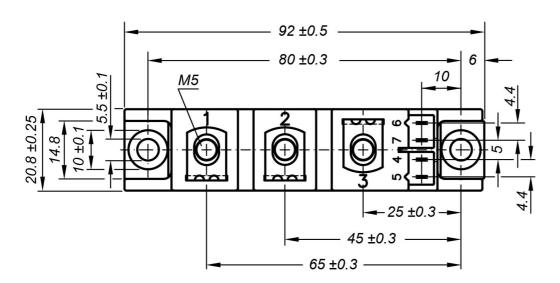
Equiva	alent Circuits for	Simulation	* on die level	$T_{VJ} = 140 ^{\circ}\text{C}$
$I \rightarrow V_0$)—[R_o_]-	Thyristor		
V _{0 max}	threshold voltage	0.87		V
R_{0max}	slope resistance *	11.8		mΩ



Outlines TO-240AA

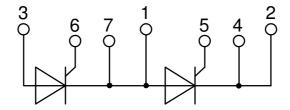


General tolerance: DIN ISO 2768 class "c"



Optional accessories: Keyed gate/cathode twin plugs Wire length: 350 mm, gate = white, cathode = red UL 758, style 3751

Type **ZY 200L** (L = Left for pin pair 4/5) Type **ZY 200R** (R = Right for pin pair 6/7)





Thyristor

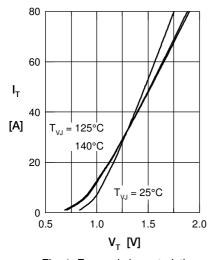


Fig. 1 Forward characteristics

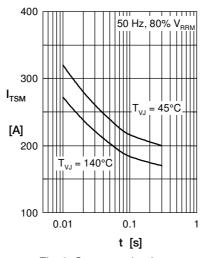


Fig. 2 Surge overload current $\mathbf{I}_{\mathrm{TSM}}\!\!:$ crest value, t: duration

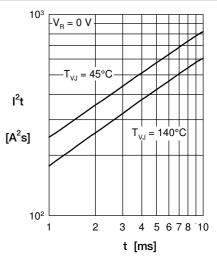


Fig. 3 I^2 t versus time (1-10 s)

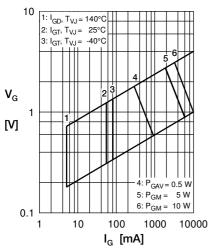


Fig. 4 Gate voltage & gate current

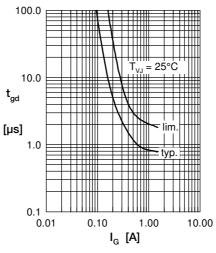


Fig. 5 Gate controlled delay time t_{ad}

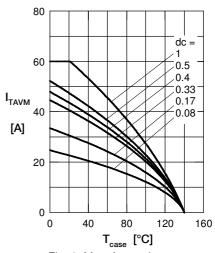


Fig. 6 Max. forward current at case temperature

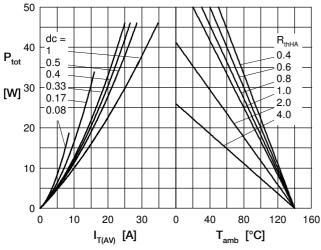


Fig. 7a Power dissipation versus direct output current Fig. 7b and ambient temperature

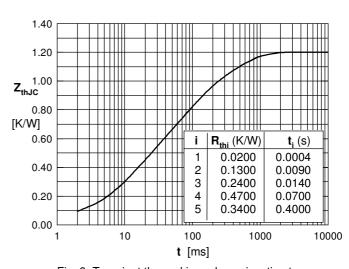


Fig. 8 Transient thermal impedance junction to case