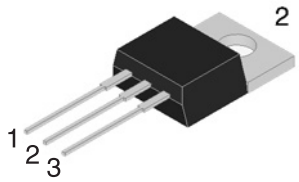
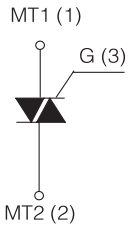
HIGH TEMPERATURE HIGH COMMUTATION TRIAC

TO-220AB





On-State Current	Gate Trigger Current
16 Amp	≤ 50 mA

Off-Satate Voltage
400 V ÷ 800V

FEATURES
- High junction temperature
- Glass/passivated die junctions
- Medium current Triac
- Low thermal resistance
- High commutation
- High surge current capability
- Low forward voltaje drop
- Solder dip 260 ºC, 10s
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC
- Meets MSL level 3, per J-STD-020, LF maximum peak of 260 ºC

Pb e3 **RoHS** COMPLIANT

MECHANICAL DATA
- **Case:** TO-220AB. Epoxy meets UL 94V-0 flammability rating.
- **Polarity:** As marked on the body.
- **Terminals:** Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.

TYPICAL APPLICATIONS
- Used on inductive loads, thanks to their high commutation performances.

Maximun Ratings and Electrical Characteristics at 25 °C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	RMS On-State Current (full sine wave)	All Conduction Angle, T_c = 110 ºC	16	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz (t = 16.7 ms)	168	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz (t = 20 ms)	160	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	144	A^2s
I_{GM}	Peak Gate Current	20 µs max. Tj = 125 ºC	4	A
$P_{G(AV)}$	Average Gate Power Dissipation	Tj = 125 ºC	1	W
dI/dt	Critical rate of rise of on-state current	I_G = 2X I_{GT}, t_r ≤ 100ns f = 120 Hz, T_j = 125 ºC	50	A/µs
T_j	Operating Temperature		(-40 + 150)	ºC
T_{stg}	Storage Temperature		(-40 + 150)	ºC
T_{sld}	Soldering Temperature	10s max.	260	ºC

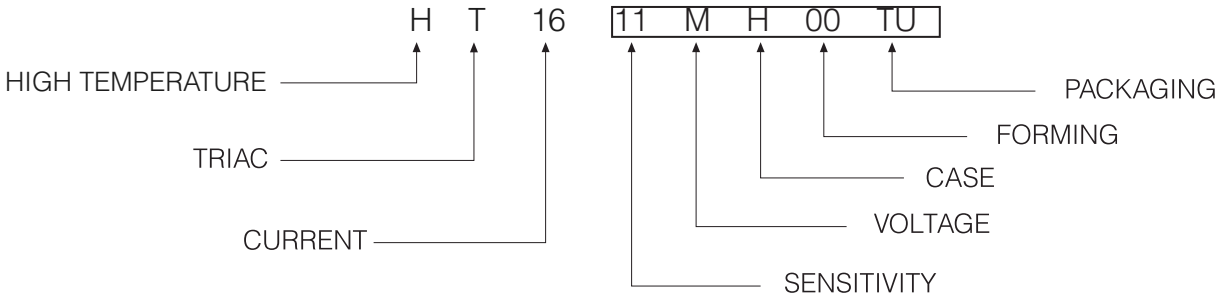
SYMBOL	PARAMETER	Voltage		Unit
		M	N	
V_{DRM} / V_{RRM}	Repetitive Peak Off State Voltage	600	800	V

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	Qua-drant		SENSITIVITY			Unit
					11	14	16	
I_{GT} (1)	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω, Tj = 25 ºC	Q1÷Q3	MAX	20	35	50	mA
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC}, R_L = 33Ω, Tj = 25 ºC	Q1÷Q3	MAX		1.5		V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM}, R_L = 3.3kΩ, Tj = 125 ºC	Q1÷Q3	MIN		0.2		V
I_H (2)	Holding Current	I_T = 100 mA, Gate open, Tj = 25 ºC		MAX	30	45	70	mA
I_L	Latching Current	I_G = 1.2 I_{GT}, Tj = 25 ºc	Q1, Q3	MAX				mA
			Q2	MAX	55	70	100	mA
dV / dt(2)	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open, Tj = 150 ºC		MIN	500	1000	1500	V/µs
V_{TM} (2)	On-State Voltage	I_T = 22,5 Amp, tp = 380 µs, Tj = 25 ºC		MAX	1,4			V
$V_{t(0)}$ (2)	Threshold Voltage	Tj = 150 ºC		MAX	0,85			V
r_d (2)	Dynamic resistance	Tj = 150 ºC		MAX	25			mΩ
I_{DRM} / I_{RRM}	Off-State Leakage Current	V_D = V_{DRM}, Tj = 150 ºC V_R = V_{RRM}, Tj = 25 ºC		MAX MAX	2 5			mA µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case	for AC 360º conduction angle			12			ºC/W
$R_{th(j-a)}$	Thermal Resistance Junction-Ambient				60			ºC/W

(1) Minimum I_{GT} is guaranted at 5% of I_{GT} max.
(2) For either polarity of electrode MT2 voltage with reference to electrode MT1.

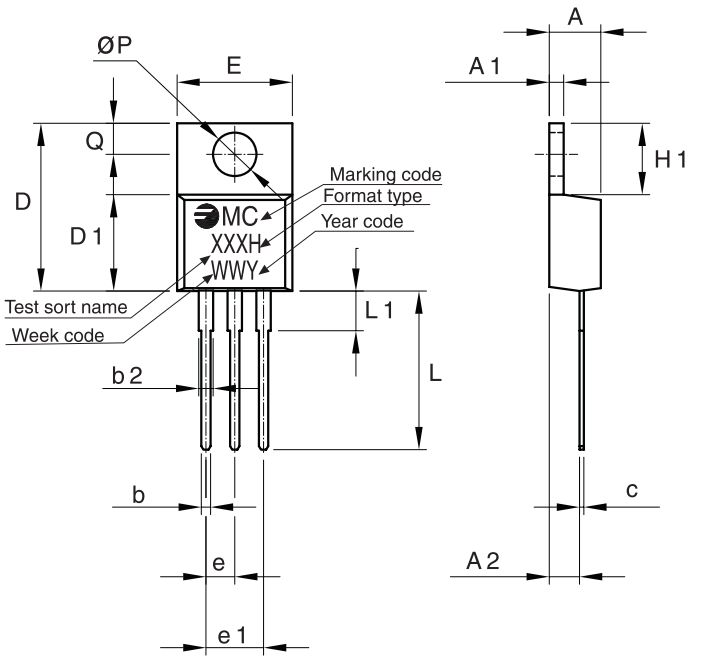
Part Number Information



Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
HT1616MH 00TU	TU	TUBE	1000	2.30

Package Outline Dimensions: (mm) TO-220AB



REF.	DIMENSIONS Milimeters	
	Min.	Max.
A	4.40	4.67
A1	1.17	1.37
A2	2.60	3.00
	0.71	0.91
b2	1.17	1.37
c	0.31	0.70
D	14.65	15.35
D1	8.50	9.70
E	10.01	10.36
e	2.51	2.57
e1	4.98	5.18
H1	6.15	6.60
L	13.40	13.96
L1	3.56	3.96
P	3.735	3.80
Q	2.65	2.95

Mounting Torque	0.8 N.m

Ratings and Characteristics (Ta 25 °C unless otherwise noted)

Fig. 1: Maximum power dissipation versus RMS on-state curren (full cycle).

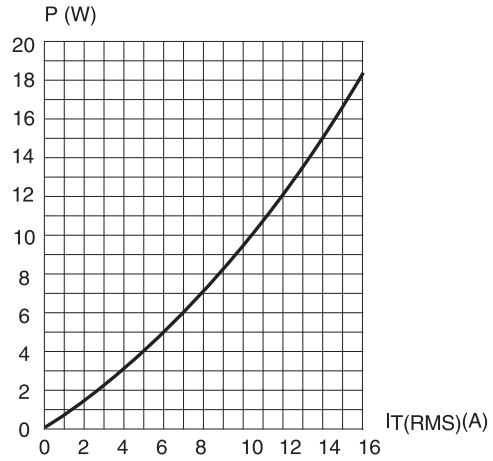


Fig. 2: RMS on-state current versus case temperature (full cycle).

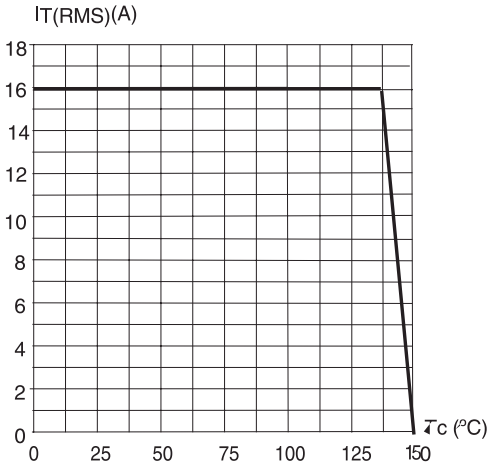


Fig. 3: : Relative variation of thermal impedance versus pulse duration.

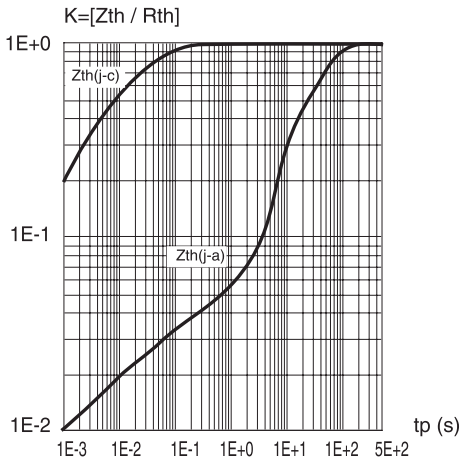


Fig. 4: On-state characteristics (maximum values)

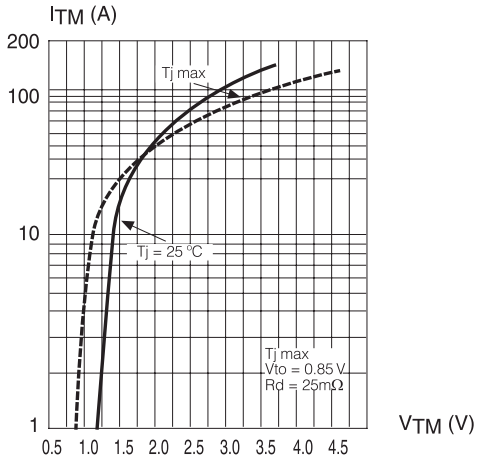


Fig. 5: Surge peak on-state current versus number of cycles

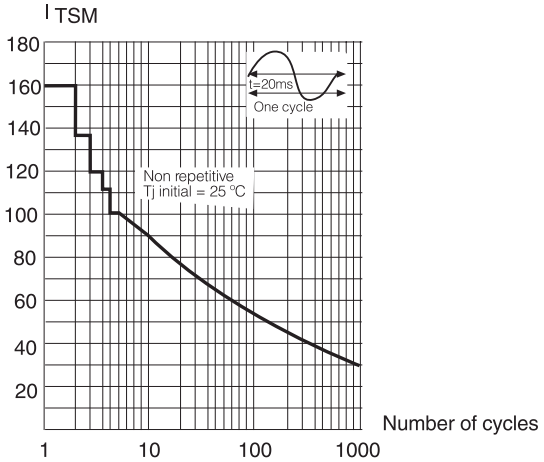
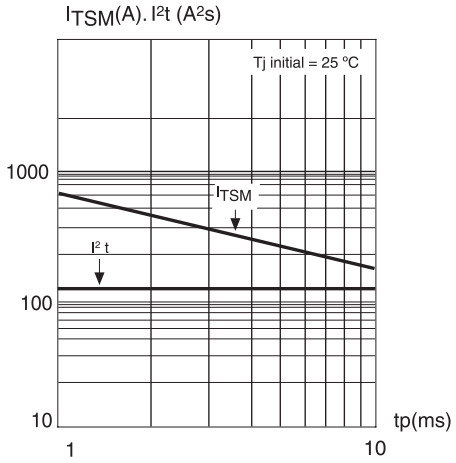


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I^2t.



Ratings and Characteristics (Ta 25 °C unless otherwise noted)

Fig. 7: Relative variation of gate trigger current, holding current and latching versus junction temperature (typical values)

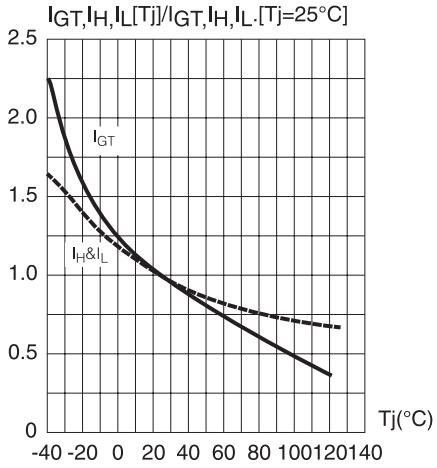
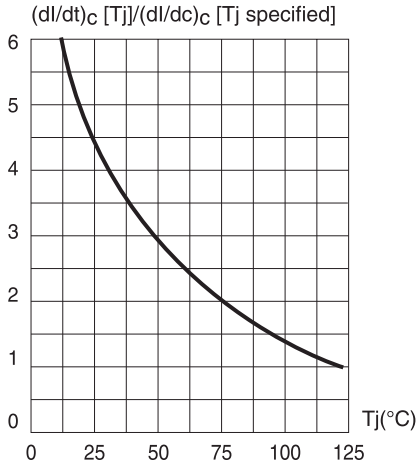


Fig. 8: Relative variation of critical rate of decrease of main current versus junction temperature



Revision History

DATE	REVISION	DESCRIPTION OF CHANGES
1-Sep-2020	0	Original Data Sheet

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