

Table 1: Main Features

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
V_{DRM}/V_{RRM}	600	V
$I_{GT}(Q_1)$	5	mA

DESCRIPTION

The **Z00607MA** is suitable for low power AC switching applications, such as fan speed, small light controllers...

Thanks to low gate triggering current, it can be directly driven by microcontrollers.

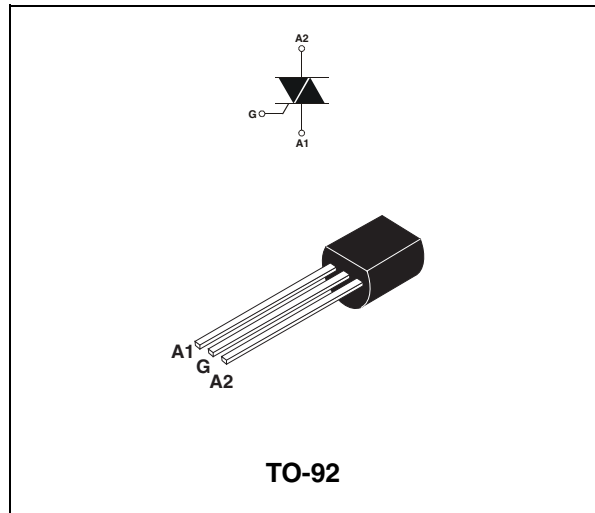


Table 2: Order Codes

Part Numbers	Marking
Z00607MA 1BA2	Z00607MA
Z00607MA 2BL2	Z00607MA
Z00607MA 5BL2	Z00607MA

Table 3: Absolute Maximum Ratings

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (full sine wave)		$T_I = 50^\circ\text{C}$	0.8	A
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = 25°C)	F = 50 Hz	t = 20 ms	9	A
		F = 60 Hz	t = 16.7 ms	9.5	
I^2t	I^2t Value for fusing	$t_p = 10$ ms		0.45	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100$ ns	F = 120 Hz	$T_j = 110^\circ\text{C}$	20	A/ μs
I_{GM}	Peak gate current	$t_p = 20$ μs	$T_j = 110^\circ\text{C}$	1	A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 110^\circ\text{C}$	0.1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 110		$^\circ\text{C}$

Tables 4: Electrical Characteristics ($T_j = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	Quadrant		Value	Unit
I_{GT} (1)	$V_D = 12\text{ V}$ $R_L = 30\ \Omega$	I - II - III	MAX.	5	mA
		IV		7	
V_{GT}		ALL	MAX.	1.3	V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 110^\circ\text{C}$	ALL	MIN.	0.2	V
I_H (2)	$I_T = 200\text{ mA}$		MAX.	5	mA
I_L	$I_G = 1.2 I_{GT}$	I - III - IV	MAX.	10	mA
		II		20	
dV/dt (2)	$V_D = 67\% V_{DRM}$ gate open $T_j = 110^\circ\text{C}$		MIN.	10	V/ μs
(dI/dt) _c (2)	(dV/dt) _c = 0.35 A/ms $T_j = 110^\circ\text{C}$		MIN.	1.5	A/ms

Table 5: Static Characteristics

Symbol	Test Conditions			Value	Unit	
V_{TM} (2)	$I_{TM} = 1.1\text{ A}$	$t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.5	V
V_{to} (2)	Threshold voltage		$T_j = 110^\circ\text{C}$	MAX.	0.95	V
R_d (2)	Dynamic resistance		$T_j = 110^\circ\text{C}$	MAX.	420	m Ω
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM} = 600\text{ V}$		$T_j = 25^\circ\text{C}$	MAX.	5	μA
			$T_j = 110^\circ\text{C}$		0.1	mA

Note 1: minimum I_{GT} is guaranteed at 5% of I_{GT} max.

Note 2: for both polarities of A2 referenced to A1.

Table 6: Thermal resistances

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead (A.C.)	60	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient	150	$^\circ\text{C/W}$

Figure 1: Maximum power dissipation versus RMS on-state current (full cycle)

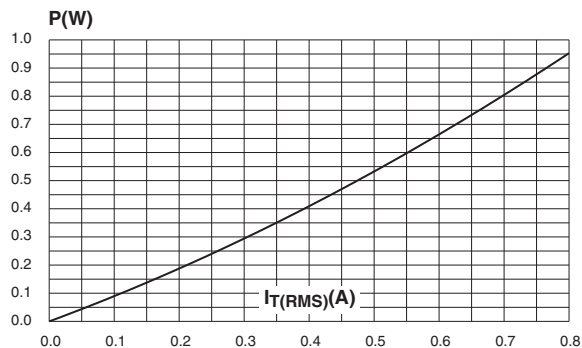


Figure 2: RMS on-state current versus ambient temperature (full cycle)

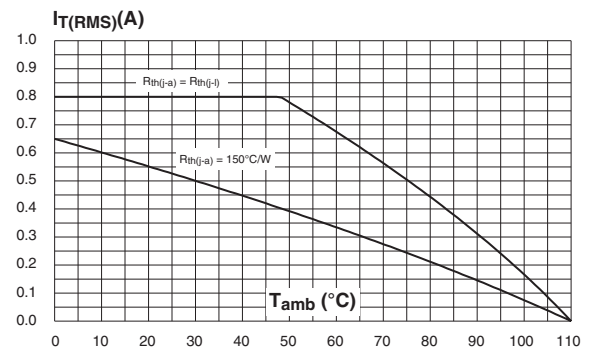


Figure 3: Relative variation of thermal impedance versus pulse duration

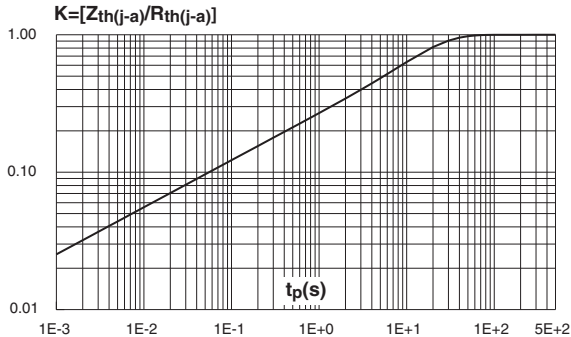


Figure 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

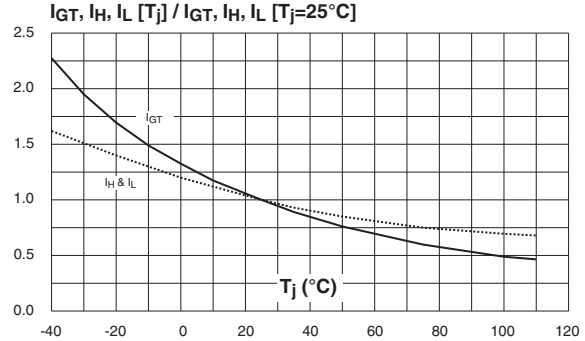


Figure 5: Surge peak on-state current versus number of cycles

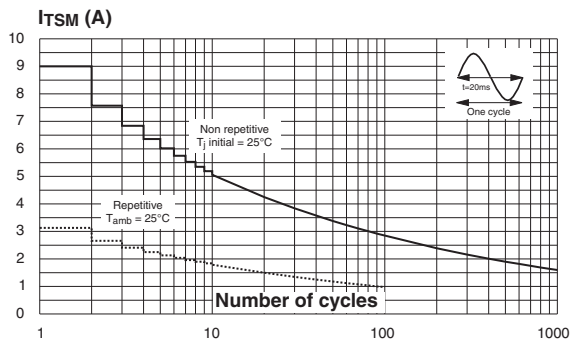


Figure 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms and corresponding value of I²t

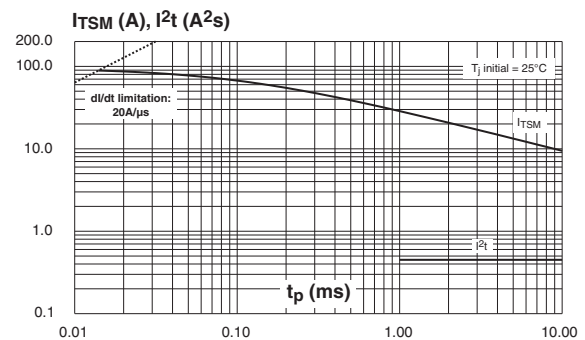


Figure 7: On-state characteristics (maximum values)

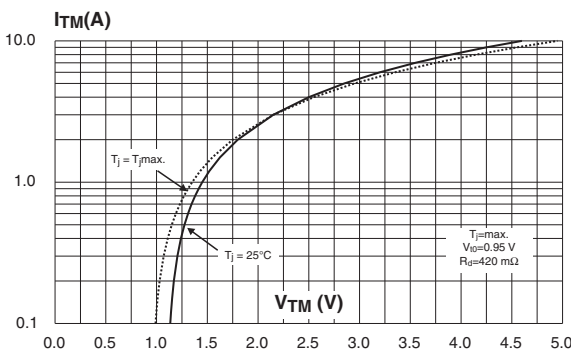


Figure 8: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values)

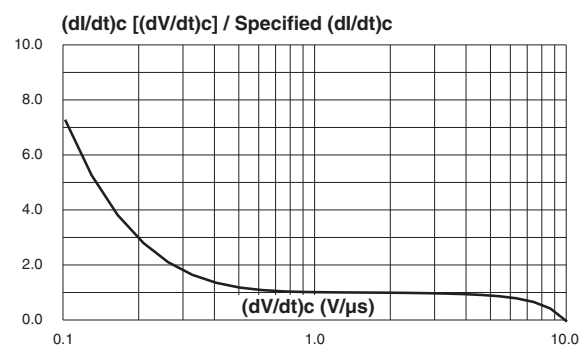


Figure 9: Relative variation of critical rate of decrease of main current versus junction temperature

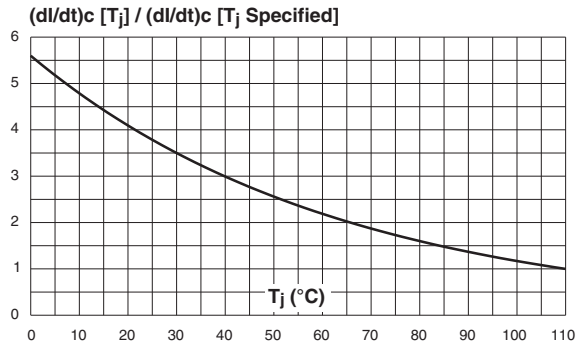


Figure 10: Ordering Information Scheme

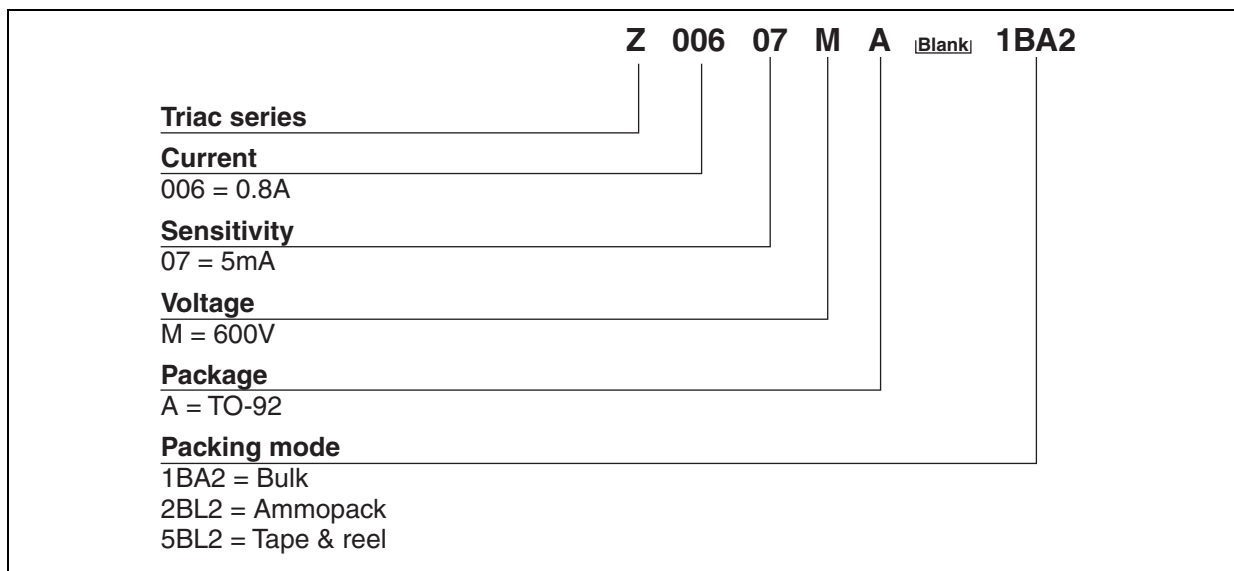


Table 7: Product Selector

Part Number	Voltage	Sensitivity	Type	Package
Z00607MA	600 V	5 mA	Standard	TO-92

Figure 11: TO-92 Package Mechanical Data

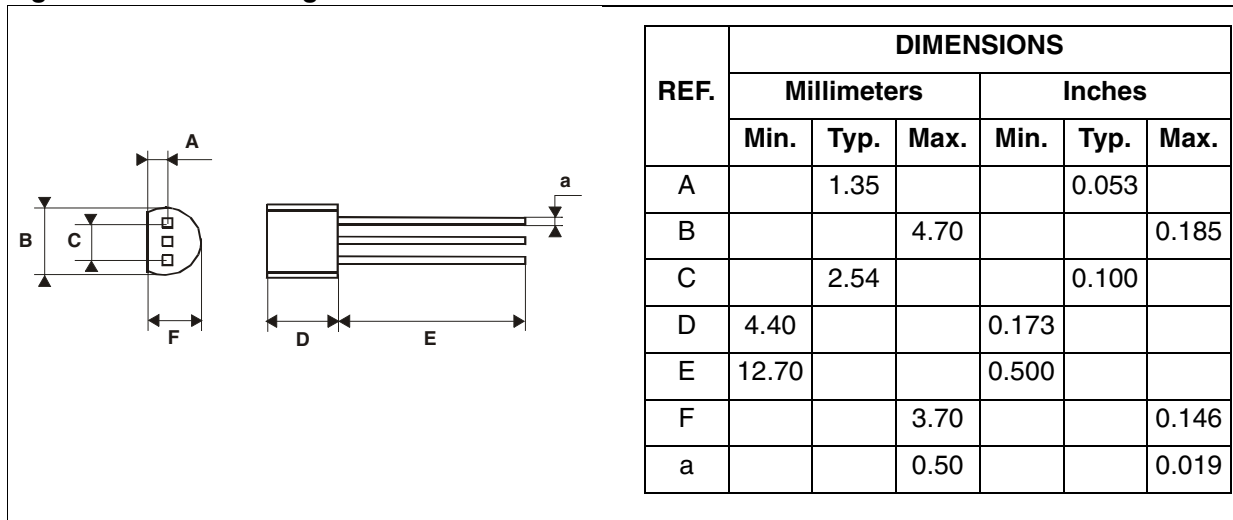


Table 8: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
Z00607MA 1BA2	Z0607MA	TO-92	0.2 g	2500	Bulk
Z00607MA 2BL2	00607MA			2000	Ammopack
Z00607MA 5BL2	Z0607MA			2000	Tape & reel

Table 9: Revision History

Date	Revision	Description of Changes
Oct-2001	4	Last update.
25-Mar-2005	5	Package: TO-92 tape & reel delivery mode 5BL2 added.
21-Jun-2005	6	Markings updated from Z006xxxx to Z06xxxx

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